1.0 PROJECT ORIGINATION

The south wing of the Main Building was constructed by the Spokane School District in 1958, providing the facility infrastructure for what was to become Spokane Community College in 1963. Most of the other campus buildings were constructed between 1972 and 1976. Over the course of the last 58 years the Main building has undergone two major additions, adding an east wing in 1963 and the Business and Industrial addition in 1992. Additionally, square footage was added to the south wing to enhance space for the culinary program. There have also been numerous department improvements throughout all wings of the building over several decades.

Year	Description of Work	Construction Materials
	Original Building - West Wing	Concrete and CMU
1957	South Wing	Concrete, steel bar joists and CMU
1962	East Wing - Shop	Concrete, steel bar joists, steel girders and trusses and CMU
1974	Remodel North Portion of East Wing	
1974	Remodel Entire South Wing	
1986	Replace Cooling Tower	
1991	Phase I Addition - East Wing, South Portion	Concrete, structural steel, thin shell precast concrete panels with integral 6” steel studs
1991	Remodel - East Wing, Faculty Office Center	Metal studs and gyp. board
1992	Remodel - East Wing, Second Floor Classrooms	
1993	Phase II Addition - East Wing, North Portion	Concrete, structural steel, thin shell precast concrete panels with integral 6” steel studs
2001	Renovation - Mechanical/Electrical	
2002	Remodel - East Wing Classrooms	Metal studs and gyp. board
2004	Remodel - Kitchen and East Wing Second Floor Classrooms	
2006	Remodel - East Wing (Original), South Wing Limited Interior, Boiler Replacement	
2009	Addition - Kitchen Expansion	
2013	Demolition of West Wing	

The south wing has housed a variety of vocational, academic and support programs over its lifetime. Programs have moved into and out of spaces, dependent on the job training needs of the community and the availability of space on campus. The west wing of the building was replaced in 2011 with the Stannard Technical Education Building (Building 28). Upon completion of that replacement, the 1958 Main Building west wing was demolished in 2012. At that time, the master plan called for the replacement and demolition of the south wing as the next logical step. The college proposed a replacement for the south wing to the legislature

in a 2009-2011 biennium funding request. The proposal would have replaced the wing with a 75,000 s.f. new building. The proposal was unsuccessful. In 2014, the college prepared a Project Request Report which was successful in obtaining legislative funding for the project. Initial funding in the 15-17 Capital Budget contained the requirement that the project be developed using the Design-Build delivery method.

The MB-SWR project will conform to Spokane Community College's current master planning efforts and will fully conform to the policies, goals and objectives established by these long-range planning documents. More information on the SCC Campus Master Plan is contained in Part 3.0 Site.

2.0 BASIC CODE & REGULATORY REQUIREMENTS

It is the design builder's responsibility to ensure that the design and construction of this project adheres to the latest applicable codes and ordinances. Upon request by the Owner or authorities having jurisdiction, the Design-Build team shall provide calculations supporting the design and the adherence to codes, regulations and requirements.

The general applicable codes include those currently adopted by the City of Spokane along with any future changes or updates between the date of award of the project and the issuance of the building permits. The following list represents a partial list of current applicable codes:

2015 International Building Code (IBC) with ICC/ANSI A 117.1-2009:
- Appendix E Supplementary Accessibility Requirements
- Appendix G Flood-Resistant Construction
- Appendix J Grading

2015 International Existing Building Code

2015 Washington State Energy Code (WSEC)

2015 Uniform Plumbing Code (UPC):
- Chapter 51-56 WAC and Chapter 51-67 WAC and the additions, deletions and amendments set forth in this chapter.
- Chapters 12 and 15 and all provisions regarding combustion air and venting of appliances in Chapter 5 of the UPC are deleted; and the sections of the code pertaining to building sewers were not adopted.
- Appendices A, B, D, E (except part (D)), H and I of the UPC are adopted as part of the code.

2015 International Mechanical Code Chapter 51-52 WAC

2014 National Electric Code: The rules and regulations of the State Department of Labor and Industries, contained in Chapter 296-46B WAC (except WAC 296-46B-900, WAC 296-46B-905 and WAC 296-46B-910) are adopted as amendments and interpretations of the National Electrical Code.

2015 International Fire Code (IFC) Chapter 51-54 WAC: (additional amendments to the IFC can be found in Spokane Municipal Code, 17F)

2012 National Fuel Gas Code ANSI 223.1/NFPA 54

2015 International Fuel Gas Code

2008 Liquefied Petroleum Code NFPA 58

Zoning and Unified Development Code (UDC): Each piece of property within the City of Spokane has a specific zone assigned to it. The zoning category determines what uses are allowed on the property. To find the zoning a piece of property, go to Spokane GIS - CityMap. The City of Spokane consolidates all of the development regulations and guidelines into a Unified Development Code (UDC) found in Spokane Municipal Code Title 17.

The UDC, or "Zoning Code", contains the descriptions of the City's zoning categories, the uses allowed, and the development standards for each zone. The development standards provide information such as required building setbacks, height limitations, lot coverage, landscaping requirements, and parking ratios.

The site for the MB-SWR is located in the LI zone near an AZC-5 Traffic Pattern for the Felts Field Airport.

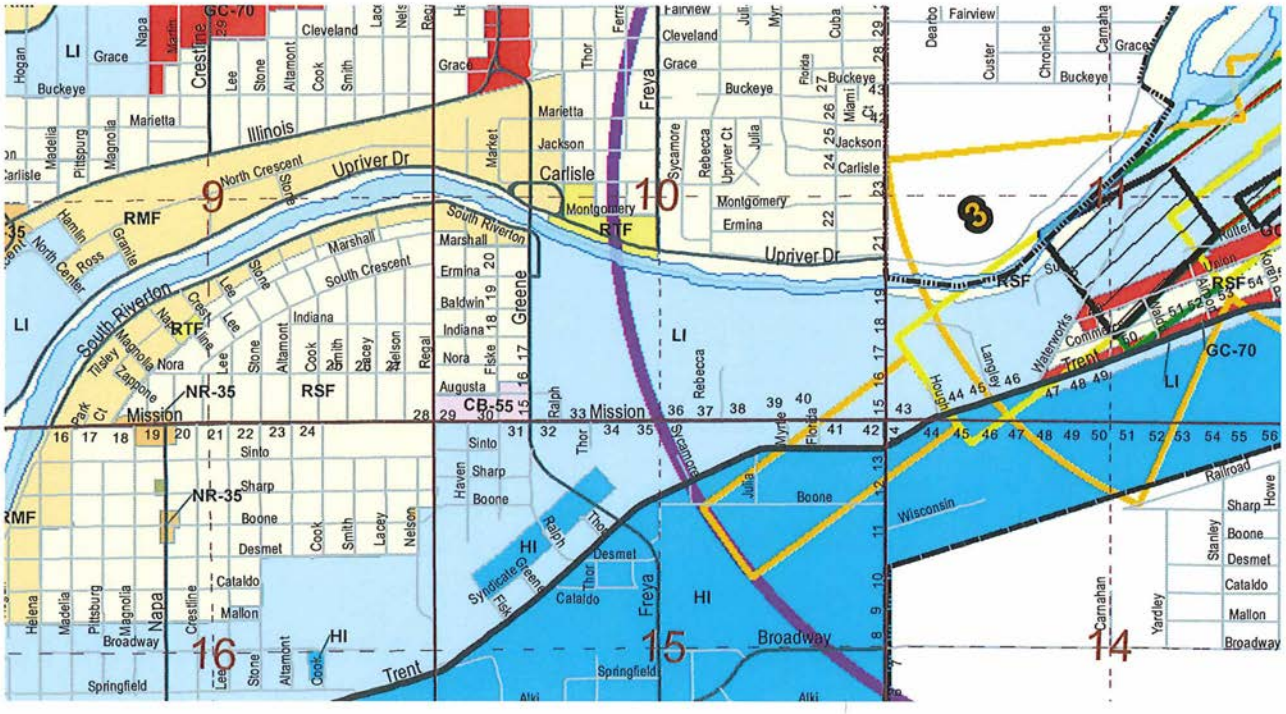


Figure 2.1

Unified Development Code (UDC) Title 17

Description	Reference	Effective
Administrative	17A	3/30/05
Comprehensive Plan and Sub-area Plans	17B	3/30/05
Land Use Standards	17C	6/14/06
Industrial Zones (SMC 17C.130)		

Description	Reference	Effective
Industrial Zones - LI, HI, PI	17C.130	12/15/05
Industrial Zones - Primary Uses (table)	17C.130.100	12/15/05
Industrial Zones - Development Standards	17C.130.210	12/15/05

Other UDC Chapters:

Description	Reference	Effective
Administration and Procedures	17G	3/30/05
City-wide Standards	17D	3/30/05
Environmental Standards	17E	3/30/05
Engineering Standards	17H	6/29/06
Engineering Standards	17I	3/30/05
Public Works Standards	Title 13	11/28/07
Shoreline Management	17E.060	10/27/82
Sign Code	17C	

For more details on adopted codes, see Spokane Municipal Code, Title 17F.

3.0 SITE

3.1 Site Conditions

The MB-SWR project site is located in the southwest quadrant of the SCC campus. It is bounded to the south by parking and Mission Avenue, to the west by parking and the Fire Sciences building and tower, to the north by the Lair Student Center and the Learning Resources Center, and to the east by parking.

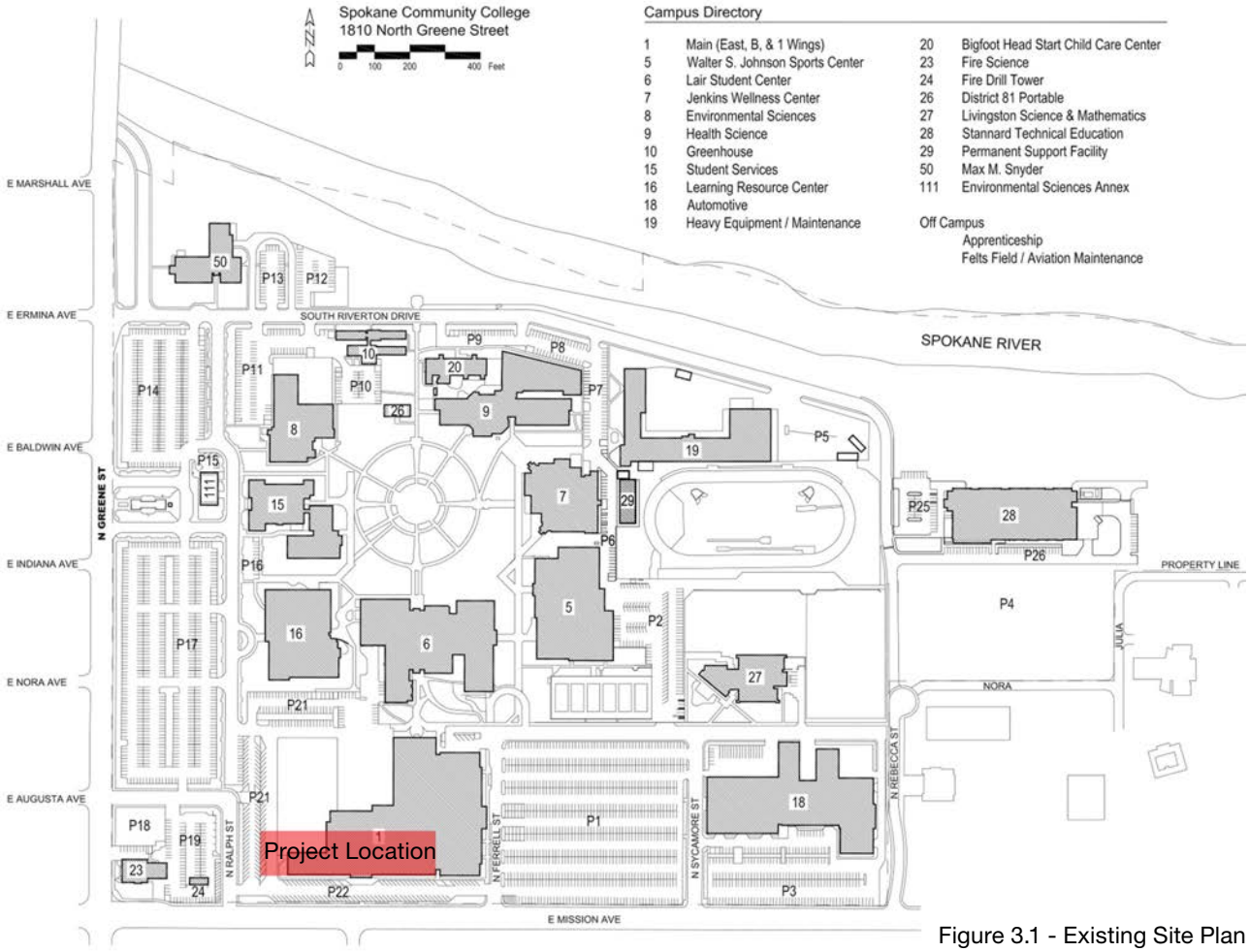


Figure 3.1 - Existing Site Plan

A. Topography

Existing grades within the project area where the building addition will occur are relatively flat. Site work will generally include infrastructure trenching, re-grading the project area to provide the building subgrade as well as patching and connection to existing asphalt parking and concrete walks. A preliminary site survey was prepared for this project and is in the Appendix. Analysis and interpretation of this survey as it relates to design of the MB-SWR is the responsibility of the design builder. Subsequent topographic and physical survey of the site and its utilities may be executed at the option of the design builder.

B. Climate

Spokane has a humid continental climate and significant winter precipitation. The average temperature for the coldest month is just over 27 °F (–3 °C).

The area typically has a hot, arid climate during the summer months bracketed by short spring and fall seasons. On average, July and August are equally warm, and the coolest month is December; July averages 69.5 °F (20.8 °C) while December averages 27.5 °F (–2.5 °C). Daily temperature ranges

are large during the summer, often exceeding 30 °F (17 °C), and small during the winter, with a range just above 10 °F (5.6 °C). The record high and low are 108 °F (42 °C) and –30 °F (–34 °C), but temperatures of more than 100 °F (38 °C) or less than –10 °F (–23 °C) are rare.

Spokane's location, between the Cascade Mountains to the west and the rocky Mountains to the east and north protects it from weather patterns experienced in other parts of the Pacific Northwest. As a result of the rain shadow effect of the Cascades, the Spokane area has 16.5 inches (420 mm) average annual precipitation. The most precipitation occurs in December, and summer is the driest time of the year. Winds primarily come from the southwest but are variable throughout the year.

C. Soils

A Geotechnical Engineering Evaluation of this site was performed by Strata, with findings contained in the document "Geotechnical Engineering Evaluation" dated September 30, 2016 contained in the Appendix. It was noted in their earthwork findings that undocumented fill beneath silty sand (topsoil) was observed in the proposed expansion area of the site within the upper 3 or 4 feet, which may require removal and replacement with compacted structural fill. No groundwater or bedrock was observed. Please refer to The Strata report for a complete listing of findings and recommendations.

D. Environmental

There are no known environmentally sensitive areas on the site. During the execution of site borings, no hazardous or contaminated soils were encountered. The College has not identified controlled or hazardous materials in the soils within the project site. The successful design builder is expected to exercise due diligence during site operations.

E. Easements

There are no known easements within the anticipated project limits.

F. Historical/Cultural

In accordance with Governor's Order 05-05, SCC has reviewed available documents and determined that the site is unlikely to have historic or archaeological importance. The Department of Archaeology & Historic Preservation (DAHP) concurs with SCC's Determination of No Historic Properties Affected. (Notification pending) In the event that archaeological or historic materials are discovered during project activities, work in the immediate vicinity must stop, the area secured, and DAHP notified. It remains possible that there may be archaeological materials that have been obscured by the current conditions. Therefore, it is the design builder's responsibility to have archaeological and Tribal monitors on site during any ground disturbing activities in order to detect previously undiscovered cultural resources, should they exist.

G. Noise

The design builder must comply with City of Spokane noise ordinances and shall meet all requirements of WAC 173-60-040 during construction. Maintain the level of construction noise inside adjacent buildings and/or rooms from exceeding a dB(A) 60 curve (with windows closed). The noise level of each piece of equipment shall not be greater than 85 dB(A) at a distance of 50 feet as measured under noisier operating conditions. Provide rubber-tired equipment whenever possible instead of metal-tracked equipment. Mufflers for stationary engines shall provide hospital-area silencing quality. Equip air compressors with silencing packages. Electric-driven compressors are preferred.

3.2 Site Architectural Context

A. Campus Master Plan

The following text is an excerpt from the current work being completed on the update to the Campus Master Plan:

"The southward extension of the future US 395 to Interstate 90 (North Spokane Corridor) was approved for incremental funding through the year 2029 by the Washington State Legislature. Included with this approval is the extension of the Children of the Sun multi-use trail that begins at the Wandermere Shopping Center north of Spokane. Both the limited access highway and the trail terminate near Francis Avenue in northwest Spokane, about four miles north of the Spokane Community College Campus. After meetings with the Washington State Department of Transportation this year, it is estimated that construction of the highway will begin to impact the northwest corner of the SCC campus by 2019, and continue for about four years through 2023. The WSDOT is in the process of negotiating the purchase of the highway right of way with Community Colleges of Spokane. Their current position is that the R.O.W. can be leased back by SCC for parking and similar uses after construction is complete. The Draft Master Plan shows the recovery of about 73% of the existing west side parking. At this time, the Children of the Sun Trail is planned to be on grade adjacent to Greene Street and will cross Mission Avenue at the intersection, then continue south under the highway and Freya Way south. The City of Spokane has pledged to install a new traffic signal at the intersection of Ermina and Greene for SCC access, but will not allow any other entries from Greene Street.

The combination of these factors eliminates the west side of SCC as the functional and formal entrance to the campus. Facilities and programs oriented towards new students and visitors are currently sited on this side of the campus. As a result of future highway placement, the orientations of the campus and individual facilities needs to shift primarily towards Mission Avenue on the south and secondarily, to the Spokane River on the north. The long river frontage has historically been an under-appreciated asset that the Master Plan recognizes for future development of building sites, athletic, and recreational opportunities. The Mission Avenue side of SCC will be enhanced by significant future projects. The vast parking lot on the perimeter of SCC will be infilled with an STA Transit Center, academic buildings, landscape plantings, and street trees. The MB-SWR project will be the first among these improvements. Some parking will be maintained adjacent to these facilities for faculty and customers of the Cosmetology and Culinary program's retail outlets. A replacement vehicle entry is to be developed at the intersection of Sycamore Street and Mission Avenue where the one traffic signal on this side is located. This entry is one end of a perimeter campus loop that accesses a new multi-level parking garage and surface parking lots. This garage is an essential facility for the viability of SCC during construction of the US 395 highway when as many as 960 parking stalls are lost for an estimated three year period.

The impact from the future highway includes increased traffic noise from the highway and Greene Street because of reflection off of the raised structure. The weather protection provided under the structure may result in increased loitering activity and perceptions of danger by segments of SCC students and staff. These and other impacts are driving the relocation of SCC programs and facilities. The Master Plan facilitates the future relocation of Technical Education programs from the northeast and southeast areas to the west side immediately adjacent to parking and the highway. The SCC administration reasons that these programs are less affected by the aforementioned impacts. After the Heavy Equipment program is relocated the Health Science program can be expanded adjacent to the Spokane River.

The Central Green in the middle of campus is large and generous, but is very underutilized except around its edges. It should be reduced and the remaining spaces given more focus by a new Technical Learning Center and Conference Facility located to reinforce a smaller quad on the east and new linear green space that opens to the Spokane River. This new linear green space can be achieved by the relocation of Greenhouses and a small classroom building. Views into the core of campus will be available from vehicles and bicycles moving on South Riverton Drive towards parking. Pedestrian walkways linking academic buildings on all sides of these green spaces should be realigned around the perimeter, across the center, and through the new building, for direct and efficient circulation. Maintaining as many of the large healthy trees not directly impacted by these changes is a priority of SCC students and faculty.

The strategy for the implementation of the Master Plan depends on the schedule for the construction of the US 395 highway project across the SCC campus. Priority projects include the large multi-floor Parking Garage and other surface parking lots for replacement parking during highway construction. The new traffic signal at Ermina Avenue and Greene Street is critical before the other entrances from Greene Street are closed. The replacement STA Transit Center is driven by its own schedule but access to the current center will be affected by the highway project. These facilities must be complete before the start of highway construction south of Ermina Avenue affects SCC's existing parking lots. The start of this work is estimated to be in 5-6 years, in the year 2022. Immediately after the completion of the highway over the west edge of campus, the redevelopment of replacement parking must begin. The end of the highway work is expected to be sometime in the year 2024. After completion of the highway, priorities will be driven by growth in programs, obsolescence, changes in educational mission and state funding. Given these factors, priority should be focused on completing the projects on the south frontage of campus to compensate for the loss of exposure on the west side. The inventory of capital projects contained in the Master Plan may require 25 years to implement, given historic levels of state funding.

