



SOLANO COMMUNITY COLLEGE DISTRICT

BIOTECHNOLOGY & SCIENCE BUILDING

REQUEST FOR PROPOSALS (RFP #15-012) | MAY 27, 2015

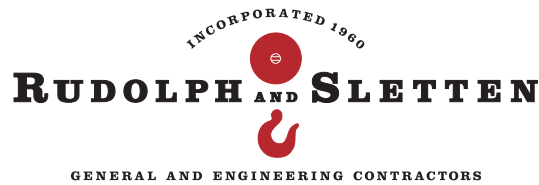


SMITHGROUPJJR

1504 EUREKA ROAD, SUITE 200 | ROSEVILLE, CA 95661-3058
P (916) 781-8001 / F (916) 781-8002

WWW.RSCONSTRUCTION.COM | GC LICENSE #198069

COVER LETTER



May 27, 2015

Ms. Laura Scott, Purchasing Department
Solano Community College District
4000 Suisun Valley Parkway, Building 600
Fairfield, CA 94534

**RE: Request for Proposal for Shortlisted Design/Build Entities
Biotechnology & Science Building (Project No. 15-012)**

Dear Ms. Scott,

Rudolph and Sletten (R&S) is very pleased to provide a completed Request for Proposal for the above referenced project. In short, we are excited about this project and the opportunity to design and build for Solano Community College District (SCCD). We've thoroughly enjoyed getting to understand your project better. We've found great value in our confidential meetings with your team. Along with our key DBE partner, SmithgroupJJR (SGJJR), we are very confident our team possesses the capabilities, enthusiasm and drive to make the Biotechnology & Science Building (BTSB) project a highly collaborative and rich project experience for all involved. The project will be met by our team with professionalism, camaraderie and the shared purpose of successfully completing it with vital and precious bond measure funds.

From the confidential meetings, we have gleaned what we believe is a superior enhancement, among others, in helping greatly improve the functionality of not only the new building but the existing building as well – with an improved new general chemistry classroom within the new building floor plan, and conversion of existing space into the general purpose classroom. We trust, as communicated during Confidential Meeting #2, that our team's gleaning of this need and the support of the concept will be looked upon very favorably.

The R&S | SGJJR team bring skill and experience from projects similar to BTSB forward to your project to ensure success – from preconstruction, to 100% CD ratification and DSA approvals, to an expeditious and smooth construction process, to the college's fall 2017 move-in.

We acknowledge receipt of Addendum 1 dated 4/14/15, Addendum 2 dated 5/8/15, and Addendum 3 dated 5/14/15. We look forward to the opportunity to discuss our vision of this project more with your team on June 2nd. The following individual is our RFP contact and is authorized to provide any clarification requested:

John Home, Senior Project Executive
(916) 788-7011 office | (916) 439-3775 cell
john_home@rsconst.com

If you require further information, please feel free to contact John, or myself directly at (916) 257-4435.

Sincerely,
Rudolph and Sletten, Inc.

Jon Foad
Senior Vice President

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COVER LETTER

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*Exhibit C has been provided in a
separate sealed envelope.*

TAB 11. Cost Breakdown (Exhibit D)

*Exhibit D has been provided in a
separate sealed envelope.*

1. PRICE

EXHIBIT A

DECLARATION

In submitting this Proposal, Design/Builder represents that Proposer has examined and completed the:

- Designated Subcontractors
- Design and Construction Management Plan
- Technical Proposal Forms
- Building Systems Descriptions
- Opportunities for Innovation
- Quality Enhancements
- Additional Criteria

In submitting this proposal, Design/Builder represents that Design/Builder has examined copies of all the Contract Documents and acknowledges receipt of the following addenda:

Addendum No.: <u>1</u> .	Date: <u>04/14/2015</u> .
Addendum No.: <u>2</u> .	Date: <u>05/08/2015</u> .
Addendum No.: <u>3</u> .	Date: <u>05/14/2015</u> .
Addendum No.: _____.	Date: _____.
Addendum No.: _____.	Date: _____.

Failure to acknowledge receipt of an addendum on the Proposal Form shall not in itself be cause for withdrawal or rejection of proposal, if it can be shown that Design/Builder did, in fact, receive such addendum prior to proposal opening.

Design/Builder acknowledges the Stipulated Sum set forth in the space provided below. Said price shall include cost of bonds, insurance, sales tax, and every other item of expense – direct or indirect – incidental to proposal price.

EXHIBIT A (Continued)

COMPLETE WORK:

1. Dollar amount of work performed by the General Contractor, Subconsultants and Designated Subcontractors:

\$ sixteen million five hundred thousand (\$16,500,000)
(Amount to be entered by Design Build Entity)

2. Dollar amount of work to be performed by Non-Designated Subcontractors (to be bid in accordance with the Requirements of the Design Build Agreement.)

\$ eight million five hundred thousand (\$8,500,000)
(Amount to be entered by Design Build Entity)

3. Total amount of work performed by the General Contractor, Subconsultants, Designated Subcontractors and Non-Designated Subcontractors:

\$ twenty-five million (\$25,000,000)
(Amount to be entered by Design Build Entity. Must equal Stipulated Sum below)

4. \$ Two Million Nine Hundred Thirty Thousand Dollars (\$2,930,000)
(Allowance for FF&E)

5. **Stipulated Sum**

Twenty Seven Million Nine Hundred Thirty Thousand Dollars (\$27,930,000)
(Amount established by Solano Community College District)

SIGN HERE:



Martin Sisemore

Signature of Proposer

DATE:

26/May/2015

President and CEO

Day/Month/Year

Title of Proposer

2. TECHNICAL EXPERTISE

2A. DESIGNATED SUBCONTRACTORS

EXHIBIT B

LIST OF DESIGNATED SUBCONTRACTORS

Listed hereinafter is the name and location of subcontractors who will be employed, and the kind of work which each will perform if the contract is awarded to the undersigned. (Note: In case more than one subcontractor is named for the same kind of work, state the portion that each will perform. Give Contractor's license number of each subcontractor. (Vendors, or suppliers of materials only need not be listed.)

I understand that all subcontractors designated to be listed with submittal of this Technical Proposal shall be afforded all of the protection contained in Chapter 4 (commencing with Section 4100) of Part 1 of Division 2 of the Public Contract Code. Subcontractors not required to be designated, under this RFP shall be competitively bid and awarded by the Design/Build entity in accordance with the following:

- A. Provide public notice of the availability of work to be subcontracted in accordance with the publication requirements applicable to the competitive bidding process of the Solano Community College District.
- B. Provide a fixed date and time on which the subcontracted work will be awarded in accordance with Section 10141 of the Public Contract Code.
- C. As authorized by the District, establish reasonable prequalification criteria and standards.
- D. Provide that the subcontracted work shall be awarded to the lowest responsible bidder.
- E. In a contract between the Design/Builder and the subcontractor, and in a contract between a subcontractor and any subcontractor thereunder, the percentage of the retention proceeds withheld may not exceed the percentage specified in the contract between the District and the Design/Builder.
- F. If the Design/Builder provides written notice to any subcontractor who is not a member of the Design/Build entity, prior to or at the time the bid is requested, that a bond may be required, and the subcontractor subsequently is unable or refuses to furnish a bond to the Design/Build entity, then the Design/Builder may withhold retention proceeds in excess of the percentage specified in the contract between the District and the Design/Build entity from any payment made by the Design/Build entity to the subcontractor.

Type of Work	Name and Location	License No.
Mechanical	<u>Peterson Mechanical</u>	<u>171486</u>
	<u>21819 8th Street East, Sonoma, CA 95476</u>	
Electrical	<u>Redwood Electric Group, Inc.</u>	<u>318433</u>
	<u>845 Cotting Court, Vacaville, California 95688</u>	
Structural	<u>Golden State Steel</u>	<u>383031</u>
	<u>2250 S. Golden State Blvd., Fowler, CA 93625</u>	
Plumbing	<u>Peterson Mechanical</u>	<u>171486</u>
	<u>21819 8th Street East, Sonoma, CA 95476</u>	

ED2 International
1426 Fillmore St, Suite 302
San Francisco, California 94115
Phone: (415) 474-1400

Biotechnology & Science Building
New Construction – Design/Build Contract
SCCD Project No. 15-012
SOLANO COMMUNITY COLLEGE DISTRICT

EXHIBIT B (Continued)

Grading & Sitework	<u>Beebe Diversified LP</u> <u>PO Box 276125, Sacramento, CA 95827</u>	<u>963263A</u>
	<u>PCI (Framing/Drywall/Plaster)</u>	
Other	<u>3030 Orange Grove Avenue, North Highlands, CA 95660</u>	<u>474795</u>
Other	<u>Not Applicable</u>	<u>Not Applicable</u>

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B. TECHNICAL EXPERTISE, Continued:

1.A - Trade: Structural (Steel or Concrete per system selected by DBE)

Name: Shollenbarger-Borello, Inc., dba GOLDEN STATE STEEL

License Number: CA 383031 Expiration Date: October 31, 2015

Address: 2250 S. Golden State Blvd., Fowler, CA 93625

Additional Information:
Golden State Steel is an ASIC Standard Building Certified Fabricator.

Project Experience:

List **three** of the most relevant projects completed within the last 5 years. For each project, submit the following information:

1. **Project Name:** UC Merced Science & Engineering Building II

Location: Merced, CA

Initial Contracted Amount: \$ 4,330,000

Final Contracted Amount: \$ 4,427,568

Contracted with Owner? Yes X No _____

Contracted with General Contractor? Yes _____ No X

Name of General Contractor: CM: McCarthy

Project Contact: Telephone: (916) 786-3833

Number of Projects completed with this General Contractor: 2

Delivery Method: Design/Build _____ Design/Bid/Build X Other: _____

Number of Licensed Professional Engineers on staff: None

B. TECHNICAL EXPERTISE, Continued:

1.A - Trade: Structural (Steel or Concrete per system selected by DBE)

2. **Project Name:** Fresno City College HOAB
Location: Fresno, CA
Initial Contracted Amount: \$ 1,235,000
Final Contracted Amount: \$ 1,288,115
Contracted with Owner? Yes _____ No X
Contracted with General Contractor? Yes X No _____
Name of General Contractor: Harris Construction Co, Inc.
Project Contact: Telephone: Brent Ridgeway (559) 251-0301
Number of Projects completed with this General Contractor: 50+
Delivery Method: Design/Build _____ Design/Bid/Build X Other: _____
Number of Licensed Professional Engineers on staff: None

3. **Project Name:** UC Davis Student Community Center
Location: Davis, CA
Initial Contracted Amount: \$ 699,670
Final Contracted Amount: \$ 752,361
Contracted with Owner? Yes _____ No X
Contracted with General Contractor? Yes X No _____
Name of General Contractor: Flintco
Project Contact: Telephone: (916) 757-1000
Number of Projects completed with this General Contractor: 3
Delivery Method: Design/Build X Design/Bid/Build _____ Other: _____
Number of Licensed Professional Engineers on staff: None

