

# **ADDENDUM NO. 16**

**April 19, 2019**

**REQUEST FOR PROPOSALS  
(BID DOCUMENTS)**

**FOR**

**STUDENT SUCCESS CENTER  
PROJECT NO. 950512**



The following changes, additions, or deletions shall be made to the following documents as indicated for this Project; and all other terms and conditions shall remain the same. Each Proposer (Design Builder) is responsible for transmitting this information to all affected subcontractors and suppliers before the Proposal Deadline.

1. **REQUESTS FOR PROPOSALS**

A. Project Program & Design Criteria (January 11, 2019)

1. Exhibit B – Alternate Sewer Point of Connection

**Delete** the “Exhibit B – Alternate Sewer Point of Connection” Page 6.53 and **replace** with the one issued in this Addendum.

B. General Requirements (Division 01)

1. Section 01 1000 - Summary

**Delete** the “Section 01 1000 - Summary” and **replace** with the one issued in this Addendum.

2. Section 01 5000 Temporary Facilities and Controls

**Delete** the “Section 01 5000 Temporary Facilities and Controls” and **replace** with the one issued in this Addendum.

C. Specifications (Divisions 02-33)

1. Division 08 – Openings

**Delete** the “Division 08 – Openings” and **replace** with the one issued in this Addendum.

D. University Furnished Information

1. Table of Contents

**Delete** the “University Furnished Information Table of Contents” and **replace** with the one issued in this Addendum.

2. **Add** Item “51 Cost Estimates” to the Table of Contents and place documents in University Furnished Information folder.

3. **Add** Item “52 UCR Physical Master Plan Study” to the Table of Contents and place documents in University Furnished Information folder.

**51. COST ESTIMATES**

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**A. University of California, Riverside**  
**Riverside, California**  
**Student Success Center**  
**Programming Estimate**

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**Campbell-Anderson &**  
**Associates, Inc.**

**August 6, 2018**

**B.** **Program Cost Model** **RLB / Rider Levett** **August 6, 2018**  
**University of California, Riverside** **Bucknall**  
**Student Success Center**  
**Riverside, California**

**C.** **Expected Design Build Costs** **September 13,**  
**UCR Student Success Center ROM** **2018**

**52.** **UCR PHYSICAL MASTER PLAN STUDY**

**A.** **UC Riverside Physical Master Plan**  
**Study**  
**Appendix 6.8-A**  
**Sanitary Sewer Calculation**

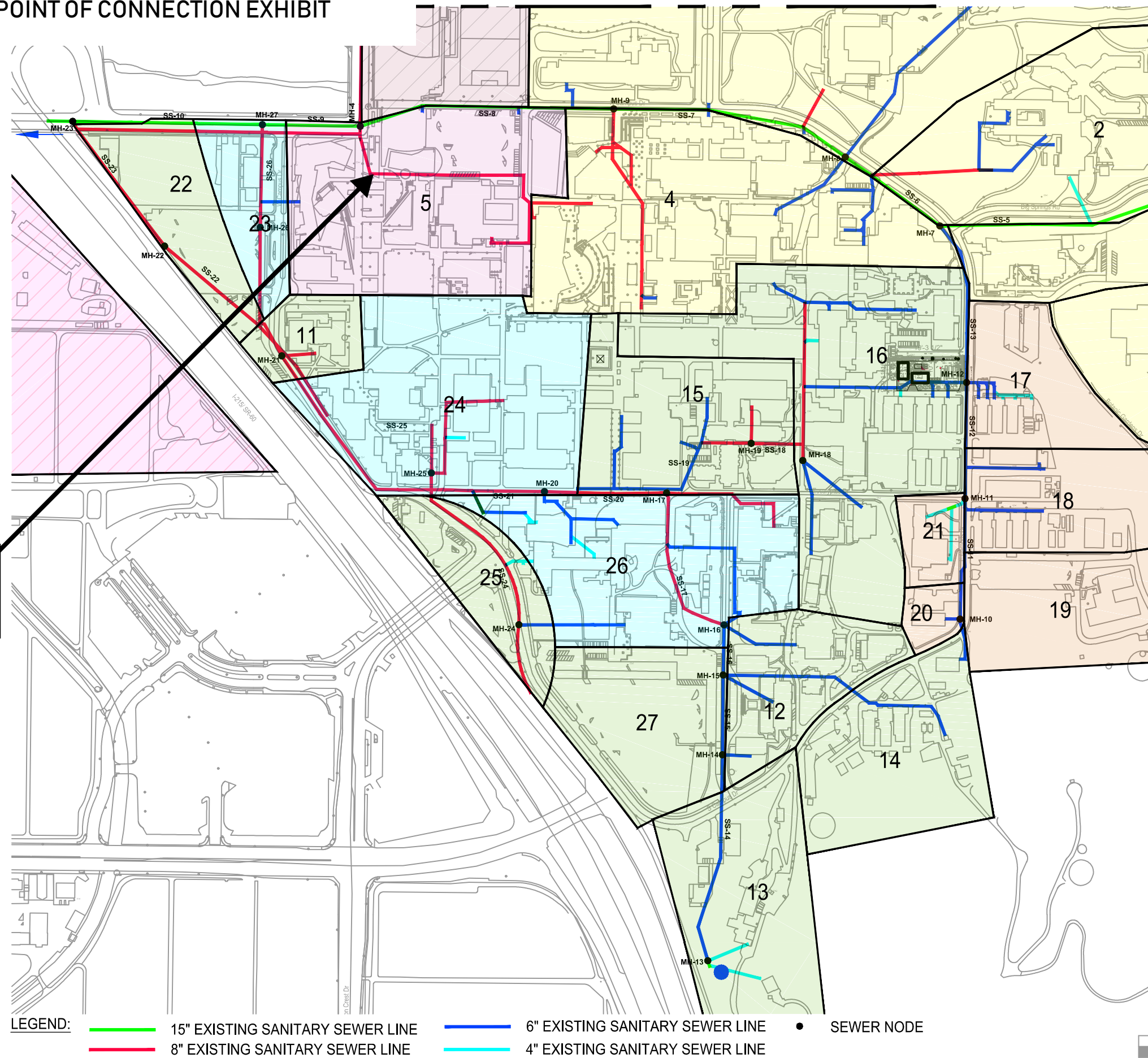
**2 DESIGN BUILDER QUESTIONS & ANSWERS**

Q85	The BOD requires connecting to the western most 8-inch sewer line in parking lot 1. This is an additional 140 FT +/- of pipe run from the closest 8-inch sewer line on the east of the diagonal running north/south. Per the BOD, both these lines eventually connect to a 15" main on University Ave, if that is the case, what is the purpose of connecting to the western most line? (The BOD does not state a reason). If both are equal, we would like to connect to the closer 8-inch sewer line instead of the western most 8-inch sewer for significant savings. Please confirm acceptable.
A85	<b>The University has identified an alternate point of connection for Sewer for the Student Success Center. See Section 6.53 of the BOD which is being issued with this Addendum.</b>
Q86	Will the University accept the use of wall or Column mounted receptacles at the lobby in place of floor boxes?
A86	<b>The University will accept the use of wall or column mounted receptacles in place of Floor boxes.</b>
Q87	Will the University accept the use of quad receptacles at every three seats in lieu of a duplex receptacle at every two seats to reduce the quantity of outlet boxes in the small and medium lecture halls?
A87	<b>Yes.</b>
Q88	Will the University accept the use of duplex receptacles at every 4 seats in the large lecture halls?
A88	<b>Yes.</b>

**END OF ADDENDUM**

ALTERNATE SEWER POINT OF CONNECTION EXHIBIT

Match Sheet Future Conditions "B"



ALTERNATE POINT OF CONNECTION FOR SEWER FOR STUDENT SUCCESS CENTER

LEGEND:

- 15" EXISTING SANITARY SEWER LINE
- 8" EXISTING SANITARY SEWER LINE
- 6" EXISTING SANITARY SEWER LINE
- 4" EXISTING SANITARY SEWER LINE
- SEWER NODE

SEWER-MAIN AREAS:

- Served By 18" City-Sewer Line
- Served By 15" City-Sewer Line
- Served By 8" Campus Sewer Line
- Served By 8" City-Sewer Line
- Served By 8" City-Sewer Line
- Served By 8" City-Sewer Line
- Served By 6" City-Sewer Line

Figure 6.9 (a), Existing Sanitary Sewer Pipe and Node Key Map (Core Campus)



## SECTION 01 1000 - SUMMARY

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes the following:
1. Work covered by the Proposal Documents.
  2. Type of Contract.
  3. Work phases.
  4. Work under other contracts.
  5. Products ordered in advance.
  6. University-Furnished products.
  7. Use of premises.
  8. University's occupancy requirements.
  9. Work restrictions.
  10. Specification formats and conventions.
- B. Related Sections include the following:
1. Division 01 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of University's facilities.

#### 1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Student Success Center, Project No, 950512.
1. Project Location: University of California, Riverside, Arts Mall & Carillon Mall.
- B. Owner: Regents of the University of California
1. University's Representative:
    - a. University of California, Riverside, Planning, Design and Construction Offices.
    - b. Mihai Gavan, Project Manager, [mihai.gavan@ucr.edu](mailto:mihai.gavan@ucr.edu), phone#: 951.827.6959
- C. The Work consists of the following:
1. The University of California, Riverside (UCR) intends to procure the services of a Design-builder to design and construct the Student Success Center (SCC). The project consists of approximately 60,000 gross square feet (GSF) and approximately 39,000 assignable square feet (ASF) of new construction. SSC will consist of three primary program elements: 1) General assignment classrooms designed for modern pedagogies and technology. 2) Multipurpose student life spaces for use by student organizations, and areas for scholarly

activity such as tutoring, mentoring and study. 3) Shelled Dining Services venue. Provisions for utilities, landscaping and site development are part of the Project.

1.3 TYPE OF CONTRACT

- A. Project will be designed and constructed under a single prime contract.

1.4 WORK PHASES

- A. The Work shall be conducted in three (3) phases in the following order, with each phase substantially complete before beginning the next phase unless otherwise directed by the University's Representative:

1. Phase One: This phase consists of the preparation of Schematic and Design Development level drawings and specifications based upon the Project Program & Design Criteria submitted as part of the Design Builder's Proposal for the project along with any alternates submitted with the Proposal which have been accepted by the University. The Contract Time for this phase is identified in the Contract. The Contract Time periods for this phase shall commence on the date identified in the Notice to Proceed.
2. Phase Two: This phase consists of the preparation and approval of Construction Documents, drawings and specifications, based upon the documents approved in Phase One of the Project. The Contract Time for this phase will commence upon the completion of Phase One.
3. Phase Three: This phase consists of the Construction of the Project based upon the documents approved in Phase Two of the Project. The Work Contract Time for this phase is identified in the Contract. The Contract Time period for this phase shall commence on the date identified in the Contract Documents.

- B. Before commencing Work of each phase, submit a schedule showing the sequence, commencement and completion dates, and move-out and -in dates of University's personnel for all phases of the Work.

1.5 WORK UNDER OTHER CONTRACTS

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts.

1.6 USE OF SITE

- A. General: Design Builder shall have full use of construction site for operations as indicated by the Contract limits. Design Builder use of premises is limited only by University's right to perform work or to retain other contractors on portions of Project. Design Builder shall have limited use for construction operations outside of the Contract limits.
- B. Use of Site: Limit use of premises to work in areas indicated. Do not disturb adjacent portions of Project site beyond areas in which the Work is indicated. Areas within

project fence limits that are not scheduled for improvements are to be restored to their original condition at final completion.

1. Limits: Confine constructions operations to:
  - a. Work area: Areas where the new construction is located.
  - b. Lay-down area: Refer to SK-1 Lay-down diagram for locations. Areas for use in access, storage, and other typical activities. Lay-down areas are to be restored to their original condition at final completion.
2. University Occupancy: Allow for University occupancy of Project site.
3. Driveways and Entrances: Keep fire lanes, driveways, parking garage, loading areas, and entrances serving other facilities clear and available to University's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
  - a. Schedule deliveries to minimize use of driveways and entrances.
  - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
4. Parking:
  - a. General parking for construction forces shall be coordinated with Design Builder, UCR TAPS (Transportation and Parking Services) and University's Representative. Monthly parking passes are available for purchase at:
    - 1) 683 Linden Street  
Riverside, CA 92521
  - b. **Construction Parking for the project is identified to be at Canyon Crest Family Housing, Riverside 92507.** ~~Parking is not available on the project site. Parking at an off site facility is to be determined.~~
  - c. Comply with the University's parking regulations.
- C. Use of Site for Dwelling: The Site may not be used for residential purposes under any conditions. Do not provide or allow on-site facilities that could be used for habitation.

## 1.7 UNIVERSITY'S OCCUPANCY REQUIREMENTS

- A. Full University Occupancy: University will occupy existing adjacent building(s) during entire construction period. Cooperate with University during construction operations to minimize conflicts and facilitate University usage. Perform the Work so as not to interfere with University's day-to-day operations. Maintain existing exits, unless otherwise indicated.
  1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used adjacent facilities without written permission from University's Representative.

2. Provide not less than 14 days' notice to University's Representative of activities that will affect University's operations.
- B. University Occupancy of Completed Areas of Construction: University reserves the right to occupy and to place and install equipment in completed areas of building, before Substantial Completion of all portions of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.
1. University will prepare a Certificate of Beneficial Occupancy for each specific portion of the Work to be occupied before completion of the project. Comply with requirements in Division 01 Section, "Closeout Procedures" for partial occupancy.
  2. Obtain a Beneficial Occupancy before University occupancy.
  3. Before partial University occupancy, mechanical and electrical systems shall be operational, and required tests and inspections shall be successfully completed. On occupancy, University will operate and maintain mechanical and electrical systems serving occupied portions of building.
  4. On occupancy, University will assume responsibility for maintenance and custodial service for occupied portions of building.

#### 1.8 WORK RESTRICTIONS

- A. On-Site Work Hours: Work shall be generally performed during extended working hours of 7:00 a.m. to 9:00 p.m., Monday through Friday, Saturdays (when necessary) 8:00 a.m. to 6:00 p.m., except as otherwise indicated. Requests for exceptions must be submitted to the University two days before the Work is to commence:
1. No Sunday work.
  2. Weekend Hours: to be approved in advance by the University's Representative.
  3. Early Morning Hours: if the University determines that it is unlikely to affect adjacent campus activities and personnel.
  4. Hours for Utility Shutdowns: shall be during off hours or weekends unless otherwise approved by the University's Representative.
- B. Noise: Prior to initiating on-site construction, University's Representative shall approve Design Builder specifications that include measures to reduce construction/demolition noise to the maximum extent feasible. These measures shall include, but are not limited to, the following:
1. Noise-generating construction activities occurring Monday through Friday shall be limited to the hours of 7:00 am to 7:00 pm, except during summer, winter, or spring break at which construction may occur at the times approved by University's Representative.
  2. Noise-generating construction activities occurring on weekends in the vicinity of (can be heard from) off-campus land uses shall be limited to the hours of 9:00 am to 6:00 pm on Saturdays, with no construction occurring on Sundays or holidays.
  3. Noise-generating construction activities occurring on weekends in the vicinity of (can be heard from) on-campus residential housing shall be limited to the hours

of 9:00 am to 6:00 pm on Saturdays, with no construction on Sundays or holidays. However, as determined by University's Representative, if on-campus residential housing is unoccupied (during summer, winter, or spring break, for example), or would otherwise be unaffected by construction noise, construction may occur at any time.

4. Construction equipment shall be properly outfitted and maintained with manufacturer recommended noise-reduction devices to minimize construction-generated noise.
  5. Stationary construction noise sources such as generators, pumps or compressors shall be located at least 100 feet from noise-sensitive land uses (i.e., campus housing, classrooms, libraries, and clinical facilities), as feasible, or as approved by University's Representative.
  6. Laydown and construction vehicle staging areas shall be located at least 100 feet from noise-sensitive land uses (i.e., campus housing, classrooms, libraries, and clinical facilities), as feasible, or as approved by University's Representative. Sound walls shall be installed if noise generating activities are to be conducted in less than 100 feet from noise-sensitive land uses.
  7. All neighboring land uses that would be subject to construction noise shall be informed at least two weeks prior to the start of each construction project, except in an emergency situation. Provide sufficient notice to University's Representative to allow notice to be issued by the University or work shall not be allowed.
  8. Loud construction activity such as jackhammering, concrete sawing, asphalt removal, core drilling, pile driving, and large-scale grading operations occurring within 600 feet of a residence or an academic building shall not be scheduled during any final's week of classes. A finals schedule is available on the University's website.
- C. University Holidays: The following is a list of University holidays. No Work requiring inspection should be scheduled on these dates. Design Builder shall verify with the University's Representative the specific dates of each University holiday for each year.
1. New Year's Day
  2. Martin Luther King Day
  3. Presidents' Day
  4. Cesar Chavez Day
  5. Memorial Day
  6. Independence Day
  7. Labor Day
  8. Veteran's Day
  9. Thanksgiving Day (and day following)
  10. Christmas Eve Day
  11. Christmas Day
  12. New Year's Eve Day
- D. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by University or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:



1. Notify University not less than fourteen days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without University's Representative written permission. Under no circumstances shall the contractor shutdown utility systems.
3. Utility outages involving reclaimed water, potable water, high temperature water, chilled water, compressed air, natural gas, and 12 kV electricity shall be conducted by or under the supervision of the University's Facilities Management.

#### 1.9 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Divisions and Sections using the 50-division format and 2004 CSI/CSC's "MasterFormat" numbering system.

1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
2. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.
3. Refer to General Conditions, Article 1, paragraph 1.3.4 for additional requirements.

B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Refer to General Conditions, Article 1, paragraph 1.3.5.
2. Refer to General Conditions, Article 1, paragraphs 1.3.6 and 1.3.7 for additional requirements.
3. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Design Builder. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Design Builder or by others when so noted.
  - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

#### 1.10 MISCELLANEOUS PROVISIONS

A. Archaeological Artifacts: The University requires that all excavation and related construction activities be suspended immediately on discovery of archaeological artifacts on any construction site until the University's Representative authorizes continuation of construction activities.

1. Archaeological artifacts include, but are not limited to, pottery shards, bone fragments, spear points, and arrowheads.

2. If archaeological artifacts are found during excavation operations, stop all excavation activities immediately. Notify the University's Representative to arrange for a site inspection. Take precautions to protect artifacts in place. Do not remove or disturb artifacts unless authorized to do so by the University's Representative.
  3. A qualified paleontologist shall be retained by the University to perform periodic project-specific inspections of the excavations and to salvage exposed fossils. The paleontologist shall be allowed to divert or direct grading in the area of an exposed fossil in order to facilitate evaluation and, if necessary, salvage the exposed fossil. Due to the small nature of the fossils present, fine mesh screens shall be used at the discretion of the paleontologist at project-specific inspections to collect matrix samples for processing. Provisions for preparation and identification of any fossils collected shall be made before donation to a suitable repository. All fossils collected shall be donated to an institution with a research interest in the materials.
- B. Non Smoking Campus: Design Builder shall be aware that as of January 2, 2014, the University of California, Riverside Campus is Tobacco-Free. Smoking, the use of smokeless tobacco products, e-cigarettes, and unregulated nicotine products are strictly prohibited. Refer to campus policy for more information.

PART 2 - PRODUCTS (Not Used)

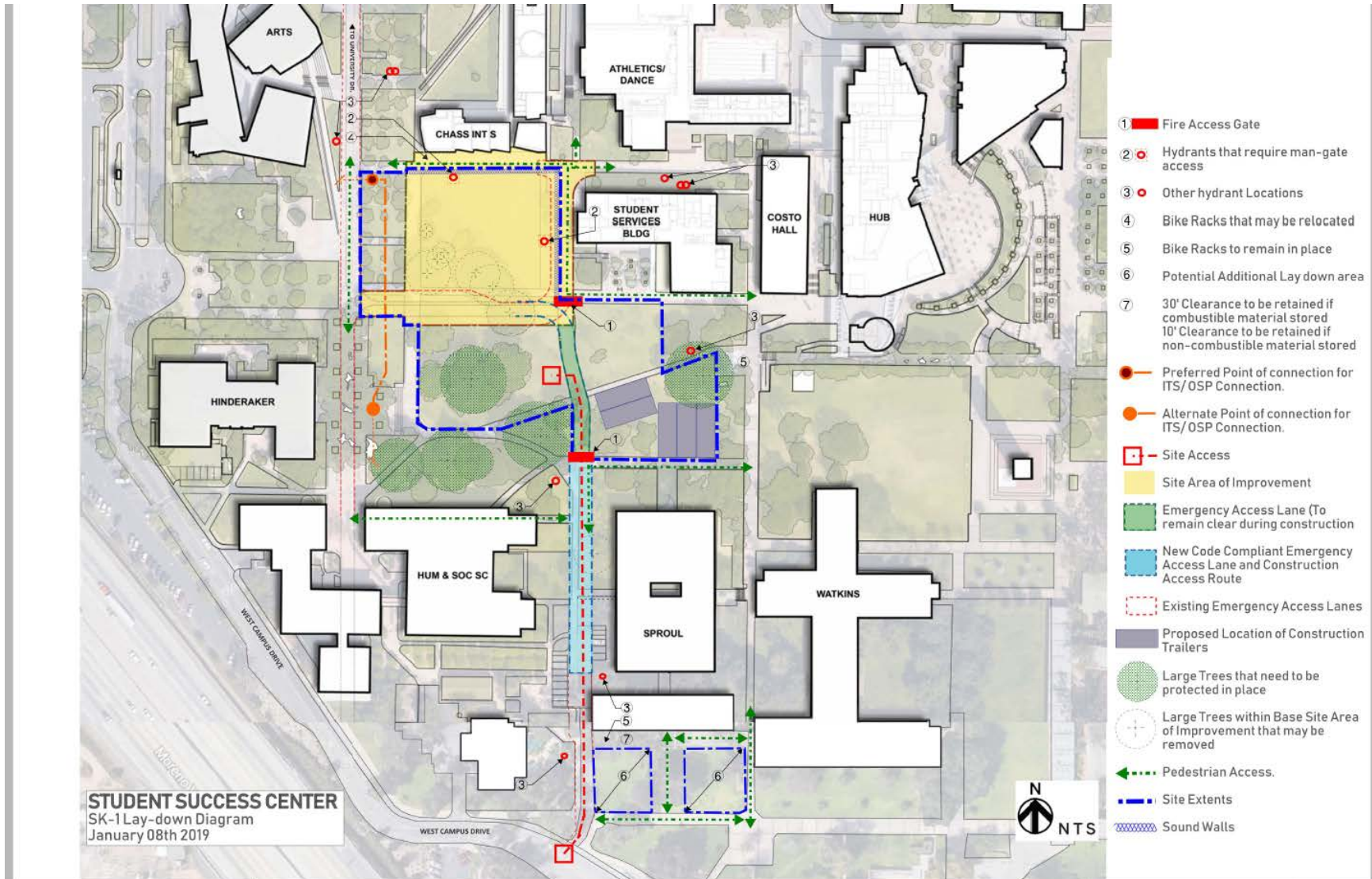
PART 3 - EXECUTION (Not Used)

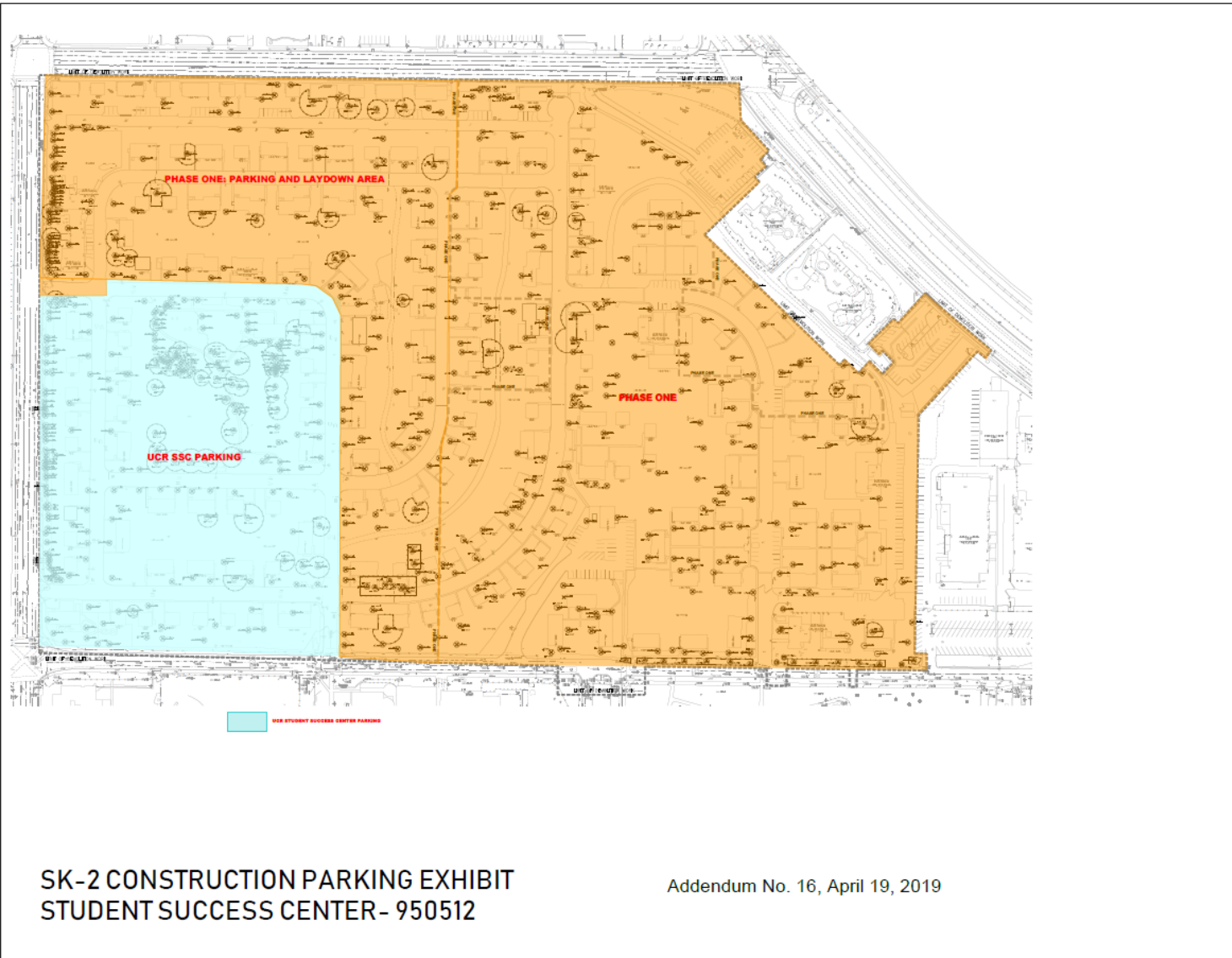
END OF SECTION 01 1000

**ATTACHMENTS:**

ATTACHMENT #1 – SK-1 LAY-DOWN DIAGRAM

ATTACHMENT #2 – SK-2 CONSTRUCTION PARKING EXHIBIT







## SECTION 01 5000 - TEMPORARY FACILITIES AND CONTROLS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Sections include the following:
  - 1. Section 01 1000 Summary for limitations on utility interruptions and other work restrictions.
  - 2. Section 01 3300 Submittal Procedures for procedures for submitting copies of implementation and termination schedule and utility reports.
  - 3. Section 01 7300 Execution Requirements for progress cleaning requirements.
  - 4. Divisions 02 through 33 Sections for specific requirements for temporary facilities and control requirements for products, materials and equipment in those Sections.

#### 1.2 DEFINITIONS

- A. Permanent Enclosure: As determined by University's Representative, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

#### 1.3 USE CHARGES

- A. General: Cost or use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, University's construction forces, University's Representative, occupants of Project, testing agencies, and authorities having jurisdiction.
- B. Parking Permits: Limited parking for workers employed on the Work may be provided ~~within the fenced-in Project site boundary and designated temporary construction lay-down area (TBD)~~ ***at Canyon Crest Family Housing (See Exhibit SK-2)*** ~~to the extent that space for that purpose is available without interference with University activities or activities related to performance of the Work.~~ Design builder (and workers employed on the work) shall be responsible for obtaining parking permits for personal vehicles should they intend to utilize University parking lots on campus.
  - 1. General parking for construction forces shall be coordinated with Design builder, UCR Transportation and Parking Services (TAPS) and University Representative. Monthly parking passes are available for purchase at:



683 Linden Street  
Riverside, CA 92521

2. Comply with the University's parking regulations.
- C. Sewer Service: Where available, the University will pay sewer service use charges for sewer usage by all entities for construction operations.
- D. Water Service: Pay water (potable and/or reclaimed water) service use charges to the University for water used by all entities for construction operations when connected to the University water system.
- E. Electric Power Service: Pay electric power service use charges to the University for electricity used by all entities for construction operations when connected to the University electrical system.
- F. Phone Service: Pay phone service and use charges for construction operations and University's Field Office.
- G. Natural Gas Service: Pay natural gas service use charges to the University for gas used by all entities for construction operations when connected to the University natural gas system.

#### 1.4 SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Field Offices: Submit floor plans, list of equipment including product data, and evidence of regulatory approval.
- C. ~~Temporary~~ Construction Service Road Plan: Submit plan for construction vehicle service road in through the ***Southern entry at West Campus Drive.*** ~~proximity to the corner of Canyon Crest Drive and University Avenue. Temporary construction service road shall extend eastward to campus parking lot 19 allowing for a more streamlined access route to the project construction site.~~ Show locations of curb-cuts, existing utilities and vaults to be protected in place, fencing, barricades, signage, etc. This temporary road plan shall be prepared by persons knowledgeable about the fundamental principles of temporary traffic controls and the work activities performed.
  1. Location of ~~temporary~~ construction service road shall be coordinated with University Representative.
    - a. ~~UCR is currently working with Riverside Transit Authority (RTA) on development of future RTA transit hub to be located at parking lot 19. Should project schedules coincide, it is the University's desire for temporary construction service road to be converted into permanent RTA transit hub service road.~~

2. The Design Builder shall be responsible for patching, repairing, or replacing in like kind any adjacent areas damaged by project construction traffic during the Work immediately upon discovery.
  3. **The Design Builder shall be responsible for widening of construction service lane on completion for use as a fire access lane.**
  4. The Design Builder shall be responsible for removing the temporary construction service road and restoring **widened fire lane (as identified in SK-1)** area to (at minimum) the same condition as documented prior to the Work during project close-out.
    - a. Photo document area prior to commencement of the Work. See specification section 01 3233 “Photographic Documentation” for more information.
- D. Fence Plan: Submit site plan with construction fence around project, location of gates and fire access gates, for approval by the State Fire Marshal. Show location of any existing fire hydrants. Submittal shall include fence plans for any off-project site lay down area if applicable.
1. Parking is to be **Canyon Crest Family Housing, Riverside, 92507 (as identified in SK-2) determined by the University.**
  2. Campus/ Pedestrian access to be maintained as per SK-1 Laydown diagram.
  3. Point of access to be through the west campus drive (south of ‘The Barn’) as per SK-1 Laydown diagram.
  4. University reserves the right to require reconfiguration of temporary fencing or designated construction lay-down area to a configuration that is acceptable to the university when the design-builder is provided with a 30-day written notice.
- E. Storm Water Pollution Prevention Plan (SWPPP): Prepare the SWPPP in accordance with the General Permit to discharge storm water associated with construction activity. The SWPPP shall be prepared by an individual knowledgeable about storm water pollution prevention methods and requirements. The SWPPP shall be implemented prior to commencement of construction activities and shall include but not be limited to: the construction site, lay down area, ~~remote~~ contractor parking site (if provided) and the temporary trailer facilities. SWPPP shall include any off-project site lay down area if applicable.
- F. Traffic Control Plan: Submit traffic control plan for vehicular, pedestrian and bicycle traffic around the project construction site. Show locations of barricades, lights, and signage. Traffic control plans shall be prepared by persons knowledgeable about the fundamental principles of temporary traffic controls and the work activities performed. The design, selection and placement of traffic control devices for the traffic control plan shall be based on engineering judgment and in accordance with Part 6 of the California Manual on Uniform Traffic Control Devices for Streets and Highways.
- G. Provide a schedule of any activity that will impact traffic, or any planned lane or street closure, for approval by the University's Representative and giving a minimum of 14 business days notice before closing any street, parking stall or access pathway.

- H. Submit four copies of above submittals. University will return one copy.