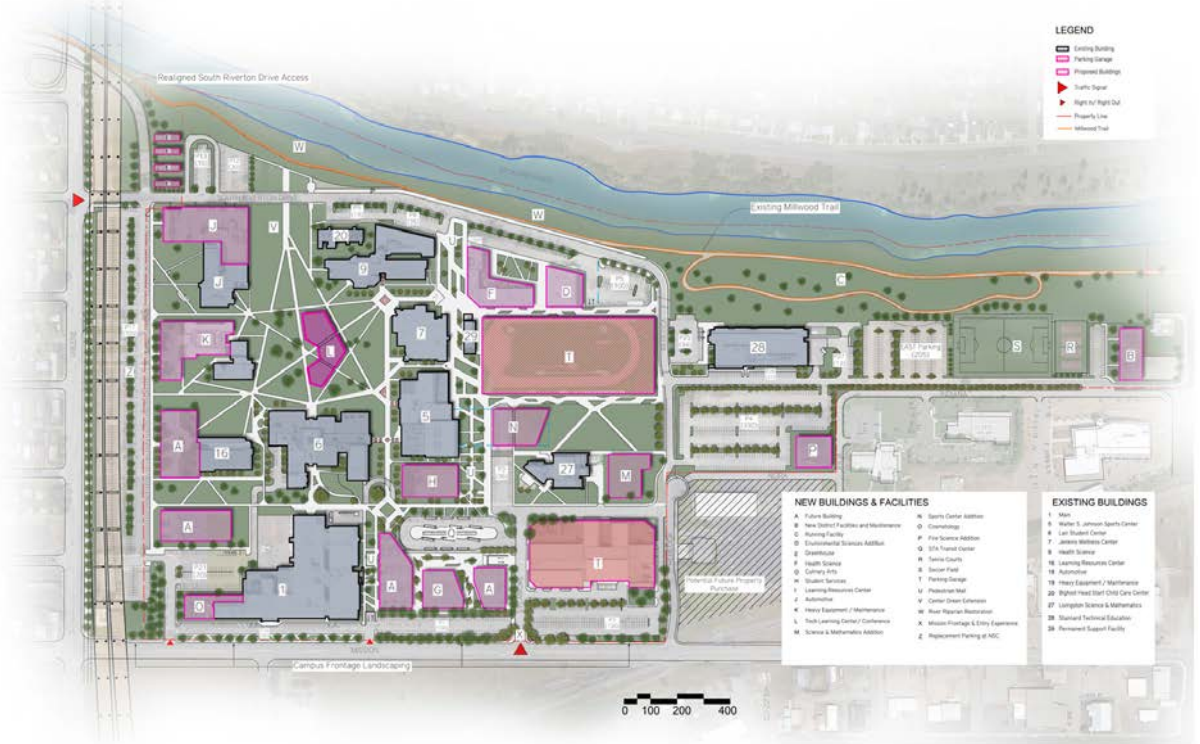


Figure 3.2 - Master Plan

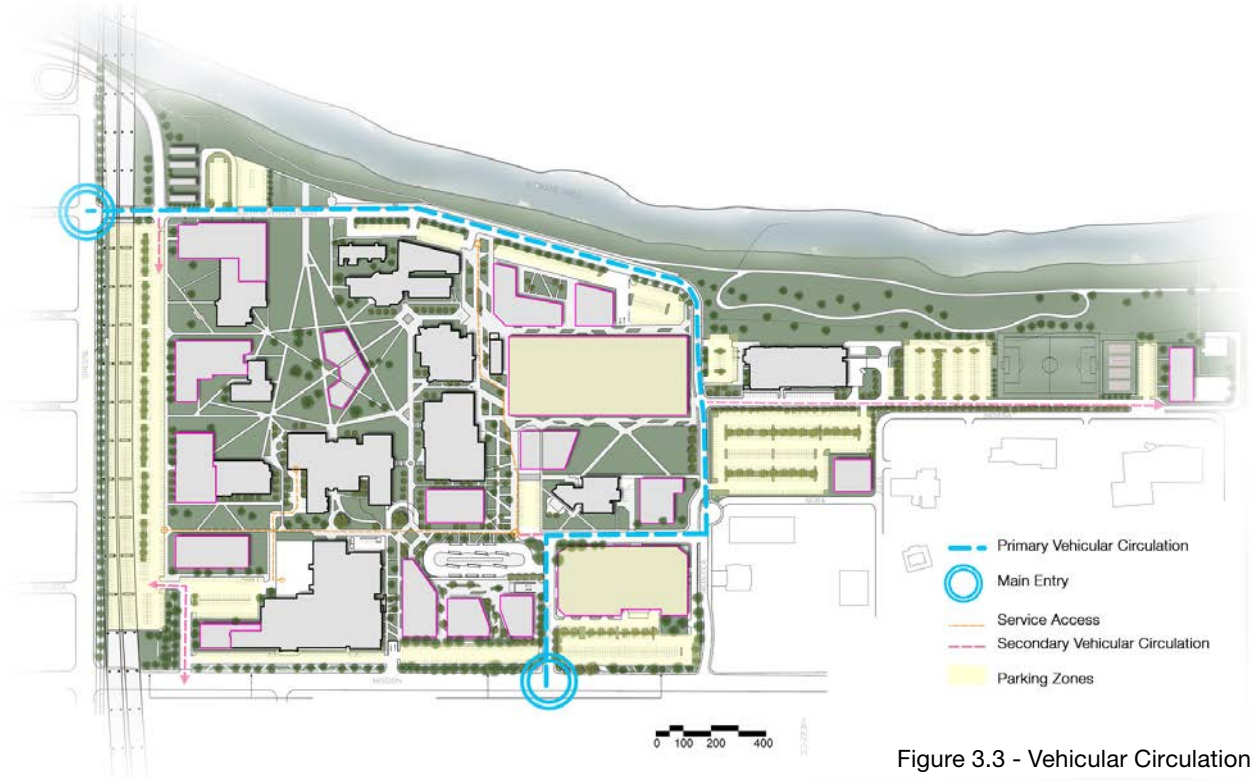


Figure 3.3 - Vehicular Circulation

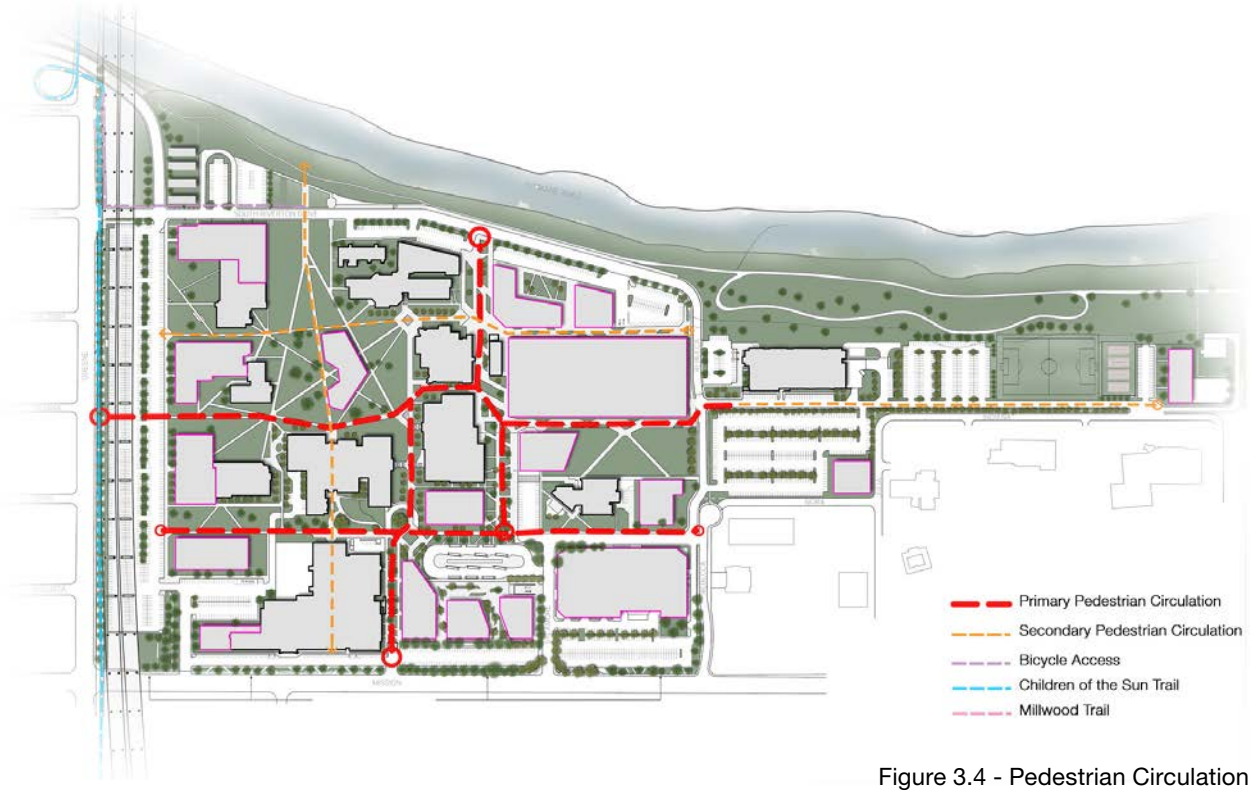


Figure 3.4 - Pedestrian Circulation

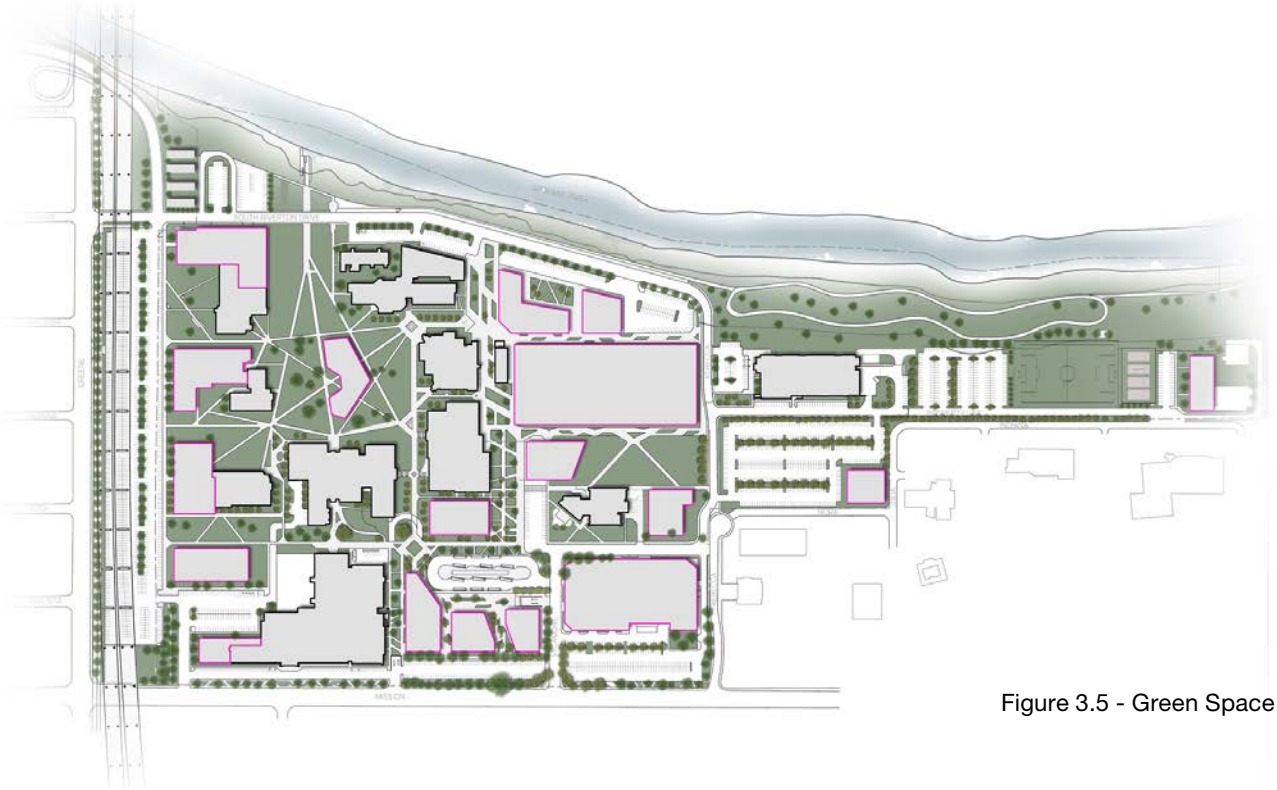


Figure 3.5 - Green Space

Figure 3.6 - Campus Zones

B. Campus Architectural Context

The SCC campus represents a collection of building forms, styles and materiality that span almost every decade from the 1950's through today. The buildings from the early decades of the development of the campus expressed an industrial vernacular dominated by concrete and 7-grid split faced CMU block exteriors. In later decades the industrial emphasis began to be replaced by warmer colors of CMU, red brick and metal panels. Exterior walls became more articulated utilizing multiple surface expressions and changes in the typical rectilinear floor plan. Several buildings featured sun shading devices to shade the buildings and bring in a more horizontal emphasis to building lines. The most recent new buildings and major remodels have introduced a new, highly contemporary vernacular featuring concrete, brick, metal panels, large expanses of glazing and a high level of modulation to contrast the original campus buildings.

The Main Building (Building 1) within itself features the original south and east wings from the 1950's and 60's plus the new east expansion from the early 1990's. Figures 3.7 through 3.12 capture views of the east, south and north elevations of the building.

Main Building East Wing — Figure 3.7

Main Building East and South Wing — Figure 3.8

South Wing Main Entrance — Figure 3.9

East End of South Wing

South Wing Detail Figure 3.10

North Side of South Wing Figure 3.11


North End of East Wing

Figure 3.12

Directly north of the Main Building is the Lair Student Center, which is the primary Student gathering hub on campus. East of the Lair is The Johnson Sports Center Building 5 (Figure 3.14 and 3.15) and the Jenkins Wellness Center Building 7 (Figure 3.16).

Figure 3.13 - Lair Student Center

Figure 3.14 - Johnson Sports Center Building 5


Figure 3.15 - Johnson Sports Center Building 5

Figure 3.16 - Jenkins Wellness Center Building 7

Figure 3.17 - Livingston Science & Mathematics Building 27

Figure 3.18 - Livingston Science & Mathematics Building 27

Figure 3.19 - Stannard Technical Education Building 28

The Livingston Science and Mathematics Building 27 and Stannard Technical Education Building 28 represent the current direction of the preferred campus architectural pallet of materials and building forms.

Figure 3.20 - Student Services Building 15


Figure 3.20 - Student Services Building 15

Figure 3.22 - Learning Resource Center Building 16

It is the desire of SCC leadership that the final exterior design of the MB-SWR project features a contemporary aesthetic that directly responds to the expression and materiality of the newer buildings on campus while maintaining a dialogue with the older buildings as well. There is also a desire for the south elevation of the building to be transformed away from a static, industrial, linear emphasis and to move towards a greater degree of modulation and 3-dimensional interest. Incorporation of photovoltaic panels is seen favorably. It should also be noted that the shading devices on Buildings 24 and 28 have not been successful.

C. Retail Space Exposure

Within the programmatic requirements of the MB-SWR project reside two programs that rely heavily on revenue generated by retail services and services – the Cosmetology Department and Orlando's Restaurant and Bakery. The Cosmetology Department is currently located on the second floor of the Main Building South Wing in the southwest corner, a location that has a significant negative effect on their ability to be seen by the general public and to serve their current customers. Many of those customers are elderly with limited mobility. Orlando's Restaurant and Bakery is currently located on the first floor of the Main Building South Wing on the north side of the corridor, a location that provides no exterior retail exposure to the general public for their restaurant and retail bakery and coffee shop operations.

It is essential that the design of the MB-SWR renovation and expansion maximizes the retail exposure and potential customer satisfaction from services rendered for these two programs on the southern and western facades of the building. To that end, the design builders shall propose exterior improvements, massing, signage and building entrance locations that facilitate direct customer visual and functional connections with these programs and promotes branding opportunities. Additional architectural design goals are contained in Part 5.0.


Realigned South Riverton Drive Access
SOUTH RIVERTON DRIVE
SPOKANE RIVER
MARSHALL
ERMINA
BALDWIN
GREENE
INDIANA
NORA
AUGUSTA
SYCAMORE
MISSION
P13 (35)
P12 (20)
P9 (19)
P8 (35)
P17 (700)
P21 (70)
P2 (36)
P1 (100)
E
W
J
V
20
9
U
F
D
K
L
7
29
T
Z
5
N
A
16
6
H
27
Q
G
1
O
X
Campus Frontage Landscaping
Maximize Visual Retail Exposure

Figure 3.23

D. Expansion Location

The MB-SWR project program includes construction of a new 6,969 square foot expansion. It is anticipated by SCC that this expansion will be located on the western end of the south wing. The final location, configuration (building footprint, one-story or two-story) and massing of the addition will be left to the discretion of the design builder. Potential locations for the addition are to the north, west or partially to the south of the west end of the South Wing. Please note in the campus master plan information that eventual loss of some amount of parking west of the Main Building South Wing is anticipated.

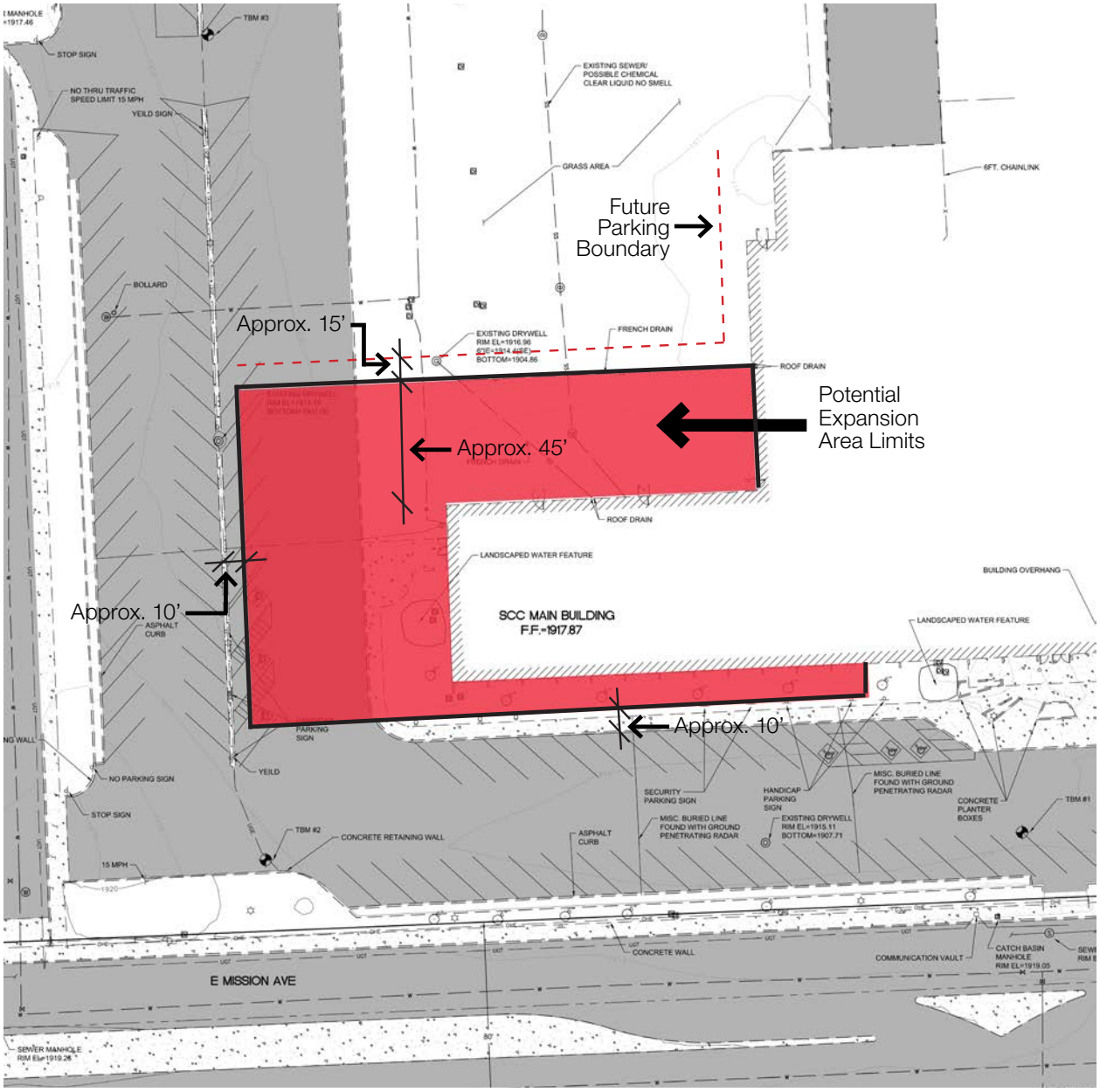


Figure 3.24

It is recognized by SCC that the expansion project if located west or south of the existing building may have an impact on the existing parking count and vehicular flow. These impacts are acceptable if the following goals are accomplished:

1. Every effort is made to minimize the loss of parking stalls near the building.

2. The loss is justified by a design solution that accomplishes the objectives stated in 3.0 B 2 above.

3. Vehicular flow along the south side of the Main Building must be maintained.

To illustrate the variety of buildings on the remaining campus, included are views of Student Services Building 15 and the Learning Resource Center Building 16.

4.0 SUSTAINABILITY & LEED

The State of Washington and Community Colleges of Spokane are committed to creating high performance facilities that will ensure the optimal health and productivity of occupants and buildings users. The MB-SWR project will be certified to LEED Silver by the United States Green Building Council (USGBC) in accordance with Chapter 39.35d RCW "High Performance Public Buildings" requirements. Sustainability was discussed in detail during the programming process and the resulting checklist of targeted credits is presented in the Appendix of this RFP. The design/build team will be required to perform an eco-charrette during Schematic Design to further explore sustainability goals and opportunities. As the building design and construction progresses, additional credits may be identified for possible incorporation into the project.

SCC views its commitment to sustainability – which it expects its design builder to uphold – as more than a collection of LEED credits. Fundamental to SCC's planning is to create facilities that are:

A. Planned to work with, not against, nature.

B. Timeless, simple, durable, and flexible to assure long life without the need for significant capital, maintenance, and operations expenditures.

C. Designed to foster occupant well-being.

SCC conceives these sustainable principles not just as secondary add-ons but rather as strong design elements that reveal the college's environmental commitment while creating aesthetic delight and operational efficiencies. Strategies include abundant use of controlled natural light, preference for locally-sourced materials, native and drought-tolerant plantings, robust well-insulated and sealed exterior wall and roof assemblies, and highly efficient mechanical and lighting systems.