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B. TECHNICAL EXPERTISE, Continued:

1.B - Trade: Mechanical (HVAC) Peterson Mechanical

License Number: 171486 Expiration Date: June 30, 2016

Address: 21819 8th Street East, Sonoma, CA 95476

Additional Information:

Project Experience:

List **three** of the most relevant projects completed within the last 5 years. For each project, submit the following information:

1. **Project Name:** Building 600 Expansion and Modernization

Location: Solano Community College--Fairfield Campus

Initial Contracted Amount: \$ 749,000

Final Contracted Amount: \$ 751,000

Contracted with Owner? Yes _____ No X

Contracted with General Contractor? Yes X No _____

Name of General Contractor: DPR Construction

Project Contact: Telephone: Russ Lagrow (916) 870-1914

Number of Projects completed with this General Contractor: 5

Delivery Method: Design/Build X Design/Bid/Build _____ Other: _____

Number of Licensed Professional Engineers on staff: 2

B. TECHNICAL EXPERTISE, Continued:

1.B - Trade: Mechanical (HVAC)

2. **Project Name:** Agilent TMC Capacity Expansion
Location: Santa Rosa, CA
Initial Contracted Amount: \$ 3,200,000
Final Contracted Amount: \$ 3,200,000
Contracted with Owner? Yes X No _____
Contracted with General Contractor? Yes _____ No X
Name of General Contractor: Kirby Construction
Project Contact: Telephone: Agilent | Terry Lenhardt (707) 577-2368
Number of Projects completed with this General Contractor: 11
Delivery Method: Design/Build X Design/Bid/Build _____ Other: _____
Number of Licensed Professional Engineers on staff: 2

3. **Project Name:** College of Marin Math, Science & Nursing Building
Location: Kentfield Campus, Marin, CA
Initial Contracted Amount: \$ 2,995,500
Final Contracted Amount: \$ 3,085,000
Contracted with Owner? Yes _____ No X
Contracted with General Contractor? Yes X No _____
Name of General Contractor: Lathrop Construction
Project Contact: Telephone: Andy Dowdle (707) 224-6968
Number of Projects completed with this General Contractor: 4
Delivery Method: Design/Build _____ Design/Bid/Build X Other: _____
Number of Licensed Professional Engineers on staff: 2

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B. TECHNICAL EXPERTISE, Continued:

1.C - Trade: Electrical

Name: Redwood Electric Group, Inc.

License Number: 318433 Expiration Date: January 31, 2016

Address: 845 Cotting Court, Vacaville, CA 95688

Additional Information:

Project Experience:

List **three** of the most relevant projects completed within the last 5 years. For each project, submit the following information:

1. **Project Name:** UCSC Biomedical Sciences Facility

Location: 1156 High Street, Santa Cruz, CA 95064

Initial Contracted Amount: \$ 11,500,000

Final Contracted Amount: \$ 9,000,000

Contracted with Owner? Yes _____ No X

Contracted with General Contractor? Yes X No _____

Name of General Contractor: Devcon Construction

Project Contact: Telephone: Jim LaLanne (408) 942-8200

Number of Projects completed with this General Contractor: 200+

Delivery Method: Design/Build _____ Design/Bid/Build X Other: _____

Number of Licensed Professional Engineers on staff: Electrical (3)

B. TECHNICAL EXPERTISE, Continued:

1.C - Trade: Electrical

2. **Project Name:** Foothill College Physical Science and Engineering Center

Location: 12345 El Monte Road, Los Altos, CA 94022

Initial Contracted Amount: \$ 5,300,000

Final Contracted Amount: \$ 6,100,000

Contracted with Owner? Yes _____ No X

Contracted with General Contractor? Yes X No _____

Name of General Contractor: Hathaway Dinwiddie

Project Contact: Telephone: Michael Niemi (408) 988-4200

Number of Projects completed with this General Contractor: 10+

Delivery Method: Design/Build _____ Design/Bid/Build _____ Other: X

Number of Licensed Professional Engineers on staff: Electrical (3)

3. **Project Name:** Clorox Buildings A, B, C, D and E

Location: 4900 Johnson Drive, Pleasanton, CA 94588

Initial Contracted Amount: \$ 6,300,000

Final Contracted Amount: \$ 6,300,000

Contracted with Owner? Yes _____ No X

Contracted with General Contractor? Yes X No _____

Name of General Contractor: XL Construction

Project Contact: Telephone: Ric Ginn (408) 240-6000

Number of Projects completed with this General Contractor: 50+

Delivery Method: Design/Build X Design/Bid/Build _____ Other: _____

Number of Licensed Professional Engineers on staff: Electrical (3)

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B. TECHNICAL EXPERTISE, Continued:

1.D - Trade: Plumbing

Name: Peterson Mechanical

License Number: 171486 Expiration Date: June 30, 2016

Address: 21819 8th Street East, Sonoma, CA 95476

Additional Information:

Project Experience:

List **three** of the most relevant projects completed within the last 5 years. For each project, submit the following information:

1. **Project Name:** Building 600 Modernization and Expansion

Location: Solano College--Fairfield Campus

Initial Contracted Amount: \$ 749,000

Final Contracted Amount: \$ 751,000

Contracted with Owner? Yes _____ No X

Contracted with General Contractor? Yes X No _____

Name of General Contractor: DPR Construction

Project Contact: Telephone: Russ Lagrow (916) 870-1914

Number of Projects completed with this General Contractor: 5

Delivery Method: Design/Build X Design/Bid/Build _____ Other: _____

Number of Licensed Professional Engineers on staff: 2

B. TECHNICAL EXPERTISE, Continued:

1.D - Trade: Plumbing

2. Project Name: Agilent TMC Capacity Expansion

Location: Santa Rosa, CA

Initial Contracted Amount: \$ 3,200,000

Final Contracted Amount: \$ 3,200,000

Contracted with Owner? Yes X No

Contracted with General Contractor? Yes No X

Name of General Contractor: Kirby Construction

Project Contact: Telephone: Agilent | Terry Lenhardt (707) 577-2368

Number of Projects completed with this General Contractor: 11

Delivery Method: Design/Build X Design/Bid/Build Other:

Number of Licensed Professional Engineers on staff: 2

3. Project Name: Biosearch Technologies

Location: Petaluma, CA

Initial Contracted Amount: \$ 1,000,000

Final Contracted Amount: \$ 1,000,000

Contracted with Owner? Yes No X

Contracted with General Contractor? Yes X No

Name of General Contractor: Devcon

Project Contact: Telephone: Biosearch | Daren Dick (707) 658-4013

Number of Projects completed with this General Contractor: 3

Delivery Method: Design/Build X Design/Bid/Build Other:

Number of Licensed Professional Engineers on staff: 2

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B. TECHNICAL EXPERTISE, Continued:

1.E - Trade: Sitework and Grading

Name: Beebe Diversified LP

License Number: 963263A Expiration Date: July 31, 2015

Address: PO Box 276125, Sacramento, CA 95827

Additional Information:

Project Experience:

List **three** of the most relevant projects completed within the last 5 years. For each project, submit the following information:

1. Project Name: Suisun Valley K-8 Classroom Addition & Assoc. Site Work

Location: Fairfield, CA

Initial Contracted Amount: \$ 586,710

Final Contracted Amount: \$ 843,667

Contracted with Owner? Yes _____ No X

Contracted with General Contractor? Yes X No _____

Name of General Contractor: SW Allen Construction Inc

Project Contact: Telephone: Stephen Allen (916) 344-2098

Number of Projects completed with this General Contractor: 6+

Delivery Method: Design/Build _____ Design/Bid/Build X Other: _____

Number of Licensed Professional Engineers on staff: None

B. TECHNICAL EXPERTISE, Continued:

1.E - Trade: Sitework and Grading

2. **Project Name:** Sutter Women's and Children's Center
Location: 2825 Capitol Ave, Sacramento, CA
Initial Contracted Amount: \$ 941,927
Final Contracted Amount: \$ 1,046,586
Contracted with Owner? Yes _____ No X
Contracted with General Contractor? Yes X No _____
Name of General Contractor: The Boldt Company
Project Contact: Telephone: Jay Harris (916) 583-5612
Number of Projects completed with this General Contractor: 12+
Delivery Method: Design/Build X Design/Bid/Build _____ Other: _____
Number of Licensed Professional Engineers on staff: None

3. **Project Name:** Washington Unified School District Improvements
Location: Bridgeway, Stonegate, Southport, Elkhorn Vlg., Bridgeway Is. Elem.
Initial Contracted Amount: \$ 2,160,745
Final Contracted Amount: \$ 2,400,824
Contracted with Owner? Yes _____ No X
Contracted with General Contractor? Yes X No _____
Name of General Contractor: Turner Construction
Project Contact: Telephone: Kamran Chaudry (408) 891-9509
Number of Projects completed with this General Contractor: 25+
Delivery Method: Design/Build _____ Design/Bid/Build X Other: _____
Number of Licensed Professional Engineers on staff: None

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SOLANO COMMUNITY COLLEGE DISTRICT**

B. TECHNICAL EXPERTISE, Continued:

Additional Designated Subcontractors:

Design/Builder may designate two (2) additional subcontractors with trades/classification as selected by the Design/Builder.

1.F - Trade / License Classification: B,C-2,C-9,C33,C15,C35,C61/D50,C61/D10,C61/D39

Name: Performance Contracting, Inc.