1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with California Electric Code.
- B. Tests and Inspections: Arrange for University’s Representative or the relevant utility company to test and inspect each temporary utility before use. Obtain required certifications and permits.
  - 1. Notify University’s Representative 72 hours prior to connection to a University utility service to obtain permit with University Facilities Management approval.
  - 2. Notify University’s Representative after installation of backflow prevention device to obtain certification on installation from the University Facilities Management.
- C. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:
  - 1. Cal OSHA Requirements.
  - 2. University’s Environmental Health and Safety (EH&S) regulations.
  - 3. South Coast Air Quality Management District (SCAQMD).
  - 4. California State Fire Marshal.
  - 5. Federal and State storm water management regulations for construction activities.
- D. Standards: Comply with CFC Article 87, “Fire Safety during Construction, Alteration or Demolition of a Building” and ANSI A10 Series standards for "Safety Requirements for Construction and Demolition".
- E. Permits: For projects one acre or more in size, a Notice of Intent (NOI) and Notice of Termination (NOT) shall be prepared under the General Permit for Storm Water Discharges. The NOI and NOT forms must be submitted to State Water Resources Control Board (SWRCB) through coordination with the University’s Representative. Yearly permit fees are to be included for the duration of the project, until Notice of Termination is filed through SWRCB.

1.6 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before University's acceptance, regardless of previously assigned responsibilities.
- B. Site Ingress and Egress
  - 1. Restrict entering and exiting the project site through West Campus Drive (South Barn entrance). No other streets may be used unless specified or approved in writing by University Representative.

2. Take all necessary precaution to ensure the safety of the bicyclists and pedestrians that use the campus roads, pathways or service drives.
  3. During inclement weather, clean the roads, drives or pathways affected to prevent slickness of the surface. The surface shall be maintained in a safe and usable condition for motorists, bicyclists and pedestrians.
  4. Construction operations are permitted to block only 1/2 of a street, drive or pathway at a time for momentary site access unless specified otherwise or approved. Campus streets shall be operational and usable by the University at all times.
- C. Temporary use of parking spaces outside ~~Limits of the Work~~ **identified construction parking:**
1. Obtain written approval of the University's Representative if any existing parking spaces outside the Limits of the Work must be temporarily blocked or used for access, storage, loading, protection against damage from construction operations (paint overspray, etc.) or any other activity associated with the Work.
  2. Request approval at least 3 business days in advance of the requested commencement of the use of the parking spaces. University reserves the right to refuse approval, with no change to the Contract Sum.
- D. Protection: Where Work is in progress overhead and materials or objects could potentially fall, construct temporary covered pedestrian walkways over each building entrance or existing walkway. Walkway covers shall extend out 12 feet in length for the first floor and an additional 4 feet for each additional floor of the building. Walkway covers shall extend from face of building. Place and maintain yellow safety construction flagging or ropes with signage to prevent pedestrians from coming within 25 feet of Work in progress overhead and to route pedestrians in and out of building entrances.
- E. Safety Precautions: Perform Work in such a manner as to prevent damage to existing facilities to remain or to be salvaged. Hazardous Work shall not be left standing or hanging, but shall be knocked or pulled down to avoid damage or injury to employees or the public.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Provide new materials suitable for the use intended. If acceptable to the University's Representative, undamaged previously used materials in serviceable condition may be used.
- B. Pavement: Comply with Division 32 pavement Sections.
- C. Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized steel, chain-link fabric fencing; minimum 8 ~~6~~ feet high with galvanized steel pipe posts; minimum 2-

- 3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top rails.
- D. Portable Chain-Link Fencing: Minimum 2-inch, 9-gage, galvanized steel, chain-link fabric fencing; minimum 8 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide concrete or galvanized steel bases for supporting posts.
- E. Lumber and Plywood: Comply with requirements in Division 06 Section "Rough Carpentry or Miscellaneous Carpentry" or as specified below.
1. For job-built fencing, temporary offices, shops and sheds within the construction area, provide UL labeled, fire treated lumber and plywood for framing, sheathing and siding.
  2. For signs and directory boards, provide exterior type, Grade B Plywood conforming to PS-1, of sizes and thickness indicated.
- F. Roofing Materials: Provide UL Class "A" standard weight asphalt shingles complying with ASTM D 3018, or UL Class "C" mineral surfaced roll roofing complying with ASTM D 249 on roofs of job-built temporary offices, shops and sheds.
- G. Gypsum Board: Minimum 1/2-inch-thick by 48 inches wide by maximum available lengths; regular-type panels with tapered edges. Comply with ASTM C 36.
- H. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.
- I. Paint: Comply with requirements in Division 9 painting Sections.
1. For job-built temporary offices, shops, sheds, fences and other exposed lumber and plywood, provide exterior grade acrylic-latex emulsion over exterior primer.
  2. For sign panels and applying graphics, provide exterior grade alkyd gloss enamel over exterior primer.
  3. For interior walls of temporary offices, provide two coats interior latex flat wall paint.
- J. Tarpaulins: Provide waterproof, fire resistant, UL labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures provide translucent, nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.
- K. Water Hoses: Provide 3/4 inch heavy-duty, abrasion-resistant, flexible rubber hoses 100 ft. long, with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shutoff nozzles at hose discharge.
- L. Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.



- M. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.
- N. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Where exposed to breakage, provide lamps with guard cages or tempered glass enclosures. Provide exterior fixtures where exposed to moisture.
- O. First Aid Supplies: Comply with governing regulations.
- P. Metal plating and metal bridging for covering trenches shall be non-skid with waffle-patterns or right-angle undulations or shall be coated with a non-skid product. Plating shall be installed with no protruding edges or corners sticking up and with no bouncing or shifting.

## 2.2 TEMPORARY FACILITIES

- A. General: Provide new facilities and equipment suitable for the use intended. If acceptable to the University's Representative, undamaged previously used materials in serviceable condition may be used.
- B. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading. Provide steps and landings at all entrance doors.
- C. Common-Use Field Office: Of sufficient size to accommodate needs of construction personnel. Keep office clean and orderly. Furnish and equip offices as follows:
  - 1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
  - 2. Conference room of sufficient size to accommodate meetings of 12 individuals. Provide electrical power service and 120-V ac duplex receptacles, with not less than 1 receptacle on each wall. Furnish room with conference table, chairs, and 4-foot- square tack board.
  - 3. Drinking water and private toilet.
  - 4. Coffee machine and supplies.
  - 5. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
  - 6. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.
- D. Field Office for University's Representative: A separate space for sole use of University's personnel, with secure entrance doors and one key per occupant.
  - 1. Provide minimum 8' wide deck with stair access and ADA ramp.

2. Provide one accessible parking stall (path graded as feasible for compliance) in close proximity to the access ramp of Field Office that is scheduled to accommodate University Representatives co-locating during project.
2. Space for five (5) occupants from the University.
3. 750 square feet minimum with minimum width dimension of 10 feet.
4. Provide a contiguous space with three (3) secured private offices at 150 S.F. each, and a central space of 300 S.F.
5. The University's Inspector's office should have a separate outside door access.
6. Windows:
  - a. Minimum: Total area of 10 percent of floor area.
  - b. Operable sash and insect screens.
  - c. Locate to provide view of construction areas.
7. Interior toilet and sink with all plumbing lines connected to services and water heater.
8. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
9. Electrical:
  - a. Exterior lighting at entrance door.
  - b. Minimum of four 110-volt duplex electric convenience outlets, at least one on each wall.
  - c. Electric distribution panel: six circuits minimum, 120 volt, 60-hertz service.
10. Lighting fixtures capable of maintaining average illumination of 50 fc at desk height.
11. Furnish and equip offices as follows:
  - a. Three standard size desks with three drawers each.
  - b. Two plan tables: 30 by 72 by 36 inches high, with 1 equipment drawer. Locate table oriented in relation to the Site at a window with a view of the Site
  - c. One metal, double-door storage cabinet under plan table.
  - d. Two plan racks, each to hold a minimum of 10 racks of drawings.
  - e. Five standard 4-drawer legal-size metal filing cabinets with locks and keys.
  - f. Four 36 by 60 by 12 inches bookcases.
  - g. Four swivel tilt chairs and three side chairs.
  - h. One drafting table stool.
  - i. One wastebasket per desk and table (total five).
  - j. Four tack boards, 36 by 30 inches.
  - k. Four task lights, swivel arm type desk mounted.
  - l. Coffee machine and supplies.
  - m. Telephone: four instruments; (job-related long-distance telephone calls shall be paid by Design Builder).
  - n. Copy machine with sorter.

- o. One LaserJet printers equal to an HP Laser Jet 2300I with connection to personal computers with network access.
  - p. Bottled drinking water and dispenser.
  - q. Provide periodic maintenance and cleaning of furnishings, equipment, and services.
  - r. Thermometer mounted at a convenient outside location not in direct sunlight.
  - s. Provide one complete new set of the applicable California Building Codes and any amendments.
- E. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
- 1. Store combustible materials apart from building.

### 2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as specified. For special areas not listed, provide fire extinguishers as required by locations and classes of fire exposures.
- 1. Provide hand-carried, portable UL rated, Class "A" fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers.
  - 2. Comply with NFPA 10 and CFC Article 87 for classification, extinguishing agent and size required by location and class of fire exposure.
  - 3. Locate fire extinguishers in field offices, storage sheds, tool houses, other temporary buildings, and throughout the Site. In the area under construction, provide at least one fire extinguisher for each 5,000 sq. ft of building floor area. Locate fire extinguishers so that a person never has to walk more than 100 feet to obtain one.
- B. Heating Equipment: Unless University authorizes use of permanent heating system, provide vented, self-contained, liquid-propane-gas heaters with individual space thermostatic control.
- 1. Use of gasoline burning or oil-fired space heaters, open-flame heaters, or salamander-type heating units is prohibited.
  - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to University's Representative, and marked for intended use.
  - 3. Permanent HVAC System: If University authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of **8** at each return air grille in system and remove at end of construction.
- C. Meters: For measurement of water, electricity, gas or other utilities used by Design Builder, provide meters acceptable to University's Representative for measurement of utility use.

- D. Backflow preventer: Reduced Pressure Principal type.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

#### 3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
  - 1. Arrange with University's Representative and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
  - 1. Connect temporary sewers to municipal system or University's private system as directed by University's Representative.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
  - 1. Where installations below an outlet might be damaged by spillage or leakage, provide a drip pan of suitable size to minimize water damage. Drain accumulated water promptly from pans.
  - 2. Disinfecting: Disinfect temporary water piping prior to use.
  - 3. Provide water meter and backflow prevention device.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
  - 1. Toilets: Use of University's existing toilet facilities will not be permitted.
- E. Heating and Cooling: Provide temporary heating or cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- F. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting

### TEMPORARY FACILITIES AND CONTROLS

installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

- G. **Electric Power Service:** Use of University's existing electric power service will be permitted, as long as equipment is maintained in a condition acceptable to University. Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
1. Install electric power service overhead, unless otherwise indicated.
  2. Connect temporary service to University's existing power source, as directed by University.
  3. Provide electric meter.
- H. **Lighting:** Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
- I. **Telephone and Electronic Communication (i.e. Data) Service:** Provide temporary telephone and data service, including electronic mail, in University's field office and common-use facilities for use by all construction personnel. Install at least one telephone line(s) for each field office.
1. Provide additional telephone lines for the following:
    - a. Provide a dedicated telephone line for each facsimile machine in each field office.
    - b. Provide a dedicated telephone line for each computer in each field office.
  2. At each telephone, post a list of important telephone numbers.
    - a. Police and fire departments.
    - b. Ambulance service.
    - c. Contractor's home office.
    - d. Architect's office.
    - e. Engineers' offices.
    - f. University's office.
    - g. Principal subcontractors' field and home offices.
  3. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.
  4. Order voice/data service through UCR Campus Communications (UCR C&C). Coordinate with UCR C&C the point of connection for said services.
    - a. Provide data connections as needed to Contractor's field office.



- b. Provide data connection to the University Representative's trailer to accommodate each work space, computer, and equipment needs.
- c. Installation shall be by a University's approved contractor.

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
  1. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet of building lines or existing buildings. Comply with CFC Article 87.
  2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion may be permitted to use permanent facilities, under conditions acceptable to University.
- B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas where possible in same location as permanent roads and paved areas. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.
  1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas if possible.
  2. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
  3. Prepare subgrade and install subbase and base for temporary roads and paved areas according to Division 31 Section "Earth Moving."
  4. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course according to Division 32 Section "Asphalt Paving."
- C. Traffic Controls: Comply with requirements of University Police or authorities having jurisdiction.
  1. Protect existing site improvements to remain including curbs, pavement, and utilities.
  2. Maintain access for fire-fighting equipment and access to fire hydrants.
  3. Traffic Control: Provide traffic control and flagman's services at all points where conveying equipment engaged on the Work regularly enters upon or crosses city, county or University maintained roads. The methods of traffic control and locations of flagman's stations shall be subject to the approval of the University's Representative.
  4. Fire Access Lane: Maintain a minimum constant 24-foot-wide fire truck access route at all times during construction where fire access lane is shown or required to serve existing buildings.
  5. Adopt all practical means to minimize interference to traffic. Access to other University facilities in the area shall be maintained at all times.

6. Furnish all directional signage barricades, lights, and flagmen required to control vehicular, pedestrian and bicycle traffic and provide and maintain suitable temporary barricades, fences, directional signs, or other structures as required for the protection of the public; and maintain, from the beginning of twilight through the whole of every night on or near the obstructions, sufficient lights and barricades to protect the public and Work.
  7. Install and maintain such devices that are necessary to provide reasonably safe passage for the traveling public, including pedestrians and bicyclists around the project, as well as for the safeguard of workers.
- D. **Parking:** Use designated areas of University's existing parking areas for construction personnel. Provide transportation as required to and from the project site to off project site lay down area or remote construction parking lot (if provided). Coordinate specific locations with University Representative.
- E. **Dewatering Facilities and Drains:** Maintain Project site, excavations, and construction free of water.
1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or University Facilities nor endanger permanent Work or temporary facilities.
- F. **Project Identification Signs:** Provide Project identification signs. Install signs where directed by the University's Representative to inform public and individuals seeking entrance to Project. Unauthorized signs are not permitted.
1. Provide temporary, directional signs for construction personnel and visitors.
  2. Maintain and touchup signs so they are legible at all times.
  3. Provide two project identifications signs in accordance with Campus Standard detail.
  4. Provide signs for traffic direction and warnings such as "Construction Project" and "Keep Out" to facilitate control of personnel and vehicles. Use only the minimum number necessary, to 2' x 4' maximum size.
- G. **Waste Disposal Facilities:** Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of the University's Representative and authorities having jurisdiction. Comply with Division 01 Section "Execution" for progress cleaning requirements. Follow Best Management Practices for Solid Waste Management.
- H. **Lifts and Hoists:** Provide facilities necessary for hoisting materials and personnel.
1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
  2. Crane Operation, Staging and Storage
    - a. **Operator Training and Crane Certification:** Prior to starting crane operations, provide copies of operator's training and crane certification to the University's Representative.

- b. Crane Staging Area: Crane staging areas will be required to be coordinated with the University's Representative a minimum of 5 business days in advance of loading and removal of crane and/or materials from the roof.
  - c. Storage: will not be allowed on-project site except at remote staging areas.
- I. Temporary Elevator Use: Refer to Division 14 Sections for temporary use of new elevators.
- J. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.
- K. Temporary Use of Permanent Stairs: Cover finished, permanent stairs with protective covering of plywood or similar material so finishes will be undamaged at time of acceptance.
- L. Scaffolding: Provide scaffolding as required to complete the Work. Coordinate platform elevations and tower locations with the building design to permit Work to be conducted in accordance with the requirements for joints, changes in materials, and application of materials.
- M. Temporary Shoring: Provide temporary shoring as required to protect existing buildings, utilities and other improvements that will be affected by construction activities.

#### 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and follow Best Management Practices that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects to the project site, lay down area, remote contractor parking and temporary trailer facilities.
- B. Temporary Erosion and Sedimentation Control: Apply Best Management Practices (BMPs) to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.
  - 1. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
  - 2. Inspect and install Air Handling Unit filters to adjacent buildings to prevent dust accumulation during construction.
- C. Stormwater Control: Comply with SWRCB and apply Best Management Practices (BMPs). Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains. These provisions are also required at off project site lay down areas.

- D. Tree and Plant Protection: Comply with requirements below or as specified in Division 32 Section "Temporary Tree and Plant Protection."
1. Preserve and protect existing trees and plants at Site, which are designated to remain, and those adjacent to Site.
  2. Consult with University's Representative and remove agreed-on roots and branches, which interfere with construction. Employ qualified tree surgeon to remove, and to treat cuts.
  3. Protect root zones of trees and plants:
    - a. Do not allow vehicular traffic or parking.
    - b. Do not store materials or products.
    - c. Prevent dumping of refuse or chemically injurious materials or liquids.
    - d. Prevent formation of puddles or continuous running water.
  4. Carefully supervise excavating, grading, filling, and subsequent construction operations, to prevent damage.
  5. Replace, or suitably repair, trees and plants designated to remain which are damaged or destroyed due to construction operations.
  6. Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- E. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Obtain extended warranty for University. Perform control operations lawfully, using environmentally safe materials. Construction activities shall not produce stagnant water ponds conducive to mosquito breeding habitat at any time.
- F. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily seeing through and entering site except by entrance gates.
1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations and as indicated on Drawings or approved by the University's Representative.
  2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide University with one set of keys or install University's padlock and daisy chain padlocks to allow either University or Design Builder to enter site.
  3. Provide breakaway gates for fire department access in accordance with state fire authority requirements.
  4. Fences to meet a minimum height requirement of 8'.
- G. Security Cameras: Install sufficient video surveillance to prevent vandalism. Use of project progress video camera mounted at a location approved by the University as part of this system.

- H. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction, unsecured existing buildings and tunnel construction openings. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
  
- I. Sound Barrier Wall: Design and construct 15' high sound barrier wall to isolate the existing classroom buildings from the Design-Builder's construction site. Temporary sound barrier shall be structurally designed for wind loads, and acoustically designed for classroom isolation from construction activities. Provide sound wall to isolate the following buildings:
  - 1. Chass Interdisciplinary Building
  - 2. Student Services Building
  
- J. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed provide lighting, including flashing red or amber lights.
  
- K. Comply with SCAQMD regulations for grading phase, including Rule 403 and Rule 402, the Nuisance Rule. To ensure that construction trucks do not emit fugitive dust and that there is no nuisance impact off the site, the contractor shall as a minimum do the following:
  - 1. Moisten soil more than 15 minutes prior to moving soil or conduct whatever watering is necessary to prevent visible dust emissions from exceeding 100 feet in any direction
  - 2. Apply chemical stabilizers to disturbed surface areas (completed grading areas) within five days of completing grading or apply dust suppressants or vegetation sufficient to maintain a stabilized surface.
  - 3. Water open storage piles hourly or cover with temporary coverings.
  - 4. Water exposed surfaces at least twice a day under calm conditions and as often as needed on windy days when winds are less than 25 miles per day or during very dry weather in order to maintain a surface crust and prevent the release of visible emissions from the construction site.
  - 5. Wash mud-covered tires and under-carriages of trucks leaving construction sites.
  - 6. Provide for street sweeping, as needed, on adjacent roadways to remove dirt dropped by construction vehicles or mud, which would otherwise be carried off by trucks departing project sites.
  - 7. Securely cover loads of dirt with a tight-fitting tarp on any truck leaving the construction sites to dispose of excavated soil.
  - 8. Cease grading during periods when winds exceed 25 miles per hour.
  
- L. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.
  - 1. Where heating or cooling is needed and permanent enclosure is not complete provide temporary weather tight enclosure for building exterior.

- M. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by University and tenants from fumes and noise.
1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant plywood on construction operations side.
  2. Construct dustproof partitions with 2 layers of 3-mil polyethylene sheet on each side. Cover floor with 2 layers of 3-mil polyethylene sheet, extending sheets 18 inches up the sidewalls. Overlap and tape full length of joints. Cover floor with fire-retardant plywood.
    - a. Construct vestibule and airlock at each entrance through temporary partition with not less than 48 inches between doors. Maintain water-dampened foot mats in vestibule.
  3. Insulate partitions to provide noise protection to occupied areas.
  4. Seal joints and perimeter. Equip partitions with dustproof doors and security locks.
  5. Protect air-handling equipment.
  6. Weather strip openings.
  7. Provide walk-off mats at each entrance through temporary partition.
- N. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with CFC Article 87.
1. Prohibit smoking in hazardous fire-exposure areas.
  2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
  3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
  4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

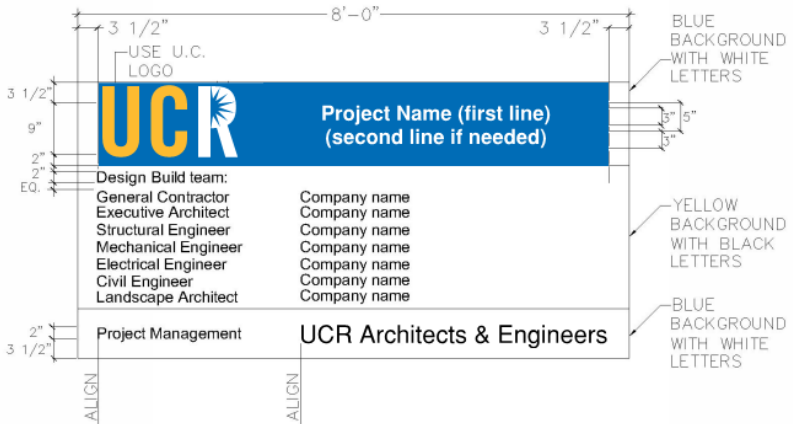
### 3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

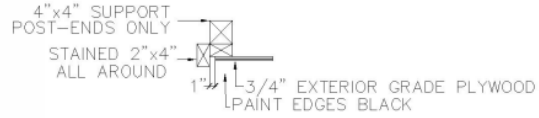


- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
  - 1. Materials and facilities that constitute temporary facilities are property of Design Builder. University reserves right to take possession of Project identification signs.
  - 2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by University's Representative.
  - 3. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

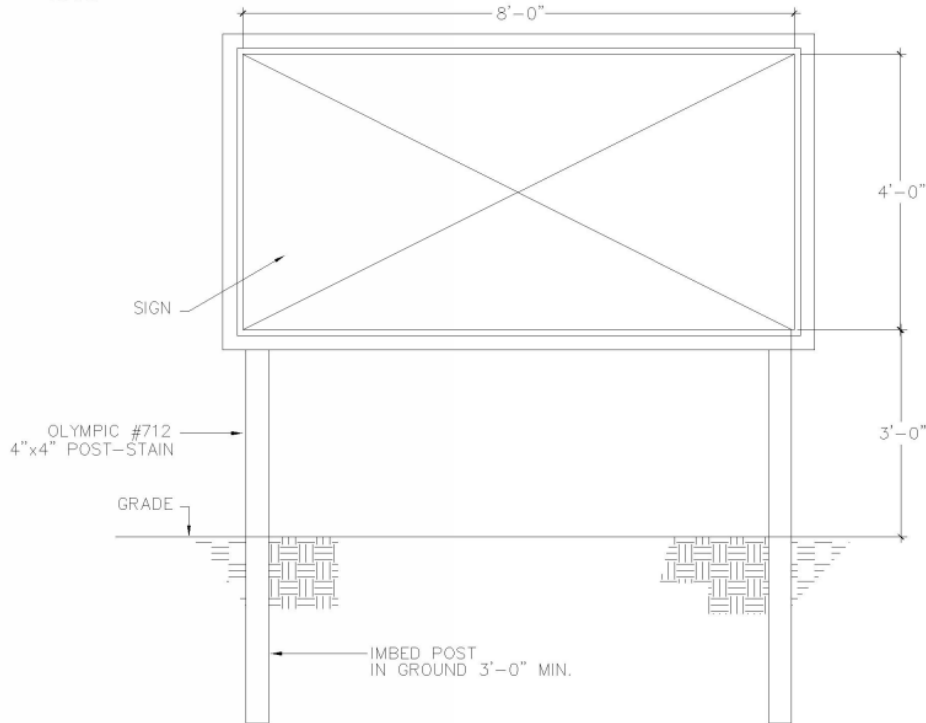
- NOTE:
1. LETTERING OTHER THAN UC LOGO IS HELVETICA MEDIUM. ADJUST WIDTH AS REQUIRED
  2. A/E LINES MAY BE ADJUSTED DEPENDING ON CONSULTANTS USED ON THE PROJECT.
  3. COLORS FOR SIGN USING  
BLUE: BLUE (PANTONE # 288)  
YELLOW: YELLOW (PANTONE # 121)
  4. DESIGN BUILDER MAY LIST CONTRACTORS AND/OR DESIGN PROFESSIONALS IN YELLOW SECTION.



JOB SIGN  
N.T.S.



TYP. FRAME SECTION  
N.T.S.



2015 12 18 Date	University of California Riverside Architects & Engineers Campus Standard & Design Criteria Project Name	PROJECT SIGN FOR DESIGN BUILD Sheet Title	<b>01 5000-01</b> Sheet No.
NO SCALE Scale			

END OF SECTION 01 5000

## **DIVISION 08 - OPENINGS**

### **SECTION 08 1113 - HOLLOW METAL DOORS AND FRAMES**

#### **SECTION INCLUDES**

Non-fire-rated hollow metal doors and frames.

Hollow metal frames for wood doors.

Fire-rated hollow metal doors and frames.

Thermally insulated hollow metal doors with frames.

#### **ADMINISTRATIVE REQUIREMENTS**

Coordination:

Coordinate with wall construction for anchor placement.

Coordinate installation of hardware.

Preinstallation Conference: Conduct conference at Project site.

#### **REGULATORY REQUIREMENTS**

Conform to applicable Building Code for fire rated assemblies.

#### **PERFORMANCE REQUIREMENTS**

Requirements for Hollow Metal Doors and Frames:

Steel Sheet: Comply with one or more of the following requirements; galvanized steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.

Accessibility: Comply with ICC A117.1 and ADA Standards.

Typical Door Face Sheets: Flush.

Hardware Preparations, Selections and Locations: Comply with NAAMM HMMA 830 and NAAMM HMMA 831 or BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

Zinc Coating for Typical Interior and/or Exterior Locations: Provide metal components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvanized) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise for specific hollow metal doors and frames.

Based on SDI Standards: Provide at least A40/ZF120 (galvanized) when necessary, coating not required for typical interior door applications, and at least A60/ZF180 (galvanized) for corrosive locations.

#### **HOLLOW METAL DOORS**

Door Finish: Factory primed and field finished.

Exterior Doors: Thermally insulated.

Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).

Level 3 - Extra Heavy-duty.

Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.

Model 2 - Seamless.

Door Face Metal Thickness: 16 gage, 0.053 inch, minimum.

Core Material: Polystyrene, 1 lbs/cu ft minimum density.

Door Thickness: 1-3/4 inch, nominal.

Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvanized) in accordance with ASTM A653/A653M, with A60/ZF180 coating.

Door Face Sheets: Flush.

Weatherstripping: Refer to Section 08 7100.

**Interior Doors, Non-Fire-Rated:**

Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).

Level 2 - Heavy-duty.

Physical Performance Level B, 500,000 cycles; in accordance with ANSI/SDI A250.4.

Model 2 - Seamless.

Door Face Metal Thickness: 20 gage, 0.032 inch, minimum.

Core Material: Manufacturers standard core material/construction and in compliance with requirements.

Door Thickness: 1-3/4 inch, nominal.

**Interior Doors, Fire-Rated:**

Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).

Level 2 - Heavy-duty.

Physical Performance Level B, 500,000 cycles; in accordance with ANSI/SDI A250.4.

Model 2 - Seamless.

Door Face Metal Thickness: 20 gage, 0.032 inch, minimum.

Fire Rating: As indicated on Door Schedule, tested in accordance with UL 10B ("neutral or negative pressure fire tests").

Temperature-Rise Rating (TRR) Across Door Thickness: In accordance with local building code and authorities having jurisdiction.

Provide units listed and labeled by UL (DIR) or ITS (DIR).

Smoke and Draft Control Doors (Indicated with letter "S" on Drawings and/or Door Schedule): Self-closing or automatic closing doors in accordance with NFPA 80 and NFPA 105, with fire-resistance-rated wall construction rated the same or greater than the fire-rated doors, and the following;

Maximum Air Leakage: 3.0 cfm/sq ft of door opening at 0.10 inch w.g. pressure, when tested in accordance with UL 1784 at both ambient and elevated temperatures.

Gasketing: Provide gasketing or edge sealing as necessary to achieve leakage limit.

Label: Include the "S" label on fire-rating label of door.

Core Material: Manufacturers standard core material/construction in compliance with requirements.

Door Thickness: 1-3/4 inch, nominal.

**HOLLOW METAL FRAMES**

Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.

Exterior Door Frames: Full profile welded type.

Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with A40/ZF120 coating.

Frame Metal Thickness: 14 gage, 0.067 inch, minimum.

Interior Door Frames, Non-Fire Rated: Full profile/continuously welded type.

Frame Metal Thickness: 14 gage, 0.067 inch, minimum.

Door Frames, Fire-Rated: Full profile/continuously welded type.

Fire Rating: Same as door, labeled.

Frame Metal Thickness: 14 gage, 0.067 inch, minimum.

**FINISHES**

Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

**FRAME ANCHORS**

Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z (12G) coating designation; mill phosphatized.

Jamb Anchors:

Masonry Type: Wire anchors not less than 0.177 inch thick.

Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.

Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch, and as follows:

Monolithic Concrete Slabs: Adjustable-type anchors with two holes to receive fasteners.

Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface.

## **ACCESSORIES**

### **FINISHES**

Primer: Rust-inhibiting, complying with ANSI A250.10.

## **SECTION 08 1116 - ALUMINUM DOORS AND FRAMES**

### **SECTION INCLUDES**

Flush aluminum doors with aluminum face sheets.

Aluminum frames.

Aluminum door frames for doors specified in other sections.

### **ADMINISTRATIVE REQUIREMENTS**

Coordination: Coordinate the work with door opening construction, door frame and door hardware installation.

### **MANUFACTURERS**

Acceptable Manufacturers:

Frameworks, Inc., an ASSA ABLOY Group company.

Western Integrated Materials, Inc.: [www.western-integrated.com](http://www.western-integrated.com).

Wilson Partitions: [www.wilsonpart.com](http://www.wilsonpart.com).

### **ALUMINUM DOOR AND FRAME ASSEMBLIES**

Conform to applicable Building Code for fire rated assemblies.

Fire rated assembly construction to conform to UL 10C.

### **FRAMES**

Flush Aluminum Doors with Aluminum Face Sheets: Aluminum internal framing and faces; no steel components.

Thickness: 2 inches, nominal.

Finish: Clear anodized.

Glazed Aluminum Doors: Extruded aluminum tube frame, full glazed, with middle rail; factory glazed.

Thickness: 1-3/4 inches, nominal.

Stile Width: 3-1/2 inch, nominal.

Top Rail: 3-5/8 inches.

Bottom Rail: 6-3/4 inches.

Finish: Clear anodized.

Glazing: Clear, 1/4 inch fully tempered glass, as specified in Section 08 8000 - Glazing.

Door Frames: Extruded aluminum hollow or C-shaped sections; no steel components.  
Frame Depth: To fit wall thicknesses as indicated on drawings.  
Frames for Fire-Rated Doors Specified Elsewhere: Tested in accordance with NFPA 252, listed and labeled by UL (DIR), ITS (DIR), or testing agency acceptable to authorities having jurisdiction.  
Finish: Clear anodized.  
Sidelight/Transom Glazing: As specified in Section 08 8000 - Glazing.

Dimensions and Shapes: As indicated on drawings; dimensions indicated are nominal.  
Provide the following clearances:  
Hinge and Lock Stiles: 1/8 inch.  
Between Meeting Stiles: 1/4 inch.  
At Top Rail and Bottom Rail: 1/8 inch.

### **FINISHES**

Superior Performing Organic Coatings: Multiple coats, thermally cured polyvinylidene fluoride (PVDF) system; AAMA 2605.

## **SECTION 08 1119 - STAINLESS-STEEL DOORS AND FRAMES**

### **SUMMARY**

Section Includes:  
Stainless-steel, hollow-metal doors.  
Stainless-steel, hollow-metal frames.

### **COORDINATION**

Coordinate anchorage installation for stainless-steel frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

### **STAINLESS-STEEL DOORS AND FRAMES**

#### **PERFORMANCE REQUIREMENTS**

Performance: Level B, SDI A250.4.

Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.

#### **STAINLESS-STEEL DOORS**

Stainless-Steel Doors: Not less than 1-3/4 inches (44 mm) thick, of seamed, hollow-metal construction. Construct doors with smooth, flush surfaces without visible joints or seams on faces.

Face Sheets: Fabricate from 0.062-inch- (1.59-mm-) thick, stainless-steel sheet.

Core Construction:

Welded Steel-Stiffened Core: 0.031-inch- (0.79-mm-) thick, stainless-steel vertical stiffeners extending full-door height, spaced not more than 6 inches (152 mm) apart, spot welded to face sheets a maximum of 5 inches (127 mm) o.c. Fill spaces between stiffeners with mineral-fiber insulation.