4.1 LEED Checklist

It is the design builder's responsibility for selecting and achieving the credits necessary for successful LEED Silver certification, with the following exceptions:

A. The D/B Contractor must achieve the following credits:

1. EA-c1.7 – 31.5% New Building / 24.5% Existing Building Renovation
2. EA-c3 – Enhanced Commissioning

3. EA-c5 – Measurement & Verification
4. IEQ-8.1 – Daylight and Views – Daylight 75% of classrooms
5. I&DP-c2 - LEED Accredited Professional

B. The D/B Contractor must not use the following credits:
   1. SS-c3 - Brownfield Redevelopment
   2. E&A-c6 – Green Power
   3. I&DP – c1.1 Green Cleaning

   The preliminary LEED Checklist is included in the Appendix.

4.2 Landscape LEED

A. The use of plant material on the site promotes the sustainability of the project. The irrigation system shall reduce water use and promote sustainability.

4.3 Site / Civil LEED

The following is a list of site / civil LEED credits that are considered achievable:

A. SS Prereq 1 – Construction Activity Pollution Prevention – the civil site plans and specifications will include an erosion control plan and storm water pollution prevention plan as standard protocol to address and achieve this required item.

4.4 Mechanical LEED

The Design-Build proposer shall incorporate a sensibly sustainable design for the new facility. The Design-Build proposer should submit a design and design options for a building that cost effectively conserves energy and water. The project must achieve, at minimum, LEED Silver certification. The contractor is responsible for providing all required LEED paperwork and submission.

Design the Building Envelope, Lighting, other end use systems, and HVAC to maximize Building Operations, Maintenance and Energy Performance. At a minimum, the project should be designed to achieve a required minimum energy savings of 20% energy use (kBTU) over Washington State Energy Codes in effect at the time of project permitting, in addition to the LEED Silver Certification requirements including a minimum 5pts for EA Credit 1 for a 20% energy cost ($) savings.

The Building Performance Criteria will be established in accordance with LEED-v3 EA, Credit 1, Optimize Energy Performance, Option 1, Whole Building Simulation achieving a minimum required 5pts for a total of 20% energy cost savings. Resultant savings shall be analyzed for proposed design as compared to ASHRAE standard 90.1-2007, which establishes minimum requirements for Energy Efficient Design of Buildings for LEED EA Credit 1.

4.5 Electrical LEED

A. Provide lighting controls to meet LEED requirements.

B. Review daylighting and lighting design options that reduce the lighting watts per square to various levels below energy code.

C. Provide a lighting design that minimizes offsite glare.

D. Provide cut-off fixtures outside, but also keep in mind any campus standard fixture.

4.6 Lighting LEED

Energy usage for lighting will target a 20% improvement over ASHRAE 90.1 2007, which is the baseline for LEED 2009 documentation and meet the power density requirements of the Washington State Energy Code. Should the credit for Sustainable Sites SSc8 be pursued, no light may trespass beyond the property line. Enhanced controls may be considered in executive offices as well as open office areas.

5.0 ARCHITECTURAL

5.1 Architectural Design: Overarching Criteria

In recognition of the prominent location of the MB-SWR at the new "front door" of campus, SCC views this project as an opportunity to extend the design and quality of the new campus buildings as represented by the recently completed Buildings 27 and 28. Accordingly, the following architectural requirements and preferences shall be considered in the development of the design solution:

Provide a contemporary, functional, and efficient facility that:

A. Integrates within the context of the SCC Campus and Master Plan.

B. Provides an exterior aesthetic design solution that acknowledges the materiality and character of Buildings 27 and 28 while complimenting the existing Building 1 East Wing exterior facades.

C. Creates a vibrant new south and west elevation that accomplishes the needs of the retail-reliant programs and represents the new campus front door aesthetic along Mission Avenue.

D. Remains flexible for future reconfigurations as programs ebb and flow at SCC.

E. Is durable and easy to maintain and represents a 50-year solution.

5.2 Project Limits, Phasing and Occupancy during Construction

The following illustration depicts the approximate extents of the MB-SWR renovation and addition. The design builder is responsible to provide sufficient measures to ensure safe operation of the remainder of the building during the construction phase. Appropriate barriers must be installed to control noise, dust, fumes and other construction disruptions that could otherwise disrupt the use of the adjacent instructional and faculty spaces for their intended purposes.

FIRST FLOOR, BUILDING 1

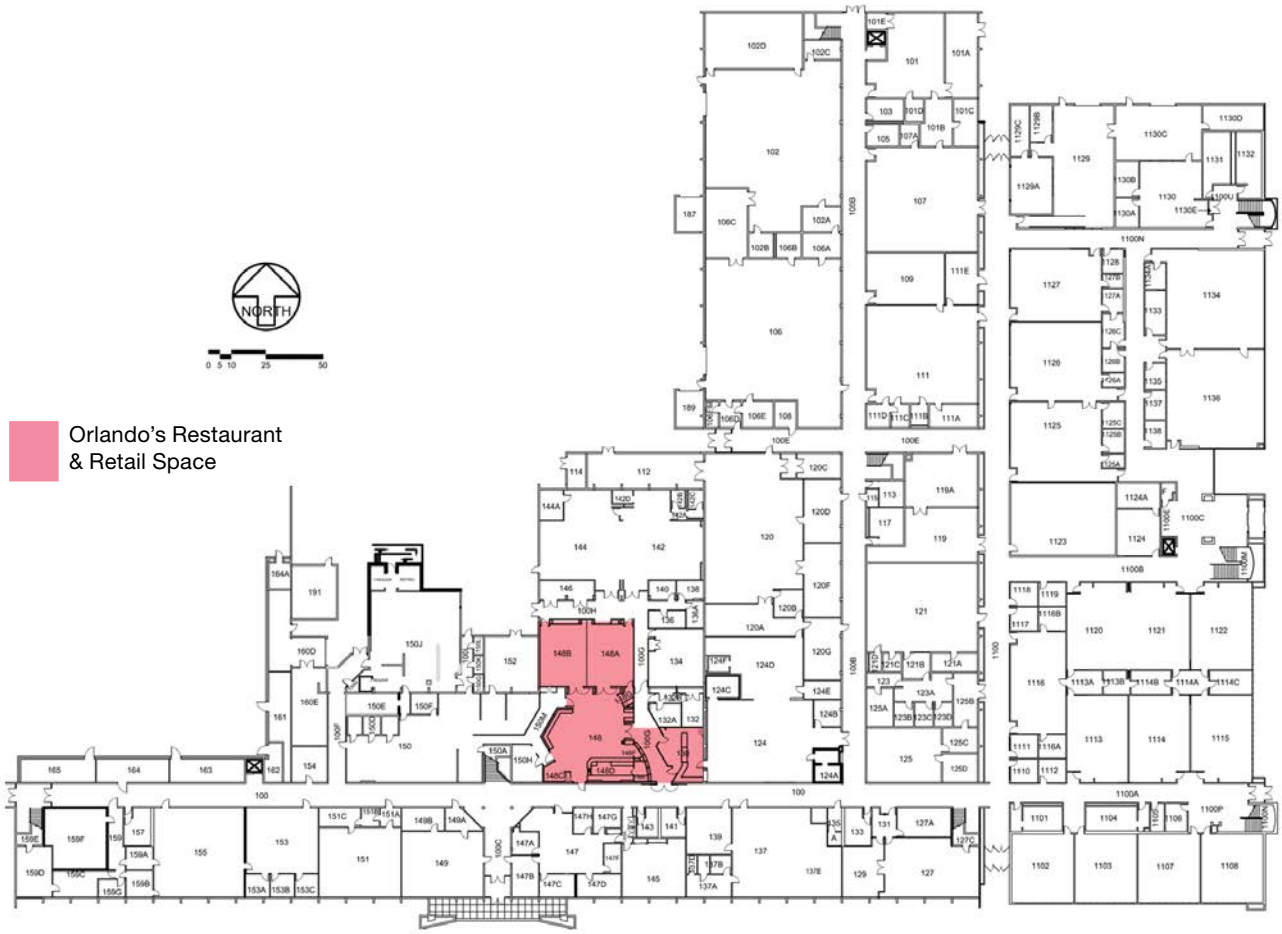
Figure 5.1

5.2 Project Limits, Phasing and Occupancy during Construction (cont.)

SECOND FLOOR, BUILDING 1

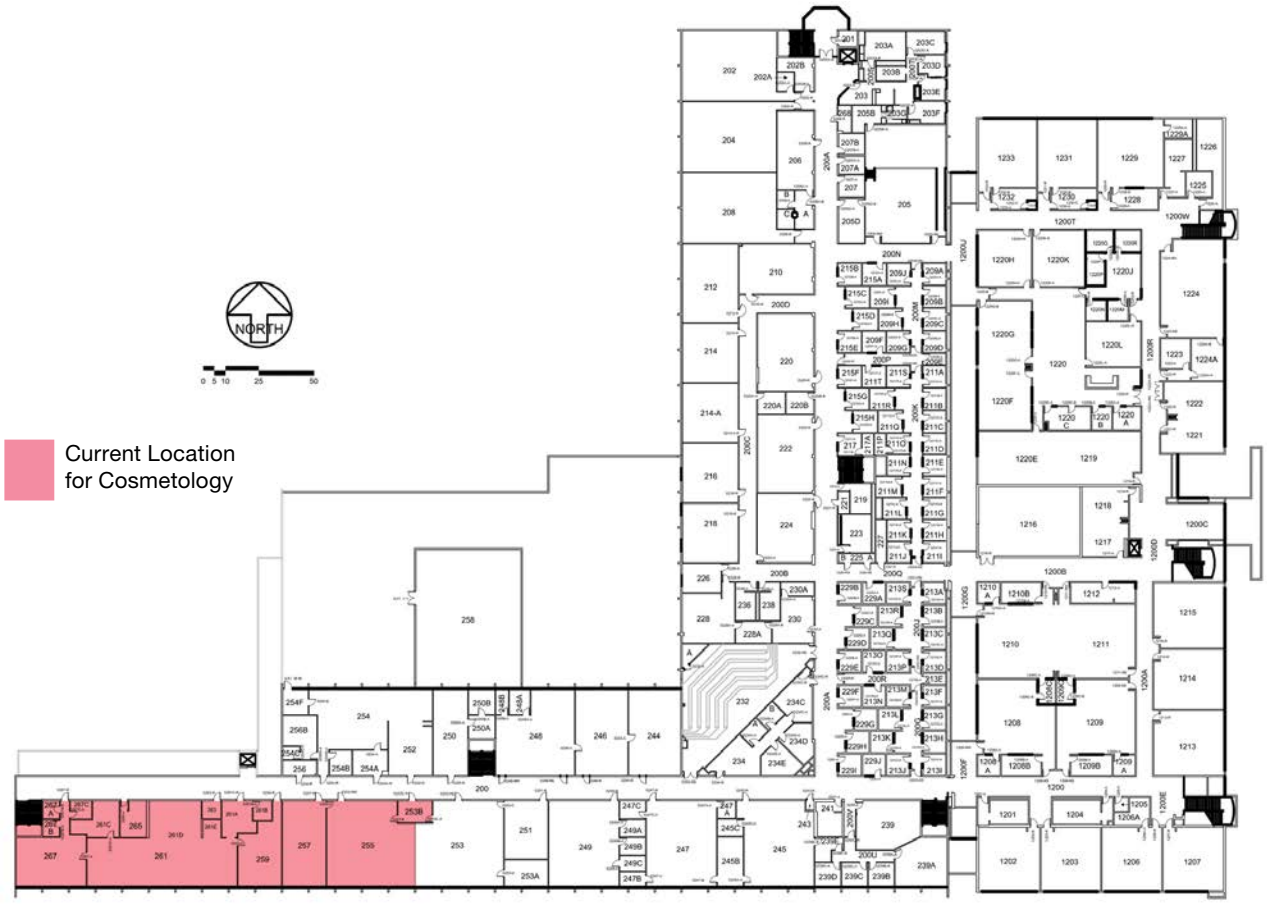
Figure 5.1

There are two programs that currently reside within the Main Building South Wing that must remain in operation during construction. These programs are Culinary Arts (Orlando's Restaurant and Bakery) and Cosmetology. The following illustrations identify where these programs are currently located in the building.



FIRST FLOOR, BUILDING 1

Figure 5.2



SECOND FLOOR, BUILDING 1

Figure 5.2

A. Orlando's, Culinary Arts and Bakery

Located centrally on the north side of the corridor, these programs occupy space that is not located within the primary remodeling area and will remain in place after the project is completed. These programs rely heavily on steady customer access in order to generate the revenue needed to perpetuate their programs. The design builder is required to provide safe and convenient ingress and egress for these programs and an uninterrupted code-compliant path to the east wing of the building and to the exterior.

There is a window of opportunity during the summer months where these programs are not in session. During those times the contractor will be able to close off access for construction activity purposes. The design builder must also coordinate construction activities with SCC teaching schedules so that interruptions due to other needed construction work and interruptions in building services due to construction are minimized.

B. Cosmetology

Located on the second floor west end of the building, this program relies heavily on steady customer access in order to generate the revenue needed to perpetuate their program. SCC is requiring that this program remains operational in their current location while the building addition is constructed. This objective establishes the need for completing the project in two phases.

It is anticipated that the first phase of the project involves the construction of the additional square footage outlined in Part 5 of this document. This addition shall be designed to house most of the Cosmetology program, and may involve a single story or a 2-story configuration. The square footage needed for the rest of the programmed area for Cosmetology shall be gained through renovation of adjacent first floor space in the existing building. The design builder will coordinate with SCC administration to determine the extents and timing of the area of the building to be remodeled in the first phase in order to allow for the potential relocation of other programs during phase one. It is important to note that the phase one project building systems, including HVAC, must operate independently from the remainder of the building while the phase two project is under construction.

It is anticipated that the second phase of the project includes extensive demolition and renovation of the remaining existing South Wing project as identified. SCC will relocate all other programs within the project boundaries during construction.

C. Phasing Management

The design builder is required to prepare a management plan for the overall project that provides safe ingress and egress throughout the entire project. There is a window of opportunity during the summer months where the Cosmetology and Culinary Arts programs are not in session. During that time, convenience access to those programs may be closed off for construction activity purposes. Code-required exiting for the remainder of the building must be provided throughout the entire duration of the project.

5.3 Building Quality Standards and Materials

Design builder will refer to Section C pages 1 and 2 of the Document “Community Colleges of Spokane District Facilities Construction Standards 2015” for a general overview of owner-directed facility design features. Materials and finishes should be robust and of good quality, contributing to an overall appearance of permanence without extravagance. Materials and finishes should reflect the variety of functions performed in this facility and take into consideration characteristics such as durability, ease of maintenance, appropriateness, and sound transmission. Throughout the facility, materials, finishes and furnishings should reflect project and CCS sustainability goals in terms of material choices, means of assembly, location of manufacturer, etc. All materials and finishes should meet life-cycle cost analysis standards and established sustainability goals. Building life expectancy is a minimum of 50 years. Wherever possible, materials manufactured in the USA should be utilized.

Detailed discussion on program needs, access, layout, organization and other functional issues is summarized in Section V. Design Program – Space Program, Room Data Sheets, Drawings and Diagrams. An Equipment Matrix is also included at the end of Section V.

A. Owner Project Quality Standards

The design builder shall use the document "Community Colleges of Spokane District Facilities Construction Standards 2015" (see Appendix) to develop project design and specifications. The following is a list of the Specification section guidelines contained in that document:

02 10 00	Maintenance of Existing Conditions
02 21 00	Surveys
02 40 44	Demolition and Structural Moving
02 82 00	Asbestos Abatement
03 30 00	Cast-in Place Concrete
04 00 00	Masonry
05 50 00	Metal Fabrications
06 10 00	Rough Carpentry
06 20 00	Finish Carpentry
06 41 00	Architectural Wood Casework
06 41 16	Plastic Laminate-clad Architectural Cabinets
07 21 00	Thermal Insulation
07 26 00	Vapor retarders
07 50 00	Membrane Roofing
07 70 00	Roof and Wall Specialties and Accessories
07 92 00	Joint Sealants
08 11 13	Hollow Metal Doors and Frames
08 14 16	Flush Wood Doors
08 40 00	Entrances, Storefronts and Curtain Walls
08 41 13	Aluminum Framed Entrances and Storefronts
08 50 00	Windows
08 62 14	Insulated Skylights
08 71 00	Door Hardware
08 80 00	Glazing
09 22 00	Supports for Plaster and Gypsum Board
09 30 00	Tiling
09 51 00	Acoustical Ceilings
09 65 00	Resilient Flooring
09 66 00	Terrazzo Flooring
09 68 00	Carpeting
09 72 00	Wall Coverings
09 81 00	Acoustical Insulation
09 90 00	Painting and Coating
10 11 00	Visual Display Surfaces
10 14 00	Acrylic Panel Signs and Frames
10 21 13	Toilet Compartments
10 26 00	Wall and Door Protection
10 28 00	Toilet, Bath and Laundry Specialties
10 41 16	Knox Box
10 44 13	Fire Extinguisher Cabinets
10 44 16	Fire Extinguishers
11 52 00	Audio-Visual Equipment
12 21 00	Window Treatments

12 50 00	Furniture – Refer to Document "SCC Furniture Standards, SCC Standards for New Construction or Renovation" in Appendix. Unless noted otherwise, furnishings will be OFOI. Refer to Room Data Sheets for furnishings types and quantities.
14 20 00	Elevator
21 00 00	Fire Suppression
21 11 00	Facility Fire-suppression Water-Service Piping
21 12 00	Fire Suppression Standpipes
21 13 00	Fire-Suppression Sprinkler Systems
Division 22	Plumbing
Division 23	Heating, Ventilating and Air Conditioning
Division 26	Electrical
Division 27	Communications
Division 28	Electronic Safety and Security
Division 31	Earthwork
31 21 12	Radon Mitigation
Division 32	Exterior Improvements
Division 33	Water Utilities

The following sections expand on the information provided in the District Facilities Construction Standards related to the MB-SWR project. The design builder must incorporate the following items into their proposal.

B. Existing Conditions

The following previous facilities assessment studies performed for the Main Building are made a part of this document by reference:

1. "Seismic, Life Safety, ADA Access, and Energy Efficiency Analysis" prepared by Integrus Architecture, dated February 15, 2014.

2. "2013 Facility Condition Survey" prepared by SBCTC.

The Main Building has been described as a "Well constructed older building with good bones". The following is a summary of recommendations from the aforementioned assessment reports regarding architectural building components:

1. Egress system deficiencies, including exit pathways, will be solved through re-design of circulation and system upgrades.

2. All ADA compliance deficiencies, including toilet room fixtures, clearances, maneuvering clearances, hardware, vision lite placement and signage will be solved through demolition and redesign.

3. Building envelope deficiencies including existing glazing and insulation will be solved by removal of those existing systems and replacement with code-compliant systems.

4. All existing ceilings, doors/frames/hardware, wall finishes and floor finishes are expected to be replaced. Existing floor finishes are likely to contain asbestos as evidenced by the previous hazardous materials analysis and abatements work documented by SCC. The design builder shall review these record documents and include asbestos mitigation in their proposal.

5. Existing fire doors (Won Doors) between the south wing and the east wing are expected to be replaced.

It is SCC's general expectation that the Main Building will essentially be "gutted" down to the basic structural system and utility tie-in points, and then renovated to meet or exceed program expectations. It is at the discretion of the design builder to elect to leave selected existing partitions in place. Please refer to the following sections for additional information on existing conditions for specific building systems.

The roof over the South Wing area was recently replaced. The product used was the Roof-Mate system by United Coatings. All-Wall Contracting, Inc. holds the warranty.

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Post Falls, ID 83854
P: 208-773-4650
F: 208-773-4603
info@allwallinc.com

They only removed Specific sections of roof insulation were replaced where required by a moisture survey that was completed. Also, the entire system was replaced above Mechanical Room 258. It is SCC's expectation that the roof be maintained and not replaced as a part of the MB-SWR project.

C. New Exterior Systems

1. Exterior wall assembly systems that rely on the exterior face of the assembly for water resistance are not acceptable. Examples of prohibited exterior wall assemblies include single wythe masonry and EIFS.

2. Facade: Utilize Institutional-grade construction, with robust construction indicative of a significant public building. Exterior wall finish materials shall at minimum consist of concrete or concrete masonry units with preference for brick or pre-finished metal composite panels with Kynar-type coating. Wall assembly must include infiltration and vapor barriers, drainage pathways to discharge moisture to the outdoors, and insulation required to meet energy code and performance objectives.

3. Windows Frames: Extruded aluminum thermally-broken frames, Color- or clear-anodized aluminum finish.

4. Storefront/Curtain Wall: Extruded aluminum thermally-broken frames. Main entrance doors at storefront to utilize vestibules and medium-stile standard aluminum with concealed closers and custom pulls. ADA automatic push button operators are required at one leaf at primary entries.

5. Fall Protection: Provide code-compliant fall protection system.

6. Public Art: As a State of Washington project, funds have been reserved for public art at the MB-SWR. While the design builder will not participate in artist selection, the public art process thrives when the objects are genuinely integrated into the facility. To that end, the design builder will be required to work with the selected artist during design of the MB-SWR, to include inclusion of supplementary structure and or utilities. Successful design builder will also be required to facilitate coordination with the artist during installation.

7. Signage: Exterior, internally lit retail signage promoting Orlando's and the Cosmetology Department must be incorporated into the exterior design of the project. Signage must be highly visible from Mission Avenue.

8. Roof-Top HVAC Noise Control: The roof structure should be upgraded as needed to achieve a minimum of STC 45. Rooftop mechanical equipment must be selected, or, if necessary, mitigated to produce no more than 75 dB(A) of radiated noise within 5 feet. Vibration isolation must be provided in accordance with the American Society of Heating Air Conditioning and Refrigeration Engineers (ASHRAE), HVAC Applications Chapter 48.45, Table 47, Selection Guide for Vibration Isolation. Mechanical permit documents must show calculations for Code compliance to receiver property lines. Noise and vibration isolation calculations and mitigation treatments must be documented and included in the construction documents for mechanical equipment and plumbing elements of the project.