License Number: 474795 Expiration Date: June 30, 2015

Address: 3030 Orange Grove Avenue, North Highlands, CA 95660

Additional Information:

Project Experience:

List **three** of the most relevant projects completed within the last 5 years. For each project, submit the following information:

1. Project Name: Franklin High School MOD - Building C

Location: Stockton, CA

Initial Contracted Amount: \$ 1,129,440

Final Contracted Amount: \$ 1,241,053

Contracted with Owner? Yes _____ No X

Contracted with General Contractor? Yes X No _____

Name of General Contractor: Turner Construction Company

Project Contact: Telephone: (916) 444-4421

Number of Projects completed with this General Contractor: 50+ (Last 5 Years)

Delivery Method: Design/Build X Design/Bid/Build _____ Other: _____

Number of Licensed Professional Engineers on staff: None - Subcontracted Out

B. TECHNICAL EXPERTISE, Continued:

1.F - Trade / License Classification: B,C-2,C-9,C33,C15,C35,C61/D50,C61/D10,C61/D39

2. **Project Name:** North Butte County Courthouse

Location: Chico, CA

Initial Contracted Amount: \$ 4,005,600

Final Contracted Amount: \$ 4,199,473

Contracted with Owner? Yes _____ No X

Contracted with General Contractor? Yes X No _____

Name of General Contractor: John F. Otto Construction Company

Project Contact: Telephone: (916) 441-6870

Number of Projects completed with this General Contractor: 15+ (Last 5 Yrs)

Delivery Method: Design/Build X Design/Bid/Build _____ Other: _____

Number of Licensed Professional Engineers on staff: None - Subcontracted Out

3. **Project Name:** Mills #2

Location: Reno, NV

Initial Contracted Amount: \$ 1,685,300

Final Contracted Amount: \$ 2,088,294

Contracted with Owner? Yes _____ No X

Contracted with General Contractor? Yes X No _____

Name of General Contractor: Mortenson Construction Company

Project Contact: Telephone: (425) 895-9000

Number of Projects completed with this General Contractor: 1 (Last 5 Yrs)

Delivery Method: Design/Build X Design/Bid/Build _____ Other: _____

Number of Licensed Professional Engineers on staff: None - Subcontracted Out

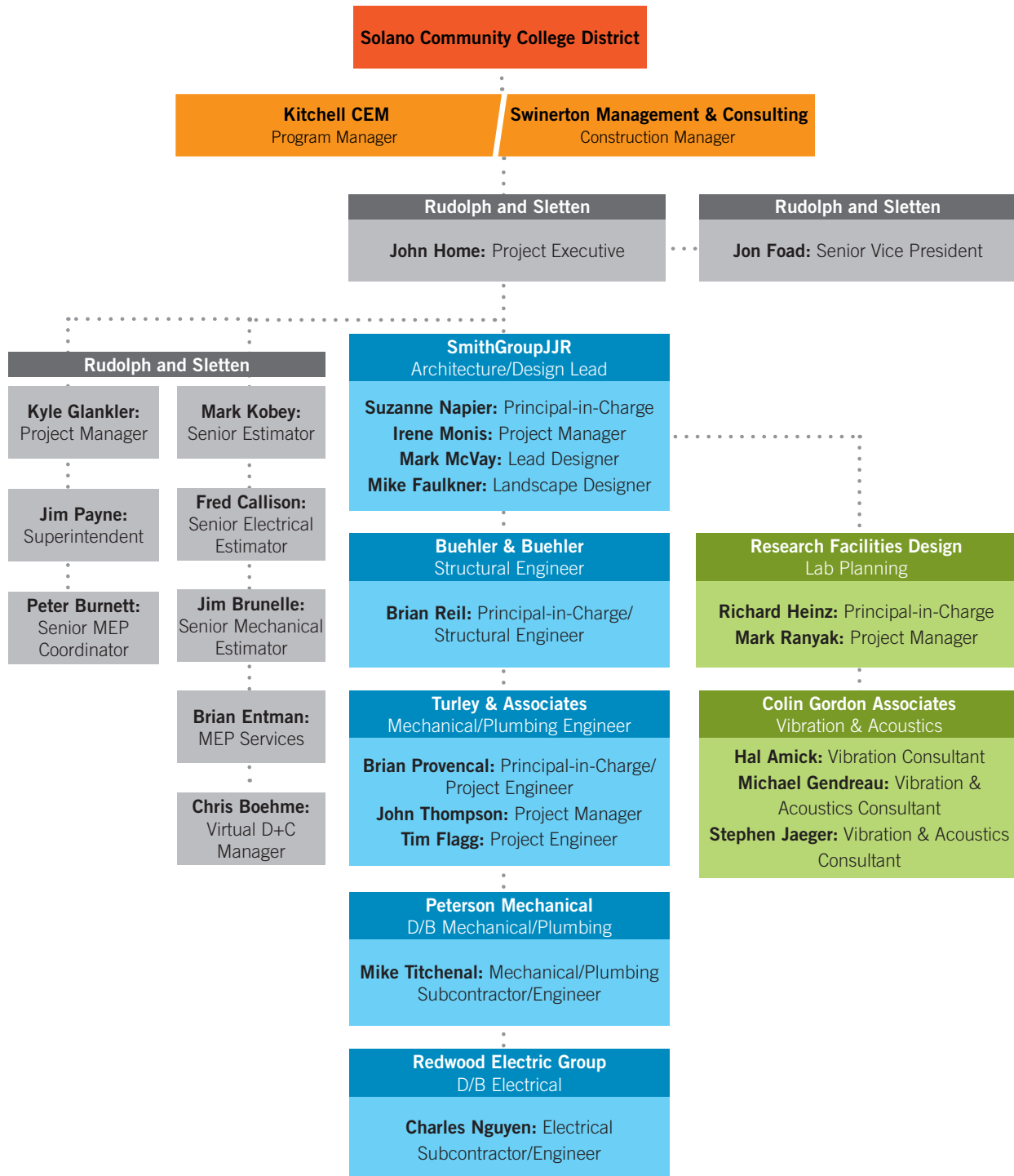
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BIOTECHNOLOGY & SCIENCE BUILDING

2B. DESIGN AND CONSTRUCTION MANAGEMENT PLAN

LETT'S BUILD

DESIGN AND CONSTRUCTION MANAGEMENT PLAN

A. PROJECT TEAM ORGANIZATION



B. DESIGN MANAGEMENT APPROACH

Successful projects are executed by teams that have a deep understanding of the project, its goals, and the vision of its proponents. SmithGroupJJR's team of professionals focuses almost exclusively on academic educational and research facilities, and their unique functional, technical and aesthetic requirements. Our Project Management approach is founded on the following strategies:

- Integrated Team Approach
- Document Review and Interaction with SCCD, Regulatory agencies, Utilities Companies, Criteria Architect, and Construction Management Consultant
- Schedule Management/Cost Control/VE
- Technology
- Quality Control/Quality Assurance
- Follow Through During Construction
- Project Closeout

Integrated Team Approach. The proposed project architectural team is drawn from a studio of 20 individuals in San Francisco, California. Each individual is experienced in educational and research facilities programming, planning, design, and construction. In addition, SmithGroupJJR's in-house team members are experts in waterproofing, exterior envelope and roofing systems. Our sub-consultant team of recognized professionals are all leaders in their fields of specialization. Our team approach is based on the philosophy that the project is only successful if we are all successful together: Owner, Stakeholders, Design, Engineering, and the Construction Teams.

Document Review and Interaction with SCCD, Regulatory agencies, Utilities Companies, Criteria Architect, and Construction Management Consultant. The design team will facilitate the process of communication with all stakeholders and agencies through all design phases. SmithGroupJJR will document meetings with minutes which will be posted on the project's portal so that information is available to keep the process moving forward. We recommend scheduling specific document review meetings with the appropriate stakeholders at major project milestones.

Schedule Management & Cost Control/VE. Maintaining and achieving schedule and budget requirements for the Solano Community College District Biotechnology & Science Building are two of the most important tasks SmithGroupJJR will undertake. Schedule and budget success is the function of proper staffing, careful planning, diligent monitoring, and timely decision-making. SmithGroupJJR will prepare a concise work plan, which will include all major project activities and milestones. SmithGroupJJR will maintain close communication with R&S's cost estimating team during the design and construction phases to ensure that the project's quality and functional needs are maximized. Value engineering and life-cycle cost analysis will be an integral part of the design-build process. Throughout the design phase, the design-build team will work with the SCCD, the criteria architect, the SCCD's construction management consultant and the users to examine the impact on total cost of alternative design solutions for the major building elements so as to obtain an optimum balance between first and life-cycle costs, aesthetics, and functional performance.

Technology. SmithGroupJJR uses a variety of tools to foster clear communication not only between the Design-Build team members and client, but also among client and stakeholders, including user group meetings, presentations to the Solano Community College Governance Boards and management team, and to the DSA and city officials. We use a variety of tools to support the project's development:

- Computer-based management tools to assist the team in monitoring project status and schedule.
- Autodesk Revit 2015 and Navisworks for project documentation and coordination. Our Revit models are compatible with a number of add-in applications, including Autodesk Fabrication software.
- Special purpose software for enhanced visualization and integration of design across disciplines.
- E-Specs software to automatically generate project specifications.
- Dedicated Project Portal on our Microsoft SharePoint site.

Quality Control/Quality Assurance. Having planned, programmed and designed science and technology facilities for decades, SmithGroupJJR brings a breadth and depth of experience that is unparalleled. Throughout its history, the firm has developed and reinvented its best practices for the industry and set standards for QC/QA processes. Our QC/QA program begins at project conception to ensure technical accuracy throughout the life of the project, including the construction administration phase. Specific QC/QA activities include:

- Clear understanding of applicable codes, standards, and regulations
- Clear understanding of project objectives and requirements
- Efficient communications structure
- Periodic cross-disciplinary coordination review
- Uniform organization of project documentation (hard copy and electronic)
- Periodic constructability reviews
- Periodic project budget/scope reviews
- Periodic in-house third party document reviews

Follow-Through During Construction. We have learned from experience that sending the design team to the field is the best way to keep the project on schedule and within budget until the end. We staff the Construction Administration phase with the Project Managers and Project Architects who developed the construction documents.

Project Closeout. During project closeout SmithGroupJJR works in collaboration with the entire team to ensure a smooth transition to building occupancy. Careful coordination of closeout activities is essential to obtain a timely issued certificate of occupancy. We accomplish this by:

- Working with our Design-Build partner to implement a “rolling punchlist” process. The design team will punchlist areas of the building as they become substantially complete.
- Participating in what we call “proactive back-check” activities, where punchlist items are closed on interactive field walks with the General Contractor and Subcontractors.
- Ensuring timely review of closeout documentation and functional performance test reports.

- Supporting commissioning activities to facilitate timely resolution of outstanding issues.
- Expediting the resolution of any issues that may delay securing the certificate of occupancy.
- Producing documentation in BIM and updating our models periodically. This allows us to submit final record drawings within 90 days of project completion.

C. COORDINATION WITH THE DISTRICT AND D/B TEAM

Co-or-di-na-tion: *noun* - the organization of the different elements of a complex body or activity so as to enable them to **work together effectively**.

There's nothing more important to a successful project than making sure everyone's on the same page. The R&S I SGJJR team, with leadership and enthusiasm for successful projects, will use their most effective tools in creating a highly coordinated project: excellent communication and organization. In section B.2.F our team recaps several different types of meetings used to keep the project team on the same page, informed and part of the decision-making process. From the very beginning of the project to the very end, the R&S I SGJJR team will create a structured approach to sharing information in a meaningful and useful manner. Among other tasks and efforts, here are some of the steps we will employ to create a highly coordinated project:

- Participate in Partnering Meetings per 00 50 00 3.2.4.5
- Formally discuss project goals for each team member and entity
- Hold various stakeholder meetings (at the direction of the main SCCD project team)
- Create a project directory of all project participants
- Hold kick-off meetings for most major project phases and tasks to clearly communicate objectives
- Establish detailed team protocols for RFI's, submittals and changes
- Establish team email protocol for streamlined and efficient email communication
- Calendar project meetings at least 2 weeks in advance via MS outlook

- Poll meeting participants for alternate meeting times with Doodle application
- Maintain EADOC project document site with the latest project information
- Provide weekly schedule updates and milestones in the OAC meeting and minutes
- Track high level project activity, deliverables, decisions in the OAC meeting and minutes
- Create lower level breakout detail meetings when necessary
- Identify when re-calibration is necessary and hold corrective action meeting(s) to change course

D. APPROACH TO PROCURING APPROVALS

The key to successful navigation of any agency – DSA, CSFM, local fire department, PG&E, etc. is to establish a line of communication early in the project. Our team will work with SCCD to immediately open communication with all regulatory agencies in order to start determining the specific needs of each agency to gain the approval for various components of the project.