Locations: Exterior doors[.

Laminated Steel-Stiffened Core: 0.030-inch- (0.76-mm-) nominal thickness uncoated steel vertical stiffeners extending full-door height, spaced not more than 6 inches (152 mm) apart, fastened to face sheets with waterproof adhesive. Fill spaces between stiffeners with mineral-fiber insulation.

#### **STAINLESS-STEEL FRAMES**



**Stainless-Steel Frames:** Fabricate stainless-steel frames of construction indicated, with faces of corners mitered and contact edges closed tight.

Frame Construction: Saw mitered and full (continuously) welded.

Door Frames for Openings More Than 48 Inches (1219 mm) Wide: Fabricate from 0.078-inch- (1.98-mm-) thick, stainless-steel sheet.

Hardware Reinforcement: Fabricate according to NAAMM-HMMA 866 with reinforcing plates from stainless steel.

Head Reinforcement: 0.109-inch- (2.78-mm-) thick, stainless-steel channel or angle stiffener for opening widths more than 48 inches (1219 mm).

#### **MATERIALS:**

**Recycled Content of Steel Products:** Postconsumer recycled content plus one-half of preconsumer recycled content not less than 20 percent.

Stainless-Steel Sheet: ASTM A 240/A 240M, austenitic stainless steel, Type 316.

Foam-Plastic Insulation: Manufacturer's standard polystyrene board insulation with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, according to ASTM E 84. Enclose insulation completely within door.

**Stainless-Steel Finishes:** Remove tool and die marks and stretch lines, or blend into finish. Grind and polish surfaces to produce uniform finish, free of cross scratches. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

Directional Satin Finish: No. 4.

#### **ACCESSORIES**

**Grout:** Comply with ASTM C 476, with a slump of not more than 4 inches (102 mm) as measured according to ASTM C 143/C 143M.

### **SECTION 08 1414 - MOLDED HARDBOARD AND MEDIUM DENSITY FIBERBOARD FACED WOOD DOORS**

#### **SUMMARY**

Section Includes:

Solid-core doors with molded hardboard faces.

Shop priming molded MDF faced wood doors.

Factory fitting wood doors to frames and factory machining for hardware.

#### **PREINSTALLATION MEETINGS**

Preinstallation Conference: Conduct conference at Project site.

#### **MANUFACTURERS**

Source Limitations: Obtain molded wood doors from single manufacturer.

#### **MOLDED DOORS, GENERAL**

**Quality Standard:** In addition to requirements specified, comply with WDMA I.S.1-A, "Architectural Wood Flush Doors".

Provide WI Certified Compliance Labels indicating that doors comply with requirements of grades specified.

Contract Documents contain selections chosen from options in quality standard and additional requirements beyond those of quality standard. Comply with those selections and requirements in addition to quality standard.

**Adhesives & Sealants:** Only use adhesives and sealants [in the interior of the building that meet or do not exceed the VOC limits of the current requirements of South Coast Air Quality Management

District (SCAQMD) Rule No. 1168 and CAL-Green Table 5.504.4.1 Adhesive VOC Limit, and CAL-Green Table 5.504.4.2 Sealant VOC Limit requirements.

Current requirement refers to the date on which the materials are installed in the building. SCAQMD Rule #1168 referenced in Section 018113 is current as of the date of this specification. Refer to [www.aqmd.gov/rules](http://www.aqmd.gov/rules) for the actual current version of the rule that will be applicable at the date of installation during construction.

Interior refers to all building construction that is inside of the exterior weatherproofing material.

WDMA I.S.1-A Performance Grade:

Heavy Duty unless otherwise indicated.

Extra Heavy Duty: Public toilets, janitor's closets, assembly spaces, and exits.

Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252.

Cores: Provide core specified or mineral core as needed to provide fire-protection rating indicated.

Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.

Pairs: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.

Particleboard-Core Doors:

Particleboard: ANSI A208.1, Grade LD-2.

Provide doors with glued-wood-stave or structural-composite-lumber cores instead of particleboard cores for doors indicated to receive exit devices.

Thickness: As indicated on Door Schedule.

Mineral-Core Doors:

Core: Noncombustible mineral product complying with requirements of referenced quality standard and testing and inspecting agency for fire-protection rating indicated.

Blocking: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated as needed to eliminate through-bolting hardware.

5 inch (125 mm) top-rail blocking.

5 inch (125 mm) bottom-rail blocking, in doors indicated to have protection plates.

5 inch (125 mm) midrail blocking, in doors indicated to have armor plates.

5 inch (125 mm) midrail blocking, in doors indicated to have exit devices.

Edge Construction: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.

Screw-Holding Capability: 550 lbf (2440 N) per WDMA T.M.-10.

Thickness: As indicated on Door Schedule.

Hollow-Core Doors:

Construction: Standard hollow core.

Wood top and bottom rails.

Wood stiles.

Blocking: Provide wood blocking with minimum dimensions as follows:

5 by 18 inch (125 by 460 mm) lock blocks.

Thickness: As indicated on Door Schedule.

## **DOORS FOR OPAQUE FINISH**

Interior Solid-Core Doors:

Grade: Custom.

Faces: MDF.

MDF Faces: ANSI A208.2, Grade 150 or Grade 160.

Exposed Vertical and Top Edges: Any closed-grain hardwood.

Core: Particleboard.

Construction: Three plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering.

Design: Custom vee groove pattern as indicated on Drawings.

Interior Hollow-Core Doors:

Grade: Custom.

Faces: MDF.

MDF Faces: ANSI A208.2, Grade 150 or Grade 160.

Exposed Vertical and Top Edges: Any closed-grain hardwood.

## **SECTION 08 1416 - FLUSH WOOD DOORS**

### **SECTION INCLUDES**

Flush wood doors; flush configuration; fire rated, non-rated, and acoustical.

### **ADMINISTRATIVE REQUIREMENTS**

Coordination:

Coordinate the work with door opening construction, door frame and door hardware installation.

Coordinate installation of glazing.

### **REGULATORY REQUIREMENTS**

Conform to applicable Building Code for fire rated assemblies.

Fire rated assembly construction to conform to NFPA 252 and UL 10B or UL 10C.

Installed Frame and Door Assemblies: Comply with NFPA 80 for fire rated class indicated.

### **WOOD-BASED DOOR COMPONENTS**

Wood doors fabricated from old growth timber are not permitted.

### **DOORS AND PANELS**

All Doors:

Quality Level - Door Type 1: Custom Grade, Heavy Duty performance, in accordance with AWMAC/WI (NAAWS).

Wood Veneer Faced Doors: 5-ply unless otherwise indicated.

Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.

Provide solid core doors at all locations.

Fire Rated Doors: Tested to ratings indicated on drawings in accordance with UL 10C - Positive Pressure; Underwriters Laboratories Inc (UL) or Intertek/Warnock Hersey (WHI) labeled without any visible seals when door is open.

### **DOOR AND PANEL CORES**

General Requirement: Provide door cores fully bonded to stiles and rails.

Non-Rated Solid Core and Doors: Type particleboard core (PC), plies and faces as indicated.

Fire-Rated Doors: Mineral core type, with fire resistant composite core (FD), plies and faces as indicated above; with core blocking as required to provide adequate anchorage of hardware without through-bolting.

Sound-Rated Doors: Equivalent to type, with particleboard core (PC) construction as required to achieve STC rating specified; plies and faces as indicated above.

**DOOR FACINGS**

Veneer Facing for Transparent Finish Door: White birch, HPVA Grade A, plain sliced (flat cut), with book match between leaves of veneer, center balance match of spliced veneer leaves assembled on door or panel face.

**DOOR CONSTRUCTION**

Fabricate doors in accordance with door quality standard specified.

Cores constructed with stiles and rails:

Provide solid blocks at lock edge and top of door for closer for hardware reinforcement.

Provide solid blocking for other throughbolted hardware.

Provide minimum 6 inch high solid wood top rail and minimum 16 inch high solid wood bottom rail, all doors; fire-resistant treated at fire-rated doors.

Glazed Openings: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings.

Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.

Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, BHMA-156.115-W, and hardware templates.

Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.

Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.

Openings: Factory cut and trim openings through doors.

Cut and configure exterior door edge to receive recessed weatherstripping devices.

Provide edge clearances in accordance with the quality standard specified.

**FACTORY FINISHING - WOOD VENEER DOORS**

Finish work in accordance with AWI/AWMAC/WI (AWS), Section 5 - Finishing for grade specified and as follows:

Transparent:

System - 11, Polyurethane, Catalyzed.

Factory finish doors in accordance with approved sample.

Seal door top edge with color sealer to match door facing.

**SECTION 08 1700 - INTEGRATED DOOR OPENING ASSEMBLIES**

**SECTION INCLUDES**

Factory-assembled and factory-finished integrated hollow metal doors and frames, including hardware for door opening assemblies.

**ASSEMBLIES**

Door, Frame, and Hardware Assemblies: Provide fully functional, factory-assembled and factory-finished door opening units, complete with door, frame, and hardware; complying with BHMA A156.32 and specified requirements.

Accessibility: Comply with ICC A117.1 and ADA Standards.

## PERFORMANCE REQUIREMENTS

Comply with requirements of local building code and authorities having jurisdiction, and the following:

Force to Open Interior Swinging Egress Doors, Non-Fire Doors: Not more than 5 pounds.

Force to Release Latch for Other Swinging Doors: Not more than 15 pounds to release latch, not more than 30 pounds to set door in motion, and not more than 15 pounds to swing door to full open position.

Door Assemblies in Corridors and Smoke Barriers: Fire door assemblies required to have a minimum fire protection rating of 20 minutes where located in corridor walls or smoke barrier walls having a fire-resistance rating in accordance with fire protection assembly requirements shall be tested in accordance with NFPA 252 or UL 10C without the hose stream test.

Door Assemblies in Other Fire Partitions: Fire door assemblies required to have a minimum fire protection rating of 20 minutes where located in other fire partitions having a fire-resistance rating of 30 minutes in accordance with fire protection assembly requirements shall be tested in accordance with NFPA 252, UL 10B, or UL 10C with the hose stream test.

Temperature Rise Across Fire Doors in Interior Exit Stairways, Ramps, and Exit Passageways: Maximum of 250 degrees F above ambient at end of 30 minutes standard fire test exposure.

Provide fire-rated units listed and labeled by UL (DIR) or ITS (DIR).

## COMPONENTS

Hollow Metal Doors: Doors complying with ANSI/SDI A250.8 (SDI-100) construction requirements exceeding Level 2 and Physical Performance Level A, Model 2 - Seamless; electrogalvanized prior to finishing; manufacturer's standard core and reinforcements.

Door Thickness: 1-3/4 inches.

Fire-Rated Doors: 16 gage, 0.053 inch thick faces and edges.

Hollow Metal Door Frames: Formed steel cased opening complying with ANSI/SDI A250.8 construction requirements exceeding Level 3 and Physical Performance Level A; electrogalvanized prior to finishing.

Type: Full profile welded, 16 gage, 0.053 inch, primed for field finishing.

## DOOR HARDWARE

Manufacturers: Door hardware manufacturers are as determined by manufacturer of Integrated Door Opening Assemblies in compliance with BHMA A156.32 requirements for applications indicated.

Continuous Hinges: Full height; complying with BHMA A156.26, Grade 1.

Type: Pin and barrel.

Base Metal: Stainless steel.

Lock Cylinders: Provide standard type cylinders, with six-pin core in compliance with BHMA A156.5, Grade 1, at locations indicated.

Concealed Door Closers: Provide concealed overhead closer, cam-action track mounted in top of door, 135 degree swing, positive stop, adjustable sizing, latching, and closing speed; complying with BHMA A156.4, Grade 1.

Flush Panic Exit Devices: Provide flush panel exit device, recessed into door; extruded aluminum, natural anodized finish; complying with BHMA A156.3, Grade 1.

Door Pulls, Lever Handle Trim: Provide lever handle trim to operate locksets or latchsets; lever design selected from door manufacturer's full line; rectangular escutcheon.

Material: Stainless steel.

Electromagnetic Door Holders: Complying with BHMA A156.15.

Protection Plates: Complying with BHMA A156.6.  
Material: Stainless steel.

## **SECTION 08 3100 - ACCESS DOORS AND PANELS**

### **SECTION INCLUDES**

Wall and ceiling access door and frame units.

### **ADMINISTRATIVE REQUIREMENTS**

Coordination: Coordinate installation with work of other trades, and obtain information on door sizes and exact locations from other trades.

The number of access panels is to be limited as much as possible. Review and coordinated in MEP coordination meeting at beginning of construction.

### **ACCESS DOORS AND PANELS ASSEMBLIES**

Interior Walls, Unless Otherwise Indicated:

Location: As indicated on drawings.

Material: Steel.

Finish: Factory prime.

Size: As required to provide access.

Standard duty, concealed hinged door.

Tool-operated spring or cam lock; no handle.

Wall Mounting Criteria: Provide surface-mounted face frame and door surface flush with frame surface.

Wall-Mounted Units in Wet Areas:

Material: Steel, hot-dipped zinc, or zinc-aluminum-alloy coated.

Size: As required to provide access.

Door/Panel: Hinged, standard duty, with tool-operated spring or cam lock and no handle.

Tool-operated spring or cam lock; no handle.

Gypsum Board Mounting Criteria: Provide drywall bead frame with door surface flush with wall surface.

Fire Rated Walls: Refer to Drawings for wall fire ratings.

Material: Steel.

Finish: Factory prime.

Size: As required to provide access.

Key operated lock with handle.

Fire-Resistance Rating: Not less than that of adjacent construction.

Temperature-Rise Rating: 250 deg F (139 deg C) at the end of 30 minutes.

Hardware: Spanner head cam latch, cylinder lock and key and tamper resistant screws for all exposed screws.

Ceilings: Recessed access door.

Material: Steel.

Finish: Factory prime.

Standard duty, concealed hinged door.

Tool-operated spring or cam lock; no handle.

Fire Rated Ceilings:.

Material: Steel.

Finish: Factory prime.

Size: As required to provide access.

Standard duty, concealed hinged door, steel, 20 gage, insulated.

Frame: 16 gage steel.

Key operated door lock.

Fire-Resistance Rating: Not less than that of adjacent construction.



Temperature-Rise Rating: 250 deg F (139 deg C) at the end of 30 minutes.

Tool-operated spring or cam lock; no handle.

Hardware: Spanner head cam latch, cylinder lock and key and tamper resistant screws for all exposed screws.

### **ACCESS DOORS**

Access Doors: Factory fabricated door and frame units, fully assembled units with corner joints welded, filled, and ground flush; square and without rack or warp; coordinate requirements with assemblies in which units are to be installed.

Frames: 16 gage, 0.0598 inch, minimum thickness.

Single Steel Sheet Door Panels: 1/16 inch, minimum thickness.

Double-Skinned Hollow Steel Sheet Door Panels: 16 gage, 0.059 inch, minimum thickness, on both sides and along each edge.

Location: Exterior surfaces.

Steel Finish: Primed.

## **SECTION 08 3323 - OVERHEAD COILING DOORS**

### **SECTION INCLUDES**

Overhead coiling doors, operating hardware, non-fire-rated and exterior, electric operation.

Wiring from electric circuit disconnect to operator to control station.

### **ADMINISTRATIVE REQUIREMENTS**

Coordination:

Coordinate installation of sealants and backing materials at frame perimeter as specified in Section 07 9200 - Joint Sealants.

Coordinate installation of electrical service with Division 26.

### **SUSTAINABILITY SUBMITTALS**

LEED Submittals: Provide submittals conforming to Section 01 8113 Sustainable Design Requirements.

### **REGULATORY REQUIREMENTS**

Conform to applicable code for motor and motor control requirements.

Provide certificate of compliance from authority having jurisdiction indicating approval of grille and operating hardware assembly.

### **PERFORMANCE REQUIREMENTS**

Structural Performance, Exterior Doors: Capable of withstanding the design wind loads.

### **COILING DOORS**

Refer to Finish Schedule for selected products and finishes.

Exterior Coiling Doors: Steel slat curtain.

Capable of withstanding positive and negative wind loads of 20 psf, without undue deflection or damage to components.

Single thickness slats.

Curtain: Roll formed, 26 gage, 0.022 inch galvanized steel, per ASTM A 653, SQ Grade 80, Galvanized G-30. Sections interlocked and permanently seamed together to form continuous curtain, PVC edge strip stapled on edge of curtain's exterior side. 9 gage, 0.153 inch ductile iron windlocks on each edge of curtain.

Nominal Slat Size: 2-5/8 inches wide by required length.

Finish: Factory painted, color as selected by Architect from manufacturer's full range.

Hood Enclosure: Manufacturer's standard; Painted steel, match door.  
Electric operation.

### **MATERIALS AND COMPONENTS**

Curtain Construction: Interlocking slats.

Mounting Brackets: Fabricated of hot rolled 3/16 inch steel plate minimum, brackets shall be provided to house ends of counterbalance barrel assembly.

Guides: Roll-formed from 14 gage, 0.079 inch grade 50 galvanized steel, 3 inches wide with UHMW polypropylene rub strips on each edge of the guide.

Hood Enclosure and Trim: Internally reinforced to maintain rigidity and shape.

Bottom Bar: Extruded aluminum reinforced with 1-1/2 inch by 2 inch roll formed steel angle and provided with flexible PVC bulb type astragal to ensure a consistent seal along the floor. Extrusion designed to interlock with door curtain.

Headplates: Stamped 11 gage, 0.120 inch steel, mounted directly to wall to support door shaft and ensure smooth door roll operation.

### **ELECTRIC OPERATION**

Electric Operators:

Motor Rating: 3/4 hp; continuous duty, minimum, or size as recommended by manufacturer.

Motor Voltage: 120 volts, single phase, 60 Hz.

Motor Controller: NEMA ICS 2, full voltage, reversing magnetic motor starter.

Controller Enclosure: NEMA 250, Type 1.

Control Station: Standard key switch (OPEN-STOP-CLOSE) momentary control for each operator.

Safety Edge: Located at bottom of coiling door, full width, electro-mechanical sensitized type, wired to stop and reverse door direction upon striking object, hollow neoprene covered.

Emergency Release: Manufacturer's standard time delay release device.

Delay: Maximum 10 seconds.

Actuation: Power loss or fire alarm system signal.

Re-set Feature: Manufacturer's standard which does not allow door to release when door is in closed position.

Handicapped Feature: Release device designed to signal sound/strobe alarms for operation during closing cycle.

Provide battery back-up feature.

### **STEEL AND GALVANIZED-STEEL FINISHES**

Factory Prime Finish: Manufacturer's standard primer, compatible with field-applied finish. Comply with coating manufacturer's written instructions for cleaning, pretreatment, application, and minimum dry film thickness.

Powder-Coat Finish: Manufacturer's standard baked-on finish consisting of prime coat and thermosetting topcoat. Comply with coating manufacturer's written instructions for cleaning, pretreatment, application, and minimum dry film thickness.

Color: As selected by Architect from manufacturer's full range.

## **SECTION 08 3481 - ELEVATOR DOOR SMOKE CONTAINMENT SYSTEM**

### **SUMMARY**

System Description: Smoke Containment System with reinforced polyamide smoke containment curtain, control station, metal housing, rewind switch, cove bases, and accessories as required for complete, operational installation.

Work by Others shall be completed prior to installation of Smoke Containment System.

### **ADMINISTRATIVE REQUIREMENTS**

Coordinate anchorage installation for elevator door smoke containment system. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

Preinstallation Conference: Conduct conference at Project site.

Schedule and convene a pre-installation meeting prior to commencement of field operations with representatives of the following in attendance: Owner, Architect, General Contractor, smoke containment system sub-contractor, painting sub-contractor, and electrical sub-contractor.

Review substrate conditions, requirements of related work, installation instructions, storage and handling procedures, and protection measures.

Keep minutes of meeting including responsibilities of various parties and deviations from specifications and installation instructions.

### **MANUFACTURERS**

Basis of Design Product:

Smoke Guard Corporation; Model M400.

Other Acceptable Manufacturers:

Door Systems, Inc.: [www.doorsysinc.com](http://www.doorsysinc.com).

U.S. Smoke & Fire: [www.us smokeandfirecurtain.com](http://www.us smokeandfirecurtain.com).

### **PERFORMANCE REQUIREMENTS**

Air Leakage: Not to exceed 3 cfm per sf of door opening at 0.1 in 25 Pa water pressure differential at ambient temperature and 400 degrees F tested per IBC.

Maximum Size: The maximum LISTED width is 4'-0" inside doorframe. The maximum mounting height is 9'-0". Oversized units shall be available upon request.

Maximum Temperature Necessitating Replacement: The smoke containment system must be replaced after exposure to temperatures exceeding 200 degrees F.

Product Recognition

Each smoke-containment system shall be identified as follows:

The Manufacturer's name.

Maximum leakage rating at the specified pressure and temperature conditions.

Label of the approved quality control agency.

### **MATERIALS**

Screen:

Film: Minimum 1 mil thick transparent polyimide film reinforced with minimum 100 denier Nomex yarn at 1/4 inch each way.

Magnetic Strips: Flexible multi-pole strips attached to longitudinal edges of film with low modulus silicone adhesive.

Housing: 20 gage, 0.0359 inch, powder coated, cold rolled steel container with dust cover and door with concealed hinges.

Auxiliary Rails:

Size: 2 inches wide by 1 inch (25 mm) deep, depth as required to project beyond face of elevator door frame, as shown in Shop Drawings.

Rewind Motor: NFPA 70, 90v DC.

Release Mechanism: Comply with UL Standard No. 864.

Screen Rewind Switch: Include switch to rewind screen into housing.

## **FINISHES**

Stainless-Steel Finishes: Remove tool and die marks and stretch lines, or blend into finish. Grind and polish surfaces to produce uniform finish, free of cross scratches. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

Directional Satin Finish: No. 4.

## **SECTION 08 4124 - STEEL-FRAMED ENTRANCES AND STOREFRONT**

### **SECTION INCLUDES**

Steel-framed entrances and storefront.

### **SUSTAINABILITY SUBMITTALS**

CAL-Green documentation and verification data as specified in Section 01 8114 Sustainable Design Requirements - CAL-Green, for the following measures:

4.504.2.1 and 5.504.4.1 Adhesives and sealants.

4.504.2.2 and 5.504.4.3 Paints and coatings.

4.504.2.3 and 5.504.4.3.1 Aerosol paints and coatings.

A5.405.1: Regional materials, certificates indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material.

A5.405.4 Recycled content materials, equivalent in performance to virgin materials. Provide cost documentation showing value of recycled content using A5.405.02.

A5.406.1, .2 and .3: Materials selected for longevity, reduced maintenance and recyclability.

### **MOCKUPS**

Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.

Build mockup of typical wall area as shown on Drawings.

Testing Laboratory Mock-Up:

Construct mock-up one door and frame.

Visual mock-up must be approved by Architect prior to construction of testing laboratory mock-up.

Perform following tests in order listed:

Preliminary loading.

Air infiltration.

Water penetration under static pressure.

Water penetration under dynamic pressure.

Weepage system.

Structural test under uniform static pressure.

Thermal cycling.

Water infiltration under static pressure.

Uniform structural overload test.

Seismic test.

### **PERFORMANCE REQUIREMENTS**

Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design aluminum-framed entrances and storefronts.

General Performance: Comply with performance requirements specified, as determined by testing of steel-framed entrances and storefronts representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.

Steel-framed entrances and storefronts shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.

Failure also includes the following:

- Thermal stresses transferring to building structure.
- Glass breakage.
- Noise or vibration created by wind and thermal and structural movements.
- Loosening or weakening of fasteners, attachments, and other components.
- Failure of operating units.

Design Requirements:

- Manufacturer is responsible for designing system, including anchorage to structural system and necessary modifications to meet specified requirements and maintain visual design concepts.
- Drawings are diagrammatic and do not purport to identify nor solve problems of thermal or structural movement, glazing, anchorage, or moisture disposal.
- Requirements shown by details are intended to establish basic dimension of units, sight lines and profiles of members.
- Provide concealed fastening wherever possible.
- Provide entrance and storefront systems, including necessary modifications, to meet specified requirements and maintaining visual design concepts.
- Attachment considerations are to take into account site peculiarities and expansion and contraction movements so there is no possibility of loosening, weakening or fracturing connection between units and building structure or between units themselves.
- Anchors, fasteners and braces shall be structurally stressed not more than 50 percent of allowable stress when maximum loads are applied.
- Provide for expansion and contraction due to structural movement without detriment to appearance or performance.
- Assemblies shall be free from rattles, wind whistles and noise due to thermal and structural movement and wind pressure.
- Comply with CPSC 16 CFR 1201 and ANSI Z97.1 for safety requirements of glazing materials.

Structural Loads:

- Wind Loads: As indicated on Drawings.

Air Infiltration: Test according to ASTM E 283 for infiltration as follows:

Fixed Framing and Glass Area:

- Maximum air leakage of 0.06 cfm/sq. ft. (0.30 L/s per sq. m) at a static-air-pressure differential of 6.24 lbf/sq. ft. (300 Pa).

Water Penetration under Static Pressure: Test according to ASTM E 331 as follows:

- No evidence of water penetration through fixed glazing and framing areas when tested according to a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less than 10 lbf/sq. ft. (480 Pa) 15 lbf/sq. ft. (720 Pa).

Maximum Water Leakage: No uncontrolled water penetrating assemblies or water appearing on assemblies' normally exposed interior surfaces from sources other than condensation. Water leakage does not include water controlled by flashing and gutters, or water that is drained to exterior.

Seismic Performance: Aluminum-framed entrances and storefronts shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

## **GLAZING**

Glass and Glazing System: Refer to Section 08 8000 - Glazing for glass units and glazing requirements for steel-framed entrances and storefronts.

Sealed Insulating Glass Units: Vision glazing.

**HARDWARE**

Provide hardware in accordance with Section 08 7100 - Door Hardware.

**ACCESSORIES – GENERAL**

Sealant: Refer to Section 07 9200 - Joint Sealants.

**FABRICATION**

Furnish frame assemblies pre-welded.

Factory glaze door and frame assemblies.

Factory prepare steel door assemblies and install all hardware.

Fabrication Dimensions: Fabricate fire rated assembly to field dimensions.

**SECTION 08 4126 - ALL-GLASS ENTRANCES AND STOREFRONTS**

**SECTION INCLUDES**

All-glass entrances.

All-glass storefronts.

Swinging doors.

**ADMINISTRATIVE REQUIREMENTS**

Preinstallation Meeting: Convene at project site seven calendar days prior to scheduled beginning of construction activities of this Section to review requirements.

Convene under general provisions of Section 01 7000.

Require attendance by representatives of installer and entities effected by adjacent or other work related to this section.

Notify Architect four calendar days in advance of scheduled meeting date.

**QUALITY ASSURANCE**

Designer Qualifications: Design under direct supervision of a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

Installer Qualifications: Minimum five years of experience installing entrance assemblies similar to those specified in this section.

**PERFORMANCE REQUIREMENTS:**

**ALL-GLASS ENTRANCES AND STOREFRONTS ASSEMBLIES**

Entrances and Storefronts: Factory fabricated assemblies consisting of frameless glass panels fastened with metal structural fittings in configuration indicated on drawings.

Operational Loads: Designed to withstand door operation under normal traffic without damage, racking, sagging, or deflection.

Prepared for all specified hardware whether specified in this section or not.

Finished metal surfaces protected with strippable film.

Factory assembled to greatest extent practicable; may be disassembled to accommodate shipping constraints.

Swinging Door Fittings and Hardware:

Top and bottom pivots concealed in full width rails top and bottom.

Pairs: Overhead mounted door stop.

Single Doors: Floor mounted door stop.

**BASIS OF DESIGN - ALL-GLASS ENTRANCES AND STOREFRONTS**



All-Glass Swinging Doors Entrance Systems:

Basis of Design: C.R. Laurence Company, Inc.; CRL-Blumcraft 1301 Series Entrance System: [www.crl-arch.com](http://www.crl-arch.com).

#### **FITTINGS AND HARDWARE**

#### **MATERIALS**

Glass Type GL-3: As specified in Section 08 8000 - Glazing.

Sealant: One-part silicone sealant, comply with ASTM C920, clear.

#### **ACCESSORIES**

Exposed Fittings and Hardware: Stainless steel.

Directional Satin Finish: No. 4.

Fixed Glazed Panel Fittings: Sufficient to structurally support glazing and doors under specified loads; including but not limited to cover caps for door hardware, glazing mullions, clamp fittings, and panel corner patches.

Swinging Door Fittings with Pivots: Continuous rail at top and bottom of door with pivots.

### **SECTION 08 4313 - ALUMINUM-FRAMED STOREFRONTS**

#### **SECTION INCLUDES**

Aluminum-framed storefront, with vision glass.

Design engineering of framing system and load-bearing connections to building structural frame system.

#### **ADMINISTRATIVE REQUIREMENTS**

Coordination:

Coordinate attachment and seal of perimeter air and vapor barrier materials.

Coordinate with installation of other components that comprise the exterior enclosure.

Preinstallation Meeting: Conduct a preinstallation meeting one week before starting work of this Section; require attendance by all affected installers.

#### **MOCK-UP**

Comply with general mock-up requirements specified in Section 01 4000 - Quality Requirements.

Mock-up: Provide full height of system by 10 feet mock-up including all components occurring on project. Assemble to illustrate component assembly including glazing materials, weep drainage system, attachments, anchors, and perimeter sealant.

Locate on-site where directed. Mock-up may remain as part of the Work.

#### **STOREFRONT SYSTEM**

Aluminum-Framed Storefront: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.

Glazing Rabbet: For 1 inch insulating glazing.

Glazing Position: Front-set.

Vertical Mullion Dimensions: 2 inches wide by 4-1/2 inches deep.

Door: Medium stile.

#### **PERFORMANCE REQUIREMENTS:**

Design Requirements: Design and size components to withstand the specified load requirements without damage or permanent set, when tested in accordance with ASTM E330/E330M, using loads 1.5 times the design wind loads and 10 second duration of maximum load.

Design Wind Loads: Comply with requirements of ASCE 7.

## **COMPONENTS**

Aluminum Framing Members: Tubular aluminum sections, thermally broken with interior section insulated from exterior, drainage holes and internal weep drainage system.

Framing members for interior applications need not be thermally broken.

Construction: Thermally broken.

Glazing System: Retained mechanically with gaskets on four sides.

Glazing Rabbet: 1 inch insulating at exterior.

Glazing Stops: Flush.

Reinforced Mullions: As required or recommended by manufacturer using manufacturer's standard profile of extruded aluminum with internal reinforcement of steel shaped structural section.

Glazing: As specified in Section 08 8000 - Glazing.

Swing Doors: Glazed aluminum, thermally broken.

Medium style.

Thickness: 1-3/4 inches.

Top Rail: 4 inches wide.

Vertical Stiles: 4 inches wide.

Bottom Rail: 10 inches wide.

Glazing Stops: Square.

Finish: Same as storefront.

Design exterior doors for one inch insulating glass units.

## **ACCESSORIES**

Reinforcement: Where fasteners screw-anchor into aluminum less than 1/8 inch thick, reinforce the interior with aluminum or non-magnetic stainless steel to receive screw threads, or provide standard non-corrosive, pressed-in splined grommet nuts.

Brackets: High-strength aluminum brackets and reinforcements where possible; otherwise provide non-magnetic stainless steel or galvanized steel complying with ASTM A123/A123M.

Inserts: Cast iron, malleable iron, or 12 gage galvanized steel for required anchorage to concrete or masonry.

Sill Pans: Manufacturer's standard extruded profile, designed to direct moisture to the exterior at sill conditions; including splice sleeves and continuously sealed end dams.

Water Deflectors: Manufacturer's standard internal system accessory specifically designed to route internal water drainage away from top surfaces of insulated glass units.

Expansion Anchors: Lead shield or toothed steel, drilled in type expansion bolts for required attachment to concrete or masonry.

## **FINISHES**

Superior Performance Organic Coating System: AAMA 2605 multiple coat, thermally cured polyvinylidene fluoride system.

## **SECTION 08 4413 - GLAZED ALUMINUM CURTAIN WALLS**

### **SECTION INCLUDES**

Aluminum-framed curtain wall, with vision glazing and glass infill panels.

Anchorage and fastening systems.

Associated sheet metal flashings and trim.

Interior window sill trim.

Field and preconstruction testing of installed systems.

Design engineering of framing system and load-bearing anchorage systems and connections to building structural frame.

#### **ADMINISTRATIVE REQUIREMENTS**

Coordination:

- Coordinate with installation of other components that comprise the exterior enclosure.
- Coordinate compatibility and design integrity to secure a weather and water tight seal with all systems, adjacent surfaces and related materials.
- Coordinate attachment and seal of perimeter air and vapor barrier materials.
- Coordinate and assume responsibility for compatibility and proper performance of sealants used as part of the work of this Section with sealants used by other trades that may be in direct contact with or adjacent to sealants used as part of the work of this Section.