D. Interior Systems

1. Interior spaces should have the benefit of natural light wherever possible. In spaces not conducive to traditional window openings, this may include skylight assemblies. In private offices within open administration suites, this may include borrowed lights with views to shared windows.

2. Partitions: All walls are to be constructed full height to structure above. At ground floor bearing walls and non-bearing walls, provide abuse resistance surface or construction to 8-ft height.

3. For non-bearing walls not requiring abuse resistance, provide 5/8-inch minimum Type X gypsum wallboard on metal studs. Provide abuse-resistant wall coverings at all exposed framed wall surfaces in corridors. Provide fiberglass-mat-faced gypsum wallboard with water-resistant core at wall surfaces receiving ceramic tile.

4. Stairs and Railings: Steel stairs system, with sealed precast concrete treads/risers with anti-slip inserts. Ladders, ship ladders/stairs and lapeyre-type stairs are not permitted for roof access.

5. Exposed Structure: Where no ceiling is provided, paint exposed steel structure, ducts and conduit.

6. Acoustic Panels: Abuse-resistant, Class A fire-rated. Provide as required for acoustical control.

7. Acoustical and Noise Control: The design-builder will achieve the following Space NC Criterion Sound Pressure Levels:
   a) Enclosed Offices 35 to 42
   b) Open Office Space 35 to 42
   c) Classroom/Conference Room 30 to 37
   d) Break Room 40 to 45
   e) Public Restroom 45 to 52

E. Enhancements

The following project enhancements have been identified by SCC for the purpose of future consideration for potential inclusion into the project. The design-build teams are not to provide pricing for these enhancements, nor are they to include them in their proposals. This list is being offered for information only:

1. Enhancement #1: Add the area of Building #1 occupied by Rooms 232, 232A, 234A, 234B, 234C, 234D and 234E. With this additional space comes the addition of a 100-person classroom divisible into two classrooms (one for 60 and one for 40), a 20-person conference room and (2) adjunct offices for two people each. Demolition of this space together with the Phase 1 addition would create temporary space for the Public Safety programs that need to vacate their space for the Cosmetology program relocation.

2. Enhancement #2: Renovate/remodel Rooms 142, 142A, 142B, 142C and 142D.

3. Enhancement #3: Add proximity card readers to all doors in the project.

4. Enhancement #4: Remove the communications antenna on the roof at the northwest corner of the building.

6.0 LANDSCAPE

The landscape design for the MB-SWR includes the design and installation of plant material, irrigation systems, and site improvements for any areas disturbed by construction around the building. The project shall adhere to the SCC Master Plan, Division 32 requirements noted above, and the City of Spokane Zoning Code.

The landscape improvements and design shall be aesthetically integrated and cohesive with the landscape of the SCC campus and in accordance with the direction established in the campus master plan.

7.0 SITE/CIVIL DESIGN

The site is located near the northeast quadrant of the intersection of Greene Street and Mission Avenue, in the southwestern portion of the campus. The site is currently developed with a parking lot, grassy area and Building 1, the campus Main Building.

7.1 Codes & Standards

The following codes/guidelines must be adhered to:

A. 2015 Community Colleges of Spokane District Facilities Construction Standards

B. Spokane Regional Storm Water Manual

C. City of Spokane Design Standards

D. Washington State Department of Transportation Standard Specifications for Road, Bridge, and Municipal Construction

E. City of Spokane Water District Standards

F. ADA Standards for Accessible Design

7.2 Systems Overview

A. Existing Conditions

The flat site is currently developed with Building 1 on the east side, and associated landscaping adjacent to the building and access aisle/parking to the west. North portion of the site is an open grassy area and continuation of paved access aisle/parking, and to the south is an existing campus access driveway and parking, which parallels Mission Avenue.

The site is fairly level with very gradual slopes, with less than 2 feet of fall across the entire site. Building 1 sits slightly above the surrounding sidewalks, driveways, parking and landscape areas. The parking area and driveways slope to drywells in localized low points to the southeast and northwest, which infiltrate runoff.

There is a pedestrian walkway running east-west just south of the building and another walkway running north-south on the west side of the building to leads to a door at the northwest corner of the wing.

B. Utilities

1. Water Service – Water service is provided by the City of Spokane Water Department. There is an existing water main located within Mission Avenue to the south. There is also an existing water service line west and north of the site. The water main in Mission Avenue provides existing fire hydrant coverage. The proposed addition will need to function as a stand-alone space so it can be operational during remodel of the existing south wing. Fire hydrant coverage for the addition

will need to be reviewed to determine if additional hydrant(s) are required. Review by the City of Spokane Water Department and City of Spokane Fire District to verify conformance with the associated Standards will be required.

2. Sanitary Sewer Service – Sanitary Sewer Service to the site appears to be provided by a private sewer main located just north of the existing Building 1 and heading to the north. A new service line or extension of an existing service will need to be installed for the proposed addition. The proposed addition will need to function as a stand-alone space so it can be operational during remodel of the existing south wing.

3. Stormwater Service – Stormwater for the area appears to drain to three basins. Building 1 roof drains to a french drain and drywell system located in the grassy area north of the building. The parking area to the west drains to a localized low point / drywell northwest of the site that infiltrate runoff. The parking area to the south drains to a localized low point / drywell southeast of the site. The campus soils appear to be suitable for stormwater infiltration. The stormwater system for the addition is expected to provide infiltration for the developed area and water quality treatment for all pollution generating surfaces. All facilities are to be designed in accordance with the Spokane Regional Stormwater Manual and City of Spokane standards.

4. Natural Gas Service – Natural Gas service for the site is provided by Avista Utilities from a gas service located to the west of the existing Building 1. The existing gas meter is located on the west side of Building 1. Current gas pressure is five pounds.

7.3 Quality of Materials and Systems

A. Site facilities are to be constructed with materials consistent with standard industry practices, Community Colleges of Spokane District Facilities Construction Standards, City of Spokane Standards, City of Spokane Water Department Standards, and the Washington Department of Transportation Standard Specifications for Road and Bridge Construction.

B. Any pedestrian walkway is to be constructed of materials consistent with other areas of the campus and Community Colleges of Spokane District Facilities Construction Standards. The layout of the pedestrian connectivity is to fit in the context of the campus, buildings, and surrounding walkways.

8.0 STRUCTURAL DESIGN CRITERIA

The facility provided shall be suitable for higher-education use with minimum uniform live loads increased for corridors, assembly areas, stairs and exits, light storage, and other uses specified in Section V. Design Program - Space Program, Room Data Sheets, Drawings and Diagrams. In addition to a requirement to meet minimum standards included in governing building codes, State of Washington facilities guidelines, and this RFP, the structural system should provide a comfortable working environment, serviceability, minimal maintenance requirements, flexibility to accommodate future expansion and changes in occupancy, and low life cycle costs.

The project is to include careful consideration of the potential seismic design issues as noted in a previous study performed by Integrus Architecture. The report identified the potential for certain deficiencies, especially with respect to the connection of roof and floor diaphragms to lateral load-resisting elements, the integrity and capacity of the existing roof diaphragm, the completeness of the floor diaphragm, connections between existing exterior wall elements and the foundations, building separations, minimum steel reinforcing in concrete and masonry walls, and bracing of non-structural components. Some of these issues may be resolved by field verification of as-built conditions where information is unclear or not identified in existing documentation (e.g., not clearly shown on the as-built drawings, etc.). However, in an effort to improve the overall safety of the building, it is the intent of this project for the design-builder to address these issues. The design-builder shall analyze the existing building per current codes and reference standards applicable to the project and retrofit as required. The design-build team will need to show how the proposed structural approach either corrects any identified deficiencies, demonstrates the remodel and addition alters the structural performance so that the issues are resolved, or otherwise verifies per current standards that remediation is not required. Factors may include, depending on the structural approach selected by the design-build team, building separations, revisions to existing main lateral force resisting elements, and the addition of new lateral elements such as bracing, shear walls, etc. if proposed.

There is also a large crack visible between the 1957 and the “Old Main” portions of the building. This crack requires evaluation by the design-build team and shall be suitably repaired.

A. Codes & Standards

The following codes/standards must be adhered to:

1. 2015 International Building Code (IBC) as amended by Washington Administrative Code Chapter 51-50 and as adopted by the of City of Spokane. All referenced standards listed by reference number below shall have title and effective date listed in chapter 35 of the IBC.

2. 2015 International Existing Building Code (IEBC) and all referenced standards.

3. ASCE/SEI 7-10 Minimum Design Loads for Buildings and Other Structures (ASCE 7).

4. ASCE/SEI 41-13 Seismic Evaluation and Retrofit of Existing Buildings (ASCE 41).

B. Narrative and Systems Overview

The structural design loads shall be in accordance with the applicable code and reference standards using criteria that include the following minimum loadings:

1. Dead load consisting of the estimated actual weights of structure, coverings, and permanent contents, including equipment.

2. Roof live load of 20 pounds per square foot, reducible in accordance with IBC Section 1607.12.2.1.

3. Minimum roof uniform snow load of 30 pounds per square foot with consideration of unbalanced snow loading and other provisions per ASCE 7, Chapter 7.

4. Floor live loads, reducible in accordance with IBC Section 1607.10 where noted:
   a) Classrooms and Offices – 65 pounds per square foot uniform load (reducible) + 15 pounds per square foot uniform partition load and 2000 pound concentrated load.
   b) Mechanical rooms – 125 pounds per square foot and 2000 pound concentrated load, or weight of any mechanical equipment plus 50 pounds per square foot.
   c) First floor corridors – 100 pounds per square foot (reducible).
   d) Upper floor corridors – 80 pounds per square foot (reducible).
   e) Stairs – 100 pounds per square foot and 300 pound concentrated load on tread (non-reducible).
   f) Assembly occupancies – 100 pounds per square foot.
   g) Storage rooms – 125 pounds per square foot.
   h) Labs, manufacturing rooms, and manufacturing storage rooms – 250 pounds per square foot and 3,000 pound concentrated load.

5. Ultimate design wind speed of 115 miles per hour, exposure C, in accordance with IBC section 1609 and ASCE 7 Section 26.7.3.

6. Maximum considered earthquake ground motion parameters of Ss=0.335 g and S1=0.115 g; seismic importance factor = 1.25. Site class shall be determined by the geotechnical engineer licensed in the State of Washington preparing the soil investigation report, in accordance with ASCE 7, Section 20.1. Preliminary assumed Site Class “D.”

7. Life-safety components required to function after an earthquake and components containing hazardous contents will be designed for an Importance Factor of 1.5 in accordance with ASCE 7 Section 13.1.3. These include:
   a) Fire protection sprinkler system.
   b) Egress stairway framing.
   c) Stairway pressurization fans (if used).
   d) Egress lighting and exit signage.

C. Quality of Materials and Systems

1. Any construction type that meets the requirements of applicable building codes and this RFP, and provides standards of serviceability, maintenance requirements, flexibility for future expansion and changes in occupancy, and low life cycle costs may be used.

2. Design and Construction to be as per the IBC, referenced standards, and the following:
   a) Foundations, excavation, subgrade preparation, and potential geologic and seismic hazards shall be per the recommendations of a geotechnical engineer licensed in the State of Washington in accordance with IBC Section 1803.6. Geotechnical investigations were reported in “Geotechnical Engineering Evaluation, Building 1 Expansion Project, Spokane Community College,” dated September 30, 2016.
   b) Concrete: ACI 318, ACI 360R-10.

c) Masonry: TMS 402/ACI 530/ASCE 5, TMS 602/ACI 530.1/ASCE 6.
d) Structural Steel: AISC 360 and AISC 341.
e) Cold Formed Steel: AISI S100, AISI S200.
f) Steel Joists: CJ-10, JG-10, K-10, and LH/DLH-10.

3. Use of construction types, materials, or construction methods not covered in referenced standards will require approval by the State based on submitted evidence including testing, reports, calculations, and government and association approvals demonstrating that code, state, and RFP requirements and intent are being met.

D. Special Considerations

1. Essential Facilities/Seismic Requirements:
   The facility is Risk Category III, in accordance with IBC 2015 Table 1604.5.

2. Serviceability:
   a) Vertical deflection of framing members shall be limited to a maximum of 1/360th of the span under live load and 1/240th of the span length under the total load.
   b) Differential static soil settlement across any structural bay shall be less than ½ inch.
   c) A vibration analysis shall be required for members supporting rotating equipment such as ventilating fans and floor joists supporting walkable surfaces. Acceleration limit on office and classroom floors shall be 0.5 percent of gravity, in accordance with American Institute of Steel Construction Design Guide 11.
   d) Story drift shall be limited to values established by ASCE 7, but no more than 2 percent of story height.

3. Flexibility for Future Expansion and Changes in Occupancy: For any structural system that will limit the ability for modifications (e.g., post-tensioned concrete) for changes in uses such as new plumbing penetrations or block-outs or areas allowing for future penetrations shall be provided and located on record drawings.

4. Compatibility with Non-Structural Elements: The structure and expected structural movements due to wind, seismic, and temperature fluctuation shall be compatible with non-structural components and their attachments to the structure. Sufficient separations shall be provided to preclude damage to non-structural components or unintended effects on the structure under code specified movements.

5. Floor Flatness and levelness for slabs on grade shall be meet overall values of flatness, F(F) 35; and of levelness, F(L) 25; with minimum local values of flatness, F(F) 25; and of levelness, F(L) 20.

6. Design, detail, and reinforce concrete slabs on grade for crack width control in accordance with ACI 360R, Design of Slabs-on-Ground. Slab finishing and curing shall be compatible with proposed floor finish material and installation.

9.0 CONVEYANCE SYSTEMS

There is no conveyance scope of work in the project. The existing elevator is new and in good working condition. Design builder shall protect the elevator and related systems during construction to ensure the elevator is in good working order when the project is completed.

10. MECHANICAL SYSTEM GENERAL REQUIREMENTS

A. General Building Description

The selected mechanical subcontractor will be entirely responsible for the design, permitting, building, start-up, and testing of all the mechanical, fire protection, and plumbing systems. The design shall be the responsibility of the mechanical engineers of record who shall be registered professional engineers in the State of Washington. The mechanical contractors shall provide complete and functional systems. All systems shall be provided with adequate service clearances. Equipment shall be easily maintainable and shall be easily accessible.

The mechanical Design-Build contractors shall provide a written guarantee for a period of one year from the date of substantial completion that covers the entire system including equipment, materials and workmanship.

All systems shall be designed and engineered with long term operational efficiency and cost performance in mind. The proposer is encouraged to propose the greatest performance energy savings. The Design-Build Contractor is encouraged to provide a proposal that exceeds the minimum required energy savings.

The Design-Build contractor is also responsible for meeting all requirements of the 18-month performance guarantee.

During the design phase, prepare a Basis of Design document as required for LEED and to clearly communicate the design criteria that have been utilized.

B. Codes and Standards

1. 2015 International Building Code with Washington State Amendments
2. 2015 International Mechanical Code with Washington State Amendments
3. 2015 Washington State Energy Code
4. 2015 International Fire Code with Washington State Amendments
5. 2015 Uniform Plumbing Code with Washington State Amendments
6. ASHRAE Standard 62.1-2010 – Ventilation Standard for Indoor Air Quality
7. ASHRAE Standard 55-2010 – Thermal Comfort
8. ASHRAE Standard 90.1-2010: Energy Standard for Buildings except Low-Rise Residential Buildings
9. LEED Version 2009 for New Construction
10. ADA or Uniform Federal Accessibility Standards
11. National Fire Protection Association (NFPA) Standards

12. National Electrical Manufacturers Association (NEMA)

13. National Electrical Contractors Association (NECA)

14. National Electric Code (NEC)

15. American National Standards Institute (ANSI)

16. Institute of Electrical and Electronic Engineers (IEEE)

17. Underwriters Laboratories (UL)

18. General Administration Facilities Design Guidelines & Construction Standards 2008

19. RCW 70.235.050 Green House Emission Limits for State Agencies

20. Comply with Community Colleges of Spokane 2015 Design Standards and the Owner Project Requirements document except where specifically noted otherwise.

C. Operations, Maintenance and Energy Performance Design Submittal Requirements

The Design-Build Contractor must provide the following documentation and calculations as part of the RFP response and submittal:

1. A narrative explanation of the Design-Build Contractor's building environmental systems (i.e. lighting, envelope, HVAC, domestic hot water, electrical, telecommunications, special systems and others) that are proposed for achieving:
   a) Operational and Maintenance efficiencies.
   b) Design-Build Contractor's Energy Savings Commitment offer, which must meet or exceed the Owner's desired energy savings (as listed above).

2. Description of calculation methods including modeling software, baseline assumptions, and proposed building assumptions used in preparing the analysis.

3. Submit a proposed ELCCA Work Plan adapted to Design-Build delivery and illustrating the ELCCA integration with the Design-Build process. For reference, review the Energy Life-cycle Cost Analysis Guidelines for Public Agencies in Washington State, January 2016, Figure 2.1 and Chapter 4.

4. After contract award, the Design-Build Contractor must provide the following documentation and calculations as part of completing the final LEED submittal requirements and design phase services:
   a) During the design phases, a life cycle cost analysis worksheet must be prepared for the proposed HVAC system, and any proposed energy alternatives. Utilize the Washington State DES Energy Life Cycle Cost Spreadsheet and established escalation and discount rates. The spreadsheet determines the cumulative costs (50 year life cycle costs) of ownership. Provide a description of any assumptions used in preparing this analysis.
   b) Prepare an ELCCA Report as outlined in Chapter 5 of the Energy Life-cycle Cost Analysis Guidelines for Public Agencies in Washington State, January 2016, and adapted to this Design-Build delivery.

5. The Design-Builder must develop and submit to USGBC in accordance with LEED submittal documentation requirements for EA Credit 1, and ultimately attain the proposed number of points for this credit. Additionally, for Energy Star compliance, the Design-Builder must submit all documentation at design completion to EPA energystar.gov.

D. Greenhouse Gas Emissions:

Provide a description of how this project will reduce greenhouse gas emissions and help State agencies meet the requirements of RCW 70.235.050 Greenhouse Emission Limits for State Agencies.

11.0 PLUMBING DESIGN CRITERIA

A. General Requirements

Plumbing systems shall be designed and built to meet current codes and Community Colleges of Spokane design standards. Provide for required permits, inspections, construction sequences, quality assurance, and safety practices. Replace all existing plumbing fixtures in the renovation area with new fixtures in new locations that meet accessibility requirements. Replace associated hot water, cold water, and hot water recirculation piping and appurtenances. Modify existing waste and vent piping as required to match new fixture locations. Existing waste and vent piping may remain to the extent that it still supports the new plumbing fixture locations and is found to be in good condition. The D/B contractor is responsible for visually inspecting existing waste lines with a video scope and clearing any blockages or repairing any breaks found.

Provide a new high-efficiency domestic hot water system for the addition.

B. Plumbing Design Criteria

Plumbing piping sizing criteria is listed below:

Domestic Water Piping:
- Minimum pressure 35 PSI at most remote outlet
- Maximum pressure 80 PSI at any location
- Maximum Static Pressure Loss 6 PSI/100'
- Maximum velocity is 8 fps for cold water and 5 fps for hot water

Waste and Vent Piping:
Minimum ¼" per foot slope inside the building. Size using tables in the Uniform Plumbing Code

C. Plumbing Fixtures

1. See SCC Standards for fixtures.

2. Sanitary: A complete sanitary waste and vent system will be provided. Waste and vent piping shall be no-hub cast iron, except where acid resistant piping is required. Underground piping shall use heavy duty couplers. A new waste connection for the addition may be required. Provide acid resistant waste piping, including traps, and vent piping for the Soldering/Etching room plumbing fixtures and all plumbing fixtures in cosmetology. Acid resistant vent piping shall extend at least 10' from each designated fixture before transitioning to cast iron. Acid resistant waste piping serving these designated fixtures shall extend until the main has tied in with at least 3 sinks or lavatories, or at least one water closet, before the main can transition to cast iron and the minimum length of acid resistant waste piping extending from any designated fixture shall not be less than 20'. Acid resistant piping shall be ASTM F 1412, Schedule 40 with fire retardant resin complying with ASTM D 4101 with fusion and/or fusion and mechanical joint ends. No threaded joints will be allowed. R&G Sloan with GSR "Fuseal" or equal Orion or Lab-Line Enfield.

3. Storm Water: A roof and overflow drain system shall be provided as required by code. Storm piping shall be no-hub cast iron. Insulate all horizontal roof drain lines.

4. Natural Gas: Natural gas service is available to the site from Avista. Natural gas may be used for building or domestic water heating and for the emergency generator. Coordinate meter replacement or relocation as needed with Avista. Gas piping will be installed per Washington State codes.

5. Domestic Cold Water: Piping shall be Type L Copper.
   a) Domestic cold water is available on site. The domestic water system shall be provided with positive means to control backflow, with a reduced pressure backflow preventer at the cold water header and appropriate backflow preventers at sources of possible contamination within the building, such as mechanical equipment or industrial cold/hot water systems. A new water connection for the addition may be required.
   b) Cold water will be distributed to the plumbing fixtures. Freeze-proof hose bibs in locked boxes should be distributed around perimeter of the new building (at a 50' on center minimum), and be provided near mechanical equipment, and where it may be required for cleaning or servicing of equipment. All distribution piping shall be copper piping.
   c) Vertical domestic water risers shall be provided with isolation valves at each floor. Provide ball type isolation valves at all major branches and at all restroom groups.
   d) Irrigation: A backflow device shall be provided for the irrigation system.

6. Domestic Hot Water and Recrirc.: Piping shall be Type L Copper.
   Domestic hot water for the addition can be provided by natural gas hot water heaters, heat pumps, solar hot water with gas backup, or another source that supports the project energy goals and budget. Domestic hot water will be distributed throughout the building with a water recirculation system. The domestic hot water system and components shall be controlled by the building management system. Ground water temperature used for domestic water heater sizing shall be based on 40˚F. Water heater shall produce 140˚F temperature water for health purposes and be delivered to the fixtures at a maximum of 110˚F. All public fixtures shall be protected by a device capable of limiting the water temperature to 110˚F for scald prevention.