PLAN EARLY, MEET OFTEN

Our team has extensive experience working effectively with Agencies having Jurisdiction (AHJ), and particularly the Department of State Architect (DSA). There are two key aspects to successful collaboration with DSA during preliminary review and plan check:

- First is meeting proactively with plan checkers at DSA and local Utilities early in the design process to confirm a mutual understanding of the code analysis for the project. This would address Fire Life Safety and Accessibility aspects, but also provide an introduction to the basic structural system approach for gravity and lateral/seismic systems.
- Second is to prepare documents in a manner that facilitates ease of review for DSA independent of the design team. Coordinated drawings where systems are clearly identified and showing method of integration is a fundamental aspect of good “legibility” for DSA. Additionally, we have found that cross references between disciplines is an important “shortcut” for DSA plan review. For example, an equipment pad that is shown on the architectural drawings should

reference the related details for MEP and Structural drawings including specific details that illustrate equipment anchorage, type of equipment and represent a clear understanding of method of installation.

DSA has particular viewpoints for methods of fabrication and documentation of calculations to support all unique conditions. The preference for standard off-the-shelf and readily available systems is understood, and where unique systems or assemblies are explored, these require thorough description and appropriate evidence that all gravity and lateral loads and clarity of construction are conveyed.

Backcheck coordination and collaboration. Provide complete answers in a narrative format and returned to plan reviewer on a prearranged schedule. Maintain open communication during backcheck to get it right the first time.

CONSTRUCTION PHASE ACTIVITIES

- Establish clear lines of communication and review between IOR, Contractor, DSA Field Inspector & Solano’s PM/CM. Regular site inspections with DSA Field inspector, rapid response to Field Trip Notes (FTN’s).
- Utilize Field Change Document (FCD) process as much as possible to maintain timely approval and continuity in construction progress with concurrent approval of any modifications.
- Prepare Construction Change Documents (CCD’s) (as applicable) in a timely way using DSABox for communication and expedited approval.

CLOSEOUT

- Initiate collection of lab & material testing concurrent with construction collect approved testing progressively and submit to DSA for record.
- Confirm CCD, FCD and FTN documents have been closed and are approved by DSA.
- Submit completed DSA 6 along with letter notifying the DSA of understanding that all documents have been certified.

E. ELECTRONIC COMMUNICATIONS

Every project typically has a unique electronic-based management tool to track all project documents and key metrics. Although our team utilizes Prolog Web for most projects, we are accustomed to quickly assimilating and using client software and look forward to adopting the **district's EADOC web-based software for BTSB.**

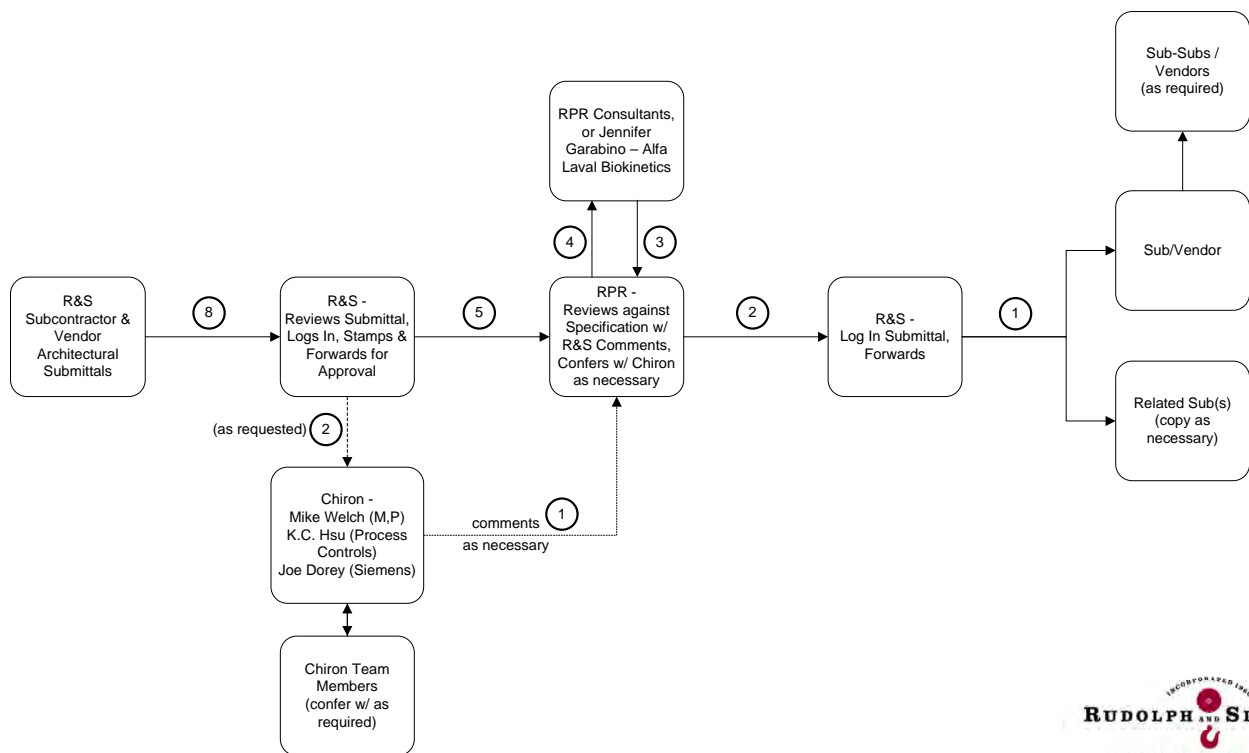
Immediately upon award we will work with the SCCD team to establish licensing for our DBE team members. Rudolph and Sletten will

chair a kick-off meeting with the entire team to establish EADOC protocols, usage, and information flow. Regardless of

the type of web-based software used, it is important to establish useful process flows for the project tools such as submittals, RFIs and other key processes most all team members are involved with. Below is a sample flow chart we will customize for BTSB submittals to ensure the entire team understands how information will transfer, approval processes, etc.



Our team will use EADOC software as deemed appropriate by the SCCD project team.



Minimum Number of Submittal Copies Forwarded



Submittal Process	
Chiron VPU	11/25/03

Sample process flow diagram for electronic submittals. All project processes will have a formal process flowchart and will be reviewed and adopted by the project team. Documenting these processes and proper flow is critical to success; overlooked and breakdowns occur.

F. MEETINGS AND CONFERENCES

The purpose of meetings and conferences is not just to have them, but to efficiently and effectively communicate planning, status, progress, coordination, and planning. We will work with the SCCD team to establish a meaningful schedule for the required periodic meetings and conferences to suit the needs of the project from design phase through construction. One of the first meetings to occur is the **Design Confirmation Conference**, to occur within 14 calendar days after Notice to Proceed (NTP) per 00 50 00, prior to the development of DD's. We look forward to The following are a summary of the typical meetings and reports that will be part of this project:

All meetings will have an agenda and meeting minutes generated by Rudolph and Sletten.

- Partnering sessions (including kick-off and closeout sessions, per 00 50 00)
- Design Confirmation Conference
- Stakeholder meetings
- Outreach / Local Hiring / PLA meetings
- Design milestone deliverable review meetings (100%DD / 90%CD / 100%CD)
- Weekly status/coordination meetings
- Weekly design meetings
- Regulatory/DSA planning meetings
- LEED meetings
- CEQA mitigation meetings for biologist/wildlife monitoring
- Existing campus impact mitigation/elimination meetings
- Utility Engineering (PG&E) meetings for gas and electric connections, service
- Weekly subcontractor coordination / foremen's meetings
- Owner/Architect/Contractor (OAC) meetings
- Schedule review meetings
- Subcontractor Pre-Bid meetings
- Subcontractor Pre-Installation/Pre-Construction meetings
- Start-up and commissioning meetings
- Safety pre-task meetings

- Jobsite safety / toolbox meetings
- Regulatory inspection meetings (CSFM, DSA, etc.)
- FF&E Coordination Meetings
- End user training sessions
- Commissioning meetings
- QA/QC job walks

G. SITE REQUIREMENTS/SITE USE

Our team proposes to establish a construction site adjacent to the new building in accordance with our Site Logistics Plan and Traffic Management Plan. Our number one goal in establishing a construction site on the SCCD Vacaville campus is to do so in a manner that **does not adversely affect the day-to-day operations of your campus and its principal function as an educational facility**. We will fence off with temporary construction fencing containing all appropriate signage the perimeter of the construction area in addition to a storage and laydown area, providing for lockable gates. We will coordinate and cooperate with campus police and local fire department for access and necessary emergency procedures in the jobsite. We will establish a muster area for our workforce in the event of an emergency. Temporary power will be established by our forces to energize construction activities. We intend to bring in VOIP phone service and internet potentially from the existing building or a new service as needed. Construction parking will be provided for adjacent to the project construction site. Temporary water will be secured through construction water meter. Portable toilets and accompanying handwash stations will be provided for our forces. We will ratify these plans and all details of our site use with SCCD prior to establishing the construction site. Trailers will be provided for the GC team, a meeting trailer and SCCD team as required per 00 50 00. Lastly, any existing building entry and/or work on this facility will be communicated and approved in advance of the entry and/or work taking place.

H. SUSTAINABILITY/RECYCLING/WASTE MANAGEMENT PLAN

SUSTAINABLE DESIGN & CONSTRUCTION

The R&S | SGJJR team is a leader in the industry when it comes to sustainable practices both in design and out in the field during construction. For the BTSB project, our team is committed to delivering a LEED 2009 NC Silver project, with the possibility of LEED Gold. Please refer to the sample LEED 2009 NC Scorecard in Other Documents tab where we have outlined anticipated LEED credits. From renewable energy, to natural daylighting, to a 20% energy efficiency over code mandate, to an indoor air quality plan, to post-consumer recycled building products, our design and construction will meet or exceed SCCD's goals for sustainability as outlined in the criteria documents. We are most excited about the use of renewable energy in the project and the educational opportunities this provides to the college. As detailed further in our enhancements section, the use of renewable energy will be showcased in a public area of the building. Through the use of an integrated display, we will create an interface highlighting easy-to-understand metrics for both building energy consumption and energy creation from existing site PV.