Preinstallation Meeting: Conduct a preinstallation meeting one week before starting work of this Section.

Convene under general provisions of Section 01 7000 - Execution and Closeout Requirements.

Discuss construction document requirements, required clarifications to construction documents, construction schedule, coordination of affected trades, construction contraction and isolation joints, joint-filler strips, submittal requirements, approved submittals, and required inspections.

Required Attendance: Contractor's quality control supervisor or superintendent, Architect, Owner's independent testing agency, and all affected trades including reinforcing subcontractor and concrete supplier.

#### **MOCK-UP**

Comply with general mock-up requirements specified in Section 01 4000.

Provide mock-up including all components occurring on project. Assemble to illustrate component assembly including glazing materials, weep drainage system, attachments, anchors, insulation, window washing tie-backs, finishes, and perimeter sealant.

Scope of mock-up is as shown on mock-up scope drawings.

Construct mock-ups in strict accordance with approved mock-up shop drawings. Deviation of details from mock-up shop drawings are subject to approval of Architect.

Do not use excessive amounts of sealant, nor other special measures or techniques, which are not representative of those to be used on the building.

Provide at least one extra light of glass for each type and size on mock-up. Replace glass which breaks during testing with new glass, and continue test.

Repeated glass breakage at design pressures constitutes failure.

Mock-up is subject to observation by Contractor, Architect and its consultants throughout construction and testing.

Provide minimum three weeks notice before beginning construction of mock-up.

Provide materials and personnel for prompt continuous construction of mock-up.

Delays in mock-up construction could result in Contractor being charged for fees and travel expenses of observers.

Prior To Mock-up Installation:

Provide to sealant manufacturer samples of all relevant substrates, including finished aluminum, coated glass, gaskets, panels, backers, and other substrates which will require sealant contact.

Identify and label samples for this project.

Perform tests by sealant manufacturer to verify adhesion, staining, and chemical compatibility.

Use sealants and substrates only in combinations for which favorable adhesion and compatibility results have been obtained.

Submit sealant manufacturer's written test reports and recommendations for cleaning and priming required to obtain acceptable adhesion.

## **PRECONSTRUCTION TESTING**

**Full-Size Mock-up Testing:** Have a specimen representative of project conditions tested by an independent testing agency for compliance with specified structural, air infiltration, water penetration, thermal, and sound attenuation criteria.

**Testing Laboratory Limitations:** Not permitted to act as consultant to Contractor or any subcontractor on this project, modify contract document requirements, modify mock-up configuration, or dismantle mock-ups until notified that no further testing is required. At direction of Architect, deliver mock-up or selected portions of mock-up, boxed, to Project Site or or dispose of mock-up properly.

**Test Failures:** If failures occur, revise and re-test mock-up. Modifications must be realistic in terms of job conditions, must maintain specified standards of quality and durability, and are subject to approval of Architect.

**Performance Requirements:** Requirements specified apply to test mock-ups and samples and actual building. Variations in criteria such as wind pressure over surface of building are to be taken into account in testing of mock-ups and samples. Where certain performance is required for specific test conditions of mock-ups and samples, that same performance is also required of the actual building, for natural conditions equivalent to or less severe than the test conditions.

**Laboratory Test Report:** Accompanied by "as built" mock-up drawing showing revisions or corrective measures taken during testing, if any. Modifications to mock-up must be implemented on Project, unless specifically approved otherwise by Architect. Mock-up must be supervised and installed by same work crew that will supervise and install the work on the Project.

Test mock-up test specimen in following order:

Preload specimen at 50 percent of inward (positive) design pressure.

Air leakage according to ASTM E283 using a pressure of 6.24 psf (50 mph wind). Air leakage not to exceed 0.06 cfm per square foot of projected gross wall area. Individual components not to exceed 0.06 cfm per square foot of component. Verify air flow thru each component of the specimen.

Static water penetration according to ASTM E331 using a pressure of 12 psf. Uncontrolled water penetration not permitted.

Dynamic water penetration according to AAMA 501.1 using a pressure of 12 psf.

Uncontrolled water penetration not permitted.

Thermal performance test according to AAMA 501.5 for three complete thermal cycles.

Repeat air leakage test.

Repeat static water test.

Structural performance according to ASTM E330 using 30 psf positive and 35 psf negative design load pressures. Measure and record deflections.

Test window washer tie-back to 150 lb. design loads. Apply loads in lateral direction, parallel to wall, left and right, pull out perpendicular to wall, and pull up and down parallel to wall.

Signs of deformation or yielding not permitted.

Repeat static water penetration test according to ASTM E331 using a pressure of 12 psf.

Uncontrolled water penetration not permitted.

Structural overload test according to ASTM E330 using 1.5 times the design load pressure. Measure and record deflections. Permanent set of more than L/1000 not permitted. Permanent set in anchors of more than 1/16 inch not permitted. Test window washer tie-back to 4 times design load. Apply loads in directions as indicated for window washer tie-back test. Yielding and loosening may occur, but catastrophic failures are not permitted.

Where test sequence or test failures require successive water infiltration tests, the only means permitted to drain water from internal cavities is gravity drainage through weep system for minimum 15 minutes. Air pressure, removal of parts, or other means of draining water is not permitted.

### **CURTAIN WALL SYSTEM - GENERAL**

Aluminum-Framed Curtain Wall: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.

Outside glazed, with pressure plate and mullion cover.

Fabrication Method: Field fabricated stick system.

Glazing Method: Field glazed system.

Finish: Superior performing organic coatings.

### **PERFORMANCE REQUIREMENTS**

Delegated Design: Engage a qualified professional engineer, as defined in Section 01 4000 - Quality Requirements, to design glazed aluminum curtain walls.

General Performance: Comply with performance requirements specified, as determined by testing of glazed aluminum curtain walls representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.

Glazed aluminum curtain walls shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.

Structural Performance Requirements: Design and size components to withstand the following load requirements without damage or permanent set.

Design Wind Loads: Comply with the following:

Maximum Water Leakage: According to AAMA 501.1 No uncontrolled water penetrating assemblies or water appearing on assemblies' normally exposed interior surfaces from sources other than condensation. Water leakage does not include water controlled by flashing and gutters, or water that is drained to exterior.

Seismic Loads: Design and size components to withstand seismic loads and sway displacement in accordance with requirements of ASCE 7.

Interstory Differential Lateral Movement: Meeting pass/fail criteria of AAMA 501.4 for Use Group I, Standard Occupancy, when tested at design displacement of 0.010 times greater adjacent story height, maximum, and 1.5 times design displacement, through three complete cycles.

Water Penetration Resistance on Manufactured Assembly: No uncontrolled water on indoor face when tested as follows:

Test Pressure Differential: 12 psf.

Thermal Performance Requirements:

Condensation Resistance Factor of Framing: 70, minimum, measured in accordance with AAMA 1503.

Acoustical Performance Requirements:

Sound Attenuation: STC of 28, minimum, from exterior to interior.

Units Overlooking Amenity Spaces: STC of 30.

Door Opening Force

Interior hinged doors: 5 pounds maximum.  
Required fire doors: 15 pounds maximum.  
Exterior hinged doors: 5 pounds maximum

### **CURTAIN WALL - STICK SYSTEM**

Aluminum Curtain Wall: Thermally broken, factory fabricated, factory finished aluminum framing members with infill, related flashings, anchorage, and attachment devices.

Outside glazed, with pressure plate and mullion cover where indicated.

### **COMPONENTS**

Aluminum Framing Members CW-1: Tubular aluminum sections, drainage holes and internal weep drainage system.

Curtain Wall Type 1 Aluminum Framing Members: Tubular aluminum sections, drainage holes and internal weep drainage system.

System Product:

Arcadia, Inc.; T500 Series (OPG-6000).

Cross-Section: 2-1/4 by 6 inches.

Glazing System: Retained mechanically with gaskets on four sides.

Glazing System:

Head and Sills: Retained mechanically with gaskets.

Vertical Mullions: Retained with structural sealant.

Horizontal: As indicated on Drawings.

Glazing Rabbet: 1 inch insulated

Glazing Plane: Front.

Swing Doors: Glazed aluminum, thermally broken.

Product:

Medium stile.

### **HARDWARE**

Door Hardware: As specified in Section 08 7100 - Door Hardware.

Finishing: Apply factory finish to all surfaces that will be exposed in completed assemblies, including exposed fasteners.

### **MATERIALS**

Recycled Content of Aluminum Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 20 percent.

Extruded Aluminum: ASTM B221 (ASTM B221M).

Sheet Aluminum: ASTM B209 (ASTM B209M), color to match framing.

Firestopping: As specified in Section 07 8400 - Firestopping.

Weatherseal Sealant: Silicone, with adhesion in compliance with ASTM C794; compatible with glazing accessories.

Sill Flashing Sealant: Silicone compatible with flashing material.

Perimeter Sealant: As specified in Section 07 9200 - Joint Sealants.

Structural Sealant: Silicone.

Glazing Accessories: As specified in Section 08 8000 - Glazing.

### **ACCESSORIES**



**Reinforcement:** Where fasteners screw-anchor into aluminum less than 1/8 inch thick, reinforce the interior with aluminum or non-magnetic stainless steel to receive screw threads, or provide standard non-corrosive, pressed-in splined grommet nuts.

**Brackets:** High-strength aluminum brackets and reinforcements where possible; otherwise provide non-magnetic stainless steel or galvanized steel complying with ASTM A123/A123M.

**End Dam Blocks:** Manufacturer's standard internal system accessory specifically designed to seal internal gaps and route internal water drainage to weeps.

### **FABRICATION**

To fullest extent practicable, fabricate and assemble each system at factory. Where factory assembly is not practicable, fabricate, shop fit, and mark system components to ensure proper assembly in field.

Fabricate components with clearances and shim spacing around perimeter of assembly that will accommodate system and building movements, and construction tolerances, and enabling installation and dynamic movement of perimeter sealers. Design for sealant joint width as specified in Section 07 9200 - Joint Sealants.

## **SECTION 08 4613 - GLAZED ALUMINUM WINDOW WALLS**

### **SECTION INCLUDES**

Aluminum window wall systems, complete with reinforcing, shims, anchors, and attachment devices.

Aluminum doors and frames. Weatherstripping.

Design engineering of framing system and load-bearing connections to building structural frame system.

### **ADMINISTRATIVE REQUIREMENTS**

**Coordination:**

- Coordinate attachment and seal of perimeter air and vapor barrier materials.
- Coordinate with installation of other components that comprise the exterior enclosure.

**Preinstallation Meeting:** Conduct a preinstallation meeting one week before starting work of this Section; require attendance by all affected installers.

### **QUALITY ASSURANCE**

**Designer Qualifications:** Design structural support framing components under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed at the State in which the Project is located.

**Product Options:** Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.

**Pre-construction Sealant Testing:** Engage a qualified independent testing agency to test curtain wall systems for compliance with specified requirements for performance and test methods.

Perform sealant manufacturer's standard tests for compatibility and adhesion of sealants at each material that will come in contact with sealants and each condition required by the curtain wall system.

**Training:** Technical representative of glazed aluminum wall system manufacturer shall train installer's personnel at the Project site for the following:

Proper installation of products, materials, and components.

Work required for conditions concealed within the assembly or other construction. Proper sequence for erection of the system.

Situations that require special attention or care during fabrication and erection.

Situations and conditions that should be avoided.

### **MOCK-UP**

Comply with general mock-up requirements specified in Section 01 4000 - Quality Requirements.

Mock-up: Provide 10 by 8 feet mock-up including all components occurring on project. Assemble to illustrate component assembly including glazing materials, weep drainage system, attachments, anchors, and perimeter sealant.

Locate on-site where directed. Mock-up may remain as part of the Work.

### **PERFORMANCE REQUIREMENTS:**

Design Requirements: Design and size components to withstand the specified load requirements without damage or permanent set, when tested in accordance with ASTM E330/E330M, using loads 1.5 times the design wind loads and 10 second duration of maximum load.

Design Wind Loads: Comply with requirements of ASCE 7.

Thermal Requirements: Framing systems shall accommodate expansion and contraction movement due to surface temperature differential of 180 degrees F without causing buckling, stress on glass, failure of joint seals, excessive stress on structural elements, reduction of performance or other detrimental effects.

Water Penetration Resistance: No uncontrolled water on interior face, when tested in accordance with ASTM E331 at pressure differential of 15 lbf/sq ft, minimum.

Air Leakage: Maximum of 0.06 cu ft/min/sq ft of wall area, when tested in accordance with ASTM E283 at 6.24 pounds per square foot pressure differential across assembly.

Condensation Resistance Factor of Framing: 50, minimum, measured in accordance with AAMA 1503.

### **WINDOW WALL SYSTEM**

Glazed Aluminum Window Wall: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.

Basis of Design Product:

Arcadia, Inc.; TC670 Series, Thermally Broken.

Vertical Mullion Dimensions: 2-1/4 inches wide by 4-1/2 inches deep. Glazing Rabbet: For 1 inch insulating glazing.

Finish: Superior performing organic coatings.

### **COMPONENTS**

Aluminum Framing Members: Tubular aluminum sections, drainage holes and internal weep drainage system.

Framing members for interior applications need not be thermally broken.

Construction: Thermally broken.

Glazing System: Retained mechanically with gaskets on four sides. Glazing Rabbet: 1 inch insulated at exterior.

Glazing Stops: Flush.

Reinforced Mullions: As required or recommended by manufacturer using manufacturer's standard profile of extruded aluminum with internal reinforcement of steel shaped structural section.

Glazing: As specified in Section 08 8000 - Glazing.

Swing Doors: Glazed aluminum, thermally broken.

Heavy Duty Medium  
style. Thickness: 1-3/4  
inches.

Design exterior doors for one inch insulating glass units, and interior doors for 1/4 inch glass.

#### **HARDWARE**

Door Hardware: As specified in Section 08 7100 - Door Hardware.

Finishing: Apply factory finish to all surfaces that will be exposed in completed assemblies, including exposed fasteners.

#### **ACCESSORIES**

Reinforcement: Where fasteners screw-anchor into aluminum less than 1/8 inch thick, reinforce the interior with aluminum or non-magnetic stainless steel to receive screw threads, or provide standard non-corrosive, pressed-in splined grommet nuts.

Aluminum tubes for sun shading connected to vertical mullion. Finish to match window wall system.

Size: As indicated on Drawings.

Brackets: High-strength aluminum brackets and reinforcements where possible; otherwise provide non-magnetic stainless steel or galvanized steel complying with ASTM A123/A123M.

Inserts: Cast iron, malleable iron, or 12 gage galvanized steel for required anchorage to concrete or masonry.

Sill Pans: Manufacturer's standard extruded profile, designed to direct moisture to the exterior at sill conditions; including splice sleeves and continuously sealed end dams.

Water Deflectors: Manufacturer's standard internal system accessory specifically designed to route internal water drainage away from top surfaces of insulated glass units.

Expansion Anchors: Lead shield or toothed steel, drilled in type expansion bolts for required attachment to concrete or masonry.

#### **FINISHES**

Superior Performance Organic Coating System: AAMA 2605 multiple coat, thermally cured polyvinylidene fluoride system.

Polyvinylidene fluoride (PVDF) multi-coat thermoplastic fluoropolymer coating system, including minimum 70 percent PVDF color topcoat and minimum total dry film thickness of 0.9 mil; color and gloss to match sample.

#### **HARDWARE**

Door Hardware: As specified in Campus Standards Section 08 1.6.7100 - Door Hardware.

### **SECTION 08 5113 - ALUMINUM WINDOWS**

#### **SECTION INCLUDES**

Extruded aluminum windows with fixed sash and operating sash. Factory glazing.

Operating hardware.

Insect screens.

Design engineering of windows to comply with requirements specified in this Section.

#### **ADMINISTRATIVE REQUIREMENTS**

Coordination: Coordinate attachment and seal of perimeter air barrier and vapor retarder materials.

Preinstallation Meeting: Convene one week before starting work of this Section.

Convene under general provisions of Section 01 7000 - Execution and Closeout Requirements.

Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

Review and discuss the finishing of aluminum windows that is required to be coordinated with the finishing of other aluminum work for color and finish matching.

Review, discuss, and coordinate the interrelationship of aluminum windows with other exterior wall components. Include provisions for anchorage, flashing, sealing perimeters, and protecting finishes.

Review and discuss the sequence of work required to construct a watertight and weathertight exterior building envelope.

Inspect and discuss the condition of substrate and other preparatory work performed by other trades.

### **MOCK-UP**

Comply with general mock-up requirements specified in Section 01 4000 - Quality Requirements.

Build mockup of typical wall area as directed by Architect.

Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

### **BASIS OF DESIGN**

Arcadia T200 Series

### **WINDOWS**

Aluminum Windows: Extruded aluminum frame and sash, factory fabricated, factory finished, with operating hardware, related flashings, and anchorage and attachment devices.

Frame Depth: 2-11/16 inches.

Provide units factory glazed.

Performance Requirements: Provide products that comply with the following:

Grade: AAMA/WDMA/CSA 101/I.S.2/A440 requirements for specific window type:

Performance Class (PC):

Single Slide: HS-CW-50.

Fixed: F-CW-50.

Performance Validation: Windows shall comply with AAMA/WDMA/CSA 101/I.S.2/A440 performance requirements as indicated by having AAMA, WDMA, or CSA certified label, or an independent test report for indicated products itemizing compliance and acceptable by authorities having jurisdiction.

Design and size components to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of window wall.

Design Pressure (DP): In accordance with applicable codes.

Water Leakage: No uncontrolled leakage on interior face when tested in accordance with ASTM E331 at differential pressure of 12.11 psf.

Condensation Resistance Factor of Frame: 51, measured in accordance with AAMA 1503.

Overall U-value, Including Glazing: 0.50, maximum, measured on the window size required for this project.

Fixed, Non-Operable Type:

Construction: Thermally broken.

Glazing: Double; clear; transparent.

Exterior Finish: Superior performing organic coatings.

Interior Finish: Superior performing organic coatings.

Horizontal Sliding Type:

Construction: Thermally broken.

Provide screens.

Glazing: Single; clear; transparent.

Exterior Finish: Superior performing organic coatings.

Interior Finish: Superior performing organic coatings.

## **PERFORMANCE REQUIREMENTS**

Grade: AAMA/WDMA/CSA 101/I.S.2/A440 requirements for specific window type:

Performance Class (PC): CW.

## **COMPONENTS**

Frames: 2-11/16 inches deep profile, of 1/8 inch thick section; thermally broken with interior portion of frame insulated from exterior portion; flush glass stops of snap-on type.

Insect Screens: Extruded aluminum frame with mitered and reinforced corners; screen mesh taut and secure to frame; secured to window with adjustable hardware allowing screen removal without use of tools.

## **MATERIALS**

Extruded Aluminum: ASTM B221 (ASTM B221M), 6063 alloy, T6 temper.

Sheet Aluminum: ASTM B209 (ASTM B209M), 5005 alloy, H12 or H14 temper.

Concealed Steel Items: Profiled to suit mullion sections; galvanized in accordance with ASTM A123/A123M.

## **HARDWARE**

Operator: Lever action handle fitted to projecting sash arms with limit stops.

## **FINISHES**

Superior Performance Organic Coating System: AAMA 2605.2 multiple coat, thermally cured polyvinylidene fluoride system; match storefront framing.

## **SECTION 08 5114 - FIRE RATED ALUMINUM WINDOWS**

### **WINDOWS**

Aluminum Windows: Extruded aluminum frame and sash, factory fabricated, factory finished, related flashings, and anchorage and attachment devices, filled internally with cement composite material.

Frame Depth: 3-7/16 inches.

Frame Face: 2-1/2 inch.

Provide units factory glazed.

Performance Requirements: Provide products that comply with the following:

### **MATERIALS**

Extruded Aluminum: ASTM B221 (ASTM B221M), 6063 alloy, T6 temper.

Sheet Aluminum: ASTM B209 (ASTM B209M), 5005 alloy, H12 or H14 temper.

Concealed Steel Items: Profiled to suit mullion sections; galvanized in accordance with ASTM A123/A123M.

Glazing: 60 minute rated 1 inch thick, fire rated, optically clear, colorless and free from unusual distortion.

Product: Vetrotech Saint-Gobain; SGG Contraflam 60: [www.vetrotechusa.com](http://www.vetrotechusa.com).

Identification: Permanently identified listing mark on each lite.

Glazing Installed in Hazardous Locations (Subject to Human Impact): Certified to meet applicable requirements for fire rated assemblies referenced in ANSI Z97.1 Standard for Safety Glazing Materials Used In Buildings and/or CPSC 16 CFR 1201 Safety Standard for Architectural Glazing Materials.

Visible Daylight Transmission shall be a minimum of 81 percent.

#### **FINISHES**

Superior Performance Organic Coating System: AAMA 2605 multiple coat, thermally cured polyvinylidene fluoride system; color as selected from manufacturer's standard colors.

### **SECTION 08 5123 - STEEL WINDOWS**

#### **MOCK-UP**

Comply with general mock-up requirements specified in Section 01 4000 - Quality Requirements.

Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.

Build mockup of typical wall area as shown on Drawings.

Build mockup of typical wall area as directed by Architect.

Approval of mockups does not constitute approval of deviations from the Contract

Documents contained in mockups unless Architect specifically approves such deviations in writing.

#### **STEEL WINDOWS**

Steel Windows: Hot rolled steel sections, factory fabricated, factory finished, with vision glass, infill panels, related flashings, anchorage and attachment devices.

Grade: Heavy Custom design based on Steel Window Institute (SWI).

Sash Configuration: Fixed non-operable lights.

#### **GLASS AND GLAZING MATERIALS**

#### **FINISHES**

Screens: Black color.

### **SECTION 08 5413 - FIBERGLASS WINDOWS**

#### **SECTION INCLUDES**

Factory fabricated fiberglass windows with fixed and operating sash.

Operating hardware.

Insect screens.

Perimeter sealant.

#### **ADMINISTRATIVE REQUIREMENTS**

Coordination: Coordinate attachment and seal of perimeter air and vapor barrier materials.

Preinstallation Meeting: Convene one week before starting work of this Section.

#### **SUSTAINABILITY SUBMITTALS**



LEED Submittals: Provide special submittals conforming to Section 01 8113 Sustainable Design Requirements for the following:

Documentation for products that comply with LEED requirements for regional/local sourcing:  
Documentation for regional materials, indicating location and distance from Project of material manufacturer and point of extraction, harvest, or recovery for each raw material and costs of regional materials.

Documentation for products pertaining to performance criteria related to aspects including life cycle, environmental impact, supply chain, extraction criteria, chemical inventory, and health and safety policies. Acceptable documentation includes but is not limited to:

Life Cycle Assessments (LCAs).

Environmental Product Declarations (EPDs).

Third party verification of environmental impact related to global warming, stratospheric and/or tropospheric ozone depletion, eutrophication, acidification of land and water resources, and/or depletion of non-renewable energy sources.

Corporate Sustainability Reports (CSRs).

Reports related to ecologically responsible land use, reducing environmental harms from extraction and manufacturing processes, and applicable standards or programs that address responsible sourcing criteria.

For bio-based materials, certification through Sustainable Agriculture Network's Sustainable Agriculture Standard.

Documentation of salvaged, recycled, or reused content.

Sealants applied on site within the weatherproofing membrane must be tested and determined compliant in accordance with:

California Department of Public Health (CDPH) Standard Method v1.1-2010, using the applicable exposure scenario, AND

The applicable VOC limits of SCAQMD 1168, October 6, 2017, Adhesive and Sealant Applications, as analyzed by the methods specified in Rule 1168.

Documentation:

Manufacturers' claims of compliance with the California Department of Public Health (CDPH) Standard Method v1.1-2010 must also state range of total VOCs after 14 days (336 hours), measured as specified in the CDPH Standard Manual v1.1: 0.5 mg/cubic meter or less; between 0.5 and 5.0 mg/cubic meter; or 5.0 mg/cubic meter or more AND  
VOC content for each product.

CAL-Green documentation and verification data as specified in Section 01 8114 Sustainable Design Requirements - CAL-Green, for the following measures:

### **WINDOW UNITS**

Fiberglass Windows: Hollow, tubular, multi-layer fiber reinforced material; factory fabricated; with vision glass, related flashings, anchorage and attachment devices.

Configuration: As indicated on drawings.

Product Type: C - Casement window and FW - Fixed window in accordance with AAMA/WDMA/CSA 101/I.S.2/A440.

Color: As selected by Architect from Manufacturer's full range.

### **PERFORMANCE REQUIREMENTS**

Grade: AAMA/WDMA/CSA 101/I.S.2/A440 requirements for specific window type:

Performance Class (PC): R.

Performance Requirements: Provide products that comply with the following:

Forced Entry Resistance: Conform to ASTM F588 requirements for performance level 10 .

Grade: AAMA/WDMA/CSA 101/I.S.2/A440 requirements for specific window type:

Performance Class (PC): R.

Design Pressure (DP): In accordance with applicable codes.

#### **COMPONENTS**

Insect Screens: Woven aluminum mesh; 14/18 mesh size.  
Color: Color as selected.

Fasteners: Stainless steel.

#### **GLASS AND GLAZING MATERIALS**

#### **SEALANT MATERIALS**

#### **HARDWARE**

Finish For Exposed Hardware: Match window finish.

### **SECTION 08 6200 - UNIT SKYLIGHTS**

#### **SECTION INCLUDES**

Preformed skylights with integral metal frame.

Integral curb.

#### **SUSTAINABILITY SUBMITTALS**

LEED Submittals: Provide special submittals conforming to Section 01 8113 Sustainable Design Requirements.

CAL-Green documentation and verification data as specified in Section 01 8114 - Sustainable Design Requirements - CAL-Green, for the following measures:

4.504.2.1 and 5.504.4.1 Adhesives and sealants.

4.504.2.2 and 5.504.4.3 Paints and coatings.

4.504.2.3 and 5.504.4.3.1 Aerosol paints and coatings.

#### **FLAT UNIT SKYLIGHTS**

Flat Unit Skylights: Factory-assembled glazing in aluminum frame, free of visual distortion, and weathertight with thermal break.

Curb Frame: Aluminum.

Shape: Rectangular flat.

Glazing: Triple.

Curb Height: 12 inches.

Operation: None; fixed.

#### **COMPONENTS**

Insulating Glass Units: Vision glass, double glazed.

Outboard Lite: Fully tempered float glass, 1/4 inch plus 1/4 inch thick, minimum.

Inboard Lite: Laminated float glass, 1/4 inch, minimum.

Total Thickness: 1-1/8 inch.

Frames: ASTM B221 (ASTM B221M); extruded aluminum reinforced and welded corner joints, integral curb frame mounting flange and counterflashing to receive roofing flashing system, with integral condensation collection gutter, glazing retainer; clear anodized finish.

### **SECTION 08 6223 - TUBULAR SKYLIGHTS**

#### **TUBULAR SKYLIGHTS**

Tubular Skylights: Transparent roof-mounted skylight dome and curb, reflective tube, and ceiling level diffuser assembly, transferring sunlight to interior spaces.

Roof Assemblies: Transparent, UV and impact resistant dome with flashing base supporting dome and top of tube.

Glazing: Polycarbonate plastic, 0.125 inch minimum thickness.

Low-Angled Sun Reflector: Light intercepting transfer device, made of same material as main tube, to capture low angle sunlight.

Base: One piece, seamless, leak-proof flashing functioning as base support for dome and top of tube; specified manufacturer's recommended base flashing units for use on flat commercial roof applications to meet required curb height requirements.

Reflective Tube: ASTM B209 (ASTM B209M) aluminum sheet, thickness between 0.015 inch and 0.020 inch.

Extension Tubes: Basis of design manufacturer's Spectralight Infinity Extension Tubes and Flashing Turret Extensions.

Interior Finish: Exposed interior surfaces of high reflectance specular finish; specular reflectance of 92, total reflectance 95 percent.

Tube Diameter: 21 inches.

Tube Configuration and Length: As indicated on the drawings.

Diffuser Assemblies: Supporting light transmitting surface at bottom termination of tube, with compression seal to minimize condensation and bug or dirt infiltration.

Lens: Fresnel lens design to maximize light output and diffusion.

Lens Material: Acrylic plastic.

## **SECTION 08 6300 - METAL-FRAMED SKYLIGHTS**

### **SUSTAINABILITY SUBMITTALS**

CAL-Green documentation and verification data as specified in Section 01 8114 Sustainable Design Requirements - CAL-Green, for the following measures:

4.504.2.1 and 5.504.4.1 Adhesives and sealants.

4.504.2.2 and 5.504.4.3 Paints and coatings.

4.504.2.3 and 5.504.4.3.1 Aerosol paints and coatings.

A5.405.1: Regional materials, certificates indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material.

A5.405.4 Recycled content materials, equivalent in performance to virgin materials. Provide cost documentation showing value of recycled content using A5.405.02.

A5.406.1, .2 and .3: Materials selected for longevity, reduced maintenance and recyclability.

### **METAL-FRAMED SKYLIGHTS**

Metal Framed Skylights: Factory-fabricated, and glazed.

Frame: Extruded aluminum structural members with integral condensation collection and guttering system.

Glazing System: Pressure glazing bar system.

Aluminum Finish: High performance organic coatings.

Fabricate to prevent vibration harmonics, thermal movement transmitted to other building elements, and loosening, weakening, or fracturing of attachments or components of system.

## **SECTION 08 7100 - DOOR HARDWARE**

### **DESIGN AND PERFORMANCE CRITERIA**

Provide specified door hardware ***per Campus Standards Division 08- 1.6 Door Hardware*** as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.

Provide door hardware products that comply with the following requirements:

Applicable provisions of federal, state, and local codes.

Fire-Rated Doors: NFPA 80, listed and labeled by qualified testing agency for fire protection

ratings indicated, based on testing at positive pressure in accordance with NFPA 252 or UL 10C.

Hardware on Fire-Rated Doors: Listed and classified by UL (DIR), ITS (DIR), testing firm acceptable to authorities having jurisdiction, or as suitable for application indicated.

#### **FINISHES**

### **SECTION 08 8000 - GLAZING**

#### **SECTION INCLUDES**

Insulating glass units.

Monolithic glazing units.

Glazing compounds and accessories.

#### **ADMINISTRATIVE REQUIREMENTS**

Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by each of the affected installers.

#### **MOCK-UPS**

Mock-ups: Build mock-ups to demonstrate aesthetic effects and to set quality standards for materials and execution.

Install glazing in mock-ups specified in Section 08 4313 Aluminum-Framed Entrances and Storefronts to match glazing systems required for Project, including glazing methods.

Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### **GLASS PRODUCTS, GENERAL**

Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.

Safety Glazing Labeling: Where safety glazing is indicated, and at locations required by code, permanently mark glazing with certification label of the SGCC. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.

Thickness: Where glass thickness is indicated, it is a minimum. Provide glass that complies with performance requirements and is not less than the thickness indicated.

Strength: Where annealed float glass is indicated, provide annealed float glass, heat-strengthened float glass, or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where heat-strengthened float glass is indicated, provide heat-strengthened float glass or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where fully tempered float glass is indicated, provide fully tempered float glass.

#### **GLASS MATERIALS**

Float Glass: Provide float glass based glazing unless otherwise indicated.

Annealed Type: ASTM C1036, Type I - Transparent Flat, Class 1 - Clear, Quality - Q3.

Kind HS - Heat-Strengthened Type: Complies with ASTM C1048.

Fully Tempered Safety Glass: Complies with ANSI Z97.1 or 16 CFR 1201 criteria for safety glazing used in hazardous locations.

Tinted Type: ASTM C1036, Class 2 - Tinted, Quality - Q3, with color and performance characteristics as indicated.

Laminated Glass: Float glass laminated in accordance with ASTM C1172.

Laminated Safety Glass: Complies with ANSI Z97.1 - Class B or 16 CFR 1201 - Category I impact test requirements.

### **INSULATING GLASS UNITS**

Insulating Glass Units: Types as indicated.

Durability: Certified by an independent testing agency to comply with ASTM E2190.

Metal Edge Spacers: Aluminum, bent and soldered corners.

Edge Seal:

Dual-Sealed System: Provide polyisobutylene sealant as primary seal applied between spacer and glass panes, and silicone, polysulfide, or polyurethane sealant as secondary seal applied around perimeter.

Insulating Glass Units: Vision glass, double glazed.

Outboard Lite: Heat-strengthened float glass, 1/4 inch thick, minimum.

Inboard Lite: Heat-strengthened float glass, 1/4 inch thick, minimum.

Total Thickness: 1 inch.

Insulating Security Glass Units: Vision glass, double glazed.

Outboard Lite: Heat-strengthened float glass, 1/4 inch thick, minimum.

Inboard Lite: Heat-strengthened float glass, 1/4 inch thick, minimum.

Total Thickness: 1 inch.