7. Industrial Cold and Hot Water (where required): Industrial cold water may be provided for HVAC system makeup water or for fixtures requiring non-potable water. Industrial water systems will be isolated from the domestic water system by means of a reduced pressure backflow preventer located in an accessible location for future maintenance and testing.

8. Solar Water Heating: Solar water heating systems are acceptable, but not required. System diagrams, freeze protection methods, controls, and other design considerations should be provided as part of the design-build proposal. The system shall include a backup heating water source. The anticipated energy savings and potential economic incentives available should also be provided with the design-build proposal.

D. Submittals

Provide a narrative regarding the plumbing systems and equipment proposed.

12.0 HEATING, VENTILATING AND AIR CONDITIONING DESIGN CRITERIA

A. General Requirements

From an HVAC standpoint, there are four main areas of the project that are helpful to clarify:

- The new addition.
- The renovation area.
- Non-renovated areas currently served by the same air distribution system (Dual Duct) as the renovation area.
- Non-renovated areas served by systems other than the Dual Duct system (but connected to the same chilled water system as the renovation area).

This project involves providing HVAC for the new addition, a new HVAC system for the renovation areas, and new HVAC for the non-renovated areas currently served by the same air-distribution system as the renovation area. It also involves providing a new chilled water system for the entire existing building (and potentially the new addition) and replacement of the boilers serving the South Wing. Further details are included below.

The new addition will require an efficient HVAC system. Due to phasing, it is anticipated that the building addition will require its own HVAC system, separate from the existing building. Any new air handling equipment must be located within a mechanical room space or in an enclosed mechanical penthouse with stair access. CCS will also allow installation on the roof of the existing building or new addition. The D/B contractor is permitted to develop and present a plan for serving the addition with the same new HVAC system that is selected to serve the renovation area.

A Dual Duct system currently serves the renovation area and some adjacent areas that are outside of the renovation boundary. The Dual Duct system is in poor condition and no longer meets current energy code and as such must be completely replaced with a new HVAC system and associated controls.

The results of the ELCCA to be completed by the selected D/B team during design, discussions with SCC, and the professional opinions of the D/B team will determine the type of HVAC system(s) selected for the new addition, renovation area, and non-renovated area currently served by the Dual Duct system.

Chilled water for the building is provided from a 500-ton chiller plant located in the East Wing. There are two water-cooled chillers, cooling tower, and chilled water pumps. Replace the chilled water cooling system, including chillers, cooling tower, pumps, mechanical room piping, appurtenances, and controls. The new system shall serve the same existing systems and the new HVAC system for the renovation area. Due to phasing of the building addition it is expected that the building addition will require its own cooling system and will not be connected to the upgraded chilled water system. The D/B contractor is permitted to develop and present a plan for serving the addition with the upgraded chilled water system. Because of building envelope and lighting improvements in the renovation areas, the chilled water system capacity is expected to be reduced from the existing capacity. The new chilled water plant will be included in the LEED submittal only to the extent that it serves the renovation and new addition areas (prorated) that are within the LEED boundary. It is not expected that the existing air handling units (connected to the chilled water system) outside of the renovation area and new addition will be part of the LEED submittal.

Heating water for the South Wing is generated by two non-condensing boilers that were replaced around 2006. This heating plant, including the two boilers, pumps, mechanical room piping, controls and appurtanences, shall be replaced with new condensing boilers and VFD controlled pumps. This new system may also be utilized to serve the addition, which is a permissible option.

Heating water for the East Wing is provided through a gas fired heating plant that was upgraded in 2015 and is not a part of this project.

All existing chilled water and heating water piping located in the renovation areas on the first and second floors shall be replaced with new piping and new insulation to the extent that it is required to remain in use as part of the selected system option. Existing chilled water and heating water piping outside of the renovation area and outside of the mechanical rooms can remain in use.

Provide specialty exhaust hood for the circuit board soldering area in the Soldering/Etching room. Monoxivent MXN Mini/Lab arm or equal, wall mounted with hood style to suit Owner.

Provide Type I kitchen exhaust hood and natural gas piping for one 6-burner gas range with oven in the teaching kitchen. Provide associated exhaust ductwork, grease exhaust fan, and make-up air provisions. Type I hood may be constant or variable speed, Greenheck or equal. Meet all IMC requirements for a complete system.

B. Design Criteria and Considerations

All systems shall be provided in compliance with all code requirements, CCS Standards, and the OPR. At a minimum the following data should also be taken into consideration in the design. Duct sizing shall be in accordance with ASHRAE and SMACNA requirements, taking into account noise considerations. Provisions for thermal expansion shall be provided. Supply diffusers and registers shall be selected for proper throw and noise criteria. Exhaust and return grilles shall be sized at a maximum of 500 fpm. Air transfer grilles shall be sized at a maximum of 250 fpm. Every grille, register, and diffuser shall be provided with a means of balancing in the ductwork. Opposed blade dampers in the grilles, registers, and diffusers are not an acceptable means of balancing for items connected to ductwork. Outside air louvers shall be sized to eliminate the possibility of water entrainment, typical maximum velocity shall be 500fpm.

The building loads shall be calculated as required by the 2015 Washington State Energy Code. Consideration should be given to architectural systems that can reduce building cooling load, coordinate with building architect. The preferred system is air-cooled packaged chiller. Provide 100% redundant cooling water pumps. Provide variable speed pumps. Chilled water piping shall be steel or copper. Provide independent cooling systems for telecom, IDF, and MDF rooms.

Energy recovery should be used where practical or required by code. Natural ventilation is not acceptable.

All equipment utilized in this project shall be selected and installed for ease of serviceability. Maintainability of equipment is of prime importance. The D/B shall consult with the Owner on desired equipment manufacturers for all major pieces of equipment and shall include in the project only those manufacturers approved by the Owner.

Provide noise and vibration control of mechanical systems.

Hydronic piping systems shall be reverse return configuration wherever practical.

Heat Generation and Distribution: For any new heating hot water systems, provide multiple, high-efficiency, gas-fired condensing boilers and design coils for low temperature return water to maximize the potential for condensing. Provide a dedicated primary pump per boiler and variable flow secondary pumps for the loop serving equipment. Provide duplex secondary pumps for redundancy in system operation. Lochinvar is the preferred manufacturer.

Cooling Generation and Distribution: Provide two new chillers of equal size with variable frequency drives. Provide a primary-secondary pumping system. Provide duplex secondary pumps for redundancy in system operation. The Owner's preference is for a new air-cooled chiller. To eliminate the need for glycol in the system a split unit may be utilized (with evaporator located indoors and condensing unit located outdoors with refrigerant piping in between). Alternatively, a packaged air cooled unit with glycol can be used with a plate and frame heat exchanger to permit chilled water without glycol to circulate within the building. In either case, all pumps must be located inside the mechanical room. It is not permitted to route chilled water with glycol through the building to coils. At D/B contractor's option, a water-cooled chiller with cooling tower may be provided for added efficiency to achieve the performance requirements. If a water-cooled option is utilized, provide duplex condenser water pumps for redundancy in system operation. Upgrade the existing refrigeration machinery room monitor and ventilation to meet current code requirements and to match the new refrigerant type. Screw compressors are preferred. Reciprocating chillers are not permitted. Provide sound attenuation on equipment to meet site and building space acoustic requirements.

Rooms with specialized air conditioning needs such as server rooms, IDF, elevator machine rooms, etc., shall have dedicated A/C systems with 24/7 operation capability independent of the main building HVAC system. CCS prefers Daiken mini-split systems with LON communication.

Acoustics:

Mechanical systems shall be designed and installed to meet the maximum noise criteria (NC) established for each space use. Special acoustical considerations of the mechanical systems shall include locating air handling units away from acoustically sensitive areas and treatments for the chiller and cooling tower. Where this is not possible, acoustically treated walls or other attenuation measures may be required.

Additional acoustical considerations shall include limitation of duct velocities through ductwork, terminal units and air inlets/outlets to achieve space NC, use of sound attenuators in the duct systems to reduce noise and to prevent crosstalk between occupied spaces, and vibration isolation of mechanical equipment with spring isolators and flexible connections.

DB Team shall retain the services of an acoustic consultant to provide acoustical recommendations and design criteria to achieve a sound level that is acceptable to the use of each space.

Controls:

A direct digital control (DDC) LON compatible system shall be provided to control and monitor all HVAC equipment and systems. Controls shall be by CSN as an extension of the existing campus system. Valve and damper actuation will be electric type with Schneider Electric controls as the preferred vendor. The control system will be complete and allow for full control and monitoring from the operator's terminal or from an off-location via the internet. The operator's terminal shall be a desktop unit with hardwired connection (WiFi in building is subpar) located in the main mechanical room. The control system will perform all required control functions, including optimization of equipment and system performance, reliability, equipment life and energy consumption. All building services, gas, water, electricity etc., shall be

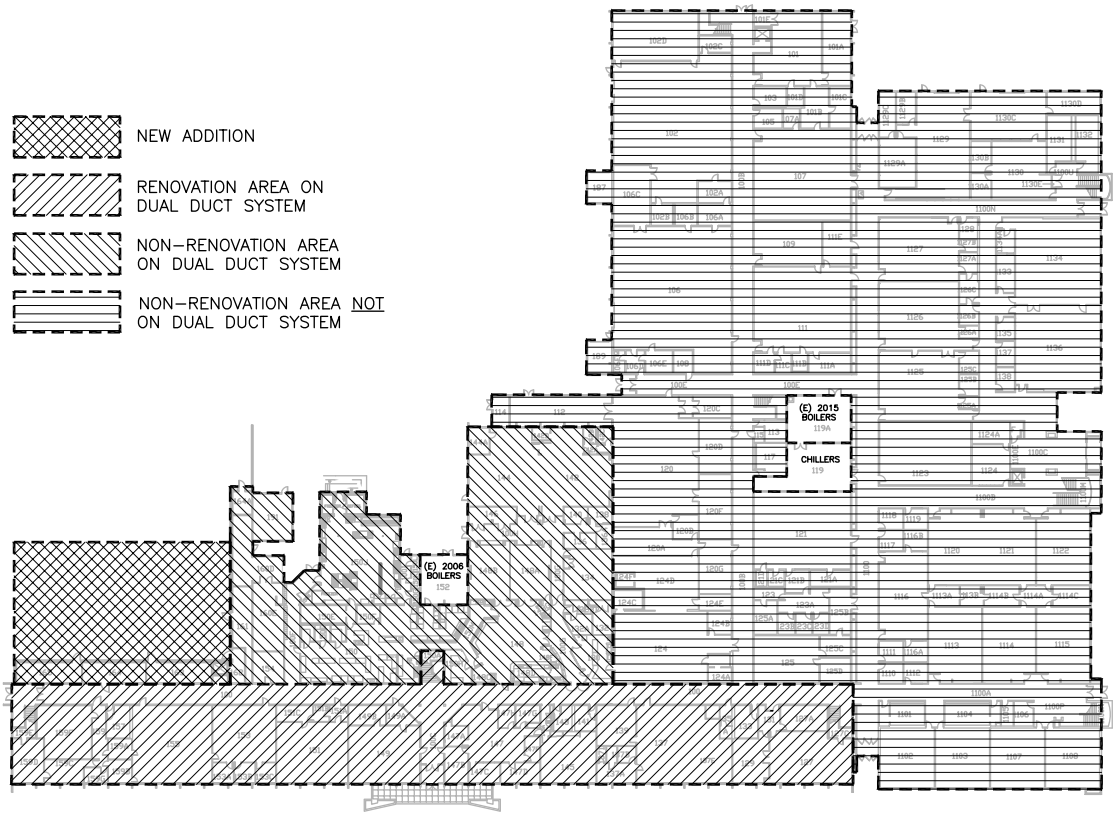
monitored by the DDC system. A system that allows for an easy export of the metering data to Portfolio Manager shall be provided. The DDC system shall be certified and approved by the Building Network owners.

An extensive measurement and verification system is anticipated to carefully monitor all of the building's energy use. Provide metering system to meet the WSEC, LEED EAc5, and to verify the energy performance requirements.

Air systems (supply, return, and exhaust), chilled water, hydronic heating water and domestic hot water recirculation systems shall be completely balanced in accordance with Associated Air Balance Council or National Environmental Balancing Bureau. The DB Team shall secure the services of an independent Testing, Adjusting and Balancing (TAB) agency for the TAB of the mechanical systems.

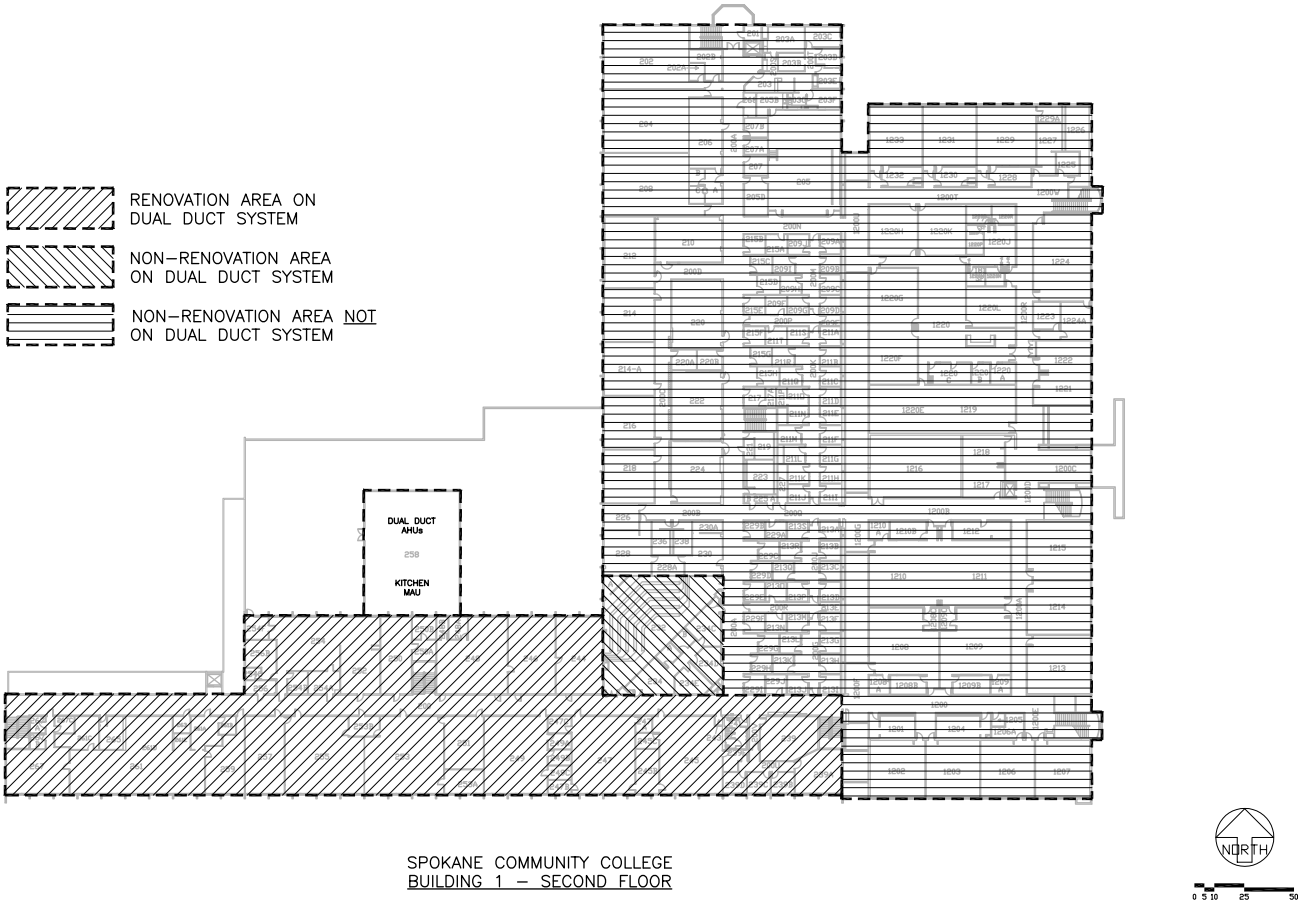
C. Include the following as part of the Design-Builder Proposal:

Narrative describing the HVAC, chilled water and heating water system(s) proposed for the project. Include a conceptual thermal zoning plan, and list of specific major equipment.



SPOKANE COMMUNITY COLLEGE
BUILDING 1 – FIRST FLOOR

C. Include the following as part of the Design-Builder Proposal (cont.)



SPOKANE COMMUNITY COLLEGE
BUILDING 1 – SECOND FLOOR

13.0 FIRE PROTECTION DESIGN CRITERIA

13.1 Design Criteria

The building is currently partially sprinklered on the first and second floors. Design builder will modify the existing sprinkler system to provide complete automatic sprinkler protection throughout all areas of the renovation area that are not currently sprinklered as well as in the new addition. Provide a dry pipe sprinkler system in exterior areas subject to freezing and dry pendant type sprinkler heads in interior areas subject to freezing. The installation of the sprinkler system shall be in compliance with NFPA 13 as well as local amendment and Fire Marshal requirements. Coordinate with the owner to meet the requirements of either UL or FM Global. In general, new fire sprinkler systems or components shall consist of connection to the existing fire sprinkler system riser, flow and tamper switches, control valves, alarm bell, fire sprinkler piping and heads, as required. Coordinate location and type of tamper and flow, switches with the fire alarm system. Provide concealed fire sprinkler piping in finished areas and exposed piping in unfinished areas as required. Provide hydraulic calculations to demonstrate there is sufficient water supply for the sprinkler system. Hydraulic calculations are to be based upon flow test data within 6 months of the fire sprinkler design. A 10% reduction in water supply is required for any new fire sprinkler design.

For bidding purposes, please use the following water supply information:

- Static Pressure – 80 PSI
- Residual Pressure – 69 PSI
- Flow – 1163 GPM

Replace existing sprinkler heads in light areas with quick response type sprinkler heads. Sprinkler heads in rooms with ceilings shall be concealed head type or sidewall type with polished chrome escutcheons and upright rough brass finish type heads in unfinished areas. Horizontal dry sidewall sprinkler heads shall be provided for overhangs, and other perimeter areas subject to freezing.

14.0 COMMISSIONING

Commissioning services will be required per the Washington State Energy Code and as necessary to achieve both fundamental and enhanced commissioning LEED Credits. Provide a third party Commissioning Authority acceptable to the Owner to direct the enhanced commissioning requirements for LEED version 2009. The Commissioning Authority will review design documents and make recommendations during the Program phase, design phase, construction phase, acceptance phase, and post acceptance phase. Installation verification will be performed, functional testing, and performance period of measurement and verification. Commissioning documents will be provided during design, process, verification, and operation and maintenance documents. Refer to the Owner Project Requirements (OPR's) prepared by EEI located in the Appendix.

15.0 ELECTRICAL – POWER DISTRIBUTION DESIGN CRITERIA

A. General Building Description

1. The Design-Build Contractors will use this Request for Proposal (RFP) narrative to prepare their designs for the building electrical systems.

2. The selected electrical subcontractor will be entirely responsible for the design, permitting, building, start-up and testing of all the electrical, emergency power, lighting, lighting controls, fire alarm, telecommunications, audio/visual, and other low-voltage systems as described throughout the RFP document. The design shall be the responsibility of the Electrical Engineer of Record who shall be a registered Professional Engineer in the State of Washington. The electrical contractors shall provide complete and functional systems.

3. The electrical design-build contractors shall provide a written guarantee for a period of one year from the date of substantial completion that covers the entire system including equipment, materials and workmanship.

4. The electrical system shall comply with the latest adopted editions of the following:
   a) National Electrical Code.
   b) National Electrical Safety Code (NESC).
   c) NFPA 70E, Electrical Safety in the Workplace.
   d) WAC 296-46B.
   e) Washington State Energy Code, latest adopted edition.
   f) NFPA 72, National Fire Alarm Code.
   g) International Fire Code, latest adopted edition with local amendments.
   h) American's with Disabilities Act Accessibility Guidelines (ADAAG).
   i) LEED v. 2009.

B. Quality of Materials and System

1. The Design-Build proposal shall include a submittal of materials, equipment and calculations that will be used on the project. Where applicable, the list shall include:
   a) Underground vaults.
   b) Oil filled pad-mounted transformers.
   c) Main Switchboard load calculations.
   d) Switchboards.
   e) Metering at Main Switchboard for both incoming and output.
   f) Emergency generator, sound-proof enclosure, and all generator components.
   g) Remote annunciator for emergency generator.
   h) Generator fuel tank.
   i) Transfer switches.
   j) Short Circuit Study.
   k) Overcurrent Protective Device Selective Coordination Study.
   l) Arc flash study.
   m) Arc flash labels per NFPA 70E.
   n) Panelboards.
   o) Transformers.
   p) Surge Protective Devices (SPDs).
   q) Power meters and metering network.

r) Conduit.
s) Wire:
- Fittings.
- Bushings.
- Junction boxes.
- Seismic bracing and support details per Structural criteria and manufacturers' requirements.
- Ground bars.
- Electrical Floorboxes.
- Conduit supports.
- Fire Alarm System.
- Grounding components, including ground rod and ground bushings.
- Labeling.
- Lighting Controls:
  - Occupancy sensors.
  - Vacancy sensors.
  - Daylighting sensors.
  - Room controllers.
  - Power packs.
  - Relay packs.
  - Scene controllers.
  - Programmable lighting control panels.
  - Typical lighting control wiring diagrams for each room type.
- Light Fixtures.
- Lighting calculations (footcandles) for all spaces, interior and exterior.
- Exit signs.
- Emergency lighting inverters.

C. Secondary Normal Distribution

1. The main service shall be sized per the National Electrical Code using actual loads. The main service shall have a minimum of 25% spare capacity.

2. The main switchboard shall be rated 480Y/277 Volt, 3 Phase, 4 Wire. The bussing shall be copper with silver plating and shall be full capacity throughout. Ground bus shall extend the full length of the switchboard. Circuit breakers shall be fully rated. The use of series ratings is prohibited.