RECYCLING & WASTE DIVERSION – WASTE MANAGEMENT PLAN

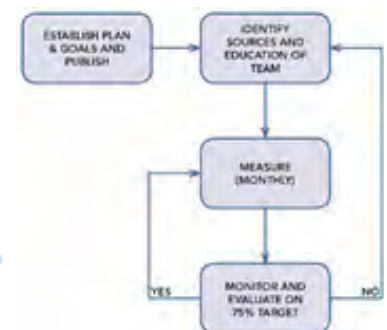
In alignment with both project LEED goals and our own mandated company objectives for sustainable design and construction, the R&S | SGJJR team are committed to significantly reducing construction waste on all projects. Construction waste material must be recycled, salvaged, or possibly reused whenever possible, and landfill disposals must be minimized. With the support of our subcontractor team and local waste management representatives, utilizing California Integrated Waste Management Board guidelines and reporting, Our DB Entity will target a 95% of waste stream diversion from the landfill. This goal is in alignment with our Project LEED Scorecard for MR Credit 2 – Construction Waste Management (2 credits), and also an additional credit for exemplary performance as an Innovation in Design (ID) credit.

By setting up and implementing a WMP with well-defined objectives, educating our workforce involved in all levels of the construction waste stream, creating local waste management and recycling alliances, and measuring our progress on a monthly basis, our team is confident we will meet this accentuated waste reduction goal.

LOCAL PARTNERSHIP

Our team will be working with local waste management company **Recology Vacaville Solano (RVS)** to assist in the planning and execution of our project's Waste Management Plan (WMP). We have already spoken to RVS to confirm our diversion goals and have confirmed with these local area experts that if diligently managed we can achieve the 95% diversion goal we are setting for this project. Here are some of the elements of WMP that the local firm will be assisting our team with:

- Developing the Draft and Final Waste Management Plan, utilizing a combination of onsite sorting and waste hauler sorting at their facility to achieve our diversion percentage;
- Identifying local landfill and Material Recovery Facilities (MRFs) with an emphasis on minimizing drive times and maximizing diversion;
- Track and document all landfill and recoverable materials on a monthly basis, including tipping fees, rebates, recycle revenues, etc.;
- The education of the project team and subcontractors on how to maximize diversion;
- Store and transport all recyclable materials in an efficient manner;
- The accounting and estimates for landfill and recycled materials;
- Identify subcontractors that may be processing their own waste streams and require documented landfill vs. diversion tonnages from each.



SETTING THE PLAN

Upon award, our team will complete and implement a detailed construction WMP for the project. In connection with local construction waste and recycling experts, the WMP will identify and plan for the following key elements:

1. Waste Management Goals:
 - » Minimum 95% waste stream diversion from landfill on all our work
2. Waste Management Plan
 - » Detailed analysis of the proposed job site generated waste, including types and quantities
 - » Names and location of landfills to be utilized on the project
 - » Estimated costs of disposal of project waste in landfills
 - » Material types and estimated quantities of waste categories to be diverted from landfill
 - » Separation, sorting, and protection strategies to be employed on the project
 - » Alternative sources to landfill (i.e., recycling, reuse, repurpose etc.)
3. Local Listing of Recyclers, Haulers, and Other Markets - to be developed post award
4. Meetings and Reports
 - » Project Kick Off Conference
 - » Pre-Construction Meetings
 - » Construction Strategy Meeting
 - » Payment Application Meetings
 - » Monthly Reporting
5. Material Handling Procedures
6. Hazardous Waste Handling Procedures (where applicable)

I. CONSTRUCTION TRAFFIC MANAGEMENT PLAN

On all of our projects, safety is always the most important consideration throughout every aspect of the project. We value the safety of all involved – the general public, your students and faculty, and all workers. We put this value above all other project goals.

To ensure safe deliveries of materials and supplies, our Project Superintendent Jim Payne, will provide an overview of all construction activities at our weekly Owner, Architect, and Contractor (OAC) meeting. This discussion will include information about any large deliveries scheduled. Large shipments of bulkier materials include but are not limited to the structural steel for the building, concrete for footings and slab on grade, HVAC/plumbing/hydronic equipment, lab casework, and eventual FF&E deliveries. We will discuss each shipment and make parking or safety considerations a key topic of discussion several weeks ahead of these shipments. If necessary, shipments can be scheduled at off-hours to avoid the crowded parking lot. Also, we can flag off areas of the parking lot to enable bigger delivery clearances as required.

All construction workers will park in designated areas only. There is adequate parking in our planned material laydown area for all workers for most of the project. On certain days, there will be larger groups including the concrete pour days and when we have a large framing crew onsite during the wall framing period of the project. If peak parking exceeds our capacity for a limited duration, we will discuss other considerations with SCCD. If street parking is not an option, we will investigate parking at alternate locations and carpooling the workers in to minimize onsite parking demand.

J. SITE STAGING AND LOGISTICS PLAN

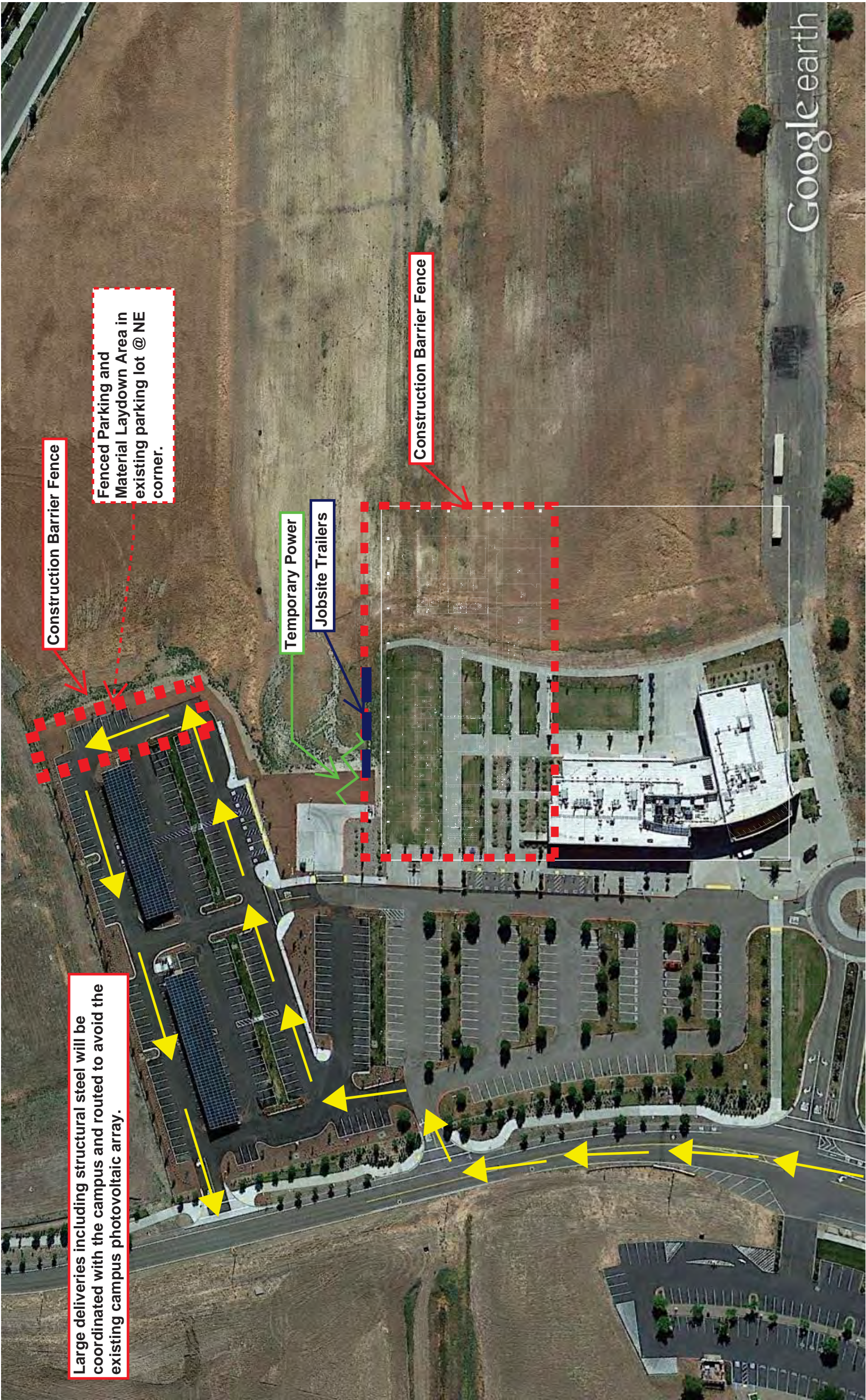
The foundation of a safe jobsite is a detailed plan to ensure the safe movement of materials, workers and equipment. This plan is essential to allow all parties to understand the potential hazards present at different stages of a project. Just as important is SCCD buy-in and approval of this plan, so rest assured that we can and will modify our plan according to SCCD needs and comments at any point along the project.

Rudolph and Sletten has compiled a detailed site logistics plan, provided on the following page, outlining the limits of our work and detailing how materials will be delivered and stored onsite. Fortunately, SCCD has ample space in the north east corner of the campus near the new BTSB. The site directly adjacent to the building will be entirely fenced-in using temporary construction fencing. The construction materials and parking area in the north east corner will also be secured with fencing.

We propose to locate our construction trailers near the existing electrical panel immediately north of the building site. Once we have located our trailers we will finalize an emergency recovery plan with a meeting point for all workers in case of an emergency.

Material deliveries will be accomplished with ample planning, forethought and communication with SCCD. We will carefully schedule larger and bulkier deliveries such as steel, concrete, HVAC and plumbing equipment so that access for the larger trucks can easily be accomplished without endangering students, faculty or their property. We will be vigilant in our planning and measuring of the turning areas and parking spaces, particularly around the existing photovoltaic equipment.

We will maintain the barrier between workers and students at all times. If at any time, our workers need to cross the barrier to accomplish tie-ins or connections, we will schedule such work with SCCD and ensure that the workers are monitored by Rudolph and Sletten staff.



Large deliveries including structural steel will be coordinated with the campus and routed to avoid the existing campus photovoltaic array.

Construction Barrier Fence

Fenced Parking and Material Laydown Area in existing parking lot @ NE corner.

Temporary Power

Jobsite Trailers

Construction Barrier Fence



feet
meters

600
200



K. TREE PROTECTION/MANAGEMENT PLAN

Existing established trees are important campus shade commodities that need to be protected during construction. The R&S | SGJJR team is familiar with many means and methods to ensure any existing trees to remain within the boundaries of the project site are protected. Steps we use to implement tree protection include but are not limited to:

- Identifying trees to remain with construction project boundaries in advance of clearing and grubbing
- Discuss with arborist, landscape architect, campus management, etc., action plan to protect trees:
 - » Means of creating separation between construction activities and trees
 - Barricades (orange Tensar fencing, T-stakes, dripline perimeter minimum)
 - » Means of trunk protection, if necessary (2x4 sheathing)
 - » Root protection, exposed roots during excavation
 - » Review of irrigation, need for temporary watering if services disrupted
 - » Fertilizer, pruning, deep watering if needed

L. CONSTRUCTION MANAGEMENT APPROACH

Many of our team's processes and approach to successfully manage the project have already been addressed in other sections of the RFP. Here is a high-level recap of the major construction phase meetings that our project team will use to ensure that, after preconstruction is complete and the contract documents are locked, we are successful in the field each and every week:

Pre-Bid Meetings: Held with all bid trades to review Rudolph and Sletten complete bid documents, schedule, site logistics, laydown, storage, trailers, safety, PLA, labor compliance, local hiring program, and all other programs to ensure complete coverage of the project.