### **MONLITHIC GLAZING UNITS**

Monolithic Interior Vision Glazing:

Glass Type: Annealed float glass, fully tempered where required by code.

Tint: Clear.

Thickness: 1/4 inch, nominal.

Security Glazing: Laminated glass.

Thickness: 1.072 inch.

Outer Lite: Annealed glass.

Middle Lite: Annealed glass.

Inside Lite: Annealed glass.

Performance Criteria:

Bullet Resistance: Pass ASTM F1233 tests in compliance with ballistic criteria class and weapon description indicated; Class HG3 - Handgun-Medium, Jacketed.

### **GLAZING COMPOUNDS**

General Requirements:

Provide black exposed glazing accessory materials, unless specifically indicated otherwise.

Provide materials of hardness as recommended by manufacturer for required application and condition of installation in each case. Provide only compounds which are known to be fully compatible with surfaces contacted, including glass products, seals, and glazing channel surfaces.

Silicone Sealant: Single component; neutral curing; capable of water immersion without loss of properties; non-bleeding, non-staining; ASTM C920, Type S, Grade NS, Class 25, Uses M, A, and G; with cured Shore A hardness range of 15 to 25; clear.

## **SECTION 08 8300 - MIRRORS**

### **SECTION INCLUDES**

Glass mirrors.

Steinberg Hart

**PRECONSTRUCTION TESTING**

Preconstruction Mirror Mastic Compatibility Test: Submit mirror mastic products to mirror manufacturer for testing to determine compatibility of mastic with mirror backing.

Testing is not required if data are submitted based on previous testing of mirror mastic products and mirror backing matching those submitted.

**MATERIALS**

Mirror Design Criteria: Select materials and/or provide supports as required to limit mirror material deflection to 1/200, or to the flexure limit of glass, with full recovery of glazing materials, whichever is less.

Mirror Glass: ASTM C1036, Type 1 transparent flat, Class 1 clear, Quality Q2 (mirror); silvering, protective coating and physical characteristics complying with ASTM C1503.

Edges: Square and lapped.

**ACCESSORIES**

Mirror Adhesive: Silicone pre-polymer based, chemically compatible with mirror coating and wall substrate.

Film Backing for Safety Mirrors: Film backing and pressure-sensitive adhesive; both compatible with mirror backing paint as certified by mirror manufacturer.

**FABRICATION**

Fabricate mirrors in the shop to greatest extent possible.

Fabricate cutouts for notches and holes in mirrors without marring visible surfaces. Locate and size cutouts so they fit closely around penetrations in mirrors.

Mirror Edge Treatment: Flat polished.

Seal edges of mirrors with edge sealer after edge treatment to prevent chemical or atmospheric penetration of glass coating.

Require mirror manufacturer to perform edge treatment and sealing in factory immediately after cutting to final sizes.

**SECTION 08 9100 - LOUVERS****SECTION INCLUDES**

Louvers, frames, and accessories.

**LOUVERS**

Louvers: Factory fabricated and assembled, complete with frame, mullions, and accessories; AMCA Certified in accordance with AMCA 511.

Screens: Provide insect screens at intake louvers and bird screens at exhaust louvers.

Stationary Louvers: Horizontal blade, extruded aluminum construction.

Blades: Drainable blade.

Frame: 4 inches deep, channel profile; corner joints mitered and, with continuous recessed caulking channel each side.

Aluminum Finish: Superior performing organic coatings; finish welded units after fabrication, match curtain wall system.

**ACCESSORIES**

Fasteners and Anchors: Stainless steel.

Flashings: Of same material as louver frame, formed to required shape, single length in one piece per location.



## **FABRICATION**

Factory assemble louvers to minimize field splicing and assembly. Disassemble units as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

Vertical Assemblies: Where height of louver units exceeds fabrication and handling limitations, fabricate units to permit field-bolted assembly with close-fitting joints in jambs and mullions, reinforced with splice plates.

Maintain equal louver blade spacing, including separation between blades and frames at head and sill, to produce uniform appearance.

Fabricate frames, including integral sills, to fit in openings of sizes indicated, with allowances made for fabrication and installation tolerances, adjoining material tolerances, and perimeter sealant joints.

Frame Type: Tube unless otherwise indicated.

Include supports, anchorages, and accessories required for complete assembly.

## **FINISHES**

Superior Performing Organic Coatings: AAMA 2605 two coat, thermally cured polyvinylidene fluoride system.

Polyvinylidene fluoride (PVDF) multi-coat thermoplastic fluoropolymer coating system, including minimum 70 percent PVDF color topcoat and minimum total dry film thickness of 0.9 mil.

Color: Match window wall system.

## UNIVERSITY FURNISHED INFORMATION

The following information is made available for the convenience of Proposers and is not a part of the Contract. The information is provided subject to the provisions of subparagraph 3.1.1 of the General Conditions.

***Issued electronically on the "Request for Proposals" CD***  
*(Located behind the first tab of this binder)*

### PREVAILING WAGES

**General Prevailing Wage Determinations** and information can be accessed at [www.dir.ca.gov](http://www.dir.ca.gov) or by contacting University's principal Facility office.

### DESCRIPTION

No.	Title:	Prepared by:	Date:
<b>1. AS-BUILTS</b>			
A.	Fine Arts Seismic Facility	Fields Devereaux Architects & Engineers	April 27, 1998
B.	Physical Education Building	Arthur Froehlich, AIA, Architect	April 28, 1952
C.	Physical Education Building Room 102 Alterations for Dance	Cashion Horie Cocke Gonzales Architects, Inc. (CHCG)	June 1986
D.	CHASS-Instruction & Research Facility	PEI Cobb Freed & Partners	March 20, 2008
E.	Administration Building (Hinderaker)	Allison and Rible Architects	January 27, 1961
F.	Humanities and Social Sciences Unit 1	Cesar Pelli & Associates	August 10, 1993
G.	Classroom and Office Unit 1 (Sproul)	Douglas Honnold FAIA, John Rex, FAIA, Architects and Associates	June 2, 1965
H.	Student Academic Support Services Building	Sasaki	March 2009
<b>2. UCR MOBILITY HUB AND CENTRAL CAMPUS LINKAGES</b>			
A.	UCR Mobility Hub and Central Campus Linkages – Scope 1 Report	Gruen Associates	December 21, 2017
B.	UCR Mobility Hub and Central Campus Linkages – Appendices	Gruen Associates	December 21, 2017

<b>DESCRIPTION</b>			
<b>No.</b>	<b>Title:</b>	<b>Prepared by:</b>	<b>Date:</b>
<b>3. STUDENT SUCCESS CENTER VISIONING WORKSHOP</b>			
A.	UCR Student Success Center Visioning Workshop Capital Asset Strategies	Capital Planning	April 20, 2017
B.	UCR Student Success Visioning Workshop – Site Selection Study Handout	UCR Capital Planning	April 20, 2017
<b>4. UCR 2005 LRDP AND AMENDMENTS</b>			
A.	Long Range Development Plan 2005	UCR Office of Academic Planning & Budget; Capital & Physical Planning with the assistance of: BMS Design Group	November 2005
B.	2005 Long Range Development Plan Amendment 2	UCR Finance & Business Operations Capital Resource Management	November 2001
C.	2005 LRDP Amendment 3 Campus Infrastructure Overlay Land Use Designation		September 2013
<b>5. TOPOGRAPHIC SURVEY</b>			
	University of California, Riverside Student Success Center Topographic Survey	IMEG	July 13, 2018
<b>6. GEOTECHNICAL REPORTS</b>			
A.	Proposed Student Success Center UCR Project No. 958056	Twining	December 17, 2018
B.	Geotechnical Engineering Evaluation Report Pierce Hall Classroom Addition and Building Renovation Project	Twining	July 8, 2016

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D. Geotechnical Investigation  
 Proposed Interdisciplinary Studies  
 Building  
 Riverside Campus

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E	Geotechnical Observation of Grading and Field Density Test Results Report Proposed College of Humanities Arts and Social Sciences (CHASS) Buildings – Instruction & Research Facility	Converse Consultants	September 21, 2006
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**7. PHYSICAL DESIGN FRAMEWORK**

Physical Design Framework	2009/10 – 2018/2019
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**8. UC BOARD OF REGENTS**

Regents Policy 4400: Policy on University of California Diversity Statement	University of California Board of Regents	Adopted September 20, 2007 Amended September 16, 2010
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**9. STUDENT SUCCESS CENTER CLASSROOM COMPONENT SUMMARY OF FEEDBACK**

Student Success Center Classroom Component Summary of Campus Feedback	UCR Office of the Provost and Executive Vice Chancellor	May 2017
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**10. STUDENT SUCCESS CENTER SITE SELECTION STUDY**

Site Selection Study Student Success Center Building	UCR Capital Asset Strategies	June 16, 2017
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**11. UC SUSTAINABLE PRACTICES POLICY**

UC Policy on Sustainable Practices	University of California	Issuance Date: July 1, 2004 Effective Date: August 10, 2018
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**12. UCR CAMPUS PROCESS: GENDER INCLUSIVE FACILITIES 2015**

UCR Campus Process: Gender Inclusive Facilities 2015	Associate Vice Chancellor / Campus Architect Architect & Engineers	November 1, 2015
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**13. UCR CENTRAL CAMPUS NEIGHBORHOOD STUDY**

UCR Central Campus Neighborhood Study	HKS Spurlock	April 12, 2017
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**14. UCR PHYSICAL MASTER PLAN STUDY**

UCR Physical Master Plan Study		May 17, 2016
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**15. UCR PRINCIPLES OF COMMUNITY**

UCR Principles of Community		
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**16. UCR DINING SERVICES**

Warm Shell Tenant Improvement Space Guideline	UCR Dining Services	March 16, 2018
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**17. UCR RIVERSIDE SITE FEASIBILITY REPORT**

UCR Site Feasibility Report	Steinberg Hart	January 2018
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**18. UTILITY MAPS**

A.. Student Success Center 100 PSI Air Controls Approximate Locations (Draft)		10/9/18
B. Student Success Center 100 PSI Steam Controls Approximate Locations (Draft)		10/9/18
C. Student Success Center Chilled Water Line Approximate Locations (Draft)		10/8/18
D. Student Success Center Natural Gas Line Approximate		10/8/18

Locations (Draft)

E.	Student Success Center Storm Drain Manholes (Surveyed – 2014) Storm Drain Line (Approximate Locations) (Draft)	10/8/18
F.	Student Success Center Existing Electric Distribution (Draft)	10/9/18

**19. DAART ENGINEERING FLOW TEST**

Daart Engineering Flow Test UCR Student Success Center	6/7/18
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**20. UCR CAMPUS STANDARDS - DRAFT**

Div. 3 – Concrete	Revised April 17, 2018
Div. 4 - Masonry	January 14, 2018
Div. 5 – Metal	January 14, 2018
Div. 6 – Wood, Plastics and Composite	January 18, 2018
Div. 7 – Thermal and Moisture Protection	January 14, 2018
Div. 8 – Openings	Revised March 21, 2018
Div. 9 – Finishes	January 14, 2018
Div. 10 - Specialties	March 12, 2018
Div. 11 – Equipment	Revised April 15, 2018
Div. 12 – Furnishings	November 30, 2015
Div. 13 – Special Construction	January 14, 2018
Div. 14 – Conveying Systems	January 14, 2018
Div. 15 – Operation and Maintenance Manuals	
Div. 21 – Fire Suppression	Revised April 25, 2018
Div. 22 – Plumbing	Revised April 17, 2018
Div. 23 – HVAC	March 28, 2018
Div. 25 – Integrated Automation	Revised March 13, 2018
Div. 26 - Electrical	January 24, 2018



Div. 27 – Communications	January 24, 2018
Div. 28 – Electronic Safety and Security	January 24, 2018
Div. 31 – Site Work	January 2016
Div. 32 – Exterior Improvements	March 2016
Div. 33 – Site Utilities	January 2018

**21. SEWER CAPACITY STUDY**

UC Riverside Physical Master Plan  
 Study  
 Appendix 6.8-A  
 Sanitary Sewer Calculations

**22. UCR 2020 - FINAL**

UCR 2020  
 The Path to Preeminence

July 2010

**23. UCR LANDSCAPE SERVICES DEPT. LANDSCAPE- IRRIGATION GUIDELINES 2012**

UCR Landscape Services Dept.  
 Landscape-Irrigation Guidelines  
 2012

2012

**24. TREE INVENTORY REPORT**

Tree Inventory Report University of California, Riverside Student Success Center Project	Tricia D. Thrasher University of California, Riverside Campus Planning Capital Asset Strategies	May 9, 2018
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**25. IMPLEMENTATION OF UC GENDER INCLUSIVE FACILITIES POLICY AT UC RIVERSIDE - MEMO**

Implementation of UC Gender Inclusive Facilities Policy at UC Riverside - Memo	To: Gerry Bomotti, Vice Chancellor, Planning and Budget	September 18, 2018
	From: Jacqueline Norman, Campus Architect & Robert Keith Williams, Certified Building Official	

<b>26. UCR CAMPUS CONTEXT</b>		
UCR Campus Context (Exemplary Examples / Non-Exemplary Examples)	UCR Planning Design & Construction	2019
<b>27. WEPA LOW PRINT STATION SPECIFICATIONS</b>		
WEPA Low Profile Print Station Specifications	WEPA	
<b>28. LAPTOP KIOSK CONFIGURATION</b>		
Laptop Kiosk Configuration	Laptops Anytime	
<b>29. UCR CAMPUS V2018 UPDATES CADD DRAWINGS AND SUPPORTING DOUMENTATION</b>		
A. UCR Campus v2018 Update Auto CADD Drawings		
B. University California, Riverside Aerial Target Ground Control Survey Report Job #2011018.003		March 2015
C. UCR Campus Control Survey – Sheet 1 of 2	Hillwig – Goodrow, Inc.	December 2013
D. UCR Campus Control Survey – Sheet 2 of 2	Hillwig – Goodrow, Inc.	December 2013
E. UCR Data Delivery Standards for UCR Planning, & Design Projects Capital Programs		March 13, 2015
F. UCR Horizontal and Vertical Accuracy of Campus Spatial Data (GIS) (Memorandum)		May 22, 2013
G. UC Riverside Campus Control Points	Hillwig – Goodrow, Inc.	December 2013
H. UCR Campusv2017 Updates	UCR	July 2017

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**30. MOBILITY HUB AND CENTRAL CAMPUS LINKAGES**

Mobility Hub and Central Campus Linkages – 100% Construction Document Bid Set      Gruen Associates      January 10, 2019

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**31. BICYCLE MASTER PLAN EXCERPT**

Bicycle Master Plan Excerpt

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**32. TOPO SURVEY CAD DRAWINGS**

TOPO Survey CAD Drawings      July 30, 2018

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**33. CAMPUS COMMUNICATIONS DRAWINGS**

A. Typical BDF Wall Elevation Layout – Rack Power - Plan & Elevation      UCR

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B. Typical Details – Communications Symbols and Telephone/Data Subscript Schedule      UCR

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C. Typical Details – Details A through F      UCR

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D. Typical Details – Typical 3 Data Rack BDF and IDF Front Elevation Views      UCR

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E. Typical Details – Typical BDF and IDF Telecom Room Requirements      UCR

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F. Typical Details – Work Station Outlet Labeling Detail and Patch Panel / 110 Block Labeling Plan      UCR

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**34. UCR POLICIES, GUIDELINES & STANDARDS**

A. Communications Infrastructure Planning Guidelines Version – November 23, 2015      UCR      November 23, 2015

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B.	PPSM 84: Accommodations for Nursing Mothers	University of California	December 10, 2018
C.	UCR Healthy Campus Initiative Healthy Workplace Checklist		
D.	UCR Building, Room Numbering Standards	Facilities Management	October 2006

**35. UCR CAMPUS ELECTRICAL DRAWINGS AND DIAGRAMS**

A.	UCR Site Electrical Distribution 12 kv Single Line Diagram (E-2, 1 of 3)	UCR	October 19, 2015
B.	UCR Site Electrical Distribution Combined Diagrams (E-2, E2.1 & E2.2)	UCR	October 19, 2015
C.	UCR Site Electrical Distribution Parking Lot 30 Substation 4.16 kv Single Line Diagram (E2.1, 2 of 3)	UCR	October 19, 2015
D.	UCR Site Electrical Distribution Steam Plant 4.16 kv Single Line Diagram (E2.2, 3 of 3)	UCR	October 19, 2015
E.	UCR Existing Electrical Site Plan 2015 Partial UCR Campus Map Electrical Distribution (E-4, 1 of 1)	UCR	October 14, 2019

**36. UC RIVERSIDE CAMPUS SIGN PROGRAM**

A.	UC Riverside Campus Sign Program, 100% Package	Hunt Design	August 3, 2012
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**37. UC RIVERSIDE BUDGET PLANNING DOCUMENT**

A.	UC Riverside Budget Planning Document for Network Electronics Student Success Center 100% Description Design & Criteria	UC Riverside Computing and Communications	May 30, 2018
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**38. UCR TUNNEL AND VAULT DRAWINGS**

A.	Tunnel, Vault & Bldg. Map Chilled Water System High Pressure Condensate Pumped Condensate 100 PSI Steam 100 PSI Compressed Air Natural Gas	UC Riverside	October 2016 March 2012 May 2012 May 2012 May 2012 May 2012 May 2012
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**39. DINING SERVICES VENUE: CONCEPT PLAN**

A. UC Riverside  
 Student Success Center  
 Dining Services Venue: Concept Plan  
 Project Number: 950512

**40. UCR NORTH DISTRICT DINING DRAWINGS**

A.	UCR Food Lab North District Riverside, CA (Drawings K-01, K-02 & K-02.1)	Clay Enterprises	January 17, 2019
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**41. WALKER MACY UCR PLANT LIST REVIEW**

A. Walker Macy UCR Plant List Review

**42. BENCHMARK-BASED, WHOLE-BUILDING ENERGY PERFORMANCE TARGETS FOR UC BUILDINGS**

A.	Benchmark-based, Whole-Building Energy Performance Targets for UC Buildings	California Institute for Energy and Environment	March 2014
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**43. DESIGN HANDBOOK FOR LOW IMPACT DEVELOPMENT – BEST MANAGEMENT PRACTICES**

A.	Design Handbook for Low Impact Development Best Management Practices	Riverside County Flood Control and Water Conservation District	September 2011
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**44. EFFICIENCIES AND EQUIPMENT INFORMATION**

A.	2018 Steam Plant	UCR	January 2018 – December 2018
B.	Central Plant Efficiencies	UCR	
C.	Steam Plant Equipment	UCR	

**45. EXTERIOR LIGHTING – LIGHT POLE EXHIBIT**

A.	Student Success Center LW1 Exterior Lighting – Light Pole Exhibit Project No. 950512	Selux	
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**46. UCR EMERGENCY PHONE**

A.	Code Blue – CB 5-s Product Sheet	Code Blue	
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**47. UCR EAST CAMPUS ELECTRICAL DISTRIBUTION SYSTEM REVIEW**

A.	University of California, Riverside East Campus Electrical Distribution System Review	P2S	October 31, 2011
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**48. CAMPUS UTILITY SURVEY 2014**

- A. Utility Diagrams
  - 1. Electrical
  - 2. Storm
  - 3. Campus Utility Survey Zone Map Draft
- B. Utility Survey 2015
  - 1. Survey Electrical
  - 2. Survey Sewer
  - 3. Survey Storm
  - 4. Control Points Dec. 2013
- C. Data Delivery Standards for UCR Planning & Design Project, Capital Projects March 13, 2015

**49. ITS TUBE DRAWINGS**

- A. ITS Tube Drawings

**50. IRRIGATION DIAGRAMS**

- A. Student Success Center 950512 Irrigation Diagrams

**51. COST ESTIMATES**

- A. University of California, Riverside Campbell-Anderson & Associates, Inc. August 6, 2018  
Riverside, California  
Student Success Center  
Programming Estimate
- B. Program Cost Model RLB / Rider Levett Bucknall August 6, 2018  
University of California, Riverside  
Student Success Center  
Riverside, California
- C. Expected Design Build Costs September 13, 2018  
UCR Student Success Center ROM

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**52.**    **UCR PHYSICAL MASTER PLAN STUDY**

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**A.**    **UC Riverside Physical Master Plan**  
**Study**  
**Appendix 6.8-A**  
**Sanitary Sewer Calculation**

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**UC RIVERSIDE PHYSICAL MASTER PLAN STUDY**

**APPENDIX 6.8-A**

**SANITARY SEWER CALCULATIONS**

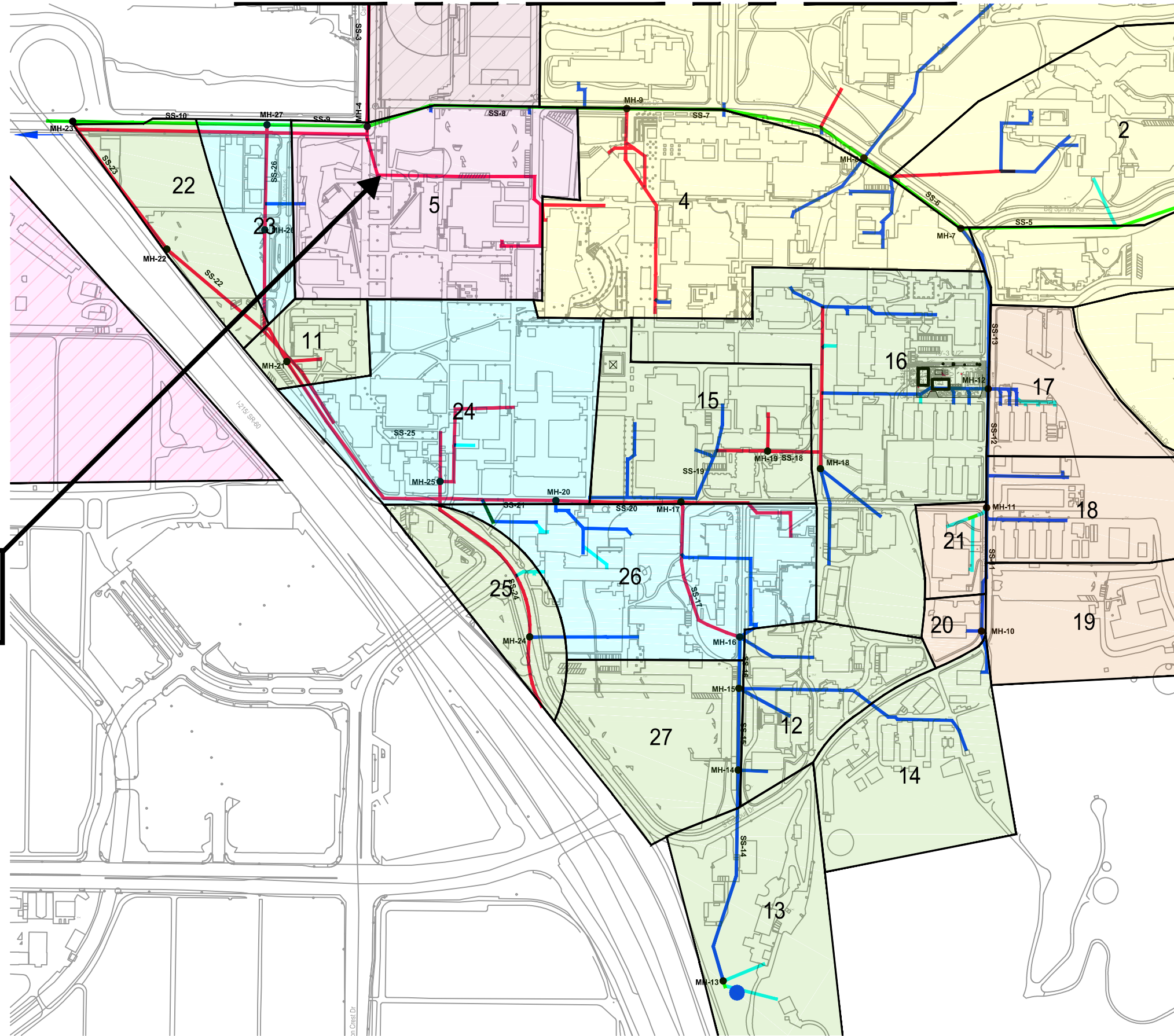
**Table A-1: Existing Campus Sanitary Sewer Flow Allocation**

Service Area	Building Area	LU Classification	ADF Unit	SGF/Unit	Q Avg. Daily	Q Avg. Daily	Q Avg. Daily	Q Peak
	(GSF)				(GPD)	(CFS)	(GPM)	(GPM)
0	171779	Laboratory/Research	1000	300/25	39724	0.061	27.59	96.55
1	391997	Academic	1000	35	13720	0.021	9.53	33.35
2	1521115	Residential-Dorm	Student/Bed	85	144500	0.224	100.35	351.21
3	1446628	Residential-Dorm	Student/Bed	85	215050	0.333	149.34	522.69
4	1973791	Academic	1000	35	69083	0.107	47.97	167.91
Offsite Sewer					369000	0.571	256.30	897.05
5	1161222	Academic	1000	35	40643	0.063	28.22	98.78
6	132684	Residential-Housing	DU	330	66746	0.103	46.35	162.23
7	303504	Residential-Housing	DU	330	152677	0.236	106.03	371.09
8	149193	Corporation Yard (offices)	1000	200	29839	0.046	20.72	72.52
9	545092	Student Rec Center/Housing	1000	300/85	158264	0.245	109.91	384.67
10	669517	Athletic	Seat	5	5000	0.008	3.47	12.15
11	181210	Administration	1000	200	36242	0.056	25.17	88.09
12	678403	Academic	1000	35	23744	0.037	16.49	57.71
13	207694	Academic	1000	35	7269	0.011	5.05	17.67
14	80238	Research (Green House)	1000	35	2808	0.004	1.95	6.83
15	494493	Academic	1000	35	17307	0.027	12.02	42.07
16	1317951	Academic	1000	35	46128	0.071	32.03	112.12
17	36329	Research (Green House)	1000	25	908	0.001	0.63	2.21
18	80238	Research (Green House)	1000	25	2006	0.003	1.39	4.88
19	44889	Academics	1000	35	1571	0.002	1.09	3.82
20	14244	Laboratory	1000	300	4273	0.007	2.97	10.39
21	47045	Laboratory	1000	300	14113	0.022	9.80	34.30
22	11326	Telephone Building	1000	200	2265	0.004	1.57	5.51
25	0	Parking			0		0.00	0.00
27	0	Parking			0		0.00	0.00
23	16727	Church	Seat	5	5000	0.008	3.47	12.15
24	1145737	Academics	1000	35	40101	0.062	27.85	97.47
26	647127	Academics/Uni. Theater	1000	35	22649	0.035	15.73	55.05
28	1529827	Residential/Office	DU/1000	200/200	171383	0.265	119.02	416.55
<b>TOTAL</b>	<b>15000000</b>				<b>1702015</b>	<b>2.634</b>	<b>1182.00</b>	<b>4137.02</b>

**Table A-2: Master Plan Existing Sanitary Sewer Model Data**

Pipe ID	Upstream	Downstream	Slope	Diameter	Full Flow Capacity		Peak Demand	% Full	Tributary Areas
	MH	MH	(ft/ft)	(in)	Qcapacity (cfs)	Qcapacity (gpm)	Qdesign Peak (gpm)	Qp/Qmax	
SS-1	MH-1	MH-2	0.0015	8	0.469	210.40	162.23	77%	6
SS-2	MH-2	MH-3	0.0040	8	0.763	342.66	990.51	289%	6,7,8,9
SS-3	MH-3	MH-4	0.0027	8	0.627	281.52	1002.67	356%	6,7,8,9,10
SS-4	MH-5	MH-6	0.0243	15	10.059	4514.80	1026.95	23%	Offsite Sewer,0,1
SS-5	MH-6	MH-7	0.0154	15	8.008	3594.15	1378.17	38%	Offsite Sewer,0,1,2
SS-6	MH-7	MH-8	0.0138	15	7.580	3402.32	1433.76	42%	Offsite Sewer,0,1,17,18,19,20,21
SS-7	MH-8	MH-9	0.0094	15	6.256	2808.01	1956.45	70%	Offsite Sewer,0,1,3,17,18,19,20,21
SS-8	MH-9	MH-4	0.0125	15	7.214	3238.10	2124.36	66%	Offsite Sewer,0,1,3,4,17,18,19,20,21
SS-9	MH-4	MH-27	0.0170	18	13.681	6140.59	3225.81	53%	Offsite Sewer,0,1,3,4,5,6,7,8,9,10,17,18,19,20,21
SS-10	MH-27	MH-23	0.0170	18	13.681	6140.59	3323.28	54%	Offsite Sewer,0,1,3,4,5,6,7,8,9,10,17,18,19,20,21,24,25
SS-11	MH-10	MH-11	0.0653	6	1.432	642.86	48.51	8%	19,20,21
SS-12	MH-11	MH-12	0.0378	6	1.090	489.11	53.38	11%	18,19,20,21
SS-13	MH-12	MH-7	0.0550	6	1.314	589.99	55.59	9%	17,18,19,20,21
SS-14	MH-13	MH-14	0.0317	6	0.998	447.91	17.67	4%	13
SS-15	MH-14	MH-15	0.0110	6	0.588	263.85	17.67	7%	13,27
SS-16	MH-15	MH-16	0.0241	6	0.870	390.54	24.49	6%	13,14,27
SS-17	MH-16	MH-17	0.0591	6	1.363	611.58	82.21	13%	12,13,14,27
SS-18	MH-18	MH-19	0.0175	6	0.741	332.80	112.12	34%	16
SS-19	MH-19	MH-17	0.0068	8	0.995	446.77	154.18	35%	15,16
SS-20	MH-17	MH-20	0.0048	8	0.836	375.36	236.39	63%	12,13,14,15,16,27
SS-21	MH-20	MH-21	0.0197	8	1.694	760.44	291.44	38%	12,13,14,15,16,26,27
SS-22	MH-21	MH-22	0.0100	8	1.207	541.79	379.53	70%	11,12,13,14,15,16,26,27
SS-23	MH-22	MH-23	0.0100	8	1.207	541.79	385.03	71%	11,12,13,14,15,16,22,26,27
SS-24	MH-24	MH-25	0.0096	8	1.183	530.84	0.00	0%	25
SS-25	MH-25	MH-26	0.0080	8	1.080	484.59	97.47	20%	24,25
SS-26	MH-26	MH-27	0.0065	8	0.973	436.81	109.62	25%	23,24,25
SS-27			0.0170	18	13.681	6140.59	3708.31	60%	Offsite Sewer,0,1,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,24,25,26,27
SS-28			0.0170	18	13.681	6140.59	4124.86	67%	Offsite Sewer,0,1,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,24,25,26,27,28

Match Sheet Future Conditions "B"



ALTERNATE POINT OF CONNECTION FOR SEWER FOR STUDENT SUCCESS CENTER

SEWER-MAIN AREAS:

- Served By 18" City-Sewer Line
- Served By 15" City-Sewer Line
- Served By 8" Campus Sewer Line
- Served By 8" City-Sewer Line
- Served By 8" City-Sewer Line
- Served By 8" City-Sewer Line
- Served By 6" City-Sewer Line

- LEGEND:
- 15" EXISTING SANITARY SEWER LINE
  - 8" EXISTING SANITARY SEWER LINE
  - 6" EXISTING SANITARY SEWER LINE
  - 4" EXISTING SANITARY SEWER LINE
  - SEWER NODE

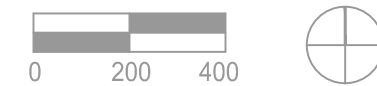


Figure 6.9 (a), Existing Sanitary Sewer Pipe and Node Key Map (Core Campus)