3. All circuit breakers 225 amperes and above shall be fully adjustable LSI, with the main breaker having LSIG. All circuit breakers 100 amp to 200 amp shall have an instantaneous setting. The circuit breaker for the surge protective device may be non- adjustable molded case.
4. Square D, GE, or Eaton/Cutler-Hammer.

D. Emergency and Standby Power

1. Provide a replacement natural gas engine/generator for this project to be located where existing generator is installed. Generator to serve Emergency (NEC 700) and Optional Standby (NEC 702) loads as follows:
   a) Emergency
   - Egress lighting.
   - Exit signs.
   - Fire alarm.

b) Standby:
   - MDF / IDF Room power and air conditioning.
   - Access control and security system.
   - Elevator

c) The power systems for Emergency shall be selectively coordinated per NEC Article 700.

d) Normal, Emergency, and Optional Standby branch circuits and feeders shall be in separate raceway systems.

e) The generator shall be manufactured by Cummins/Onan or Caterpillar.
   - Provide a design of the generator pad that restrains the generator per the manufacturer's recommendations. Design shall also be designed for anticipated seismic forces. Design shall be designed and stamped by a Registered Structural Professional Engineer in the State of Washington.
   - Provide emissions mitigation per Spokane County requirements. Contractor shall manage the application process for Spokane County enforcement agency.

f) Provide a separate circuit breaker for a load bank. The load bank circuit breaker shall be automatically tripped off in a power outage.

g) The generator shall have the capability to shed optional standby loads only in the event of a generator overload via its control panel, which will tell the Automatic Transfer Switch (ATS) to go to the neutral/center-off position.

h) Provide a LON output for remote monitoring of the generator.

i) Provide a wired remote annunciator. Locate as di.

j) Automatic Transfer Switches shall be manufactured by generator manufacturer. Automatic Transfer Switches shall have LON communications.

k) Provide critical grade silencer and Schedule 10 stainless steel exhaust system.

2. Provide two Automatic Transfer Switches for the above branches. All Automatic Transfer Switches shall be time delay neutral style.

3. The generator shall be sized with a minimum of 25% spare capacity.

E. Power Studies

1. Provide short circuit study to determine the available fault current at each component of the electrical distribution system, including: power distribution equipment, switchboards, distribution panels, panelboards, motor control centers, disconnect switches, variable frequency drives, elevator controllers, UPSs, and mechanical equipment with feeders sized over 60 amps. Verify that equipment being provided is rated for the available fault current.

2. Provide an overcurrent protective device selective coordination study that determines settings of breakers to optimize selective coordination. Coordination study shall comply with requirements of NEC 700.

3. Provide an arc flash study for all equipment listed above per NFPA 70E requirements. Label all equipment with pre-printed labels that indicate the hazard risk category, incident energy at 18 inches, the flash protection boundary, recommended PPE, shock hazard circumstance, limited protection boundary, restricted protection boundary, prohibited protection boundary, and tool and glove requirements.

F. Panelboards

1. All panelboards shall use copper bussing. Circuit breakers shall be bolt-on type. Enclosures shall be hinged door-in-door type.
2. Panelboards shall be fully rated for the available fault current. Series rated systems are not permitted.
3. Feeders to panelboards shall meet or exceed the bussing rating of the panelboard (i.e. #4/0 wire to a 225 amp panel).
4. Panelboards located in a different room from its distribution panel shall be provided with a main circuit breaker.
5. All main circuit breakers shall be individually mounted, molded case.
6. Provide 25% minimum spare breakers in each panelboard.
7. Provide 25% minimum spare capacity in each panelboard.
8. Provide typewritten panel schedules in all panelboards and switchboards.
9. Provide typewritten overcurrent device settings LSIG for panelboards and switchboards with adjustable overcurrent devices which match the settings reported in the overcurrent protective device selective coordination study.
10. The first panel on the output of a transformer shall have a Surge Protective Device.
11. Panelboards that serve communication rooms and computer equipment shall have a Surge Protective Device.
12. Panelboards shall be Square D, GE, or Eaton/Cutler-Hammer.

G. Transformers

1. Transformers shall be dry type with 220-degree C insulation.
2. Windings shall be copper.
3. Efficiency shall meet US Department of Energy 2016 requirements.
4. Sound level shall not exceed 35dB.
5. 10kV BIL.
6. Provide k-13 transformers for all office and IT loads.

H. Uninterruptible Power Supply (UPS)

1. All communication rack mounted UPS's in communication rooms shall be Owner provided.

I. Power Metering

1. Provide metering per the Washington State Energy Code and as required by LEED. The meters shall be monitored by the Energy Monitoring System. Meters shall be provided with communication protocol that is compatible with the Energy Monitoring System.

J. Wiring Methods

1. All wiring shall use conduit and wire as the wiring method. MC cable is not permitted.

2. PVC conduit (Schedule 40) shall only be used underground. Elbows and vertical conduit risers shall be Galvanized Rigid steel Conduit (GRC).

3. GRC conduit shall be used above ground outdoors and in areas subject to damage from vehicles or equipment.

4. EMT conduit shall be used indoors where not subject to damage. Minimum size shall be 3/4".

5. Couplings and connectors shall be waterproof steel compression-type only. Zinc-die- cast, malleable, setscrew, and indent couplings and connectors shall not be used.

6. #10 and smaller wiring can be stranded or solid. #8 and larger shall be stranded.

7. Provide dedicated neutral conductor for each 120 Volt and 277 Volt circuit.

8. Insulation shall be THHN/THWN for interior branch circuits. Feeder conductor insulation shall be THHN/THWN or XHHW-2. Underground feeder insulation shall be XHHW-2.

9. Use threaded rod and/or a trapeze supported with threaded rod to support overhead raceway.

10. See Washington State standards for wire identification requirements.

11. Electrical floor boxes shall be flush and fully adjustable pre- and post- concrete pour. Cover shall protect and keep out water, dirt, and debris and shall also match adjacent floor type appearance. Floor boxes on grade shall be cast iron. Wiremold/Legrand Evolution Series or approved equivalent.

K. Device Layouts

1. Locate receptacles and associated telecommunications outlets within 6 inches of each other.

2. Locate receptacles as follows:
   a) Offices: One double duplex receptacle at desk location. One duplex receptacle on each of the three other walls.
   b) Computer Labs: Provide floor box for Duplex receptacles shall be located every 8 feet, with a minimum of two duplex receptacles on each wall. Provide an electrical floor box at teacher desk.
   c) Labs: Duplex receptacles shall be located every 8 feet, with a minimum of two duplex receptacles on each wall. Provide an electrical floor box at teacher desk.
   d) Conference Rooms: One duplex receptacle 8 feet. Provide an electrical floor box centered below conference table.

e) Corridors: One general duplex receptacle for housekeeping every 30 feet maximum along hallways and corridors. Provide receptacles adjacent to elevators and in stairwells at each landing.
f) Provide GFCI duplex receptacles every 4 feet on countertops in kitchens.
g) Provide receptacles for each piece of equipment.
h) All utility, electrical, mechanical, janitor, and storage rooms shall have at least one general duplex receptacle near the door. Janitor's room must be GFCI if there is a mop sink.
i) Provide a receptacle within 25 feet of all mechanical equipment.
j) Provide GFCI receptacles in all bathrooms, kitchens, indoor wet locations, locker rooms and associated showering facilities, garages, service bays, at all countertops within 6 feet of sinks, and on rooftops and outdoors.
k) Provide exterior weatherproof GFCI receptacles near each exterior door, each with a dedicated utility circuit.
l) Provide exterior weatherproof GFCI receptacles within 25-feet of all exterior and rooftop mounted mechanical equipment with a dedicated utility circuit.
m) Provide L5-20R cord drops for each IDF and MDF communication equipment rack.

L. Circuiting Requirements

1. At most five receptacles shall be connected to a circuit where not designated otherwise in this section.

2. Provide dedicated 20 amp circuits for each the following:
   a) Photocopiers.
   b) Laser printers.
   c) Microwaves.
   d) Vending machines.
   e) Coffee machine.
   f) Two at kitchenette counters.
   g) Toaster.
   h) Refrigerator.
   i) Dishwasher.
   j) Shop Equipment.

3. Provide one circuit per three receptacles in conference rooms.

4. Provide one circuit per 2 workstations maximum. Verify with Owner whether there are any high power users that may need their own dedicated circuit.

5. Receptacles shall be Leviton, Hubbell or Pass & Seymour and be 20 amp industrial grade hard use. Confirm with owner the style and type. Utility receptacles shall be white.

6. Stainless steel cover plates shall be used.

M. Labeling

1. Label all major pieces of electrical equipment, including switchboards, distribution panels, panelboards, transformers, disconnect switches, variable frequency drives, UPSs, PDUs, transfer switches. Labels shall indicate the equipment name, voltage, amperes, upstream source(s) and downstream loads, where applicable. Labels shall be 3-layer, and attached with screws, not just adhesive. Labelling shall meet additional WAC requirements, where applicable.

2. Label receptacles, switches, and furniture whips with panel name and circuit number. Use labeler to produce small letters and numbers. Use black letters with a clear background for general circuits and red letters with clear background for computer circuits.

3. Provide orange labels for emergency equipment.

4. Transformer labels shall be metal and engraved with information required.

N. Grounding

1. Ground per NEC Article 250. Soares book on grounding and IEEE "Recommended Practice for Grounding of Industrial and Commercial Power Systems" shall be used as guides.

2. Run all grounding electrodes to a ground bar within the main electrical room, which in turn connects to the main switchboard.

3. Provide a UFER ground in additional to ground rods and bonding to water pipe at the main service.

4. All conduits shall have an equipment grounding conductor sized per Article 250.

5. Provide a ground bar in each electrical room that is used for grounding transformers.

6. Provide a #4/0 ground riser to each electrical room, which interconnects each of the ground buses. The riser terminates on the main ground bar in the main electrical room.

O. Lighting Controls

1. Provide lighting controls per the current Washington State Energy Code and per LEED. This includes:
   a) Provide occupancy sensors in all classrooms/lecture/training rooms, conference/meeting/multipurpose rooms, copy/print rooms, lounges, lunch and break rooms, offices, restrooms, storage rooms, janitorial closets, locker rooms, and other spaces less than 300 square feet enclosed by floor-to-ceiling height partitions. Provide additional controls in other multi-occupant spaces as required by LEED.
   b) Coordinate with mechanical engineer if lighting control integration with the HVAC system is required. If the mechanical engineer requires lighting control integration, the ceiling mounted occupancy sensors shall shift the HVAC into an Unoccupied Mode of Operation after the room has been vacant for 20 minutes (AUTO OFF). The occupancy sensor shall either be equipped with an on-board relay contact or be programmed to operate one of the isolated relays in the digital control system module for use by a building management system for HVAC control. The occupancy sensor shall be programmed to operate the dedicated isolated contact closure in conjunction with the lighting controls. The occupancy sensor settings shall be high sensitivity and fixed time (not automatic learning). Contractor shall coordinate the specific manufacturer settings of the installed system to match the programming described above.

2. Controls in Conference and Classrooms:
   a) The lighting fixtures in these rooms shall be controlled by a digital programmable wall box based dimming control system. The dimming control system shall be provided with sufficient dimming channels to control each light fixture types individually as specified by the lighting designer.

b) When a combined room is used in single mode lectern lighting is typically the fixture(s) furthest away from the operable partition. In combined mode the lectern lighting is typically the fixture(s) closest to the operable partition. Coordinate with architect which room's lectern should be active in combined mode.

c) Each room shall have a minimum of one wall mounted remote button station with the buttons specifically programmed and labeled for the specific room per the matrix for button labeling and programming issued by the Lighting Designer or Architect. The remote button station shall have the capability to manually dim the currently activated scene up and down without additional fixtures, not included in the current scene, coming on. The dimming control panel shall also accept control signals from an audiovisual system to control lighting in each room where A/V systems are being provided; a RS232 serial interface port, shall be flush wall mounted behind the audio visual equipment rack location in each room. The key pad buttons for A/V control systems shall provide the users with full control of the room lighting levels including a minimum of four scenes: The scenes shall be similar to the following: Button 1: All On/Off; Button 2: Center On/Off; Button 3: Wall 1 On/Off; Button 4: Wall 2 On/Off; Button 5: Dim Up/Down.
   - Automatic daylight zone control, using dimming drivers not switching. Area of control shall not exceed 2,500 square feet per Washington State standards. The primary daylight zone shall be controlled separately from the secondary daylight zone. Controls shall only control luminaires within the daylight zone(s) and shall incorporate time-delay circuits to prevent cycling of light level changes of less than 3-minutes. Where there are multiple entries into the same lighting zone, provide a switch at each point of entry.
   - Automatic shutoff of permanently installed task lighting.
   - Manual light reduction controls.
   - Controls shall be manufactured by Leviton or approved equal by the CCS-Project Manager. Manufacturer shall have been in the business of manufacturing and providing service for lighting control equipment for similar capabilities and size, under the same name and ownership, for a minimum of five years preceding bid date of the project. All components and assemblies shall be factory pre-tested prior to installation. Factory trained technicians shall be on site for start-up, commissioning and training. Factory trained technicians shall be available for telephone support twenty-four (24) hours a day, seven (7) days a week. All equipment shall be U.L. listed.

3. Provide a programmable lighting control panel that automatically sweeps on and off lights at set times. Flicker warnings shall be provided before lights are turned off.

4. Provide local manual override switches along main corridors so that occupants can switch the lights back on for two hours before they automatically shut off again.

5. Panel shall store its programming for at least ten hours after loss of power.

6. Panel may control exterior lighting as well, but must use an astronomic input to turn the lights on and off.

7. Panel shall be manufactured by Leviton or approved equals and have a LON interface.

P. Surge Protective Devices (SPDs)

1. Provide externally mounted surge protective devices. They shall be connected to a circuit breaker within the equipment they are protecting.

2. SPDs shall be rated for the available fault current.

3. SPDs shall be UL Listed 1449, 3rd Edition.

4. The SPD at the main switchboard shall be rated 150kA, mode to mode.

5. SPDs at panelboards shall be rated 50kA, mode to mode. Provide for all panels feeding lighting, and the first panel on the output of each transformer that serves offices and IT loads. Provide for the panel that feeds the server room UPS.

6. Provide 60A-3P breakers for switchboard SPDs and 30A-3P breakers for panelboard SPDs.

Q. Fire Alarm System

Provide a new addressable fire alarm control panel that is compatible with the existing notification appliances and initiating devices. The newly renovated areas and addition will be equipped with new notification appliances and initiating devices. Additional notification appliances and initiating devices will be added where needed throughout the existing building. All new and existing devices, appliances and applicable equipment shall meet the requirements of NFPA 72 as well as state and local codes as amended by the Fire Marshall. All existing notification appliances and initiating devices outside of the renovated areas to be compatible with and connected to the new fire alarm control panel. The existing FACP will be demolished. The fire alarm system shall consist of horns, strobes, valve and sprinkler flow monitors, smoke detectors, duct smoke detectors, elevator controls, and other devices as required. Provide air handling shutdown as required. Provide a remote annunciator at the main entrance if the fire alarm control panel is not located there. Contractor is required to test 100% of all initiating device and notification appliance circuits.

R. Wireless Clock System

1. Extend the building existing Valcom GPS Wireless clock system into new additional and renovated areas. Provide one clock in rooms less than 1,000 square feet. Provide two clocks in rooms from 1,000 square feet to 4,000 square feet. For larger spaces, provide a minimum of three clocks.

15.1 ELECTRICAL – LIGHTING DESIGN CRITERIA

A. General Codes and Standards

1. Lighting shall be designed to meet or exceed the Washington State Energy Codes in effect at the time of project permitting. If Desired EUI Goal is required, lighting shall be designed to achieve Desired EUI Goal.

2. Lighting levels shall meet the IESNA (Tenth Edition) recommended light levels (within the limits of the energy code watt restrictions).

3. Egress lighting levels shall meet the requirements of the International Building Code and International Fire Code, along with any local amendments.

B. Testing Agencies

1. All fixtures shall be UL and/or ETL listed. LED's shall be tested to LM-80 and LM-79.

C. Light Levels and Maintained Footcandles

1. Open Office and Collaborative spaces: 30-40 footcandles.
2. Offices: 40-50 footcandles.
3. Lobby and Reception Areas: 15-20 footcandles.
4. Conference Rooms: 40-50 footcandles.
5. Storage Rooms and Janitor closets: 10 footcandles.
6. Electrical/Mechanical, Server, Telecom Rooms: 20 footcandles.
7. Elevator Machine Rooms: 20 footcandles minimum.
8. Elevator Lobbies: 15 footcandles minimum.
9. Corridors, Restrooms and Phone Rooms: 10-15 footcandles.
10. Stairwells: 15 footcandles.
11. Kitchens: 40-50 footcandles.
12. Classrooms: 40-50 footcandles.
13. Shops: As identified in Section 5

D. Lamp Types and Color Temperature

1. All luminaires shall utilize Light Emitting Diodes (LED) as their source of light. Color temperature for interior luminaires shall be 4000K with a minimum of 82 CRI. Rated life shall be LM80 of 50,000 hours for ED.
2. Compact fluorescent sources shall be avoided in order to reduce energy loads and extend maintenance.

E. Drivers

High efficiency LED drivers shall be used throughout. When required for daylight response dimmed light levels, drivers shall be 0-10v and dim to 10% of full output. Rooms with AV access shall include dimming drivers which dim from 100% to 1%.

F. Luminaire Efficiencies

Luminaire efficiency for all sources to be 80% or greater.

G. Emergency Egress

Selected fixtures from general lighting layouts will be provided in all public areas and along the path of egress and shall be backed up by the emergency generator and supplied from the NEC 700 distribution system so battery back-up is not required.

H. Exit Signs

All Exit signs shall be green LED. Edge-lit signs will be used in public spaces and aluminum housings in utilitarian areas. Bug-eyes shall not be used. All Exit signs shall be backed up by the emergency generator and supplied from the NEC 700 distribution system.

I. Space by Space Lighting Concepts

1. All open office areas will utilize pendant direct/indirect. Layouts will reinforce building architecture while remaining general enough to allow for future reconfigurations of work stations. Luminaires in daylight areas will have integrated photocells and 0-10VDC dimming drivers.

2. Individual offices shall utilize pendant direct/indirect. Luminaires in daylight areas will have integrated photocells and 0-10VDC dimming drivers.

3. In Classrooms and conference rooms, the lighting will be designed avoid AV conflicts. Sources will be linear and down lights and will dim from 100% to 1%. Presentation walls will be evenly washed with light. Provide 4-scene digital controllers that control dimming of each fixture type and fixture location type. Dim fixtures so that each of the following can be controlled separately: general lighting, projection screen, side and rear wall, miscellaneous can lights, and podium.

4. Reception desks and public lobby areas shall be illuminated with a combination of recessed downlights and pendant indirect fixtures to elevate the ceilings and highlight reception and seating groups. Recessed wallwash fixtures will also highlight feature walls and/or signage.

5. In Circulation Areas, general lighting shall be provided by linear luminaires that provide good general illumination on the walls.

6. Stairs are to be illuminated in such a way that ladder-access for fixture maintenance will not be required.

7. Back of House spaces including all electrical, mechanical and storage rooms are to be provided with basic strips. Lenses shall be provided on all fixtures.

8. Storage rooms shall be illuminated with basic strips. Provide wire guards on all fixtures.

J. Exterior Lighting

1. Exterior lighting will include canopy or building mounted wall sconces at all exit doors. The primary entry doors will be featured with higher light levels. LED sources will direct light downward with full cut-off optics at all exit doors.

2. Outdoor path and shared public spaces shall be designed to match the existing campus fixtures and to minimize dark areas and promote a sense of security through use of high color-rendering sources at uniform light levels. Fixtures will be well shielded to avoid direct view to sources which add glare. Full cut-off luminaires will be used wherever possible to reduce upward-directed light and sky-glow. Limited and controlled directional uplighting may be used for signage and specialty features in limited locations and quantities. All exterior sources shall be LED.

3. Multi-level controls with combined time interface allow for reduced light energy loads after office hours.

4. Selected fixtures from building egress doors to 10-feet away from building in path of egress shall be backed up by the emergency generator and supplied from the NEC 700 distribution system for egress lighting.

K. Special Considerations: Lighting Control Systems for Energy Conservation

1. Code required automatic shutoff controls shall be via occupancy sensors in all required rooms.

2. Code required lighting automatic shutoff controls shall be controlled by a lighting control panel system of time programmable low voltage relays to control lighting during unoccupied hours.

3. Code required light reduction controls shall be installed.

4. Light fixtures in daylight zones shall be dimmable, controlled by local daylight sensors for continuous daylight dimming.

5. Conference Room: Preset Control System with RS232 interface with all AV systems.

6. Exit stairwells shall be circuited and zoned to reduce light levels when unoccupied.

16.0 INTEGRATED SECURITY SYSTEM DESIGN CRITERIA

Integrated security systems shall be designed to provide all materials and labor for the installation of Electronic Safety and Security (ESS) systems, including video surveillance, access control and intrusion detection applications as required in the building. All equipment and materials shall be new, free from defects, of current manufacture, of the quality specified or shown. Each type of material shall be of the same manufacturer throughout the work. This work includes cameras, access control systems, card readers, motion detectors, intrusion detection devices, cabling and pathways, cabinets, network storage servers, field devices, and administration. The design contractor shall be responsible for complying with the room data sheets provided to understand the features required for each space.

Design, furnish, install, test, and place into satisfactory and successful operation all equipment, materials, devices, equipment and necessary appurtenances associated with security system to support standards-compliant systems that integrate features. See room data sheets for features required in each space.