Post-Bid Meetings: Held with all low responsive bidders (and 2nd, 3rd bidders as necessary) to review bids, pricing, scope coverage, any clarifications.

Preconstruction Meetings: Held with each subcontractor trade, including all designated subs, to review the awarded scope of work, schedule, site logistics and coordination of the work to commence in advance.

Utility Provider Coordination Meetings: Held with PG&E to continue on with the preconstruction phase engineering completion and plan for the connection of gas and electric services to the project.

Process Flowcharts for RFI's and Submittals: Our team will have developed and will now use the processes and flow for RFI's and submittals as agreed to and ratified earlier in preconstruction for seamless and efficient flow of these critical processes.

Weekly Staff Meetings: Will take place with our immediate project team to review progress, plan, problem-solve, schedule and coordinate amongst the Rudolph and Sletten team and design consultants to ensure our team is on track and has the necessary resources.

Pull-Planning Scheduling Meetings: We will be meeting with subcontractors to develop the detailed schedule in accordance with 00 50 00 Schedule provisions. Pull planning works backward from the end and identifies constraints and timeframe commitments from each and every trade for 100% buy-in and commitment to achieving the project schedule.

BIM Meetings: Our team will be using BIM to coordinate the project and the intensive MEP trades in the building. We will start this process as the end of 100DD and will complete in advance of MEP rough-ins starting.

Weekly OAC Meeting: Our weekly team meeting to cover high-level actionable items, deliverables, track decision-making, review schedule, safety metrics, and any other information the SCCD may want to track during the course of the project. Rudolph and Sletten will distribute meeting minutes and offer opportunity for minutes correction within 48 hours of minute issuance.

Weekly Subcontractor Foreman Meetings: Our team will be reviewing the schedule and other project parameters weekly with all trades' foremen. Safety, site logistics, large delivery coordination and any campus requirements will be reviewed.

Weekly Safety Meetings: All-hands weekly safety meeting will occur with all workers to review project safety, cleanliness, any campus-related concerns to ensure good separation from ongoing campus activities, and a weekly safety topic such as eye protection, heat illness awareness, etc.

Existing Building Work / Site Coordination Meetings: Will occur well in advance of any work that may affect ongoing campus functioning or potentially impact SCCD operations such as utility tie-ins, IT connection to MDF, expansion joint work, hardscape/landscape tie-ins, etc.

FF&E Coordination Meetings: Will occur with dovetail to organize the procurement and installation of owner-furnished FF&E.

Commissioning Meetings: We will initiate commissioning early on with our commissioning agent and all vested subcontractors to prepare for a comprehensive commissioning plan for installation verifications, start-up and functional acceptance test procedures, LEED reporting.

LEED Meetings: Our team will be coordinated LEED Silver certification early on in preconstruction which will continue into construction as we track credits, reporting, waste diversion metric, MR and IAQ credit work, and ultimate submission to USGBC for Silver certification.

M. SCHEDULING

The attached project schedule, provided on the following pages, outlines the steps to a successful completion of the Biotechnology and Science Building. Upon selection, we will further refine this schedule to include all of the key cost and resource information and assignments as outlined in the Project Agreement.

The Project Baseline Schedule will be a dynamic document as necessary to complete the initial design work and the associated approvals, permits, connection fees and engineering from the following groups but not limited to: SCCD, DSA, City of Vacaville, PG&E, SWRCB, AQMD, Vacaville fire department. Following the initial proposal review comments, we will further develop this Gantt chart based schedule in Primavera using best practices of Critical Path Method (CPM) scheduling. The project schedule will be a live document updated continuously and submitted with each

payment application for review. Recovery schedules, though not anticipated, will be created as required to demonstrate to the College the path for maintaining the overall milestone schedule. Project progress will be monitored and shared at our weekly OAC Meetings.

We plan to beat the overall project schedule as shared in the RFQ by about two months, with substantial completion scheduled for May 2017. While we feel that the preconstruction/design period published by SCCD is an accurate projection of how long the process will take, we believe we can reduce the two months off of the construction schedule. We plan to accomplish this schedule by capitalizing on the successful partnership between our Structural Engineer, Buehler & Buehler, and our designated subcontractor steel fabricator, Golden State Steel, to streamline the steel shop drawing approval process. Simply stated, our steel fabricator's detailing department and our structural engineer will work together once we have our 90% CD comments back from DSA. This collaboration eliminates much of the iterative process of the common shop drawings process and allows us to order steel immediately upon approval from DSA. This collaboration removes the steel ordering from the project's critical path. We will also closely monitor and proactively manage the only other material submittals with long lead times – HVAC and plumbing equipment, fume hoods, casework, and the glazing systems.

Effective scheduling practices also necessitates the incorporation of information from our subcontractors. We accomplish this feedback by holding several pull-based planning sessions with our major subcontractors. Fortunately, the design-build delivery method utilized for this project allows us to gain feedback much earlier in the project than in other scenarios. We will capitalize on this advantage to make sure we do everything possible to be efficient.

Our project team will work with R&S Senior Scheduling Manager, Mark Morache, to develop and implement a scheduling tool that helps us to plan, monitor and forecast our work including a cost loaded and resource loaded baseline schedule incorporating all of the critical milestones and events pertinent to our project with SCCD. This development will require input from SCCD regarding design review, construction administration, employee training, commissioning and move management information.


RUDOLPH AND SLETTEN


Solano - Biotechnology and Science Building

5-26-15

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N. APPROACH TO CONFLICT RESOLUTION

The biggest counter measure to conflict is good planning, proper communication, collaboration and project team buy-in at all turns. The R&S | SGJJR team is well suited for a consensus-driven, conflict-free project. Our team is pleased that a formal partnering session schedule has been set for the project, as this allows the entire team the opportunity to formally understand each other's goals and objectives – what a successful project means to each party. By partnering we start off on the right foot and can build from there. To recap the partnering plan:

Design/Builder shall schedule and coordinate partnering sessions to be held every four (4) months during the Project. The Design/Builder shall include representation from the professional entities preparing the Construction Documents and the designated subcontractors as appropriate. District attendees will include representatives from the Project Steering Committee, Buildings & Grounds Department, Criteria Architect, and Construction Project Management consultants. The Design/Builder may invite representatives from other authorities having jurisdiction over the Project. These Partnering Sessions shall include the following:

- *A Project Kick-off Partnering Session immediately following the Notice to Proceed.*
- *A Project Close-out Partnering Session held at approximately 60% construction completion to address occupancy, punch list, commissioning and close-out activities.*

These Partnering Sessions will be a series of professionally facilitated off-site meetings involving the representatives of the Project team for the purposes of team building and problem solving. The Design/Builder shall budget the cost of the partnering sessions within the Stipulated Sum. The Design/Builder and the District shall agree on the selection of the partnering facilitator and attendees of no more than fifty (50) people.

In general, if conflicts should arise during the course of the project that may affect project progress, team dynamic or affect any major project metric adversely, the R&S | SGJJR team will first address with the SCCD team via phone call and meeting. We will proactively develop a plan to solve

the issue. Our onsite project team is instructed to notify the Rudolph and Sletten executive John Home, and SGJJR principal, Suzanne Napier. John, with Suzanne as necessary, will initiate a meeting with SCCD executive project team to explore options and find equitable solutions to the issue in an expeditious manner.

CLAIM AVOIDANCE PHILOSOPHY

To avoid a major conflict issue such as a claim, we work hard to create a project environment where claims simply do not occur and we have a track record of this – **projects with zero claim issues.** Rudolph and Sletten utilizes a detailed Instructions To Bidders, a detailed schedule, clear documentation, and being proactive in discovering potential issues and their resolutions. The strategy begins during preconstruction with the selection of prequalified subcontractors that have an acceptable financial balance sheet and the preparation of detailed instructions to bidders to supplement the construction documents. The bids are thoroughly reviewed and the subcontractors are interviewed by the construction team for completeness of the bid and the ability to perform. Any potential change order issues as a result of unforeseen conditions, design deficiencies, or owner generated changes are quickly evaluated for costs and presented to the Owner for direction.

Rudolph and Sletten works very closely with subcontractors to understand and manage the work flow to the schedule. All sequencing is reviewed with the subcontractors via pretask meetings and is agreed upon by all parties. When a change condition arises a quick response is required by all parties to resolve the problem. No issues are left unattended, as these can result in a claim.

Our project team firmly believes in taking an active role, both in trying to foresee potential conflicts as well as once a conflict was identified. Regularly scheduled coordination meetings and **utilization of Building Information Modeling (BIM)** by digitally overlaying the multiple design discipline drawings helps identify and resolve areas of conflict. Resolution of issues in a timely manner is key to avoid issues becoming larger in impact than necessary. Maintaining open communication and dialogue with the Owner kept them informed of potential issues. When necessary, an immediate meeting with all concerned parties was held to resolve issues quickly.

O. QUALITY CONTROL AND QUALITY ASSURANCE PROGRAM

SCCD's choice of DBE will predict the quality level of the construction process and the level of quality of the completed building. Rudolph and Sletten has developed an ongoing quality control effort initiated and supported by our entire organization. We center our philosophy on **"doing it right the first time."** Our quality control effort for this project will focus on meeting team needs and expectations by setting standards early in the project, measuring our performance against these standards, and continuously challenging the installation as it progresses. These efforts also include the process by which quality is considered and evaluated during subcontractor, material and equipment selections and the determination of which mock-ups should be constructed.

Jim and Kyle, as the Rudolph and Sletten the onsite project team leaders, understand quality control. Both will lead our team's efforts in delivering a project of the highest caliber in quality, fit, and finish. Rudolph and Sletten's Quality Control Program will be reliant upon a total team involvement by the SCCD team, SGJJR, design consultants, Rudolph and Sletten, and trade contractors. This program is structured so that all work is installed right the first time – from preconstruction through construction. The following narrative describes how quality control will be applied to the BTSB project.

QUALITY CONTROL IN PRECONSTRUCTION

The R&S | SGJJR team incorporates quality control measures and concepts continuously throughout our involvement on every project. During preconstruction, our team ensures a quality project from the initial expectations meeting and ensuring the team meets or exceeds all program requirements. As part of our constructability review effort, we will review and comment on the following items with respect to quality:

- Design element compliance to program requirements
- Compliance with budget
- Adherence to project schedule
- Full coordination between scopes
- Consistency in details between documents (architectural vs. mechanical, etc.)
- Durability and reliability of material and equipment selection
- Sustainability opportunities identified

In the progress drawing and working drawing phases, we believe that continuous feedback from each team member is a requirement for the success and quality of the project. Whether it is the owner's concern with the project meeting the budget, the architect's need to reconcile building and urban design issues with long standing requirements, or our understanding of the performance or cost of a specific system, a strong relationship based on open input is essential.