# Sanitary Sewer System

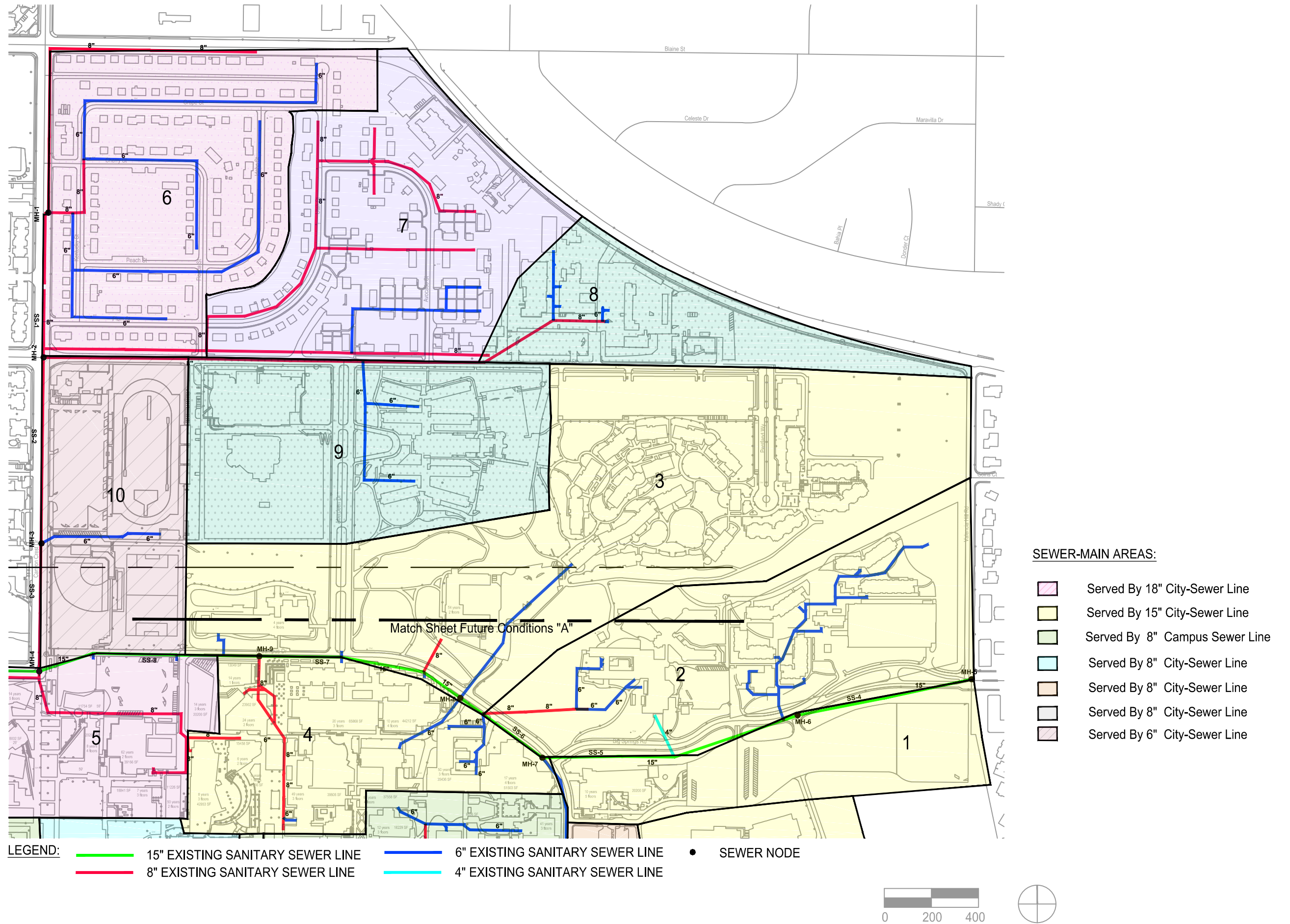


Figure 6.9 (b), Existing Sanitary Sewer Pipe and Node Key Map (North District)

**Table A-3: Future Campus Sanitary Sewer Flow Allocation**

Service Area	New Building Area	LU Classification	ADF Unit	SGF/Unit	Q Avg. Daily	Q Avg. Daily	Q Avg. Daily	Total Q Peak
	(GSF)				(GPD)	(CFS)	(GPM)	(GPM)
0	171779	Laboratory/Research	1000	300/25	39716	0.061	27.59	96.55
1	391997	Academic	1000	0	13717	0.021	9.53	33.35
2	1521115	Residential-Dorm	Student/Bed	85	144471	0.224	100.35	351.21
3	1591408	Residential/Academic	Bed/1000	85/35	222036	0.344	154.22	539.78
4	1973791	Academic	1000	35	69069	0.107	47.97	167.91
Offsite Sewer	0				369000	0.571	256.30	897.05
5	1286222	Academic	1000	0	45009	0.070	31.26	109.42
6	924000	Academic/Event	1000/Seat	"35/5"	70076	0.108	48.67	170.36
7	374000	Academic	1000	35	13087	0.020	9.09	31.82
8	149193	Corporation Yard (offices)	1000	200	29833	0.046	20.72	72.52
9	591892	Student Rec Center/Housing	1000	300/85	159870	0.247	111.04	388.65
10	674759	Academic/Athletic	1000/Seat	"35/5"	16897	0.026	11.74	41.08
11	108000	Academic	1000	35	3779	0.006	2.62	9.19
12	678403	Academic	1000	35	23739	0.037	16.49	57.71
13	154000	Academic	1000	35	5389	0.008	3.74	13.10
14	80238	Research (Green House)	1000	35	2808	0.004	1.95	6.83
15	393623	Academic	1000	35	13774	0.021	9.57	33.49
16	1470850	Academic	1000	35	51469	0.080	35.75	125.12
17	87980	Academic	1000	35	3079	0.005	2.14	7.48
18	87980	Academic	1000	35	3079	0.005	2.14	7.48
19	87980	Academic	1000	35	3079	0.005	2.14	7.48
20	82000	Academic	1000	35	2869	0.004	1.99	6.98
21	82000	Academic	1000	35	2869	0.004	1.99	6.98
22	11326	Telephone Building	1000	200	2265	0.004	1.57	5.51
25	0	Parking			0	0.000	0.00	0.00
27	0	Parking			0	0.000	0.00	0.00
23	16727	Church	Seat	5	4999	0.008	3.47	12.15
24	980729	Academic	1000	35	34319	0.053	23.84	83.43
26	647127	Academics/Uni. Theater	1000	35	22645	0.035	15.73	55.05
28	1529827	Residential/Office	DU/1000	200/200	171348	0.265	119.02	416.55
<b>TOTAL</b>	<b>16148946</b>				<b>1544290</b>	<b>2.390</b>	<b>1072.64</b>	<b>3754.23</b>

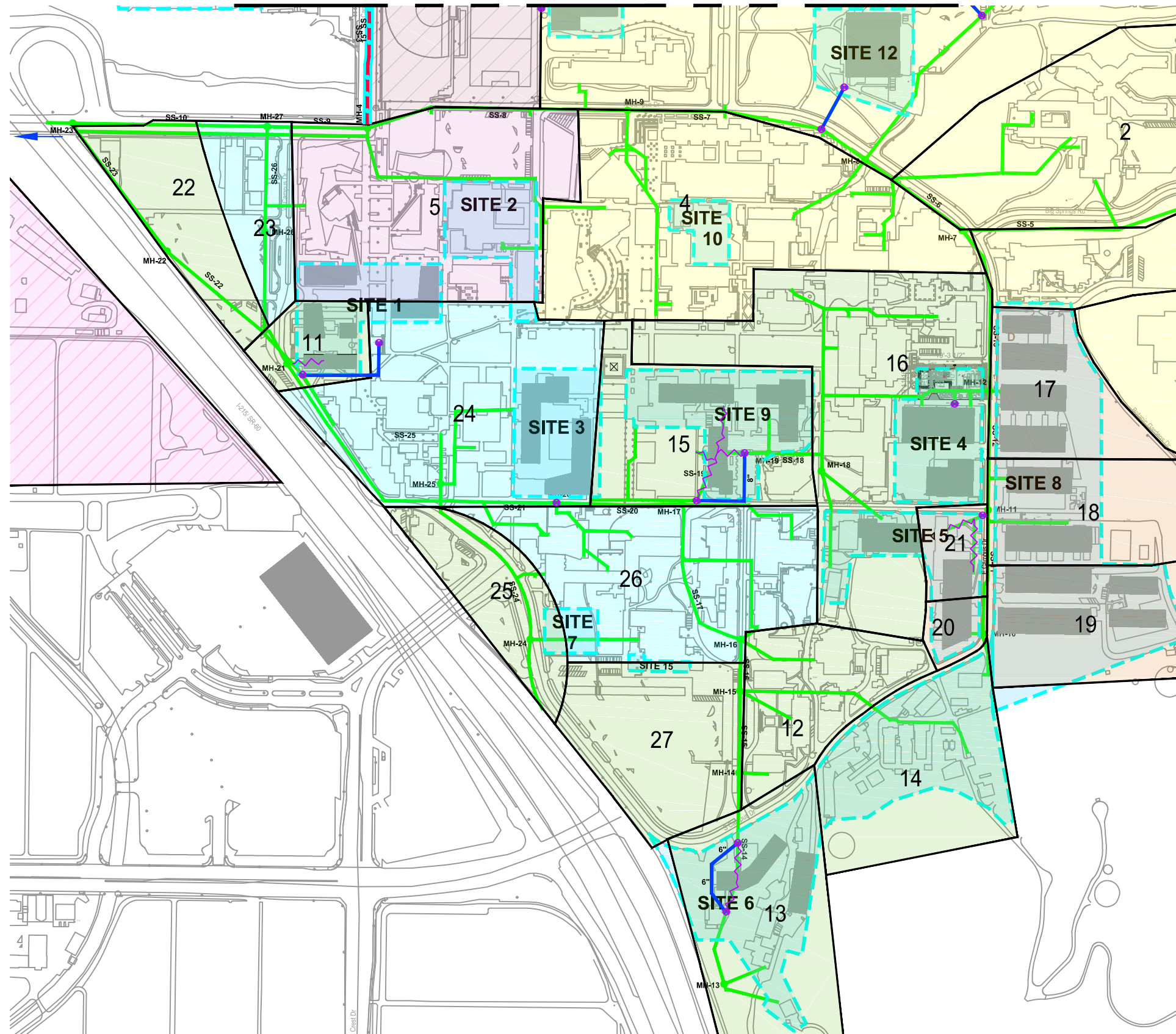
**Table A-4: Master Plan Future Sanitary Sewer Model Data**

Pipe ID	Upstream	Downstream	Slope	Diameter	Full Flow		Peak Demand	% Full	Tributary Area and Pipe Sections
	MH	MH	(ft/ft)	(in)	Qcapacity (cfs)	Qcapacity (gpm)	Qdesign Peak (gpm)	Qp/Qmax	
SS-1	MH-1	MH-2	0.0015	8	0.469	210.40	170.36	81%	6
SS-2	MH-2	MH-3	0.0040	8	0.763	342.66	663.35	194%	6,7,8,9
SS-3	MH-3	MH-4	0.0027	8	0.627	281.52	704.42	250%	6,7,8,9,10
SS-4	MH-5	MH-6	0.0243	15	10.059	4514.80	1026.95	23%	Offsite Sewer,0,1
SS-5	MH-6	MH-7	0.0154	15	8.008	3594.15	1378.17	38%	Offsite Sewer,0,1,2
SS-6	MH-7	MH-8	0.0138	15	7.580	3402.32	1414.57	42%	Offsite Sewer,0,1,17,18,19,20,21
SS-7	MH-8	MH-9	0.0094	15	6.256	2808.01	1954.35	70%	Offsite Sewer,0,1,3,17,18,19,20,21
SS-8	MH-9	MH-4	0.0125	15	7.214	3238.10	2122.26	66%	Offsite Sewer,0,1,3,4,17,18,19,20,21
SS-9	MH-4	MH-27	0.0170	18	13.681	6140.59	2936.10	48%	Offsite Sewer,0,1,3,4,5,6,7,8,9,10,17,18,19,20,21
SS-10	MH-27	MH-23	0.0170	18	13.681	6140.59	3019.53	49%	Offsite Sewer,0,1,3,4,5,6,7,8,9,10,17,18,19,20,21,24,25
SS-11	MH-10	MH-11	0.0653	6	1.432	642.86	21.44	3%	19,20,21
SS-12	MH-11	MH-12	0.0378	6	1.090	489.11	28.92	6%	18,19,20,21
SS-13	MH-12	MH-7	0.0550	6	1.314	589.99	36.40	6%	17,18,19,20,21
SS-14	MH-13	MH-14	0.0317	6	0.998	447.91	13.10	3%	13
SS-15	MH-14	MH-15	0.0110	6	0.588	263.85	13.10	5%	13,27
SS-16	MH-15	MH-16	0.0241	6	0.870	390.54	19.93	5%	13,14,27
SS-17	MH-16	MH-17	0.0591	6	1.363	611.58	77.64	13%	12,13,14,27
SS-18	MH-18	MH-19	0.0175	6	0.741	332.80	125.12	38%	16
SS-19	MH-19	MH-17	0.0068	8	0.995	446.77	158.61	36%	15,16
SS-20	MH-17	MH-20	0.0048	8	0.836	375.36	236.25	63%	12,13,14,15,16,27
SS-21	MH-20	MH-21	0.0197	8	1.694	760.44	291.30	38%	12,13,14,15,16,26,27
SS-22	MH-21	MH-22	0.0100	8	1.207	541.79	300.49	55%	11,12,13,14,15,16,26,27
SS-23	MH-22	MH-23	0.0100	8	1.207	541.79	305.99	56%	11,12,13,14,15,16,22,26,27
SS-24	MH-24	MH-25	0.0096	8	1.183	530.84	0.00	0%	25
SS-25	MH-25	MH-26	0.0080	8	1.080	484.59	83.43	17%	24,25
SS-26	MH-26	MH-27	0.0065	8	0.973	436.81	95.58	22%	23,24,25
SS-27			0.0170	18	13.681	6140.59	3325.52	54%	Offsite Sewer,0,1,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,24,25,26,27
SS-28			0.0170	18	13.681	6140.59	3742.08	61%	Offsite Sewer,0,1,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,24,25,26,27,28



# Sanitary Sewer System

Match Sheet Future Conditions "B"



LEGEND:

SEWER-MAIN AREAS:

- Served By 18" City-Sewer Line
- Served By 15" City-Sewer Line
- Served By 8" Campus Sewer Line
- Served By 8" City-Sewer Line
- Served By 8" City-Sewer Line
- Served By 8" City-Sewer Line
- Served By 6" City-Sewer Line

- LEGEND:
- EXISTING SANITARY SEWER LINE
  - FUTURE SANITARY SEWER LINE
  - FUTURE BUILDINGS
  - EX. SEWER LINE TO BE REMOVED
  - EX. 8" SEWER LINE TO BE UPSIZED TO 15" SEWER LINE
  - PROPOSED SEWER POC FOR FUTURE BUILDINGS

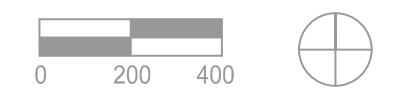


Figure 6.9 (c), Future Sanitary Sewer Pipe and Node Key Map (Core Campus)

# Sanitary Sewer System

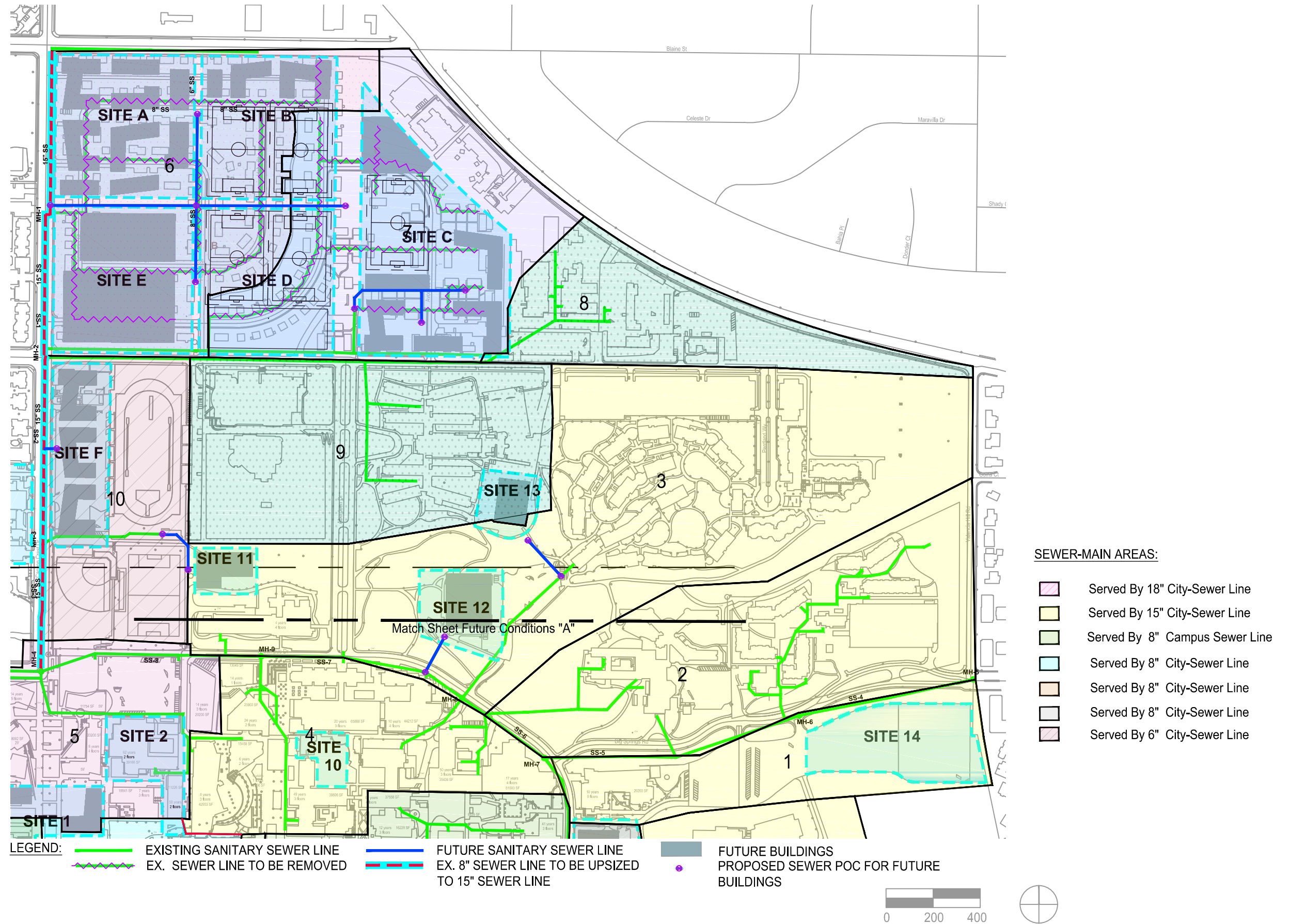


Figure 6.9 (d), Future Sanitary Sewer Pipe and Node Key Map (North District)

*Submitted By*

CAMPBELL-ANDERSON & ASSOCIATES, INC.

August 6, 2018

University of California, Riverside  
Riverside, California

STUDENT SUCCESS CENTER

Programming Estimate



## INDEX

Section I	Main Summary
Section II	Student Success Center

## Section I

### Main Summary

PROJECT: STUDENT SUCCESS CENTER  
 UNIVERSITY OF CALIFORNIA, RIVERSIDE  
 LOCATION: RIVERSIDE, CALIFORNIA  
 STAGE: PROGRAMMING

CLIENT: U.C. RIVERSIDE  
 DATE: AUGUST 6, 2018  
 GFA: 60,000 SF

- MAIN SUMMARY -

	Cost	Cost/SF
1.0 STUDENT SUCCESS CENTER	\$42,887,200	\$714.79
2.0 A/E DESIGN BUILD FEES, PRECONSTRUCTION FEES, AND DESIGN BUILD CONTINGENCY (14%)	\$6,004,200	\$100.07
<b>TOTAL, DESIGN BUILD CONSTRUCTION COST</b>	<b>\$48,891,400</b>	<b>\$814.86</b>

**EXCLUSIONS**

- All professional fees.
- Construction contingency.
- Inflation adjustment beyond a start date of construction of August 2019.
- Furniture, fixtures, and equipment (including telephone/data cabling and equipment).
- Audio visual equipment and cabling.
- Completion of dining function from "White Box" condition.
- Hazardous material abatement.
- Rerouting or capacity upgrades of existing utilities.
- Costs associated with abnormal soil conditions.
- All soft costs.

**PROJECT ENHANCEMENTS**

- For 4-story building, add \$3,721,900.
- For additional study seats, add \$339,000.
- For additional classroom seats, add \$405,000.
- For Site Enhancement 2B, add \$80,000.
- For Site Enhancement 2A, add \$260,000.
- For additional Lecture Hall power, add \$50,000.
- For additional entrances to teaching spaces, add \$460,000.
- For M-P exterior connection, add \$150,000.

**PROJECT ALTERNATES**

- For increased M-P room, add \$340,000.
- For enhanced group meeting space, add \$150,000.
- For roof elevator access, add \$270,000.

## Section II

### Student Success Center

**COST PLAN SUMMARY**

Riverside Campus      CCCI  
 PROJECT TITLE:      STUDENT SUCCESS CENTER  
                                  UNIVERSITY OF CALIFORNIA, RIVERSIDE

EPI  
 AUGUST 6, 2018  
 PROGRAMMING

		Unit Construction Cost With Markup Separate		Unit Construction Cost Including Markup	
		<u>\$/OGSF</u>	<u>TOTAL \$</u>	<u>\$/OGSF</u>	<u>TOTAL \$</u>
1	Foundation	6.85	410,900	9.87	592,163
2	Vertical Structure	23.23	1,393,700	33.48	2,008,511
3	Floor and Roof Structure	62.80	3,768,000	90.50	5,430,201
4	Exterior Cladding	81.75	4,905,200	117.82	7,069,061
5	Roofing	9.45	567,000	13.62	817,124
<b>Subtotal 1-5 Shell</b>		<b>184.08</b>	<b>11,044,800</b>	<b>265.28</b>	<b>15,917,059</b>
6	Interior Partitions & Doors	51.25	3,074,700	73.85	4,431,061
7	Interior Finishes	43.40	2,604,000	62.55	3,752,718
<b>Subtotal 6-7 Interiors</b>		<b>94.65</b>	<b>5,678,700</b>	<b>136.40</b>	<b>8,183,779</b>
8	Functional Equipment	29.48	1,769,000	42.49	2,549,370
9	Vertical Transportation	13.83	829,500	19.92	1,195,422
<b>Subtotal 8-9 Eqmt/Vtcl. Trans.</b>		<b>43.31</b>	<b>2,598,500</b>	<b>62.41</b>	<b>3,744,792</b>
10	Plumbing	11.94	716,100	17.20	1,031,998
11	HVAC	50.28	3,016,500	72.45	4,347,187
12	Electrical	69.83	4,189,500	100.63	6,037,639
13	Fire Protection	5.62	337,400	8.10	486,239
<b>Subtotal 10-13 M&amp;E</b>		<b>137.66</b>	<b>8,259,500</b>	<b>198.38</b>	<b>11,903,063</b>
<b>Building 1-13 Total (CIB Line 1)</b>		<b>459.69</b>	<b>27,581,500</b>	<b>662.48</b>	<b>39,748,694</b>
14	Site Clearance (CIB Line 0)	3.08	184,700	4.44	266,178
15	Exterior Utilities (CIB Line 2)	10.68	640,500	15.38	923,048
16	Site Development (CIB Line 4)	22.54	1,352,600	32.49	1,949,281
<b>Subtotal 14-16 Site</b>		<b>36.30</b>	<b>2,177,800</b>	<b>52.31</b>	<b>3,138,506</b>
<b>Subtotal, Construction Cost</b>		<b>495.99</b>	<b>29,759,300</b>	<b>714.79</b>	<b>42,887,200</b>
17	General Conditions and G.C. Overhead/Profit (17.5%)	86.80	5,207,900	0.00	N/A
18	Design Contingency (10.0%)	58.28	3,496,700	0.00	N/A
<b>Subtotal</b>		<b>641.07</b>	<b>38,463,900</b>	<b>714.79</b>	<b>42,887,200</b>
19	Inflation Adjustment (11.50%)	73.72	4,423,300	0.00	N/A
<b>TOTAL CONSTRUCTION COST</b>		<b>714.79</b>	<b>42,887,200</b>	<b>714.79</b>	<b>42,887,200</b>

<b>Building Area Data</b>	
Net SF:	40,150
OGSF:	60,000
Efficiency (ASF/OGSF):	0.67

PROJECT: STUDENT SUCCESS CENTER  
UNIVERSITY OF CALIFORNIA, RIVERSIDE  
STAGE: PROGRAMMING

LOCATION:  
DATE:

SHEET 2  
RIVERSIDE, CALIFORNIA  
06-Aug-18

Element/Specification	Quantity	Unit Rate	Estimated Cost
1. FOUNDATION			
a) NORMAL FOUNDATIONS			
1. Reinforced concrete pad foundations including all necessary excavation/backfill, concrete, formwork, and reinforcement, size 7'-0" x 7'-0" x 2'-6" thick	30 EA	3,000.00	90,000
2. Reinforced concrete grade beams including all necessary excavation/backfill, concrete, formwork, and reinforcement, size 6'-0" x 2'-6" thick	546 LF	375.00	204,750
3. Reinforced concrete strip footings including all necessary excavation/backfill, concrete, formwork, and reinforcement, size 3'-0" x 2'-6" thick	685 LF	130.00	89,050
4. Stair foundations	3 EA	2,500.00	7,500
b) MISCELLANEOUS			
1. Miscellaneous	ALLOWANCE		19,600
	TO SUMMARY		\$410,900



PROJECT: STUDENT SUCCESS CENTER  
UNIVERSITY OF CALIFORNIA, RIVERSIDE  
STAGE: PROGRAMMING

LOCATION:  
DATE:

SHEET 3  
RIVERSIDE, CALIFORNIA  
06-Aug-18

Element/Specification	Quantity	Unit Rate	Estimated Cost
2. VERTICAL STRUCTURE			
a) UPPER FLOORS CONSTRUCTION			
1. Structural steel columns (7 lbs/SF)	147 TONS	5,750.00	845,250
2. Sprayed Monokote F.P. to columns	1,095 LF	30.00	32,850
b) ROOF CONSTRUCTION			
1. Structural steel columns (7lbs/SF)	75 TONS	5,750.00	431,250
2. Sprayed Monokote F.P. to columns	600 LF	30.00	18,000
c) MISCELLANEOUS			
1. Miscellaneous	ALLOWANCE		66,350
	TO SUMMARY		\$1,393,700

PROJECT: STUDENT SUCCESS CENTER  
UNIVERSITY OF CALIFORNIA, RIVERSIDE  
STAGE: PROGRAMMING

LOCATION: RIVERSIDE, CALIFORNIA  
DATE: 06-Aug-18

SHEET 4

Element/Specification	Quantity	Unit	Rate	Estimated Cost
<b>3. FLOOR AND ROOF STRUCTURE</b>				
<b>a) LOWEST FLOOR CONSTRUCTION</b>				
1. 6" thick reinforced concrete slab-on-grade over two layers of sand with visqueen membrane on compacted subgrade	20,000	SF	14.00	280,000
2. Thickenings to pad footings	30	EA	300.00	9,000
3. Thickenings to grade beams and strip footings	1,777	LF	20.00	35,540
4. Elevator pits	2	EA	15,000.00	30,000
5. Mechanical housekeeping pads		ALLOWANCE		15,000
<b>b) ROOF CONSTRUCTION</b>				
1. Structural steel beams (10lbs/SF)	210	TONS	5,750.00	1,207,500
2. Sprayed Monokote F.P. to beams	42,000	SF	4.00	168,000
3. 3-1/2" thick reinforced lightweight concrete topping over 3" thick galvanized metal roof deck	42,000	SF	9.00	378,000
4. Premium cost for tiered floor construction and ramps	21,600	SF	30.00	648,000
<b>c) ROOF CONSTRUCTION</b>				
1. Structural steel beams (10lbs/SF)	108	TONS	4,750.00	513,000
2. Sprayed Monokote F.P. to beams	21,500	SF	4.00	86,000
3. 3-1/2" thick reinforced lightweight concrete topping over 3" thick galvanized metal roof deck	21,500	SF	9.00	193,500
4. Mechanical housekeeping pads		ALLOWANCE		25,000
<b>d) MISCELLANEOUS</b>				
1. Miscellaneous		ALLOWANCE		179,460
		TO SUMMARY		\$3,768,000

PROJECT: STUDENT SUCCESS CENTER  
UNIVERSITY OF CALIFORNIA, RIVERSIDE  
STAGE: PROGRAMMING

LOCATION:  
DATE:

SHEET 5  
RIVERSIDE, CALIFORNIA  
06-Aug-18

Element/Specification	Quantity	Unit	Rate	Estimated Cost
4. EXTERIOR CLADDING				
a) WALLS ABOVE GROUND FLOOR				
1. Composite exterior wall construction including insulation and metal framing with drywall finish internally	43,000	SF	65.00	2,795,000
2. Precast concrete banding premium	3,425	LF	100.00	342,500
3. Finish to internal parapet faces	1,713	SF	10.00	17,130
4. Roof mechanical screen including structural framing	2,500	SF	60.00	150,000
5. Sunshade devices		ALLOWANCE		200,000
6. Soffit treatments	4,500	SF	35.00	157,500
b) WINDOWS AND EXTERNAL DOORS				
1. Premium cost for glazing systems to 35% of exterior wall area	14,385	SF	65.00	935,025
2. Exterior glazed door including hardware and frame	14	PRS	4,500.00	63,000
3. External hollow metal door and frame including hardware, single door	5	EA	2,300.00	11,500
c) MISCELLANEOUS				
1. Miscellaneous		ALLOWANCE		233,545
		TO SUMMARY		\$4,905,200

PROJECT: STUDENT SUCCESS CENTER  
UNIVERSITY OF CALIFORNIA, RIVERSIDE  
STAGE: PROGRAMMING

LOCATION: RIVERSIDE, CALIFORNIA  
DATE: 06-Aug-18

SHEET 6

Element/Specification	Quantity	Unit Rate	Estimated Cost
5. ROOFING			
1. Membrane roofing system on rigid insulation including all necessary flashing, crickets, etc.	21,500 SF	20.00	430,000
2. Roof walkway pads	ALLOWANCE		10,000
3. Exterior terrace finishes	2,000 SF	50.00	100,000
4. Miscellaneous	ALLOWANCE		27,000
	TO SUMMARY		\$567,000

PROJECT: STUDENT SUCCESS CENTER  
UNIVERSITY OF CALIFORNIA, RIVERSIDE  
STAGE: PROGRAMMING

LOCATION:  
DATE:

SHEET 7  
RIVERSIDE, CALIFORNIA  
06-Aug-18

Element/Specification	Quantity	Unit	Rate	Estimated Cost
6. INTERIOR PARTITIONS AND DOORS				
a) PERMANENT PARTITIONS				
1. Internal partitions including insulation and drywall finish	97,800	SF	18.00	1,760,400
2. Premium cost for: glazed partitions	9,500	SF	60.00	570,000
3. Ditto: elevator shafts	3,300	SF	10.00	33,000
4. Ditto: stair shafts including fire-rated glazing		ALLOWANCE		75,000
5. Gypboard lining to columns	1,695	LF	60.00	101,700
6. Firestopping/caulking		ALLOWANCE		45,000
7. Blocking/backing		ALLOWANCE		30,000
b) DOORS				
1. Interior solid core wood door and frame including hardware and decoration: single door, size 3'-0" x 8'-0" high	12	EA	2,000.00	24,000
2. Ditto: double door, size 6'-0" x 8'-0" high	24	PRS	2,800.00	67,200
3. Interior glazed door including hardware and frame: single door	34	EA	3,000.00	102,000
4. Ditto: double door	5	PRS	4,000.00	20,000
5. Fire rating to doors		ALLOWANCE		25,000
6. Acoustical treatment to doors		ALLOWANCE		75,000
c) MISCELLANEOUS				
1. Miscellaneous		ALLOWANCE		146,400
		TO SUMMARY		\$3,074,700

PROJECT: STUDENT SUCCESS CENTER  
UNIVERSITY OF CALIFORNIA, RIVERSIDE  
STAGE: PROGRAMMING

LOCATION:  
DATE:

SHEET 8  
RIVERSIDE, CALIFORNIA  
06-Aug-18

Element/Specification	Quantity	Unit Rate	Estimated Cost
7. INTERIOR FINISHES			
a) FLOOR FINISHES			
1. Terrazzo floor finish	2,300 SF	40.00	92,000
2. Ceramic tile floor finish	1,000 SF	18.00	18,000
3. Carpet floor tile	40,900 SF	5.50	224,950
4. Resilient flooring	11,800 SF	6.50	76,700
5. Sealed concrete flooring	1,000 SF	3.00	3,000
6. Base	12,155 LF	6.50	79,008
b) WALL FINISHES			
1. Paint finish to walls	145,860 SF	1.00	145,860
2. Premium cost for: ceramic wall tile	3,000 SF	17.00	51,000
3. Ditto: wood wall paneling		ALLOWANCE	100,000
4. Ditto: acoustical wall treatment to teaching spaces	9 EA	65,000.00	585,000
c) CEILING FINISHES			
1. Acoustical ceiling tile systems	57,000 SF	9.00	513,000
2. Premium cost for: enhanced ACT	26,300 SF	5.00	131,500
3. Ditto: enhanced ceiling systems	10,000 SF	35.00	350,000
4. Ditto: painted gypboard ceilings	10,000 SF	11.00	110,000
d) MISCELLANEOUS			
1. Miscellaneous		ALLOWANCE	123,982
		TO SUMMARY	\$2,604,000