The work shall include all materials, equipment, software, and apparatus not specifically mentioned herein or noted on the plans but which are necessary to make a complete working system, compatible with and complementary to the existing campus systems

16.1 Codes & Standards

A. Adhere to the following codes, standards and guidelines:

1. National Fire Protection Association (NFPA) – NFPA 70: National Electrical Code (NEC)

2. National Fire Protection Association (NFPA) – NFPA 101: Life Safety Code

3. National Electrical Safety Code (NESC)

4. Washington Industrial Safety and Health Act (WISHA)

5. Occupational Safety and Health Act (OSHA)

6. Surveillance Video Industry Standards
   a) Open Network Video Interface Forum (ONVIF):
      - Test Specification version 12.06 (June 2012)
      - Core Specification version 2.4 (August 2013)

7. Electronic Safety and Security Industry Standards:
   a) Physical Security Interoperability Alliance (PSIA)
      - IP Media Device Specification (March 2009)
      - Recording and Content Management (RaCM) Specification (December 2009)
      - Video Analytics Specification (September 2010)
      - Common Metadata and Event Model (April 2011)
      - Area Control Specification (November 2011)
      - Access Control and Intrusion Detection Profiles (June 2013)

8. ANSI/TIA - 455: Fiber Optic Test Standards

9. ANSI/TIA - 526: Optical Fiber Systems Test Procedures

10. ANSI/TIA - 568-C.0: Generic Telecommunications Cabling for Customer Premises
11. ANSI/TIA - 568-C.1: Commercial Building Telecommunications Cabling Standard
12. ANSI/TIA – 569-B: Commercial Building Standard for Telecommunication Pathways and Spaces
13. ANSI/TIA – 606-A: Administration Standard for Commercial Telecommunications Infrastructure
14. ANSI/TIA – 607-B: Commercial Grounding (Earthing) and Bonding for Customer Premises
15. ANSI/TIA – 862: Building Automation Systems Cabling Standard for Commercial Buildings
16. ANSI/TIA -TSB67: Transmission Performance Specifications for Field Testing of Unshielded Twisted Pair Cabling Systems
17. ANSI/TIA -TSB75: Additional Horizontal Cabling Practices for Open Offices
18. ANSI/TIA-1152: Requirements for Field Test Instruments and Measurements for Balanced Twisted-Pair Cabling
19. ISO/IEC 61935-1: Specification for the Testing of Balanced and Coaxial Information Technology Cabling
20. ISO/IEC IS 11801: Generic Cabling for Customer Premises
21. NECA/FOA 301-1997: Standard for Installing and Testing Fiber Optic Cables
22. NECA/BICSI 568-2001: Standard for Installing Commercial Building Telecommunications Systems
23. IEEE 802.3 (series): Local Area Network Ethernet Standard, including the IEEE 802.3z Gigabit Ethernet Standard
24. BICSI: BICSI Telecommunications Cabling Installation Manual (TCIM)
25. BICSI: BICSI Telecommunications Distribution Methods Manual (TDMM)
26. BICSI: BICSI Outside Plant Design Reference Manual (OSPDRM)
27. BICSI: BICSI Network Design Reference Manual (NDRM)
28. ASTM E 84, “Surface Burning Characteristics of Building Materials”
29. ASTM E 119, “Fire Tests of Building Construction and Materials”
30. ASTM E 814, “Fire Tests of Through Penetration Firestops”
31. ANSI/UL263, “Fire Tests of Building Construction and Materials”
32. ANSI/UL723, “Surface Burning Characteristics of Building Materials”

33. ANSI/UL1479, “Fire Tests of Through Penetration Firestops”

34. Underwriters Laboratories Inc. (UL) – Fire Resistance Directory

16.2 Required Manufacturers (Basis of Design)

A. Integrated security systems shall be designed for construction using materials from the current product lines of the manufacturers required by Spokane Community College

B. The basis of design for video surveillance system is AVIGILON video cameras and related systems. DVR to be located in IT closet/telecom room. System to be expandable for future coverage of entire Building 1. No PTZ cameras are to be used.

C. The basis of design for access control systems is Honeywell Pro Watch with an existing local server.

D. The basis of design for intrusion detection systems is Honeywell.

E. Systems for the new building shall be from these manufacturers only so that the new systems can integrate with the existing integrated campus management system.

F. Integration will be provided between surveillance and alarm system with notification.

G. Designs shall comply with the requirements of these manufacturers such that the manufacturers will certify the installation with their warranty. The construction documents shall require that the Contractor’s installation workmanship fully comply with the current installation requirements from the manufacturer of these products, even if those requirements exceed industry standard practices.

H. The designer shall incorporate each manufacturer consistently throughout the entire project and shall design an integrated security system that will be suitable for construction using products from these manufacturers.

16.3 Designer/Engineer Qualifications Requirements

A. The designer or engineer that designs integrated security systems shall meet the following qualifications and requirements:

1. The Designer shall hold training certificates from the manufacturers of each system. The certified Designer shall be a direct full-time employee of the Design Firm, and the Design Firm shall continue to employ a minimum of one certified Designer throughout the duration of the project. The certified Designer shall be directly involved in the design of the project.

   The Design Firm responsible for designing integrated security systems shall have completed no less than five similar projects (in terms of size and construction cost) under the Design Firm’s current business name within the past three years.

16.4 Installation Contractor Qualifications Requirements

A. The contractor that installs integrated security systems shall meet the following qualifications and requirements:

1. The installation technicians shall be fully trained and certified by the manufacturer of the telecommunications materials to properly install the materials and to provide the full manufacturer-endorsed application warranty.

2. The Contractor's installation technicians shall hold training certificates from the manufacturers of each system. The Contractor's certified installation technicians shall be direct full-time employee of the Contractor, and the Contractor shall continue to use only certified technicians throughout the duration of the project. The certified technicians shall be directly involved in the construction of the project.

3. The Contractor responsible for installing the integrated security systems shall have completed no less than five similar projects (in terms of size and construction cost) under the Contractor's current business name within the past three years. The Contractor's project history shall include installation of common ESS equipment such as IP video cameras, RFID card readers, door control hardware, and intrusion detection sensors in a campus-type environment.

16.5 Warranty

A. Provide a Contractor-endorsed Warranty

Provide a Contractor-endorsed one-year warranty on labor and workmanship that shall commence on the date that the system is accepted by the Owner. Acceptance shall not necessarily mean the date of Owner occupancy or Substantial Completion, but rather the date that the Owner accepts the integrated security systems as complete and operational. Warranty documentation showing effective start date and coverage period shall be provided to the Owner immediately upon Owner acceptance.

1. Provide all labor attributable to the fulfillment of this warranty at no additional cost to the Owner.

2. This warranty shall not be voided by Owner's move, add and change activities. The resulting parts of any Owner-performed moves, adds and changes do not become part of the warranty. Nothing in this section shall be construed to terminate the warranty by performance of normal maintenance or service on the system or by expanding the system in any manner consistent with the original design and intent for the system.

3. Provide a Manufacturer-Endorsed Warranty:

4. Provide integrated security Manufacturer extended product, performance, application, and labor warranties that shall warrant all active and passive components used in the systems. Additionally, these warranties shall cover components not manufactured by the integrated security Manufacturers, but approved by the integrated security Manufacturers for use in the integrated security systems (i.e. "Approved Alternative Products"). The integrated security Manufacturer warranties shall warrant:

5. That the products will be free from manufacturing defects in materials and workmanship.

6. Provide materials and labor attributable to the fulfillment of this warranty at no cost to the Owner.

B. Equipment Managed under Owner's Accounts

1. All equipment manufactured by Pelco shall be registered by the Owner's representatives. The Contractor shall provide an electronic document listing the installed location, model numbers, and serial numbers for each Pelco device that has been installed.

2. All other equipment:

3. Submit equipment manufacturer warranty registration forms and online warranty registration to the equipment manufacturers on behalf of the Owner, providing the Owner's name and contact information.

4. Coordinate with the Owner to obtain appropriate contact information for the forms and documentation.

C. PDF Documentation: Provide PDF documentation (scanned completed forms, and printed online applications) to the Owner to demonstrate that warranty registration has been completed for all equipment.

D. Electronic Document Listing: Provide an electronic document listing all equipment (installed location, manufacturers, model numbers, and serial numbers) along with the warranty start dates and coverage period for each device.

17.0 TELECOMMUNICATION INFRASTRUCTURE DESIGN CRITERIA

17.1. General

The telecommunications structured cabling system (SCS) shall provide all materials and labor for the installation of a telecommunications distribution system. All materials shall be new, free from defects, of current manufacture, of the quality specified or shown. Each type of material shall be of the same manufacturer throughout the work. This work includes Outside Plant Communications cabling and pathways, Inside Plant

Communications cabling and pathways, adequately sized telecommunications spaces, terminations, and administration. This also includes security, power and cooling for the telecommunications spaces. The design contractor shall be responsible for complying with the room data sheets provided to understand the size and complexity of the telecommunication system. The telecom components shall constitute the infrastructure to support the building occupants' technology needs.

Design, furnish, install, test and place into satisfactory and successful operation all equipment, materials, devices, and necessary appurtenances to provide a complete ANSI/TIA/EIA, NECA/NEIS and ISO/IEC compliant communications system as hereinafter described. The system is intended to be capable of integrating voice, data, and video signals onto a common media.

SCS designs shall comply with the practices depicted in the BICSI Telecommunications Distribution Methods Manual (TDMM).

The Structured Cabling System shall be tested for and be capable of 1 Gigabit Ethernet operation as specified in IEEE 802.3.

The work shall include all materials, equipment and apparatus not specifically mentioned herein but which are necessary to make a complete working ANSI/TIA/EIA and ISO/IEC compliant SCS.

17.2 Codes & Standards

A. Adhere to the following codes, standards and guidelines:

1. National Fire Protection Association (NFPA) – NFPA 70: National Electrical Code (NEC)
2. National Fire Protection Association (NFPA) – NFPA 101: Life Safety Code
3. National Electrical Safety Code (NESC)
4. Occupational Safety and Health Act (OSHA)
5. ANSI/TIA - 455: Fiber Optic Test Standards
6. ANSI/TIA - 526: Optical Fiber Systems Test Procedures
7. ANSI/TIA - 568-C.0: Generic Telecommunications Cabling for Customer Premises
8. ANSI/TIA - 568-C.1: Commercial Building Telecommunications Cabling Standard

9. ANSI/TIA – 569-B: Commercial Building Standard for Telecommunication Pathways and Spaces
10. ANSI/TIA – 606-A: Administration Standard for Commercial Telecommunications Infrastructure
11. ANSI/TIA – 607-B: Commercial Grounding (Earthing) and Bonding for Customer Premises
12. ANSI/TIA – 862: Building Automation Systems Cabling Standard for Commercial Buildings
13. ANSI/TIA -TSB67: Transmission Performance Specifications for Field Testing of Unshielded Twisted Pair Cabling Systems
14. ANSI/TIA -TSB75: Additional Horizontal Cabling Practices for Open Offices
15. ANSI/TIA-1152: Requirements for Field Test Instruments and Measurements for Balanced Twisted-Pair Cabling
16. ISO/IEC 61935-1: Specification for the Testing of Balanced and Coaxial Information Technology Cabling
17. ISO/IEC IS 11801: Generic Cabling for Customer Premises
18. NECA/FOA 301-1997: Standard for Installing and Testing Fiber Optic Cables
19. NECA/BICSI 568-2001: Standard for Installing Commercial Building Telecommunications Systems
20. IEEE 802.3 (series): Local Area Network Ethernet Standard, including the IEEE 802.3z Gigabit Ethernet Standard
21. BICSI: BICSI Telecommunications Cabling Installation Manual (TCIM)
22. BICSI: BICSI Telecommunications Distribution Methods Manual (TDMM)
23. BICSI: BICSI Outside Plant Design Reference Manual (OSPDRM)
24. BICSI: BICSI Network Design Reference Manual (NDRM)
25. ASTM E 84, “Surface Burning Characteristics of Building Materials”
26. ASTM E 119, “Fire Tests of Building Construction and Materials”
27. ASTM E 814, “Fire Tests of Through Penetration Firestops”
28. ANSI/UL263, “Fire Tests of Building Construction and Materials”
29. ANSI/UL723, “Surface Burning Characteristics of Building Materials”
30. ANSI/UL1479, “Fire Tests of Through Penetration Firestops”
31. Underwriters Laboratories Inc. (UL) – Fire Resistance Directory

17.3 Required Manufacturers (Basis of Design)

A. Telecommunications distribution systems shall be designed for construction using materials from the current product lines of the manufacturers required by Spokane Community College

B. The design shall be comprised of products from CommScope Systimax Solutions. Design shall comply with the requirements of this manufacturer such that the manufacturer will certify the installation with their warranty. The construction documents shall require that the Contractor's installation workmanship fully comply with the current installation requirements from the manufacturer of these products, even if those requirements exceed industry standard practices.

C. The design shall incorporate a manufacturer consistently throughout the entire project and shall design a telecommunications distribution system that will be suitable for construction using products from this manufacturer.

D. The construction documents shall require that the installation workmanship fully comply with the current installation requirements from the manufacturers of these products.

17.4 Designer/Engineer Qualifications Requirements

A. The designer or engineer that designs the telecommunications distribution system shall meet the following qualifications and requirements:

1. The Design Firm responsible for designing the telecommunications distribution infrastructure shall have completed no less than five similar projects (in terms of size and construction cost) under the Design Firm's current business name within the past three years.

17.5 Installation Contractor Qualifications Requirements

A. The contractor that installs the telecommunications distribution system shall meet the following qualifications and requirements:

1. The installation technicians shall be fully trained and certified by the manufacturer of the telecommunications materials to properly install the materials and to provide the full manufacturer-endorsed application warranty.

2. The Contractor shall employ a minimum of one Registered Communications Distribution Designer (RCDD) certified by and in current good standing with BICSI. The RCDD shall be a direct full-time employee of the Contractor, and the Contractor shall continue to employ a minimum of one RCDD throughout the duration of the project. The RCDD shall be directly involved in the construction of the project.

3. The Contractor responsible for installing the telecommunications distribution infrastructure shall have completed no less than five similar projects (in terms of size and construction cost) under the Contractor's current business name within the past three years.

17.6 Warranty

A. Provide a Contractor-endorsed Warranty:

1. Provide a Contractor-endorsed one-year service warranty against defects in materials and workmanship.

   a) Provide all labor attributable to the fulfillment of this warranty at no additional cost to the Owner.
      - The Contractor Warranty period shall commence upon Owner acceptance of the work.
   b) This warranty shall not be voided by Owner's move, add and change activities. The resulting parts of any Owner-performed moves, adds and changes do not become part of the warranty. Nothing in this section shall be construed to terminate the warranty by performance of normal maintenance or service on the system or by expanding the system in any manner consistent with the original design and intent for the system.

B. Provide a Manufacturer-Endorsed Warranty:

1. Provide SCS (Structured Cabling System) Manufacturer extended product, performance, application, and labor warranties that shall warrant all passive components used in the SCS. Additionally, these warranties shall cover components not manufactured by the SCS Manufacturers, but approved by the SCS Manufacturers for use in the SCS (i.e. "Approved Alternative Products"). The SCS Manufacturer warranties shall warrant:
   a) That the products will be free from manufacturing defects in materials and workmanship.
   b) That the cabling products of the installed system shall exceed the specification of ANSI/TIA/EIA 568-B and exceed ISO/IEC 11801 standards.
   c) That the installation shall exceed the specification of ANSI/TIA/EIA 568-B and exceed ISO/IEC 11801 standards.
   d) That the system shall be application-independent and shall support both current and future applications that use the ANSI/TIA/EIA 568-B and ISO/IEC 11801 component and link/channel specifications for cabling.

2. Provide materials and labor attributable to the fulfillment of this warranty at no cost to the Owner.

3. The SCS Manufacturer Warranties shall be provided by the selected SCS Manufacturers and shall be:
   a) For Category 6A cabling work, provide the Systimax Solutions Product Warranty with 20-Year Certified Installation.
   b) For fiber optic cabling work, provide the Systimax Solutions Product Warranty with 20-Year Certified Installation
      - Provide a copy of the warranty registration documentation to the Owner at the time of submittal to the manufacturers.

4. The SCS Manufacturer Warranty period shall commence upon a Warranty Certificate being issued by the manufacturer. The Warranty Certificates shall be issued no later than three months after Owner acceptance of the work.

17.7 Telecommunications Materials

A. Wherever possible, all materials and equipment used in the installation of this work shall be of the same Manufacturer throughout for each class of material or equipment.

B. Materials shall be new and carry the UL label. Comply with ANSI, IEEE and NEMA standards, where applicable.

C. Provide all incidental and/or miscellaneous hardware (including equipment cables and connectors) not explicitly specified or shown on the Contract Documents that are required for a fully operational, tested, certified and warranted system.

D. Provide cables of the same type or application in the same color throughout the project, unless otherwise indicated. Multiple colors of the same cable type are not acceptable.

17.8 Outside Plant Telecommunications Infrastructure Materials

A. Cabling: Provide 12 strands of singlemode fiber optic cabling and 12 strands of multimode cabling from building #1 to Building #15. Terminate cabling in the existing MDF room of each building. Utilize existing conduit running between building #1 and building #15 to route new fiber cables.

17.9 Telecommunications Spaces

A. The building contains one existing main telecommunications room (MDF RM 1124A) which act as a central telecommunications room and entrance facility for the building.

B. The Renovated space in the existing building shall contain two secondary telecommunications rooms (IDF) which shall support telecommunications infrastructure for regions of the building. Telecom rooms shall be located strategically, (1) on the 1st floor and (1) on the 2nd floor. Telecom rooms should be either centric within the building or close to the classrooms where cable density is high, whichever is more strategically and economically desirable. Network electronics supporting a region of the building shall be installed in these rooms. The additional will need to be fully functional and connected to the MDF room prior to the renovation work. See Spokane Community College Standards for equipment requirements for IDF room.

C. Backbone cabling between the MDF and each IDF room shall be 12 strands of multimode fiber, 6 strands of single mode fiber and 25 pair copper cable.

D. Each IDF shall be sized to accommodate three racks (typical) but no fewer than two equipment racks (minimum). At a minimum a 10x15 space (interior dimensions) should be allocated for telecom rooms. A 4-foot service zone shall be maintained at the front and rear of the equipment racks and at the end of each row of equipment racks.

E. The walls of the MDF and all IDFs shall be covered with 3/4 inch fire resistant plywood painted on all sides with light color fire resistant paint, while leaving the fire rating stamp of the plywood be visible for inspection prior to installation. The door to each MDF and IDF shall open out, shall automatically close, and shall be secured by a card-based access control system.

F. Overhead ladder racking shall be installed in the MDF and IDFs for the purpose of routing telecommunications cabling around the room and to/from racks. Ladder racks shall be sized 12” wide or 18” wide as required to support the cabling in the room.

G. Provide power outlets and power distribution equipment as required to support the Owner’s network equipment in the MDF and each IDF. At a minimum, the power outlets shall be X quantity of 120VAC quad receptacles per rack and Y quantity of 120VAC duplex receptacles per wall. These outlets shall be served by electrical panels that are dedicated to technology systems and which do not serve large electrical loads or motors. In addition to the technical power outlets, convenience power outlets from other electrical panels shall also be installed on two walls in the MDF and each IDF.

H. The air temperature in the MDF and each IDF shall not exceed 78 degrees on the date of occupancy and shall also not be expected to exceed 78 degrees when the room is fully loaded at some future date, with 30% to 50% relative humidity. For the telecommunications rooms where relatively small heat load is expected, the heat shall be removed through the use of a positive pressure air exchange solution. Mechanical refrigeration air conditioning shall be provided for the MDF and IDFs wherein the heat load produced by the Owner's network equipment will exceed the amount that can be removed through positive-pressure air exchange or where the humidity can't be maintained within the specified range.

I. Lighting in the MDF and IDFs shall be at least 50 footcandles between the equipment rack rows (measured at three feet above the floor). Fixtures shall be located above walk-aisles to minimize shadowing on the rack-mounted equipment.

J. MDF and IDFs shall be dedicated for use with technical systems. Power distribution equipment, water piping, HVAC and other systems that don't directly serve the telecom room shall not be located inside.

17.10 Inside Plant Telecommunications Infrastructure Materials

A. All cabling routed exposed through air plenums shall be plenum-rated. Cabling that routes through slab-on-grade flooring or other wet areas shall be rated for wet applications. Otherwise, cabling is permitted to be non-plenum rated.

B. All cabling and pathways shall remain accessible post-construction. Cable trays shall have at least 8" of clearance above trays and 12" clearance to one side of the trays.

C. Offices: CPTC requires two Cat6 cables per outlet and have one outlet on each wall of the room (4 outlets total with 8 cables total per office) as depicted in the diagram below.

D. Pathways: Within the building:

1. Four 4" conduits from the nearest maintenance hole (MH) into the main telecom room (MDF).

2. Four 4" conduits from the MDF to each telecom room (IDF).

3. Cable tray routing from the IDF rooms throughout the first and second floor renovation and addition.
4. Secondary telecom rooms on a floor should be served by the cable tray.

E. Network Electronics

1. Switches: Provided by owner.

2. Wireless Access Points (WAP): The Spokane Community College networking group uses a saturation model when selecting the locations for WAPs. Spokane Community College uses Aruba wireless products. These WAPs cover a 75' radius. Spokane Community College requires 2 cables per outlet serving the WAPs. WAPs are typically install in every other classroom.

3. Power over Ethernet: POE+ is used throughout the campus and will be used in the new building to serve WAPs, cameras, VOIP and other applications.

17.11 Television Distribution Infrastructure

Television distribution cabling is not required in this project.

17. 12 Fire Alarm System Materials:

A. Fire Alarm System: Several different manufacturers are used throughout the campus. Honeywell Silent Knight Shall be the basis of design

17.13 Grounding and Bonding:

A. A grounding and bonding infrastructure shall be designed and installed to bond all non-current-carrying metal equipment and materials to the nearest telecommunications grounding system, in accordance with TIA Joint Standard-607-B, Grounding and Bonding Requirements for Telecommunications in Commercial Buildings and the NEC.

   1. The telecommunications grounding backbone shall consist of pre-drilled solid copper busbars interconnected with properly sized copper conductors (minimum #2 AWG).