CONSTRUCTION PHASE APPROACH TO MAINTAIN THE HIGHEST STANDARDS AND QUALITY

Rudolph and Sletten is a pioneer in the development of an integrated approach to quality control and quality assurance. Our Quality Improvement Program is founded on the principle of Total Quality Management with the intent of consistently delivering projects that meet the high expectations of our clients. The following is an outline of the principles and processes of our Quality Improvement Program:

Customer Focused: We firmly believe that quality is defined by our clients. We begin each project by conducting an Owner's Expectation Meeting to fully understand what is truly important to the client. From this meeting our project team develops Action Plans and Goals to ensure we have a clear methodology of meeting these expectations.

Total Employee Involvement: Every employee is expected to contribute to maximizing quality. All quality requirements are communicated to all subcontractors through the Instructions to Bidders to ensure the highest level of quality at every level of the process and across all participants on the project. Their expected level of participation in delivering a quality product is continually reinforced throughout the project.

Process Oriented: Our QIP is a process oriented program. We have well-tested processes for all quality efforts during preconstruction, construction and close-out phases. These processes are continually refined to take advantage of current technologies.

Predictable Quality Levels: Having these processes in place assure that achieving a high level of quality is repeatable and predictable at every phase of construction.

Strategic and Systematic Approach: The implementation of our Quality Improvement Program is a strategic decision that is vital to our business philosophy. At our core, we seek

to meet or exceed our client's expectations so we can secure repeat business and also get excellent references. Having this systematic approach guarantees that every Rudolph and Sletten project is of the highest quality.

Continual Improvement: Each of our projects conducts Lessons Learned meetings periodically during construction and once substantial completion is achieved. These lessons are then brought forward so our project teams can continually benefit from our collective experience. One of the greatest wastes is failing to learn from your mistakes.

As noted above, Rudolph and Sletten will create a Quality Improvement Program for this project and will be structured around a number of processes and procedures focused on making quality a repeatable and predictable outcome. We will highlight a few of the more important processes from our QIP:

Owner's Expectations Meetings: Quality is defined in the eyes of the customer. In order to understand the expectations for quality, we ask and listen at the beginning of the project. The plans and specifications will never be able to communicate everything that is important about a project, so it is our policy to ask, listen and follow through.

Constructability Reviews: Our process for constructability reviews is built on our 50 years of history as one of the nation's top builders. We have detailed Constructability Review checklists that are common coordination and quality issues that we have encountered on previous projects. These checklists are updated continually based on our experience with new quality concerns on current projects. This process effectively manages our institutional knowledge so we can bring it forward to each new project.

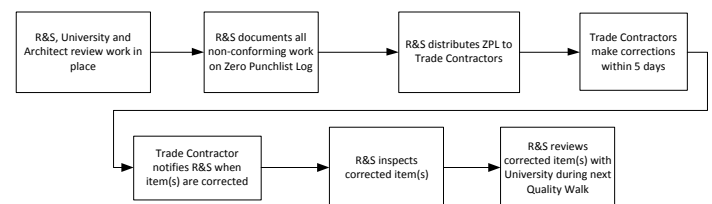
Preconstruction Meetings with Every Subcontractor: It is our policy that we have an in depth preconstruction meeting with every subcontractor before they start work. Every aspect of the project is reviewed with particular attention to safety, schedule and quality. These meetings are essential to setting the proper tone with each subcontractor to allow them to begin on day one with a clear understanding of the quality requirements for the project.

First-In-Place Work Reviews: All new work is reviewed as a first-in-place mock-up. The idea is to ensure all work is being installed to an acceptable level of quality at the start of installation rather than waiting until the work is complete. This

process ensures that quality is reviewed and approved on a continuous basis throughout the project.

Zero Punch List Program: One of the hallmarks of our QIP is the Zero Punch List (ZPL) Program. The ultimate objective of the ZPL Program is to anticipate and eliminate all items that would normally be included in a punchlist by the Architect, Owner and consultants in their final review of the project. Our project team walks down the project on a regularly scheduled basis and identifies quality issues such as fit, finish, alignment, and other quality-noteworthy items. These items are communicated electronically to all subcontractors via a ZPL database on a weekly basis and are back-checked accordingly. In this manner, a final project punchlist is in theory minimized/eliminated, hence the term Zero Punch List.

Zero Punch List Process



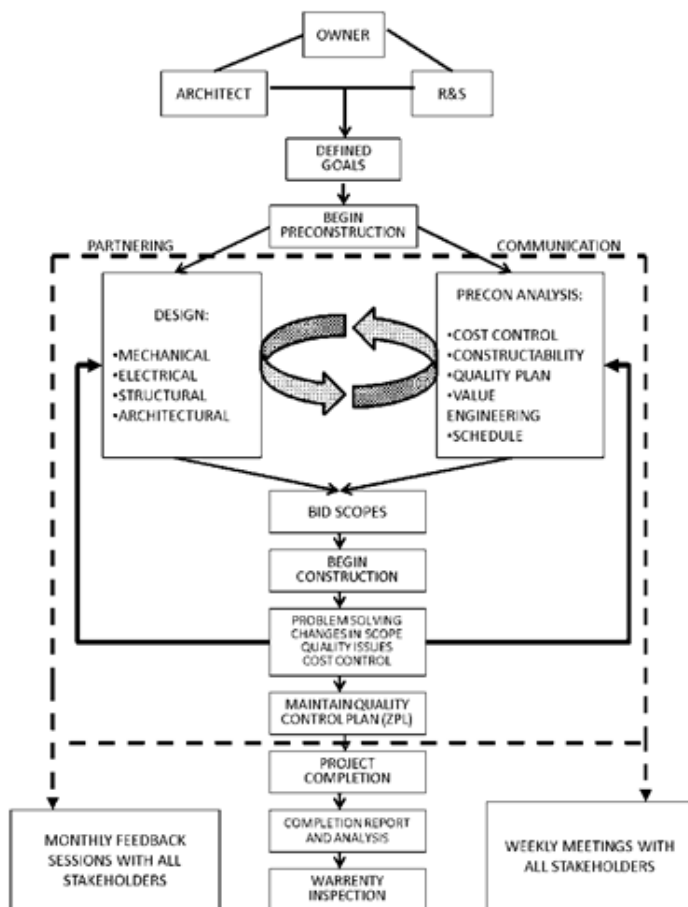
Project Closeout: Our planning for the closeout of the project, begins with our efforts during the preconstruction phase. During the preconstruction phase, our team will work with the design team and SCCD to establish the proper format for all closeout documentation to provide the most effective materials for future use. The bid package documents for each of the trade contractors will include all the necessary requirements to achieve prior to receiving their final payment, including:

- A percentage of their contract value be listed as a billing line item for closeout documents
- Monthly as-built requirements including status reviews as a prerequisite of monthly payments
- Owner training requirements including any recording or video-taping of training sessions

Our team will ensure timely submission of closeout documentation including as-builts, owner training, surplus materials, maintenance kits, and project warranties are provided well in advance of project completion. We will verify that these items are provided in the proper format and in accordance with the contract documents.

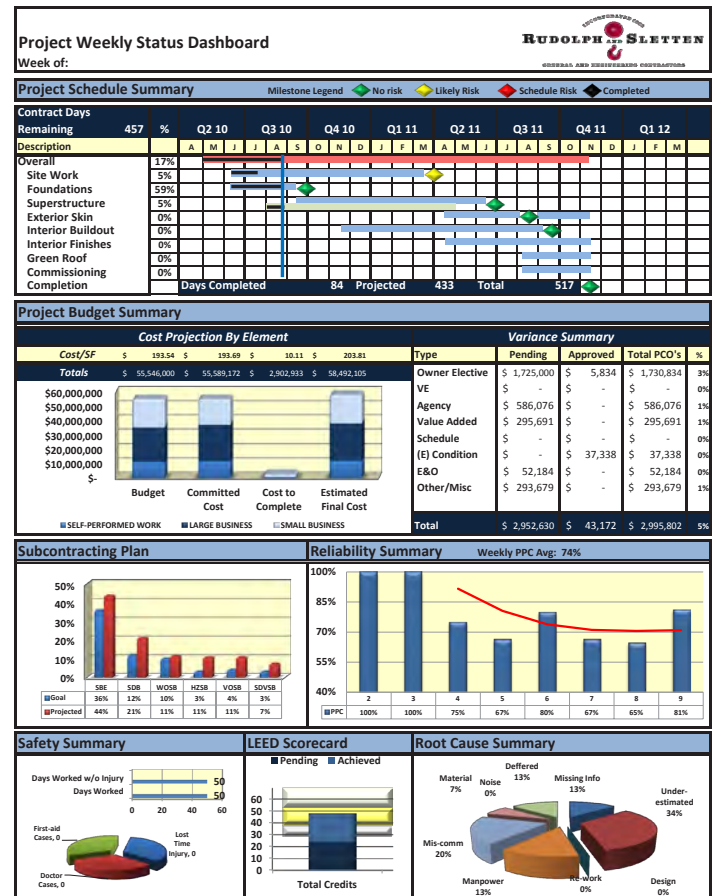
Aftercare: Critical to our success is how well each BTSB project component, and the campus as a whole, operates and are maintainable. Our commitment to the success of the BTSB project will continue long after construction ends. Again, our staff will ensure that all members of the SCCD facilities/maintenance staff are properly trained on all systems and equipment as well as understand resources for on-going assistance. Additionally, our team will maintain involvement through occupancy, assisting with all move-related services, as required. After 23 months, we will return to perform a walk through to ensure all warranty issues are addressed properly prior to any warranty expiration time period. We are partners for the long term and will prove this at every step in the process.

RUDOLPH AND SLETTEN'S QUALITY CONTROL PROGRAM



P. MONTHLY REPORTS

Reporting progress to the SCCD team on a monthly basis can be customized to meet the needs of the client. We understand every client wants to see metrics and data showing progress in various ways and we're flexible. Our team is highly accustomed to providing a monthly report in a format that works the best for our clients and we recognize one size does not fit all. EADOC software will be utilized throughout the project as mandated by the RFP criteria documents. Additionally, our team will be preparing the monthly reporting in accordance with the criteria documents in a manner that is meaningful and meets the needs of SCC.



PROJECT DASHBOARDS

We have adopted the use of “project dashboards” to efficiently report the progress of key metrics and other information that our clients deem important. Our clients get a comprehensive update of the project’s performance on a single letter-sized page.

PREDICTABLE QUALITY LEVELS

Having these processes in place assure that achieving a high level of quality is repeatable and predictable at every phase of construction.