PROJECT: STUDENT SUCCESS CENTER  
UNIVERSITY OF CALIFORNIA, RIVERSIDE  
STAGE: PROGRAMMING

LOCATION:  
DATE:

SHEET 9  
RIVERSIDE, CALIFORNIA  
06-Aug-18

Element/Specification	Quantity		Unit Rate	Estimated Cost
8. FUNCTIONAL EQUIPMENT				
1. Signage, code/directional/identification	3	FLRS	50,000.00	150,000
2. Restroom accessories	6	EA	5,000.00	30,000
3. Window coverings/motorized blackout shades	10,000	SF	20.00	200,000
4. Fire extinguishers/cabinets	3	FLRS	3,000.00	9,000
5. Corner guards/wall protection	3	FLRS	10,000.00	30,000
6. Lockers	18	EA	350.00	6,300
7. Lecture hall fixed swivel seat	150	EA	500.00	75,000
8. Lecture hall fixed seat with tablet arm	250	EA	400.00	100,000
9. Glazed operable partition to multipurpose rooms	120	LF	3,000.00	360,000
10. Fixed table: 18" wide	726	LF	250.00	181,500
11. Ditto: 30" wide	816	LF	250.00	204,000
12. Wall-mounted handrails to ramps	100	LF	100.00	10,000
13. Handrails to steps	200	LF	200.00	40,000
14. Internal/external glass handrails	300	LF	350.00	105,000
15. Whiteboards		ALLOWANCE		20,000
16. Writeable wall surfaces	1,600	SF	12.00	19,200
17. Test Center millwork	76	LF	200.00	15,200
18. Student Lounge millwork	24	LF	400.00	9,600
19. Lobby Information desk/storage	20	LF	1,000.00	20,000
20. Miscellaneous millwork		ALLOWANCE		100,000
21. Miscellaneous		ALLOWANCE		84,200
		TO SUMMARY		\$1,769,000



PROJECT: STUDENT SUCCESS CENTER  
UNIVERSITY OF CALIFORNIA, RIVERSIDE  
STAGE: PROGRAMMING

LOCATION:  
DATE:

SHEET 10  
RIVERSIDE, CALIFORNIA  
06-Aug-18

Element/Specification	Quantity	Unit Rate	Estimated Cost
9. VERTICAL TRANSPORTATION			
a) STAIRS			
1. Lobby stairs including handrails	4 FLTS	40,000.00	160,000
2. Exterior stairs including handrails	4 FLTS	30,000.00	120,000
3. Exit stairs including handrails including roof access	4 FLTS	20,000.00	80,000
4. Open exit stairs including handrails	4 FLTS	20,000.00	80,000
b) ELEVATORS			
1. Passenger hydraulic elevators, 3,500 lb. capacity, three floors in line, total travel 35'-0"	2 EA	150,000.00	300,000
2. Upgraded cab finishes and features	2 EA	25,000.00	50,000
c) MISCELLANEOUS			
1. Miscellaneous	ALLOWANCE		39,500
	TO SUMMARY		\$829,500

PROJECT:	STUDENT SUCCESS CENTER UNIVERSITY OF CALIFORNIA, RIVERSIDE	LOCATION:	RIVERSIDE, CALIFORNIA	SHEET 11
STAGE:	PROGRAMMING	DATE:	06-Aug-18	

Element/Specification	Quantity		Unit Rate	Estimated Cost
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10. PLUMBING

1.	Plumbing fixtures including hot and cold water pipework, insulation and rough-in	84	FXTS	5,500.00	462,000
2.	Plumbing services for dining component	20	FXTS	6,500.00	130,000
3.	Roof drains and piping	12	EA	7,500.00	90,000
4.	Miscellaneous		ALLOWANCE		34,100

	TO SUMMARY				\$716,100
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11. HVAC

1.	Roof-top packaged A.C. units including ductwork, piping, insulation and controls	60,000	SF	50.00	3,000,000
2.	Miscellaneous		ALLOWANCE		16,500

	TO SUMMARY				\$3,016,500
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PROJECT: STUDENT SUCCESS CENTER  
UNIVERSITY OF CALIFORNIA, RIVERSIDE  
STAGE: PROGRAMMING

LOCATION: RIVERSIDE, CALIFORNIA  
DATE: 06-Aug-18

SHEET 12

Element/Specification	Quantity	Unit Rate	Estimated Cost
12. ELECTRICAL			
1. Service and distribution, main switchboard, mechanical connections, panelboard, transformers, and feeders	60,000 SF	12.00	720,000
2. Lighting fixtures, circuit and controls	60,000 SF	22.00	1,320,000
3. Power devices and circuit	60,000 SF	5.00	300,000
4. Fire alarm system	60,000 SF	5.50	330,000
5. Telephone/data systems including cabling	60,000 SF	5.00	300,000
6. Security systems	60,000 SF	2.00	120,000
7. Audio visual systems infrastructure	60,000 SF	7.50	450,000
8. PV system		ALLOWANCE	450,000
9. Miscellaneous		ALLOWANCE	199,500
		TO SUMMARY	\$4,189,500

PROJECT:	STUDENT SUCCESS CENTER		SHEET 13
	UNIVERSITY OF CALIFORNIA, RIVERSIDE	LOCATION:	RIVERSIDE, CALIFORNIA
STAGE:	PROGRAMMING	DATE:	06-Aug-18

Element/Specification	Quantity		Unit Rate	Estimated Cost
<b>13. FIRE PROTECTION</b>				
1. Automatic sprinkler installation	64,500 SF		4.75	306,375
2. Alarm valve riser	1 EA		15,000.00	15,000
3. Miscellaneous		ALLOWANCE		16,025
TO SUMMARY				\$337,400

<b>14. SITE CLEARANCE</b>				
1. Grub and clear existing hardscape/softscape to site	55,300 SF		3.00	165,900
2. Protect existing adjacent landscaping		ALLOWANCE		10,000
3. Miscellaneous		ALLOWANCE		8,800
TO SUMMARY				\$184,700

PROJECT: STUDENT SUCCESS CENTER  
UNIVERSITY OF CALIFORNIA, RIVERSIDE  
STAGE: PROGRAMMING

LOCATION: RIVERSIDE, CALIFORNIA  
DATE: 06-Aug-18

SHEET 14

Element/Specification	Quantity	Unit Rate	Estimated Cost
15. EXTERIOR UTILITIES			
1. Connect and extend utilities to new and existing building as required: domestic/fire water (POC 100'-0")	ALLOWANCE		35,000
2. Ditto: sewer (POC 600'-0")	ALLOWANCE		55,000
3. Ditto: storm drainage systems including biofiltration	ALLOWANCE		200,000
4. Ditto: gas	ALLOWANCE		20,000
5. Ditto: CHW /HHW	ALLOWANCE		100,000
6. Ditto: electrical/dry utilities	ALLOWANCE		200,000
7. Miscellaneous	ALLOWANCE		30,500
	TO SUMMARY		\$640,500

PROJECT: STUDENT SUCCESS CENTER  
UNIVERSITY OF CALIFORNIA, RIVERSIDE  
STAGE: PROGRAMMING

LOCATION: RIVERSIDE, CALIFORNIA  
DATE: 06-Aug-18

SHEET 15

Element/Specification	Quantity	Unit Rate	Estimated Cost
16. SITE DEVELOPMENT			
1. New landscape/hardscape construction to site	35,300 SF	30.00	1,059,000
2. Site lighting	ALLOWANCE		50,000
3. Interface with existing campus	1,095 LF	30.00	32,850
4. Rough and final grading	32,100 SF	1.50	48,150
5. Building pad construction	23,200 SF	1.00	23,200
6. Erosion control installation and maintenance	ALLOWANCE		75,000
7. Miscellaneous	ALLOWANCE		64,400
	TO SUMMARY		\$1,352,600

RLB | Rider Levett Bucknall

# Program Cost Model

University of California, Riverside  
Student Success Center  
Riverside, California

Prepared for Steinberg Hart Architects

August 6, 2018



RLB | Rider Levett Bucknall



## CONTENTS

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## 1.0 EXECUTIVE SUMMARY

The following cost estimate is inclusive of a Basis of Estimate (BoE) and will provide an independent opinion of costs compatible to meet estimates at the Conceptual Level.

Riverside, California	Square Footage	Estimated Construction Cost	Cost/SF	DBE Fees (14%)	Cost/SF	Estimated DBE Construction Cost	Cost/SF
<b>Student Success Center</b>	60,000	\$39,759,801	\$662.66	\$5,566,372	\$92.77	\$45,326,173	\$755.44
<b>Audio Visual Systems (Complete Installation)</b>	60,000	1,032,646	\$17.21	\$144,570	\$2.41	\$1,177,216	\$19.62
<b>Site</b>	52,400	\$2,558,383	\$48.82	\$358,174	\$6.84	\$2,916,556	\$55.66
<b>Total Costs</b>		\$43,350,829		\$6,069,116		\$49,419,945	

Table 1 - Cost Summary

	Start	Completion	Duration	Mid Point	Escalation
Building & Site	1-Aug-19	1-Mar-21	19 months	16-May-20	11.20%

Table 2 - Construction Schedule and Escalation

On-cost	APPLIED %
General Conditions	7.00%
General Requirements	3.00%
Bonding	1.00%
General Liability Insurance	1.00%
Overhead & Profit	4.50%
Estimating & Design Contingency	10.00%

Table 3 - On-Costs Included in Construction Costs

DBE Fees and Contingency	APPLIED %
Design Fees	8%
Preconstruction Fee	2%
Design Build Contingency	4%

Table 4 - Design Build Entity Fees and Contingency

## BASIS OF ESTIMATE

### 1. Project Scope Definition

This statement is based on the Project Description & Criteria document by Steinberg Hart Architects dated May 1, 2018 along with verbal direction from the architect.

### 2. Design Details Used as Reference in the Preparation of the Estimate

Drawings: N/A

Specifications / Project Manual: Performance Specification dated May 4, 2018

Consultant Reports: Draft Project Description & Criteria document produced by Steinberg Hart Architects dated May 1, 2018

Costs provided by others: N/A

Project Delivery Schedule: Draft graphic schedule provided by Steinberg Hart

*Where information was insufficient, assumptions and allowances were made based on conversations with the architect.*

### 3. Estimate Pricing

#### A Inclusions

Items which are detailed in the backup to this estimate include the following:

- 1 New 60,000 GSF (40,150 ASF) Student Success Building
- 2 Site landscape and hardscape
- 3 Site utilities and lighting
- 4 Existing site clearance and preparation
- 5 Adaption of floor structure & inclusion of costs for forming stepped floors and ramps at lecture halls
- 6 Increase in overall story and building height to accommodate stepped lecture halls
- 7 Cost for acoustic upgrades required to specific program rooms
- 8 Dining Vendor shell preparation
- 9 Lecture Halls fixed seating and fixed tables
- 10 Motorized projections screens at Multi-purpose, large classroom and lecture halls
- 11 Complete Audio Visual system
- 12 General conditions & requirements, insurance & bonds, contractors fee, design contingency and escalation to construction midpoint

**B Exclusions**

Items which are not detailed in the backup to this estimate include the following:

- 1 Maintenance cost.
- 2 Financing and carry costs.
- 5 FF&E
- 6 Dining Tenant Improvements and equipment

**C Items Affecting the Cost Estimate**

Items which may change the estimated construction cost include, but are not limited to:

- 1 Modifications to the scope of work included in this estimate.
- 2 Restrictive technical specifications or excessive contract conditions.
- 3 Any specified item of equipment, material, or product that cannot be obtained from at least three (3) different sources.
- 4 Any other non-competitive bid situations.
- 5 Construction start dates and duration different to those used in the preparation of this report.
- 6 General Conditions and Requirements influenced by alterations to construction schedule.
- 7 Unit prices for commodities such as aggregate base, fill soils, and soils export can vary greatly from those presented herein, depending upon the demand for such materials (or lack thereof) within the dirt market at the time of actual construction.

**D Assumptions made in the Cost Estimate**

This estimate was prepared under the following assumptions:

- 1 Design Build Entity Fees and Contingency have been included as follows:
  - Design Fee - 12%
  - Preconstruction Fee - 2%
  - Design Build Contingency - 5%
- 2 The site will be fully accessible during normal working hours. No site limitations are anticipated.
- 3 Sites receiving hard or soft landscape are relatively level and therefore require little earthwork.
- 4 Site lighting and drainage tie into existing main lines.
- 5 Construction design assumptions are as follows:
  - Foundations
    - Foundation include over excavation and re-compaction of building footprint to a depth of no greater than 5' and 5' out from the building footprint also to a depth of 5'. Foundations shall comprise standard shallow foundation system and restrained isolated spread foundations. It is assumed there will be below grade elevator pit.
  - Superstructure
    - Reinforced concrete slab on grade, 5" thick concrete with #4 reinforcement bars including a layer of 6" free draining 3/4" crushed rock with a 15 mil vapor barrier sandwiched between two layers of 2" thick sand. Structural steel brace frame system calculated at 14lbs/GSF with metal decking and concrete infill for upper floors and roof. Steel framing and metal decking forming the building overhang are included in this section.

#### Exterior Cladding

Exterior wall framing comprising metal stud, densglass outer face sheathing and 5/8" interior face gypsum board sheathing with batt insulation. Façade finish allowance to allow for finishes per the performance specification. Glazing comprises aluminum framed insulated storefront windows with areas of curtain wall. Exterior doors are glazed or hollow metal. Window shading, parapet finish, soffit finish and other exterior articulation allowances are included.

#### Roofing & Waterproofing

Comprises rigid insulation, membrane roofing, flashings and Sheetmetal plus waterproofing of elevator pits. Building overhang upper surface finish, terrace paving.

#### Partitions & Doors

Metal stud framing with gypsum board lining and batt insulation typically carried to underside of floor deck. Doors typically either hollow metal, glass or solid core wood either single (typical size 3' x 7') or double leaf (typical size 6' x 7'). Interior glazing to several program areas. Premiums are included for shaped/acoustic rated partitions at lecture halls.

#### Floor, Wall & Ceiling Finishes

Typical floor finishes comprising sealed concrete, carpet tile, ceramic tile resilient flooring and terrazzo. Ceilings comprise open to structure (painted), wood paneling gypsum board, ACT, soffits (varying finishes) and the allowance in cost for some ceiling enhancements to certain public spaces, conference rooms and the like. Wall finishes are typically paint with ceramic tile at restrooms and premium finishes such as wood and acoustic material to specified program areas.

#### Fitting and Furnishings

Included in these costs are phenolic restroom cubicles and fixed restroom specialties, Plastic laminate finished casework, storage cabinets, fixed seating, fixed desks, lockers, signage, window shades, projection screens, writeable surfaces, etc.

#### Vertical Circulation

##### Elevators

A total of 2 elevators have been included.

##### Stairs

Assume 3 fire escape stairs with metal pan concrete filled stair units with rubberized finish and metal handrails and guardrails. A feature stair is located on the second and third floors which will have higher end finishes and glass guardrails.

#### Mechanical and Electrical

##### Plumbing

Full plumbing system including all sanitary fixtures, condensate drainage, hot and cold water distribution, grease waste and interceptor, sanitary and waste vent pipework, roof drainage and all associated equipment.

##### HVAC

Full HVAC system including air handling units, chilled/hot water, duct distribution, DDC controls, ventilation, etc.

Electrical

Includes main primary and secondary distribution, power outlets, LED lighting & controls, alarm system and rough in for low voltage systems such as tele/data, CCTV and security.

Fire Suppression

Complete new wet sprinkler system.

Site Clearing and Grading

Remove all existing surface landscape elements and obsolete below grade utilities. Protect existing trees not impacted by construction. Rough and fine grade site as required to achieve finished site area.

Site Development and Utilities

Vehicular paving for fire lane comprising rigid and flexible paving, public paving areas typically concrete with enhanced paving at outdoor dining. Included are built in seat steps, seat walls, bar top/laptop ledge and planters. Landscaping comprises drought tolerant shrubs and tree with grates where applicable. Utilities include connection to main campus supplies, rerouting of existing utilities where required and new utilities as required to service building.

**E Conditions of the Cost Estimate**

- 1 Construction contract procurement method is Design Build.
- 2 Prevailing wage labor rate structure.

**5. Notes**

**Statement of Probable Cost**

Rider Levett Bucknall has no control over the cost of labor and materials, the general contractor's or any subcontractor's method of determining prices, or competitive bidding and market conditions.

This opinion of the probable cost of construction is made on the basis of the experience, qualifications, and best judgment of a professional consultant familiar with the construction industry. However, Rider Levett Bucknall cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from this or subsequent cost estimates.

The statement reflects probable construction costs obtainable in a competitive and stable bidding market. This estimate is based upon a design build (DB) procurement contract and assumes the DB GC will seek bids from a minimum of three (3) subcontractors per trade. This statement is a determination of fair market value for the construction of the project and is not intended to be a prediction of low bid. Experience indicates that a fewer number of bidders may result in a higher bid amount, and more bidders may result in a lower bid result.

*Caveat emptor!* The bid price is not necessarily the final cost. Please be advised that opening up the bid process to all comers invites bid-day errors and "lowball" bids from potentially less-than-qualified bidders who will seek to make their profit on the job via an unending stream of change order requests.

The Rider Levett Bucknall staff of professional cost consultants has prepared this estimate in accordance with generally accepted principles and practices. This staff is available to discuss its contents with any interested party.

### **Recommendations for Cost Control**

Rider Levett Bucknall recommends that the Owner and the Architect carefully review this entire document to ensure that it reflects their design intent.

Requests for modifications of any apparent errors or omissions to this document must be made within ten (10) working days of the date of this estimate. Otherwise, it will be understood that the contents have been concurred with and accepted. If the project is over budget, or there are unresolved budgeting issues, alternate systems / schemes should be evaluated before proceeding.

### **Gross Floor Area (GFA)**

The square foot area quantities utilized herein were provided by the architect.

### **Basis for Quantities**

Wherever possible and practical, this estimate has been based upon the actual measurement of different items of work. For the remaining items, parametric measurements were used in conjunction with references from other projects of a similar nature.

### **Basis for Unit Costs**

The unit costs enumerated herein are based on current bid prices in the Riverside, California area.

Subcontractor's overhead and profit is included in each line item unit cost. This overhead and profit covers each subcontractor's cost for labor burden, materials and equipment sales taxes, field overhead, home office overhead, and profit. The general contractor's overhead and profit is shown separately on the Summary.

### **Sources for Pricing**

This estimate was prepared by a team of qualified cost consultants experienced in estimating construction costs at all stages of design.

These consultants have used pricing data from the Rider Levett Bucknall database for construction, updated to reflect current market conditions in the Riverside, California area at the time the estimate was prepared. In some cases, quotes were solicited from outside sources to substantiate in-house pricing data.

The following estimate is based on \$/SF rates. No design drawings or specifications/narratives were provided to guide the costs which are therefore based on what could be seen as "typical". Cost contained in this report are purely for use as a high level budgetary review on potential costs and it should be noted that at this stage fluctuations of +/- 20% are not unheard of.

### **Subcontractor's Mark-ups**

As stated earlier, subcontractor's mark-ups have been included in each line item unit cost. Depending on the trade, these mark-ups can range from 15% to 20% of the raw cost for that particular item of work.

## 6. Prorates

### General Conditions

A reasonable allowance based on 7% of the construction cost subtotal has been included for the contractor's general conditions. This allowance covers the typical costs of job specific items such as project supervision, jobsite trailers and supplies, etc.

### General Requirements

A reasonable allowance based on 3% of the construction cost subtotal has been included for the contractor's general requirements. This allowance covers the typical costs of job specific items such as temporary services, clean-up, equipment and tools, etc.

### Contractor's Bonds

A reasonable allowance based on 1% of the construction cost subtotal has been included for the contractor's payment and performance bonds (if required).

### Contractor's General Liability Insurance

A reasonable allowance based on 1% of the construction cost subtotal has been included for the contractor's general liability insurance.

### Contractor's Fee

A reasonable allowance based on 4.5% of the construction cost subtotal has been included for the general contractor's home office overhead and profit. Site overhead is included in the general conditions.

### Design / Estimating Contingency

A reasonable allowance of 10% for undeveloped design details has been included in the Summary of this estimate. As the design of each system is further developed, details which increase cost become apparent and are incorporated into the estimate.

## 7. Schedule

Schedule and escalation are based on the graphic outline schedule provided by Steinberg Hart Architects. Escalation is calculated from the rate basis date of this estimate to the Midpoint of Construction using the following rates:

Construction Start:	08/01/19
Construction Completion:	03/01/21
Construction Midpoint:	05/16/20
Construction Duration:	19 Months
Compound Escalation:	11.20%
Annual:	2019 7.00%
	2020 5.00%
	2021 5.00%



# **Student Success Center**

### Student Success Center Schedule of Areas & Control Quantities

Schedule of Areas	SF	SF
<b>Enclosed Areas</b>		
First Floor	20,000	
Second Floor	20,000	
Third Floor	20,000	
<b>Total Gross Floor Area</b>		<b><u>60,000</u></b>

Control Quantities	Qty		Ratio to Gross Area
Number of Levels	3	EA	0.05
Gross Area	60,000	GSF	1.000
Assignable Floor Area			
Student Affairs	9,100	SF	0.152
General Assignment Classroom	26,900	SF	0.448
Auxiliary Services	3,000	SF	0.050
Support Spaces	1,150	SF	0.019
Total Assignable Floor Area	40,150	SF	0.669
Enclosed Area	60,000	SF	1.000
Footprint Area	20,000	SF	0.333
Footprint Perimeter	700	LF	
Gross Wall Area (skin)	42,000	SF	0.700
Average Overall Elevation Height	60	LF	0.001
Retaining Wall Area (building)	-	SF	0.000
Finished Wall Area (skin)	42,000	SF	0.700
Windows or Glazing Area (skin)	40.00%	16,800	SF 0.280
Roof Area (flat)	20,000	SF	0.333
Roof Area (terrace)	1,600	SF	0.027
Total Roof Area	21,600	SF	0.360
Finished Area	60,000	SF	1.000
Shelled Area	-	SF	0.000
Interior Partitions	4,200	LF	0.070
Interior Doors	84	EA	0.001
Structural steel	(14 LB / SF)	420	TN
Elevators	2	EA	0.033

### Student Success Center Construction Cost Summary

Element	Subtotal	Total	Cost / SF	Cost / SF
<b>A) Shell (1-5)</b>		<b>\$10,691,794</b>		<b>\$178.20</b>
1 Foundations	\$570,074		\$9.50	
2 Vertical Structure	\$1,082,550		\$18.04	
3 Floor & Roof Structures	\$3,440,170		\$57.34	
4 Exterior Cladding	\$4,843,600		\$80.73	
5 Roofing and Waterproofing	\$755,400		\$12.59	
<b>B) Interiors (6-7)</b>		<b>\$6,058,018</b>		<b>\$100.97</b>
6 Interior Partitions, Doors and Glazing	\$3,287,190		\$54.79	
7 Floor, Wall and Ceiling Finishes	\$2,770,828		\$46.18	
<b>C) Equipment and Vertical Transportation (8-9)</b>		<b>\$2,424,550</b>		<b>\$40.41</b>
8 Function Equipment and Specialties	\$1,814,550		\$30.24	
9 Stairs and Vertical Transportation	\$610,000		\$10.17	
<b>D) Mechanical and Electrical (10-13)</b>		<b>\$8,597,187</b>		<b>\$143.29</b>
10 Plumbing Systems	\$989,000		\$16.48	
11 Heating, Ventilation and Air Conditioning	\$3,391,240		\$56.52	
12 Electrical Lighting, Power and Communications	\$3,864,147		\$64.40	
13 Fire Protection Systems	\$352,800		\$5.88	
<b>E) Building Prep &amp; Demo (14-15)</b>		<b>\$0</b>		<b>\$0.00</b>
14 Building Preparations & Protection	\$0		\$0.00	
15 Building Demolition	\$0		\$0.00	
<b>F) Site Work (16-18)</b>		<b>\$0</b>		<b>\$0.00</b>
16 Site Preparation and Demolition	\$0		\$0.00	
17 Site Paving, Structures & Landscaping	\$0		\$0.00	
18 Utilities on Site	\$0		\$0.00	
Subtotal		<b>\$27,771,548</b>		\$462.86
General Conditions	7.00%	<b>\$1,944,008</b>		\$32.40
Subtotal		<b>\$29,715,557</b>		\$495.26
General Requirements	3.00%	<b>\$833,146</b>		\$13.89
Subtotal		<b>\$30,548,703</b>		\$509.15
Bonds	1.00%	<b>\$277,715</b>		\$4.63
Subtotal		<b>\$30,826,419</b>		\$513.77
Liability Insurance	1.00%	<b>\$277,715</b>		\$4.63
Subtotal		<b>\$31,104,134</b>		\$518.40
General Contractor Fee	4.50%	<b>\$1,399,686</b>		\$23.33
Subtotal		<b>\$32,503,820</b>		\$541.73
Design / Estimating Contingency	10.00%	<b>\$3,250,382</b>		\$54.17
Subtotal		<b>\$35,754,202</b>		\$595.90
Escalation	11.20%	<b>\$4,005,598</b>		\$66.76
<b>TOTAL ESTIMATED CONSTRUCTION COST</b>		<b>\$39,759,801</b>		<b>\$662.66</b>

Total Area: 60,000 SF

## Student Success Center Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
<b><u>1 Foundations</u></b>				
Excavation				
Over excavation and re-compaction to a level not exceeding 5' in depth and 5' out from the perimeter of the building	4,352	CY	\$40.00	\$174,074
Reinforced concrete including excavations				
Reinforced concrete conventional shallow footings and restrained isolated spread foundations	60,000	SF	\$6.00	\$360,000
Elevator pits	2	EA	\$18,000.00	\$36,000
				<b><u>\$570,074</u></b>
<b><u>2 Vertical Structure</u></b>				
Columns and pilasters				
Structural steel columns (4lbs/SF)	120	T	\$4,725.00	\$567,000
Shear bracing				
Structural steel tube cross bracing (3lbs/SF)	90	T	\$4,935.00	\$444,150
Miscellaneous				
Fireproofing steelwork	210	T	\$340.00	\$71,400
				<b><u>\$1,082,550</u></b>
<b><u>3 Floor &amp; Roof Structures</u></b>				
Floor at lowest level				
Reinforced concrete slab on grade, 5" thick concrete with #4 reinforcement bars including a layer of 6" free draining 3/4" crushed rock with a 15 mil vapor barrier sandwiched between two layers of 2" thick sand	20,000	SF	\$12.00	\$240,000
Suspended floors				
Structural steel framing (5lbs/SF)	150	T	\$4,725.00	\$708,750
Metal deck 3"	40,000	SF	\$10.00	\$400,000
Concrete fill, 3" thick	40,000	SF	\$8.00	\$320,000
Mesh reinforcement (0.5lbs/SF)	20,000	LB	1.90	\$38,000
Finish and cure	40,000	SF	\$2.00	\$80,000

## Student Success Center Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
Allowance for forming stepped flooring and ramps at lecture halls comprising light gauge framing, etc.	18,450	SF	\$18.00	\$332,100
<b>Roof/terrace</b>				
Structural steel framing (4lbs/SF)	120	T	\$4,725.00	\$567,000
Metal deck 3"	21,600	SF	\$10.00	\$216,000
Concrete fill, 3" thick	21,600	SF	\$8.00	\$172,800
Mesh reinforcement (0.5lbs/SF)	10,800	LB	1.90	\$20,520
Finish and cure	21,600	SF	\$2.00	\$43,200
<b>Miscellaneous</b>				
Fireproofing steelwork	270	T	\$340.00	\$91,800
Miscellaneous metals - embeds and supports at openings, elevators, stairs, rails, slab edge, davits, skin embeds, etc.	60,000	SF	\$2.50	\$150,000
Allowance for miscellaneous equipment pads, curbs and rough carpentry	60,000	SF	\$1.00	\$60,000
				<b><u>\$3,440,170</u></b>

### **4 Exterior Cladding**

<b>Wall framing furring and insulation</b>				
Metal stud framing	42,000	SF	\$10.00	\$420,000
Batt insulation	42,000	SF	\$1.30	\$54,600
Dens Glass Gold gypsum board lining, 5/8"	42,000	SF	\$6.00	\$252,000
<b>Applied exterior finish</b>				
Allowance for exterior façade finish, materials to comply with performance specifications	25,200	SF	\$45.00	\$1,134,000
<b>Interior finish to exterior walls</b>				
Gypsum board lining, 5/8" taped and sanded	42,000	SF	\$6.50	\$273,000
Paint gypsum board surfaces	42,000	SF	\$1.00	\$42,000
<b>Windows, glazing and louvers</b>				
Aluminum glazed curtain wall system	6,720	SF	\$135.00	\$907,200
Aluminum glazed window system	10,080	SF	\$110.00	\$1,108,800
Exterior doors, hardware and frames	60,000	SF	\$1.50	\$90,000

## Student Success Center Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
Fascia's, bands, screens and trim				
Architectural fascia and trims	60,000	SF	\$3.00	\$180,000
Exterior sunscreens to selected elevations at windows	600	SF	\$250.00	\$150,000
Soffits				
Cement plaster finish at outdoor seating and terrace areas	3,200	SF	\$35.00	\$112,000
Balustrades, parapets and roof screens				
	60,000	SF	\$2.00	\$120,000
				<b><u>\$4,843,600</u></b>

### **5 Roofing and Waterproofing**

Waterproofing to slabs				
Waterproofing to elevator pits	2	EA	\$8,000.00	\$16,000
Insulation				
Tapered rigid roof insulation, 1" over vapor barrier	20,000	SF	\$7.50	\$150,000
Roof				
PVC single ply membrane roofing	20,000	SF	\$14.00	\$280,000
Roof or deck traffic surfaces				
Terrace paving	1,600	SF	\$55.00	\$88,000
Allowance for walkway pads	1	LS	\$5,000.00	\$5,000
Roofing upstands and sheetmetal				
Reglet, counterflashing and coping	21,600	SF	\$4.00	\$86,400
Miscellaneous				
Allowance for seismic joints	1	LS	\$40,000.00	\$40,000
Miscellaneous caulking and sealants	60,000	SF	\$1.50	\$90,000
				<b><u>\$755,400</u></b>

## Student Success Center Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
<b><u>6 Interior Partitions, Doors and Glazing</u></b>				
Partition framing and cores				
Metal stud framing	67,200	SF	\$8.00	\$537,600
Partition surfacing				
Gypsum board taped and sanded, 5/8"	134,400	SF	\$6.00	\$806,400
Gypsum underlayment	26,880	SF	\$5.00	\$134,400
Gypsum board shaft wall liner, 1"	6,000	SF	\$6.80	\$40,800
Paint gypsum surfaces	134,400	SF	\$1.00	\$134,400
Insulation				
Batt insulation	67,200	SF	\$1.30	\$87,360
Interior shaped walls, low height partitions, etc.				
Premium for shaping walls to shown profiles, additional insulation and drywall to comply with acoustic requirements, etc.	18,450	SF	\$15.00	\$276,750
Interior glazing (Assume 14% of interior partition area)	9,408	SF	\$85.00	\$799,680
Interior door, frames and hardware				
Hollow metal, glass or solid core wood either single (typical size 3' x 7') or double leaf (typical size 6' x 7').	84	EA	\$2,700.00	\$226,800
Premium for acoustic rated doors, specialty hardware and other non typical requirements	1	LS	\$123,000.00	\$123,000
Interior balustrade	1	LS	\$120,000.00	\$120,000
				<b><u>\$3,287,190</u></b>

## Student Success Center Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
<b><u>7 Floor, Wall and Ceiling Finishes</u></b>				
Floors	60,000	SF	\$7.32	\$438,910
Carpet Tile				
Terrazzo				
Resilient Flooring				
Polished Concrete				
Ceramic Tile				
Bases	60,000	SF	\$2.00	\$120,000
Rubber				
Wood				
Ceramic Tile				
Walls and acoustics panels	60,000	SF	\$16.46	\$987,485
Ceramic tile				
Acoustic panels				
Wood paneling				
Column furring and finish, soffits, etc.	60,000	SF	\$4.00	\$240,000
Ceiling	60,000	SF	\$16.41	\$984,433
ACT				
ACT premium				
Acoustic finish				
Gypsum board				
Wood paneling				
				<b><u>\$2,770,828</u></b>



## Student Success Center Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
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### **8 Function Equipment and Specialties**

Includes casework, window roller shades, fixed seating, fixed desks, writeable surfaces, sliding markerboards, toilet accessories and partitions, operable partitions, signage, lockers, etc. Refer to room data sheets.