   2. #6 AWG Bonding jumpers shall terminate at the busbar.

   3. This system shall be designed in conjunction with the electrical power grounding system. The grounding and bonding system shall not rely upon metallic conduits or framing studs for a grounding path.

17.14 Firestopping

A. Firestopping material shall conform to both Flame (F) and Temperature (T) ratings as required by local building codes and as tested by nationally accepted test agencies per ASTM E814 or UL 1479 fire test in a configuration that is representative of the actual field conditions. Manufactured by:

   1. Specified Tech. Inc., Hilti, or approved equal, regardless of the products or manufacturers specified in Division 7.

B. Fire-Rated Cable Pathways: Device modules shall be comprised of steel raceway with intumescent foam pads allowing 0 to 100 percent cable fill:

   1. Specified Technologies Inc. (STI) EZ-PATH Fire Rated Pathway

C. Firestop Pillows: Pillows shall be re-enterable, non-curing, mineral fiber core encapsulated on six sides with intumescent coating contained in a flame-retardant poly bag:

   1. Specified Technologies Inc. (STI) SpecSeal® Series SSB Pillows

   2. Hilti CP 657 Firestop Brick

17.15 Construction Schedule

A. Provide a time-scaled construction schedule indicating construction phases and deadlines associated with this work. At a minimum, the following tasks shall be shown on the schedule:

1. Start of outside plant ductbank and maintenance hole construction
2. Dates of outside plant ductbank concealment (concrete and backfill)
3. Start of conduit and box rough-in
4. Start of main campus cable feed to building MDF
5. Start of MDF and IDF build out
6. Start of vertical riser cable installation
7. Start of horizontal cable installation
8. Start of horizontal cable termination
9. Date when elevator telephone service required (if applicable)
10. Date when building automation system (HVAC) will require network service
11. Start of outlet device termination and labeling
12. Start of installation testing – provide Owner's IT representative w/preliminary test results.
13. Start of final inspection process

17.14 Service Outages

A. Any telephone, data or security systems service outage required to perform work under this Contract shall be performed at a time that is coordinated with and convenient to the Owner. Submit to the Owner (in writing) for Owner's approval, a schedule showing the dates and times the Contractor desires to perform outage-causing work. This schedule shall be submitted no less than five days prior to commencing work. It may be necessary to perform this work at night, on holidays or during maintenance shutdowns. The Contractor shall include in his bid all premium time labor costs for this work.

17.15 Identification and Labeling

A. General: Labeling and administration shall comply with ANSI/TIA/EIA 606 and standard industry practices.

B. Labels shall be arranged such that they are readable after cabling has been dressed and secured.

C. Labeling shall be affixed to all communications equipment, conduits, cabling and grounding/bonding systems.

D. All cables shall be labeled within 3 inches of the termination, with the label oriented to be readable without manipulating the cable. Labels shall be laser printed with a clear overwrap to protect the printing from inadvertent smudging.

17.16 Testing

A. Test each cable in accordance with Contract requirements, manufacturer requirements, industry standards, and warranty requirements.

B. Provide test records on a form approved by the Owner's IT Representative. Submit the test results for each cable. The records shall include the unique cable identifier, outcome of test, indication of errors found, cable length, retest results, and name and signature of technician completing the tests. Provide test results to the Owner's IT Representative for review and acceptance within two weeks of Substantial Completion.

   1. Prepare and submit the test results in the native file type from the cable test device and also in Adobe Acrobat PDF electronic form (on a CDROM) to the Owner's IT Representative for review. Handwritten test results will not be accepted.

C. Costs of testing shall be borne by Contractor. Contractor shall provide all instruments, equipment, labor and materials to complete testing. Should tests detect any defective materials, poor workmanship or variance with requirements of Specifications, Contractor shall make any changes necessary and remedy any defects at his expense.

17.17 As-Built Drawings and Record Drawings

A. Records - Maintain at the job site a minimum of one set of As-built Drawings, Specifications, and Addenda. As-built Drawings shall consist of redline markups of changes to Contract Documents such as drawings, specifications and spreadsheets, including maintenance hole/handhole butterfly drawings.

   1. At the beginning of the work, set aside one complete set of the drawings to be maintained as a complete As-built Drawings set. Notations shall be done in a neat and legible manner as specified in Division 01 and in accordance with the Architect/Engineer's instructions.

   2. The As-built Drawings shall be updated daily by the foreman to show every change from the original drawings, and the exact locations, sizes and kinds of equipment. Clearly identify system component labels and identifiers on As-built Drawings. This set of drawings shall not be used for any other purpose and shall be maintained at the job site.

   3. The actual locations and elevations of all buried lines, boxes, monuments, stub-outs and other provisions for future connection shall be shown on the As-built Drawings, and shall be referenced to the building lines or approved bench marks.

   4. Keep As-built Drawings at the job site and make them available to the Owner and Engineer at any time.

   5. Keep As-built Drawings current throughout the course of construction. ("Current" is defined as not more than one week behind actual construction.)

   6. Show identifiers for major infrastructure components on As-built Drawings.

   7. Upon completion of construction, deliver the marked-up As-built Drawings to the Architect/ Engineer.

18.0 AUDIO-VISUAL / INSTRUCTIONAL MEDIA

Instructional media systems shall be designed to provide all materials and labor for the installation of multimedia audio visual applications as required in each programmed space in the building. All materials shall be new, free from defects, of current manufacture, of the quality specified or shown. Each type of material shall be of the same manufacturer throughout the work. This work includes cabling and pathways, adequately sized equipment rooms and cabinets, media source equipment, equipment for distribution routing scaling and amplification, output equipment, and administration. This also includes security, power and cooling for the equipment rooms. The design contractor shall be responsible for complying with the room data sheets provided to understand the features required for each space. The instructional media systems shall constitute the infrastructure to support the building occupants' audio visual and multimedia needs.

Design, furnish, install, test, and place into satisfactory and successful operation all equipment, materials, devices, and necessary appurtenances associated with audio/visual equipment cabinets, racks, frames, enclosures, cable management, cabling, furniture and power hardware to support standards-compliant audio/visual systems. See room data sheets for features required in each space.

The work shall include all materials, equipment, software, and apparatus not specifically mentioned herein or noted on the plans but which are necessary to make a complete working system, compatible with and complementary to the existing campus systems

Designs shall comply with industry best practices promoted by InfoComm guidelines and training/certification programs.

18.1 Codes & Standards

A. Adhere to the following codes, standards and guidelines:

1. National Fire Protection Association (NFPA) – NFPA 70: National Electrical Code (NEC)
2. National Fire Protection Association (NFPA) – NFPA 101: Life Safety Code
3. National Electrical Safety Code (NESC)
4. Occupational Safety and Health Act (OSHA)
5. ANSI/TIA - 455: Fiber Optic Test Standards
6. ANSI/TIA - 526: Optical Fiber Systems Test Procedures
7. ANSI/TIA - 568-C.0: Generic Telecommunications Cabling for Customer Premises
8. ANSI/TIA - 568-C.1: Commercial Building Telecommunications Cabling Standard
9. ANSI/TIA – 569-B: Commercial Building Standard for Telecommunication Pathways and Spaces
10. ANSI/TIA – 606-A: Administration Standard for Commercial Telecommunications Infrastructure
11. ANSI/TIA – 607-B: Commercial Grounding (Earthing) and Bonding for Customer Premises

12. ANSI/TIA – 862: Building Automation Systems Cabling Standard for Commercial Buildings
13. ANSI/TIA -TSB67: Transmission Performance Specifications for Field Testing of Unshielded Twisted Pair Cabling Systems
14. ANSI/TIA -TSB75: Additional Horizontal Cabling Practices for Open Offices
15. ANSI/TIA-1152: Requirements for Field Test Instruments and Measurements for Balanced Twisted-Pair Cabling
16. ISO/IEC 61935-1: Specification for the Testing of Balanced and Coaxial Information Technology Cabling
17. ISO/IEC IS 11801: Generic Cabling for Customer Premises
18. NECA/FOA 301-1997: Standard for Installing and Testing Fiber Optic Cables
19. NECA/BICSI 568-2001: Standard for Installing Commercial Building Telecommunications Systems
20. IEEE 802.3 (series): Local Area Network Ethernet Standard, including the IEEE 802.3z Gigabit Ethernet
    Standard
21. BICSI: BICSI Telecommunications Cabling Installation Manual (TCIM)
22. BICSI: BICSI Telecommunications Distribution Methods Manual (TDMM)
23. BICSI: BICSI Outside Plant Design Reference Manual (OSPDRM)
24. BICSI: BICSI Network Design Reference Manual (NDRM)
25. ASTM E 84, “Surface Burning Characteristics of Building Materials”
26. ASTM E 119, “Fire Tests of Building Construction and Materials”
27. ASTM E 814, “Fire Tests of Through Penetration Firestops”
28. ANSI/UL263, “Fire Tests of Building Construction and Materials”
29. ANSI/UL723, “Surface Burning Characteristics of Building Materials”
30. ANSI/UL1479, “Fire Tests of Through Penetration Firestops”
    Underwriters Laboratories Inc. (UL) – Fire Resistance Directory

18.2 Required Manufacturers (Basis of Design)

A. Instructional media systems shall be designed for construction using materials from the current product lines of the manufacturers required by Spokane Community College (SCC).

B. The basis of design is defined as solutions comprised of control/interface products from Crestron. Output devices shall be manufactured by major name brand companies. Designs shall comply with the requirements of these manufacturers such that the manufacturers will certify the installation with their warranty. The construction documents shall require that the Contractor's installation workmanship fully comply with the current installation requirements from the manufacturer of these products, even if those requirements exceed industry standard practices.

C. The design shall incorporate each manufacturer consistently throughout the entire project and shall design an instructional media system that will be suitable for construction using products from these manufacturers.

D. The construction documents shall require that the installation workmanship fully comply with the current installation requirements from the manufacturers of these products.

18.3 Designer/Engineer Qualifications Requirements

A. The designer or engineer that designs instructional media systems shall meet the following qualifications and requirements:

1. The Designer shall hold the CTS-D certification from InfoComm and be in current good standing with InfoComm. The CTS-D shall be a direct full-time employee of the Design Firm, and the Design Firm shall continue to employ a minimum of one CTS-D throughout the duration of the project. The CTS-D shall be directly involved in the design of the project.

2. The Design Firm responsible for designing the instructional media systems shall have completed no less than five similar projects (in terms of size and construction cost) under the Design Firm's current business name within the past three years.

B. The contractor that installs instructional media systems shall meet the following qualifications and requirements:

1. The installation technicians shall be fully trained and certified by the manufacturer of the telecommunications materials to properly install the materials and to provide the full manufacturer-endorsed application warranty.

2. The Contractor shall hold the CTS-I certification from InfoComm and be in current good standing with InfoComm. The CTS-I shall be a direct full-time employee of the Contractor, and the Contractor shall continue to employ a minimum of one CTS-I throughout the duration of the project. The CTS-I shall be directly involved in the design of the project.

3. The Contractor shall hold the following two certifications from Crestron and be in current good standing with Crestron:

4. Crestron CAPE Certified Programmer

5. Crestron Digital Media Certified Designer (DMC-D)

6. The Contractor responsible for installing the instructional media systems shall have completed no less than five similar projects (in terms of size and construction cost) under the Contractor's current

business name within the past three years. The Contractor's project history shall include installation of common audio/visual equipment such as speaker systems, video projection and audio/video routing in a campus-type environment.

7. The following firms are known to SCC to meet these qualifications:

8. Dimensional Communications, Inc., 360-424-6164

9. AAtronics, Inc., 253-656-4866

18.4 Warranty

A. Provide a Contractor-endorsed Warranty:

1. Provide a Contractor-endorsed one-year warranty on labor and workmanship that shall commence on the date that the system is accepted by the Owner. Acceptance shall not necessarily mean the date of Owner occupancy or Substantial Completion, but rather the date that the Owner accepts the audio/visual systems as complete and operational. Warranty documentation showing effective start date and coverage period shall be provided to the Owner immediately upon Owner acceptance.
   a) Provide all labor attributable to the fulfillment of this warranty at no additional cost to the Owner.
   b) This warranty shall not be voided by Owner's move, add and change activities. The resulting parts of any Owner-performed moves, adds and changes do not become part of the warranty. Nothing in this section shall be construed to terminate the warranty by performance of normal maintenance or service on the system or by expanding the system in any manner consistent with the original design and intent for the system.

B. Provide a Manufacturer-Endorsed Warranty:

1. Provide instructional media Manufacturer extended product, performance, application, and labor warranties that shall warrant all active and passive components used in the systems. Additionally, these warranties shall cover components not manufactured by the instructional media Manufacturers, but approved by the instructional media Manufacturers for use in the instructional media systems (i.e. "Approved Alternative Products"). The instructional media Manufacturer warranties shall warrant:
   a) That the products will be free from manufacturing defects in materials and workmanship.

2. Provide materials and labor attributable to the fulfillment of this warranty at no cost to the Owner.

3. Equipment managed under Owner's Accounts:
   a) All equipment manufactured by Crestron shall be registered by the Owner's representatives. The Contractor shall provide an electronic document listing the installed location, model numbers, and serial numbers for each Crestron device that has been installed.

4. All other equipment:
   a) Submit equipment manufacturer warranty registration forms and online warranty registration to the equipment manufacturers on behalf of the Owner, providing the Owner's name and contact information.

b) Coordinate with the Owner to obtain appropriate contact information for the forms and documentation.
c) Provide PDF documentation (scanned completed forms, and printed online applications) to the Owner to demonstrate that warranty registration has been completed for all equipment.
d) Provide an electronic document listing all equipment (installed location, manufacturers, model numbers, and serial numbers) along with the warranty start dates and coverage period for each device.

5. Warranty Coverage Periods
   a) Provide extended warranties with 5-year coverage periods for all projectors, video panels, control systems, audio/visual switchers/matrices, digital signal processors, and other major equipment.

18.5 Instructional Media Materials

A. Wherever possible, all materials and equipment used in the installation of this work shall be of the same Manufacturer throughout for each class of material or equipment.

B. All audio/visual systems and applications shall be arranged, assembled, wired, and configured identically to other applications in similar rooms within this project. Component arrangement, wire numbering, wire color, wire type, wire manufacturer, wire routing, etc. shall all be consistent throughout the project

C. Materials shall be new and carry the UL label. Comply with ANSI, IEEE and NEMA standards, where applicable.

D. Provide all incidental and/or miscellaneous hardware (including equipment cables and connectors) not explicitly specified or shown on the Contract Documents that are required for a fully operational, tested, certified and warranted system.

E. Provide cables of the same type or application in the same color throughout the project, unless otherwise indicated. Multiple colors of the same cable type are not acceptable.

F. All cables shall be unspliced and not coupled.

G. Configure, program, adjust, and tune all equipment according to manufacturer requirements such that it will perform as required. From the perspective of users of the audio/visual systems, all systems shall be installed to look, feel, and operate similarly to other comparable existing facilities throughout the Owner's campus.

18.6 AV Furniture

A. Design and install (assemble) Instructor Consoles, Podiums, Credenzas and mobile AV stations.

B. Design and install (cut in and mount) cable access boxes with required connectors or retractors in each applicable piece of furniture.

18.7 AV Equipment

A. Design and provide the equipment and materials listed below as required to achieve the program functionality:

1. Wiring and cabling
2. Equipment racks, cabinets, and enclosures
3. Furniture
4. Amplifiers
5. Audio DSP (Digital Signal Processor)
6. Speakers
7. Assistive listening devices
8. Microphones (wired and wireless)
9. CD players
10. Digital audio recorders
11. In-ear monitors
12. Blu-ray players
13. Video cameras
14. Video conferencing systems
15. Video distribution amplifiers
16. HDBaseT distribution equipment
17. Video switches/matrices
18. Projection screens
19. Video projectors
20. Video panels
21. Touch panel interfaces
22. Button panel interfaces

23. Control processors

24. Presentation wireless remote controls

18.8 AV Cabling

A. All AV cabling shall be plenum rated and shall be professional grade products (not consumer grade) such as Belden, Gepco, C2G, etc.

18.9 Identification and Labeling

A. General: Labeling and administration shall comply with ANSI/TIA/EIA 606 and standard industry practices.

B. Labels shall be arranged such that they are readable after cabling has been dressed and secured.

C. Labeling shall be affixed to all equipment, conduits, cabling and grounding/bonding systems.

D. All cables shall be labeled within 3 inches of the termination, with the label oriented to be readable without manipulating the cable. Labels shall be laser printed with a clear overwrap to protect the printing from inadvertent smudging.

18.10 Audio Visual Features

A. Room Types (Application Spaces)

1. Classroom: Each classroom shall have projectable whiteboards such as Da-Lite's Idea Screen or similar. IdeaPaint and Walltalkers are not acceptable. Each room shall have an instructor console/ podium that will be connected to a wall-mounted junction box via a mesh umbilical. The instructor console shall to be movable. The instructor console shall include an equipment rack inside and host the A/V equipment. Wall-mounted junction boxes from FSR, Inc. are desirable (WB-X series). Projectors shall be short throw (not ultra-short throw), mounted approximately 6' from the whiteboard.

2. Labs: Design and provide A/V equipment suitable for use with presentation functions, mounted on a mobile cart so that it can be moved around the lab wherever multimedia is needed.

3. Conference Rooms: Design and provide a presentation-only audio visual application. Dedicated video conferencing equipment is not required.

4. Digital Signage: Design and provide large video panels (approximately 40"-50" diagonal) to display digital signage content. Provide one per floor in the public circulation.

18.11 AV Conduits and Raceways

A. Conduits, boxes and other cabling raceways supporting audio visual applications shall comply with all standards and requirements described for telecommunications cabling in section 18.0. Floor boxes per 15.0 J.11 in this report.

18.12 AV Equipment Racks and Enclosures

A. Provide junction panels, racks, cabinets, and enclosures with all associated hardware according to locations, elevations, and plan views as shown in the Contract Documents.

B. A/V Equipment Racks, Cabinets, and Enclosures:

1. Provide racks, cabinets, and enclosures as shown on the Contract Documents.

2. Assemble racks and install components as shown, and ensure that all moving parts (doors, drawers, latches, etc.) function as intended.

3. Provide exhaust fans as shown on the Contract Documents and as required for reliable operation of the equipment.

4. Work with the electrician to ensure that the power outlets and data boxes designated to serve the A/V equipment are installed in the proper locations.

C. All rack mounted equipment and cabling shall be securely attached.

18.13 AV Grounding and Bonding

A. The grounding and bonding requirements for audio visual applications shall comply with all standards and requirements described for telecommunications infrastructure in section 18.0.

B. Ensure that active electronic equipment is properly grounded per manufacturer's requirements.

18.14 AV Firestopping

A. The firestopping requirements for audio visual applications shall comply with all standards and requirements described for use with telecommunications infrastructure in section 18.0.

18.15 Testing

A. Test each audio visual function in accordance with Contract requirements, manufacturer requirements, industry standards, and warranty requirements.

B. Provide test records on a form approved by the Owner's IT Representative. Submit the test results for each audio visual application. The records shall include the outcome of each feature test, indication of errors found, remediation method, retest results, and name and signature of technician completing the tests. Provide test results to the Owner's IT Representative for review and acceptance within two weeks of Substantial Completion.

1. Prepare and submit the test results in Adobe Acrobat PDF electronic form (on a CDROM) to the Owner's IT Representative for review. Handwritten test results will not be accepted.

C. Costs of testing shall be borne by Contractor. Contractor shall provide all instruments, equipment, labor and materials to complete testing. Should tests detect any defective materials, poor workmanship or variance with requirements of Specifications, Contractor shall make any changes necessary and remedy any defects at his expense.

18.16 Deliverables

A. All deliverables shall be provided to the Owner prior to Audio/Visual System acceptance and shall include, but not be limited to:

1. Manufacturer user manuals shall be delivered to the Owner in a single binder as well as in PDF form on USB flash drive.

2. Wireless licensing documentation.

3. Video and Audio system test reports shall be delivered to the Owner in digital PDF format.

4. All programs, modules and layout source code loaded on A/V systems shall be delivered to the Owner on USB flash drive. Programs shall be uncompiled, editable and executable. The Owner shall retain the rights and ability to edit programs, modules, and layouts.

5. All software licensing shall be loaded and certificates delivered to the Owner

6. All as-built drawings indicating all A/V devices, device locations, mounting detailed wiring schematics, and labeling.

7. Any accessory hardware (including adapters, batteries, brackets, cables, connectors, covers, dongles, remote controls, and tools) that is provided by the manufacturer with equipment, but which does not become permanently installed.

18.17 AV As-built Drawings and Record Drawings

A. The requirements As-built Drawings and Record Drawings for audio visual applications shall comply with all standards and requirements described for use with telecommunications infrastructure in section 18.0.

B. In addition, the Contractor shall provide one-line schematic diagrams for all audio visual application depicting how the system is wired. The diagrams shall show all equipment with equipment models and serial numbers. The diagrams shall show all cables and wiring connections, indicating cable/wire type and wire labeling.

18.18 AV Commissioning and Demonstration

A. Provide a comprehensive verification of all A/V equipment and systems using a commissioning agent. Determine whether A/V systems meet the construction specifications, Contract Document requirements, standards, objectives, and manufacturer-listed performance guidelines.

B. Prior to beginning the commissioning process, the Contractor and commissioning agent shall hold a meeting with the Owner to review the commissioning requirements, commissioning process, and required metrics.

C. Any shortcomings discovered during the commissioning process shall be resolved by the Contractor.

D. The Owner may conduct an independent commissioning process.

E. Commissioning Checklist – Commissioning agents shall use the InfoComm ASPVC as the basis of the commissioning checklist. The ASPVC check list can be found at: http://www.infocomm.org/cps/rde/xbcr/infocomm/CAVSP_Checklist.pdf

F. Provide 4 hours of demonstration and training to Owner's Representatives.

G. Demonstrate operation of each space to the Owner's Representative.