#### Student Affairs

Lobby, prefunction, multi-purpose, group meeting rooms, group study rooms and open study

9,100 SF \$55.11 \$501,500

#### General Classrooms

Large classroom, small lecture hall, medium lecture hall, large lecture hall, testing center/computer lab, group break out study spaces, prefunction spaces and prep rooms

26,900 SF \$41.20 \$1,108,200

#### Auxiliary Services

Dining vendor and seating

3,000 SF \$2.00 \$6,000

#### Support spaces

Lobby, restrooms, nursing / mother room, building housekeeping, trash and recycle room

1,150 SF \$86.61 \$99,600

General building spaces, circulation, IDF closets, etc.

19,850 SF \$5.00 \$99,250

**\$1,814,550**

### **9 Stairs and Vertical Transportation**

#### Stairs

Fire escape flights, 3 sets with one going to roof

8 FLT \$25,000.00 \$200,000

Feature stair as second and third floors only

2 FLT \$60,000.00 \$120,000

#### Elevators

Elevator, 3 stops

2 EA \$145,000.00 \$290,000

**\$610,000**

**Student Success Center Construction Component Detail**

Element	Quantity	Unit	Unit Cost	Total
<b><u>10 Plumbing Systems</u></b>				
Plumbing Equipment-- Allowance	60,000	SF	\$0.85	\$51,000
Allowance for grease interceptor with sample box	1	LS	\$8,000.00	\$8,000
Plumbing Fixtures-- Allowance	60,000	SF	\$2.50	\$150,000
Water Services				
Allowance for Domestic Water Pipework, includes hangers, insulation, valves and accessories	60,000	SF	\$3.50	\$210,000
Allowance for air to water heat pumps for domestic water, circulation pumps, tanks, etc.	60,000	SF	\$1.00	\$60,000
Domestic Water Chlorination	60,000	SF	\$0.15	\$9,000
Sanitary and Vent				
Allowance for SWV Pipe work--(CINH) with standard flexible band couplings); Includes fittings, hangers	60,000	SF	\$2.70	\$162,000
Allowance for condensate drainage; Includes fittings, hangers	60,000	SF	\$0.75	\$45,000
Rainwater leaders/Storm Pipework	60,000	SF	\$1.85	\$111,000
Miscellaneous Plumbing				
Plumbing general requirements, documentation, commissioning and supervision	60,000	SF	\$1.50	\$90,000
Testing	60,000	SF	\$0.50	\$30,000
Permits	60,000	SF	\$1.05	\$63,000
				<b><u>\$989,000</u></b>

## Student Success Center Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
<b><u>11 Heating, Ventilation and Air Conditioning</u></b>				
General				
HVAC Site Supervision	60,000	SF	\$0.85	\$51,000
HVAC Permit, As Built and O&Ms--Allowance	60,000	SF	\$0.50	\$30,000
HVAC BIM/AutoCAD/Revit	60,000	SF	\$1.00	\$60,000
Heating Generating Systems				
Allowance for heat transfer equipment for campus loop services supp	60,000	SF	\$2.05	\$123,000
Allowance for redundant equipment	60,000	SF	\$0.50	\$30,000
HVAC HHW Pipework, includes hangers, fittings and insulation-- Allowance	60,000	SF	\$4.50	\$270,000
HVAC HHW Pipework, premium for made in America	60,000	SF	\$0.68	\$40,800
HVAC HHW Piping Distribution, Central Plant Valves, Distribution Isolation Valves, Insulation and Specialties	60,000	SF	\$0.50	\$30,000
Radiant heating allowance for common areas	300	LF	\$190.00	\$57,000
Radiant flooring includes heat exchanger, pump, manifolds and	10,000	SF	\$10.50	\$105,000
Cooling Generating Systems				
HVAC CHW Pipework, includes hangers, fittings and insulation-- Allowance	60,000	SF	\$4.20	\$252,000
HVAC CHW Pipework, premium for made in America	60,000	SF	\$0.68	\$40,800
HVAC CHW Piping Distribution isolation valves and specialties	60,000	SF	\$0.52	\$31,200
Terminal Package Units				
Allowance for HVAC Equipment (Assumes 1.5cfm/sf)--100% DOAS with Merv. 8 and enthalpy heat wheels	90,000	CFM	\$8.55	\$769,500
Allowance for macro ceiling fans in common areas	4	EA	\$5,000.00	\$20,000
Allowance for small ceiling fans in classrooms	12	EA	\$1,500.00	\$18,000
HVAC Equipment--Split system air conditioner with remote condenser and refrigerant line set	2	EA	\$6,870.00	\$13,740
Zone terminal unit with coil set	60	EA	\$1,500.00	\$90,000
Ductwork - Distribution				
Allowance for HVAC Distribution	60,000	SF	\$9.55	\$573,000
Allowance for distribution dampers, grills and diffusers	60,000	SF	\$1.50	\$90,000
Exhaust Fans				
Exhaust fans/ductwork/grilles/flues--allowance	60,000	SF	\$0.80	\$48,000
Allowance for sub metering	1	LS	\$6,000.00	\$6,000

## Student Success Center Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
Vibration Isolation				
Allowance for vibration isolation of piping and equipment	60,000	SF	\$0.65	\$39,000
Controls				
DDC Controls - Sole source (Computrol)	600	EA	\$850.00	\$510,000
Balance/Test/Commission				
Balancing Testing and Commissioning-- Includes coordination with the subcontractor	60,000	SF	\$0.65	\$39,000
Miscellaneous				
1 to 5 HP - VFD	6	EA	\$2,500.00	\$15,000
7.5 HP VFD	2	EA	\$3,000.00	\$6,000
15 HP - VFD	2	EA	\$4,200.00	\$8,400
HVAC Equipment Rigging and Hoisting (Per day of pick)	4	EA	\$6,200.00	\$24,800
				<b><u>\$3,391,240</u></b>

### **12 Electrical Lighting, Power and Communications**

Electrical Power				
Electrical Panels, Switchboards, ATS, Transformers, etc.	60,000	SF	\$3.50	\$210,000
Distribution feeder conduit and wiring	60,000	SF	\$3.50	\$210,000
Mechanical connections - Fans, pumps, motors, heaters etc.	60,000	SF	\$1.55	\$93,000
Outlets and other low voltage devices	60,000	SF	\$2.50	\$150,000
Conduit and wire to outlets and low voltage devices	60,000	SF	\$1.50	\$90,000
Central battery inverter for emergency power	60,000	SF	\$0.65	\$39,000
Grounding	60,000	SF	\$0.25	\$15,000
Misc. Testing/Permits/Comm--allowance	60,000	SF	\$1.85	\$111,000
Lighting and Controls				
Temporary Lighting	60,000	SF	\$0.85	\$51,000
Lighting controls--Allowance for all areas	60,000	SF	\$3.50	\$210,000
Conduit and wire to light fixtures and controls--Allowance	60,000	SF	\$5.00	\$300,000
LED Light fixtures	60,000	SF	\$16.00	\$960,000

### Student Success Center Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
Low Voltage				
Public Address, Intercom and clock systems with IP addressable	60,000	SF	\$2.64	\$158,147
Telecommunications, fully functioning SCS system	60,000	SF	\$5.00	\$300,000
Telephone/data; MDF and IDF Rooms system backbone--allowance	3	EA	\$18,000.00	\$54,000
Grounding and bonding - equipment, IT racks, cabinets, cable tray	60,000	SF	\$0.15	\$9,000
Security system - Includes CCTV, Digital Video Management system, duress alarm and Access Control	60,000	SF	\$3.00	\$180,000
Distributed antenna system - allowance	60,000	SF	\$1.25	\$75,000
Fire alarm system	60,000	SF	\$3.00	\$180,000
Audiovisual system (complete) as indicated on the project drawings	Included in Separate AV Section of Report			
PA System--Audio Reinforcement--Allowance	1	LS	\$34,000.00	\$34,000
Miscellaneous				
Photovoltaic system	100,000	Wts	\$3.95	\$395,000
Commissioning assistance	1	LS	\$25,000.00	\$25,000
Fire seal and core drill	1	LS	\$15,000.00	\$15,000
				<b><u>\$3,864,147</u></b>
<b><u>13 Fire Protection Systems</u></b>				
Automatic wet sprinkler system				
Allowance for Fire Suppression Systems including heads, pipework and specialties	60,000	SF	\$5.10	\$306,000
Fire suppression contractor--supervision, drawings and design build--	60,000	SF	\$0.70	\$42,000
FP Specialties--RPBP 4" Based on Febco LF860 OSY, with two support stands and certification	1	EA	\$3,000.00	\$3,000
FP Specialties--FDC and Test Header--allowance	1	LS	\$1,800.00	\$1,800
				<b><u>\$352,800</u></b>

## **Audio Visual System (Complete Install)**

### Audio Visual System Detail Elements

Element	Quantity	Unit	Unit Cost	Total
<b><u>Complete Ausio Visual System</u></b>				
AV System as per Performance Specifcaiton	60,000	GSF	\$12.00	\$720,000
Markups				
General Conditions	7.00	%	\$720,000.00	\$50,400
General Requirements	3.00	%	\$720,000.00	\$21,600
Contractor's Bonds	1.00	%	\$792,000.00	\$7,920
General Liability Insurance	1.00	%	\$792,000.00	\$7,920
Contractor's Overhead & Profit	4.50	%	\$807,840.00	\$36,353
Design Contingency	10.00	%	\$844,192.80	\$84,419
Escalation	11.20	%	\$928,612.08	\$104,034
				<b><u>\$1,032,646</u></b>

## **Building Site and Infrastructure Work**



### Site and Infrastructure Work Construction Cost Summary

Element	Subtotal	Total	Cost / SF	Cost / SF
<b>F) Site Work (16-18)</b>		<b>\$1,786,987</b>		<b>\$34.10</b>
16 Site Preparation and Demolition	\$288,500		\$5.51	
17 Site Paving, Structures and Landscaping	\$969,200		\$18.50	
18 Utilities on Site	\$529,287		\$10.10	
Subtotal		<b>\$1,786,987</b>		<b>\$34.10</b>
General Conditions	7.00%	<b>\$125,089</b>		<b>\$2.39</b>
Subtotal		<b>\$1,912,076</b>		<b>\$36.49</b>
General Requirements	3.00%	<b>\$53,610</b>		<b>\$1.02</b>
Subtotal		<b>\$1,965,686</b>		<b>\$37.51</b>
Bonds	1.00%	<b>\$17,870</b>		<b>\$0.34</b>
Subtotal		<b>\$1,983,556</b>		<b>\$37.85</b>
Liability Insurance	1.00%	<b>\$17,870</b>		<b>\$0.34</b>
Subtotal		<b>\$2,001,425</b>		<b>\$38.20</b>
General Contractor Fee	4.50%	<b>\$90,064</b>		<b>\$1.72</b>
Subtotal		<b>\$2,091,490</b>		<b>\$39.91</b>
Design / Estimating Contingency	10.00%	<b>\$209,149</b>		<b>\$3.99</b>
Subtotal		<b>\$2,300,639</b>		<b>\$43.91</b>
Escalation	11.20%	<b>\$257,744</b>		<b>\$4.92</b>
<b>TOTAL ESTIMATED CONSTRUCTION COST</b>		<b><u>\$2,558,383</u></b>		<b><u>\$48.82</u></b>

Total Area:           52,400 SF  
 Finished Area       32,400 SF

## Site and Infrastructure Work Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
<b><u>16 Site Preparation and Demolition</u></b>				
Site protective construction				
Protect and maintain existing trees	1	LS	\$50,000.00	\$50,000
Site clearing and grading				
Strip and remove landscape	52,400	SF	\$1.50	\$78,600
Clear existing trees	14	EA	\$3,000.00	\$42,000
General site clearing including below grade utility removal	52,400	SF	\$1.25	\$65,500
Grading as required, rough and fine	52,400	SF	\$1.00	\$52,400
				<b><u>\$288,500</u></b>
<b><u>17 Site Paving, Structures and Landscaping</u></b>				
Vehicular paving				
Service, vehicular and emergency access paving, combination of rigid and flexible paving	12,000	SF	\$15.00	\$180,000
Pedestrian paving				
Paving for entry plaza, outdoor waiting and transitions areas	16,400	SF	\$16.00	\$262,400
Site structures				
Built in seat walls, seat steps, bar top/laptop ledge, planters, steps, etc.	1	LS	\$328,000.00	\$328,000
Landscape				
Topsoil, fertilizer and grading	4,000	SF	\$0.50	\$2,000
Shrubs and groundcover	4,000	SF	\$10.00	\$40,000
Trees including grates, etc.	8	EA	\$10,000.00	\$80,000
Identification, Regulatory and informational signage	32,400	SF	\$1.00	\$32,400
Irrigation and maintenance	4,000	SF	\$3.00	\$12,000
Miscellaneous accessories	32,400	SF	\$1.00	\$32,400
				<b><u>\$969,200</u></b>

## Site and Infrastructure Work Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
<b><u>18 Utilities on Site</u></b>				
Electric Power				
12.47 kV power supply --Allowance for connection to campus SF6 sectionalizing switch	1	LS	\$18,000.00	\$18,000
2x5" Power conduit and wiring in 3" encased colored concrete--including excavation and backfill	200	LF	\$188.00	\$37,600
Allowance for moving existing feeders as and where necessary	1	LS	\$65,000.00	\$65,000
Site Lighting				
Site Lighting-12ft Pole Mt. LED, Double Luminaires: Includes installation and conductors to handhole	4	EA	\$2,600.00	\$10,400
Pathway, step and spot lighting--allowance	12	EA	\$800.00	\$9,600
Site Lighting-Signage	2	EA	\$600.00	\$1,200
Site Lighting, Building Mtd Downlight--allowance	8	EA	\$480.00	\$3,840
Lighting Conduit and Wire, including excavation and backfill	2,400	LF	\$13.00	\$31,200
Telecommunications				
4x4" Telecom conduit and wiring including excavation and backfill	400	LF	\$100.10	\$40,040
2x4" Telecom conduit and wiring including excavation and backfill	200	LF	\$56.10	\$11,220
Storm				
Allowance for undesigned storm drains and stormwater management including storm water cleansing and detention	1	LS	\$120,000.00	\$120,000
Stormwater quality manhole-- includes base, knock-outs, 48" sections (2) w/ ladder rungs, eccentric cone and grade ring to cast iron top and cover.	1	EA	\$10,500.00	\$10,500
Sanitary				
8" Sanitary Sewer pipework, includes fittings--UG, With excavation and backfill	600	LF	\$58.00	\$34,800
Sanitary Tie-in to (E) SSMH in street	1	EA	\$5,800.00	\$5,800
Sanitary sewer manhole on site, standard depth	1	EA	\$4,800.00	\$4,800
Clean-out for SS or SD	1	EA	\$680.00	\$680
Sanitary Sewer--Tie-in to main	1	EA	\$3,600.00	\$3,600

## Site and Infrastructure Work Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
<b>Fire</b>				
8" PVC SDR 26 Fire Water Line including excavation and backfill	400	LF	\$67.40	\$26,960
4" DCVA-(1EA) -in vault [Used Watts LF709-OSY] includes installation	1	EA	\$6,800.00	\$6,800
Fire Hydrant	2	EA	\$3,020.00	\$6,040
4" Post Indicator Valve	2	EA	\$1,452.00	\$2,904
FDC	1	EA	\$1,800.00	\$1,800
<b>Water</b>				
Domestic water service tie-in and service to building	1	EA	\$20,000.00	\$20,000
Tie irrigation service piping into (E) reclaimed water	1	EA	\$3,200.00	\$3,200
6" Water Meter-(1EA) -in vault [Used Meinecke 828], includes	1	EA	\$6,703.00	\$6,703
2" RPBP--Irrigation system, [Used Wilkins 975XL2], includes	1	EA	\$680.00	\$680
<b>HVAC</b>				
4"-6" Ricwil pre-insulated piping in trench, includes fittings, fitting covers, excavation and backfill	400	LF	\$88.00	\$35,200
Campus hydronic loop isolation valves- allowance	4	EA	\$680.00	\$2,720
Campus hydronic loop valve vault- allowance	1	EA	\$8,000.00	\$8,000
				<b><u>\$529,287</u></b>

# **Enhancements**

## Enhancements Construction Cost Summary

Element	Total
<b>Enhancements</b>	
Enhancement 1: Enhanced Open Areas and Additional Study Seats	<b>\$71,712</b>
Enhancement 2: Additional Classroom Seats	<b>\$25,816</b>
Enhancement 3: Site Enhancement Area 2B: Student Service Court	<b>\$107,567</b>
Enhancement 4: Site Enhancement Area 2A: Athletics / Dance Court	<b>\$362,253</b>
Enhancement 5: Additional Power Outlets in Lecture Hall	<b>\$167,160</b>
Enhancement 6: Additional Room Entrances at Lecture Halls and Classrooms	<b>\$200,792</b>
Enhancement 7: Indoor / Outdoor Connectivity at Multi-Purpose rooms	<b>\$100,396</b>

### Enhancements Detail Elements

Element	Quantity	Unit	Unit Cost	Total
<b><u>Enhancement 1: Enhanced Open Areas and Additional Study Seats</u></b>				
Allowance	1	LS	\$50,000.00	\$50,000
Markups				
General Conditions	7.00	%	\$50,000.00	\$3,500
General Requirements	3.00	%	\$50,000.00	\$1,500
Contractor's Bonds	1.00	%	\$55,000.00	\$550
General Liability Insurance	1.00	%	\$55,000.00	\$550
Contractor's Overhead & Profit	4.50	%	\$56,100.00	\$2,525
Design Contingency	10.00	%	\$58,624.50	\$5,862
Escalation	11.20	%	\$64,486.95	\$7,225
				<b><u>\$71,712</u></b>

### **Enhancement 2: Additional Classroom Seats**

Seating				
Fixed seating at lecture halls	30	EA	\$600.00	\$18,000
Markups				
General Conditions	7.00	%	\$18,000.00	\$1,260
General Requirements	3.00	%	\$18,000.00	\$540
Contractor's Bonds	1.00	%	\$19,800.00	\$198
General Liability Insurance	1.00	%	\$19,800.00	\$198
Contractor's Overhead & Profit	4.50	%	\$20,196.00	\$909
Design Contingency	10.00	%	\$21,104.82	\$2,110
Escalation	11.20	%	\$23,215.30	\$2,601
				<b><u>\$25,816</u></b>

**Enhancements Detail Elements**

Element	Quantity	Unit	Unit Cost	Total
<b><u>Enhancement 3: Site Enhancement Area 2B: Student Service Court</u></b>				
Site Preparation, development and utilities Allowance	3,000	SF	\$25.00	\$75,000
Markups				
General Conditions	7.00	%	\$75,000.00	\$5,250
General Requirements	3.00	%	\$75,000.00	\$2,250
Contractor's Bonds	1.00	%	\$82,500.00	\$825
General Liability Insurance	1.00	%	\$82,500.00	\$825
Contractor's Overhead & Profit	4.50	%	\$84,150.00	\$3,787
Design Contingency	10.00	%	\$87,936.75	\$8,794
Escalation	11.20	%	\$96,730.43	\$10,837
				<b><u>\$107,567</u></b>

**Enhancement 4: Site Enhancement Area 2A: Athletics / Dance Court**

Site Preparation, development and utilities Allowance (Includes shade canopy)	4,600	SF	\$45.00	\$207,000
Markups				
General Conditions	7.00	%	\$207,000.00	\$14,490
General Requirements	3.00	%	\$207,000.00	\$6,210
Contractor's Bonds	1.00	%	\$442,834.57	\$4,428
General Liability Insurance	1.00	%	\$442,834.57	\$4,428
Contractor's Overhead & Profit	4.50	%	\$451,691.26	\$20,326
Design Contingency	10.00	%	\$472,017.37	\$47,202
Escalation	11.20	%	\$519,219.10	\$58,169
				<b><u>\$362,253</u></b>



### Enhancements Detail Elements

Element	Quantity	Unit	Unit Cost	Total
<b><u>Enhancement 5: Additional Power Outlets in Lecture Hall</u></b>				
Electrical				
Power outlets to seats in large lecture hall (excludes the 50% of	1	LS	\$116,550.00	\$116,550
Markups				
General Conditions	7.00	%	\$116,550.00	\$8,159
General Requirements	3.00	%	\$116,550.00	\$3,497
Contractor's Bonds	1.00	%	\$128,205.00	\$1,282
General Liability Insurance	1.00	%	\$128,205.00	\$1,282
Contractor's Overhead & Profit	4.50	%	\$130,769.10	\$5,885
Design Contingency	10.00	%	\$136,653.71	\$13,665
Escalation	11.20	%	\$150,319.08	\$16,840
				<b><u>\$167,160</u></b>

### **Enhancement 6: Additional Room Entrances at Lecture Halls and Classrooms**

Additional room entrances to lecture halls and classrooms	1	LS	\$140,000.00	\$140,000
Markups				
General Conditions	7.00	%	\$140,000.00	\$9,800
General Requirements	3.00	%	\$140,000.00	\$4,200
Contractor's Bonds	1.00	%	\$154,000.00	\$1,540
General Liability Insurance	1.00	%	\$154,000.00	\$1,540
Contractor's Overhead & Profit	4.50	%	\$157,080.00	\$7,069
Design Contingency	10.00	%	\$164,148.60	\$16,415
Escalation	11.20	%	\$180,563.46	\$20,229
				<b><u>\$200,792</u></b>

**Enhancements Detail Elements**

Element	Quantity	Unit	Unit Cost	Total
<b><u>Enhancement 7: Indoor / Outdoor Connectivity at Multi-Purpose rooms</u></b>				
Allowance for additional exterior doors/operable doors	1	LS	\$70,000.00	\$70,000
Markups				
General Conditions	7.00	%	\$70,000.00	\$4,900
General Requirements	3.00	%	\$70,000.00	\$2,100
Contractor's Bonds	1.00	%	\$77,000.00	\$770
General Liability Insurance	1.00	%	\$77,000.00	\$770
Contractor's Overhead & Profit	4.50	%	\$78,540.00	\$3,534
Design Contingency	10.00	%	\$82,074.30	\$8,207
Escalation	11.20	%	\$90,281.73	\$10,114
				<b><u>\$100,396</u></b>

# **Alternates**

## Alternates Construction Cost Summary

Element	Total
<b>Design Alternates</b>	
Alternate 1: Increase Size of Combined Multi-Purpose Room	<b>\$398,308</b>
Alternate 2: Enhanced Group Meeting Rooms	<b>\$199,154</b>
Alternate 3: Elevator to Roof	<b>\$129,081</b>

**Alternates Detail Elements**

Element	Quantity	Unit	Unit Cost	Total
<b><u>Alternate 1: Increase Size of Combined Multi-Purpose Room</u></b>				
Increase size by 400 ASF	600	GSF	\$462.86	\$277,715
Markups				
General Conditions	7.00	%	\$277,715.48	\$19,440
General Requirements	3.00	%	\$277,715.48	\$8,331
Contractor's Bonds	1.00	%	\$305,487.03	\$3,055
General Liability Insurance	1.00	%	\$305,487.03	\$3,055
Contractor's Overhead & Profit	4.50	%	\$311,596.77	\$14,022
Design Contingency	10.00	%	\$325,618.63	\$32,562
Escalation	11.20	%	\$358,180.49	\$40,128
				<b><u>\$398,308</u></b>
<b><u>Alternate 2: Enhanced Group Meeting Rooms</u></b>				
Increase size by 200 ASF	300	GSF	\$462.86	\$138,858
Markups				
General Conditions	7.00	%	\$138,857.74	\$9,720
General Requirements	3.00	%	\$138,857.74	\$4,166
Contractor's Bonds	1.00	%	\$152,743.52	\$1,527
General Liability Insurance	1.00	%	\$152,743.52	\$1,527
Contractor's Overhead & Profit	4.50	%	\$155,798.39	\$7,011
Design Contingency	10.00	%	\$162,809.31	\$16,281
Escalation	11.20	%	\$179,090.24	\$20,064
				<b><u>\$199,154</u></b>
<b><u>Alternate 3: Elevator to Roof</u></b>				
Additional stop and door to exterior roof area, etc.	1	LS	\$90,000.00	\$90,000
Markups				
General Conditions	7.00	%	\$90,000.00	\$6,300
General Requirements	3.00	%	\$90,000.00	\$2,700
Contractor's Bonds	1.00	%	\$99,000.00	\$990
General Liability Insurance	1.00	%	\$99,000.00	\$990
Contractor's Overhead & Profit	4.50	%	\$100,980.00	\$4,544
Design Contingency	10.00	%	\$105,524.10	\$10,552
Escalation	11.20	%	\$116,076.51	\$13,004
				<b><u>\$129,081</u></b>

**EXPECTED DESIGN BUILD COSTS**  
**UCR STUDENT SUCCESS CENTER**

AREA SUMMARY		
GROSS SQUARE FEET		60,000 S. F.
ASSIGNABLE SQUARE FEET		39,000 S. F.
DESCRIPTION	AMOUNT	SF COST
<b><u>STRUCTURAL FRAME</u></b>		
DEWATERING	\$21,398	\$0.36
EARTHWORK - BULK	\$468,876	\$7.81
CONCRETE WORK	\$1,872,000	\$31.20
REINFORCED STEEL	\$921,000	\$15.35
STRUCTURAL STEEL	\$2,660,400	\$44.34
METAL DECKING	\$101,029	\$1.68
MASONRY - STRUCTURAL	\$115,354	\$1.92
TOWER CRANE	\$547,498	\$9.12
<b>SUBTOTAL STRUCTURAL</b>	<b>\$6,707,555</b>	
	<b>S. F. COST</b>	<b>\$111.79</b>
<b><u>EXTERIOR SKIN</u></b>		
ALUMINUM CURTAIN WALL	\$1,347,445	\$22.46
STOREFRONT & ENTRY DOORS	\$230,071	\$3.83
SKYLIGHT SYSTEMS	\$130,956	\$2.18
PLASTER - EXTERIOR	\$524,262	\$8.74
METAL PANELS / LOUVERS	\$672,833	\$11.21
THERMAL INSULATION	\$68,364	\$1.14
FIRE SAFING	\$6,093	\$0.10
EXTERIOR PAINTING	\$28,638	\$0.48
EXTERIOR CAULKING	\$9,000	\$0.15
<b>SUBTOTAL EXTERIOR SKIN</b>	<b>\$3,017,663</b>	
	<b>S. F. COST</b>	<b>\$50.29</b>
<b><u>OTHER SHELL ITEMS</u></b>		
MISCELLANEOUS METALS	\$588,135	\$9.80
WATERPROOFING	\$507,389	\$8.46
ROOFING	\$423,000	\$7.05
SHEET METAL	\$270,000	\$4.50
TERRACE SURFACES / TRAFFIC COATINGS	\$171,580	\$2.86
PRECAST TREADS & LANDINGS	\$17,857	\$0.30
<b>SUBTOTAL OTHER SHELL ITEMS</b>	<b>\$1,977,961</b>	
	<b>S. F. COST</b>	<b>\$32.97</b>
<b><u>CARPENTRY / DOORS / HARDWARE</u></b>		
CARPENTRY - ROUGH INTERIOR	\$43,387	\$0.72
DOORS & FRAMES	\$308,471	\$5.14
MILLWORK & CASEWORK	\$501,509	\$8.36
INTERIOR CAULKING	\$6,000	\$0.10
<b>SUBTOTAL CARP/ DOORS / HARDWARE</b>	<b>\$859,367</b>	
	<b>S. F. COST</b>	<b>\$14.32</b>
<b><u>CEILINGS &amp; WALLS - INTERIOR</u></b>		
ACOUSTICAL CEILINGS / WALLS	\$480,654	\$8.01
DRYWALL / FRAMING	\$4,097,400	\$68.29
INT. STOREFRONT & WINDOWS	\$25,123	\$0.42
<b>SUBTOTAL CEILING &amp; WALLS - INTERIOR</b>	<b>\$4,603,177</b>	
	<b>S. F. COST</b>	<b>\$76.72</b>
<b><u>FINISHES - INTERIOR</u></b>		
CERAMIC TILE - FLOORS & WALLS	\$166,800	\$2.78
FLOORS - CARPET	\$253,800	\$4.23
FLOORS & BASE - RESILIENT	\$195,000	\$3.25
FLOORS - WOOD	\$79,200	\$1.32

**UCR STUDENT SUCCESS CENTER**

<b>AREA SUMMARY</b>			
GROSS SQUARE FEET		60,000 S. F.	
ASSIGNABLE SQUARE FEET		39,000 S. F.	
<b>DESCRIPTION</b>	<b>AMOUNT</b>	<b>SF COST</b>	
FLOORS - CONCRETE SEALER	\$67,756	\$1.13	
FLOORS - SPECIAL	\$53,400	\$0.89	
WINDOW TREATMENT	\$147,000	\$2.45	
INTERIOR PAINTING	\$141,000	\$2.35	
TOILET ACCESSORIES	\$18,669	\$0.31	
TOILET PARTITIONS	\$34,843	\$0.58	
<b>SUBTOTAL FINISHES - INTERIOR</b>	<b>\$1,157,468</b>		
<b>S. F. COST</b>		<b>\$19.29</b>	
<b><u>VERTICAL TRANSPORTATION</u></b>			
ELEVATORS	\$420,000	\$7.00	
<b>SUBTOTAL VERTICAL TRANSPORTATION</b>	<b>\$420,000</b>		
<b>S. F. COST</b>		<b>\$7.00</b>	
<b><u>MECHANICAL &amp; ELECTRICAL</u></b>			
PLUMBING	\$3,600,000	\$60.00	
FIRE SPRINKLERS	\$1,200,000	\$20.00	
HVAC SYSTEM	\$4,500,000	\$75.00	
ELECTRICAL SYSTEM	\$5,700,000	\$95.00	
FIRE ALARM SYSTEM	\$600,000	\$10.00	
<b>SUBTOTAL MECHANICAL &amp; ELECTRICAL</b>	<b>\$15,600,000</b>		
<b>S. F. COST</b>		<b>\$260.00</b>	
<b><u>SPECIAL ITEMS</u></b>			
VISUAL DISPLAY BOARDS	\$95,341	\$1.59	
CLEANING - FINAL	\$38,920	\$0.65	
FIRE EXTING. & HOSE CABINETS	\$3,852	\$0.06	
MISCELLANEOUS SPECIALTIES	\$942	\$0.02	
THEATER & CLASSROOM EQUIPMENT	\$195,578	\$3.26	
WALL & CORNER GUARDS	\$0	\$0.24	
KITCHEN	\$14,400	\$0.24	
<b>SUBTOTAL SPECIAL ITEMS</b>	<b>\$363,431</b>		
<b>S. F. COST</b>		<b>\$6.06</b>	
<b><u>SITE IMPROVEMENTS</u></b>			
BIKE RACKS	\$9,800	\$0.98	
CONCRETE SITEWORK	\$77,695	\$7.77	
SITE DEMOLITION	\$56,200	\$5.62	
EROSION CONTROL	\$10,061	\$1.01	
FENCING	\$29,849	\$2.98	
SITE WET UTILITIES	\$48,569	\$4.86	
FLAGPOLES	\$593	\$0.06	
GRADING & MASS EXCAVATION	\$11,490	\$1.15	
LANDSCAPING & IRRIGATION	\$86,500	\$8.65	
MISC. SITE IMPROVEMENTS	\$5,508	\$0.55	
UNIT PAVERS	\$35,542	\$3.55	
ASPHALT PAVING	\$8,966	\$0.90	
SITE ELECTRICAL	\$54,542	\$5.45	
MASONRY / STONWORK - SITE	\$3,153	\$0.32	
MISCELLANEOUS METALS - SITE	\$18,776	\$1.88	
ROUGH CARPENTRY - SITE	\$10,455	\$1.05	
<b>SUBTOTAL SITE IMPROVEMENTS</b>	<b>\$467,699</b>		
<b>S. F. COST</b>		<b>\$46.77</b>	
<b>SUBTOTAL</b>	<b>\$35,174,323</b>	<b>\$586.24</b>	
GENERAL CONDITIONS	10.00%	\$3,517,432	\$58.62
A/E SERVICES	10.00%	\$3,517,432	\$58.62

**UCR STUDENT SUCCESS CENTER**

<b>AREA SUMMARY</b>			
GROSS SQUARE FEET		60,000 S. F.	
ASSIGNABLE SQUARE FEET		39,000 S. F.	
<b>DESCRIPTION</b>		<b>AMOUNT</b>	<b>SF COST</b>
<b>SUBTOTAL</b>		<b>\$42,209,187</b>	<b>\$703.49</b>
CONTINGENCY	10.00%	\$4,220,919	\$70.35
<b>SUBTOTAL</b>		<b>\$46,430,106</b>	<b>\$773.84</b>
BUSINESS TAX AND INSURANCE	1.80%	\$835,742	\$13.93
<b>SUBTOTAL</b>		<b>\$47,265,848</b>	<b>\$787.76</b>
CONTRACTOR'S FEE	3.00%	\$1,417,975	\$23.63
<b>TOTAL DESIGN-BUILD COSTS</b>		<b>\$48,685,643</b>	<b>\$811.43</b>