CONTINUAL IMPROVEMENT

Each of our projects conducts Lessons Learned meetings periodically during construction and once substantial completion is achieved. These lessons are then brought forward so our project teams can continually benefit from our collective experience. One of the greatest wastes is failing to learn from your mistakes.

Q. RECORD DOCUMENTS.

The R&S | SGJJR team has the end in mind when it comes to record documents. Our team will be keeping a record set of documents and updating on a weekly basis by inputting updates via PDF software Bluebeam. We mandate our key MEP subs maintain as-built documentation on a regular basis and condition their monthly payments on showing as-built progress. Our BIM model, permit cards, submittals and samples will also be made available to the SCCD team along with all CAD design document files. We acknowledge the criteria document requirements including but not limited to section 1.8.1 and 1.8.2 of 01 11 20:

District's right to review Design Builder's design including, but not limited to, Construction Documents, shop drawings, samples and submittals, as specified in the Contract Documents, shall not relieve Design Builder of its responsibility for a complete design and construction complying with the requirements of the Contract Documents; but rather, such review shall be in furtherance of the District's monitoring and accepting the design as developed and issued by the Design Builder, consistent with these Contract Documents. Design Builder's responsibility to design and construct the Project in conformance with the Contract Documents including, but not limited to, the applicable performance standard and any fully executed change orders, shall be absolute. Such duty may not be altered or diminished by any action other than a signed change order.

Auto CAD, Revit, and Other Electronic Data (BIM): Provide all electronic files of all Construction Documents drawings including as-bid, as-built, and all record Drawings, on Compact Disks. Prepare electronic record sets and sets of reproducible record prints or Drawings showing those changes made during the construction process. Electronic data shall conform to District requirements for compatibility with District equipment and software.

2C. COLLABORATION

COLLABORATION

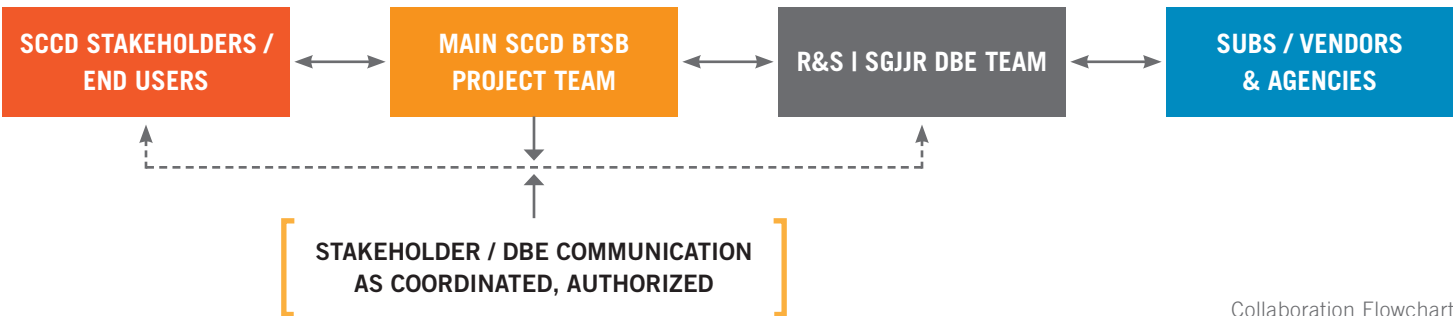
Collaboration means working with others to perform a task while achieving shared goals. It is a recursive process where organizations work together to realize these shared goals. Through several parts of this RFP we've explained various tools and techniques used on how we will keep the team moving on the same page after first understanding the goals of the entire team as a focus or driver for this collaborative process.

We start this collaboration process right now – by enumerating goals we feel confident the SCCD team will share in among others. The R&S | SGJJR team's high-level goals for the project are as follows:

- Design a new BTSB that meets or exceeds the criteria documents within the stipulated sum
- Maximize enhancements
- Establish excellent lines and flow of communication in preconstruction through construction
- Establish solid project procedures and controls adopted by the entire project team
- Coordinate design elements and project details with stakeholders through SCCD project team, as required
- Construct the new BTSB in 12 months, starting in Spring 2016, while meeting or exceeding all metrics for quality, safety, schedule and budget
- Successfully facilitate Owner FF&E procurement needs
- Provide a smooth turnover process, including training, move-in, as-builts, and closeout
- Complete the entire project with an extremely satisfied client

Under the owner's umbrella there's typically many stakeholders. The RFP enumerates some of these stakeholders to be Building & Grounds, District Administration, school staff, deans, faculty, IT, consultants and vendors [including FF&E consultant Dovetail]. Other stakeholders may include janitorial, facilities, maintenance, security/campus police, and of course the students. Various stakeholders have various needs and may or may not have participated in the planning of the project as dictated by the district and CM/PM team's management of the project to-date. As such, the most important aspect of the need to interface and interact with any stakeholders is to understand how and when to communicate. Our team expects such communications to be primarily orchestrated by the district's PM/CM team so that we do not get out of alignment or communicate out-of-turn. Our DBE team will communicate when authorized or approved by the CM team. Once proper channels of communications are set up or authorized, we will do so as directed but always ensure that the CM/PM team is in the loop and a part of the collaboration.

When it comes to main DBE team collaborating and working with the main SCCD project team, we will work early to establish the common, shared goals of the project. This will be achieved through the Partnering sessions and other meetings such as the post-NTP coordination meeting, preconstruction kick-off meeting and construction phase kick-off meeting.



Collaboration Flowchart

2D. OUTREACH

OUTREACH

Rudolph and Sletten recognizes this Plan should be a marriage of Small, Local and Diverse Business (SLDB) Program details per Addendum 1 and the Project Labor Agreement per the RFP. Each has a common simple goal: **maximize project employment opportunities for the PLA union trades and residents of Solano County, including the city of Winters.** Rudolph and Sletten is very adept at local hire outreach plans and will utilize several proven successful strategies to approach the Subcontractor and Local Labor Procurement Plan goals. Rudolph and Sletten thrives on being challenged to foster growth for the communities in which we work and live. We've established a team of seasoned construction professionals very capable of rising to the task at hand. Our previous PLA projects were successful because we have done just that, as well as maximized participation of Small, Local and Diverse Business Enterprise prospective bidders. Our key interface for this project would be our local Sr. Vice President Jon Foad, Sr. Vice President and General Counsel Paul Aherne and our Subcontractor Prequalification Manager Marissa Lidyoff, who would help facilitate these efforts. On all of our Project Labor Agreements, we have had no labor disruptions and no formal grievances. They have all been extremely successful and mutually benefitting.

Rudolph and Sletten has worked continuously in California for over 55 years, during this time we have been signatory to local Laborers, Carpenters, Operators and Cement Masons Unions and have remained in good standing. We have existing relationships with the certifying agencies recognized by the District that will greatly help in our Small, Local and Diverse Business Enterprise (SLDBE) outreach efforts. While somewhat concurrent, Local Labor and SLDBE goals are ultimately separate and will take diligent and calculated efforts by all parties in order to succeed.

In order to achieve the District's SLDBE Pilot Program goal of 15%, we will factor in and consider all methods of procurement. This includes communicating early on the available opportunities via advertisements in local, state and diversity centric trade and focus publications, building a project- specific preconstruction website, distributing flyers and manning booths at local events hosted by different

construction force entities. We have spent decades developing a database of quality subcontractors and can identify qualifying SLDBEs by cross referencing diversity certifications that we track. If given the opportunity to support the District's SLDBE program, we will additionally task our outreach specialists to utilize the databases of the; CA Department of General Services (DGS) Office of Small Business & Disabled Veteran Business Enterprise Services (OSDS), CA Department of Transportation (DOT) Office of Business & Economic Opportunity/CA Unified Certification Program (CUPC) (shared statewide database), CA Public Utilities Commission's (CPUC) Supplier Clearinghouse, Western Region National Minority Supplier Development Council (WRMSDC), and Women Business Enterprise National Council's ASTRA Women's Business Alliance (northern CA certifying agency) to ensure we're reaching all possible SLDBEs with the project specific opportunities. Once we've developed the list of potential SLDBE bidders we will organize a project specific event to communicate the specific bid packages available, prequalification and bidding procedures and facilitate matchmaking between the larger first tier subcontractors and SLDBE second tier subcontractors, suppliers and service providers. To maximize SLDBE participation we'll request information on allocation to 2nd tier subcontractors and/or suppliers and included the amounts committed as a provision in all contracts. We have achieved positive results utilizing different methods of incentivizing 1st tier subcontractors via meeting and exceeding goals. With District approval we would consider means and methods on this project such as; discounting bids for SLDBEs and/or 1st tiers who exceed a certain amount of SLBE participation, having an additive alternate for exceeding goals, and/or setting aside specific bid packages solely for SLDBE prospective bidders. After implementing early onset outreach procedures we will make sure to track and report our successes via web-based progress reporting portals that have proven to be vital in our past efforts. We are confident that we'll exceed the pilot program goal, but on the unlikelyhood that we are short in some manor, we will indeed track our good faith efforts (GFE) and produce the deliverables so thoughtfully laid out in the District's SLDBE Pilot Program GFE checklist.

We will work jointly the District's representatives, our Design Build Entity (DBE) partners, the Napa-Solano Building and Construction Trades Council and their affiliates to develop and implement procedures for the identification of craft needs to secure the highest numbers of available local craft workers to meet the high demands of the Project work to be undertaken. Creating a process for requesting local workers be distributed from the local halls first, has been key to our past successes on projects with similar goals. We will advertise, send direct email communications, use social media and request that those who have seen our ads and communications share them with Solano County residents looking for hiring opportunities via word of mouth. With the assistance of the project specific preconstruction website and planned outreach events associated with the SLDBE

outreach effort, we will communicate early on the guidelines associated with the Project Labor Agreement (PLA) to ensure that all parties take ownership of the requirements well prior to bidding and commencement of the work. In order to best track and report local labor percentages on a scalable level throughout the duration of the project, we'd suggest using a web based certified payroll reporting program such as LCP Tracker. With District input and approval, we will develop a Local Labor Procurement Plan GFE checklist for our specialty trade partners to guide their efforts and compliance to helping the Plan succeed for the duration of the project.

"This event by far was one of the BEST subcontractor outreach events I've attended for the Administrative Office of the Courts construction projects. The event drew close to 200 businesses! ... I thank Marissa for the invitation and commend the Rudolph and Sletten team for doing an awesome job with the outreach!"

Danetta Jackson, Program Manager
Dept. of General Services | Procurement Division |
Office of Small Business & DVBE Outreach



3. LIFE CYCLE COST

LIFE CYCLE COST

The R&S | SGJJR team's proposal for the building materials is as follows:

- Create a cost effective solution for the interior functions.
- Use materials that are durable and provide a coherent appearance.
- Provide materials that can be supported within the maintenance budget of the campus.
- Selection of materials that are readily available to allow for ease of construction and maintenance over the long term.

BUILDING MATERIALS

POLISHED CONCRETE

Polished concrete is an extremely effective finish surface for public areas in higher education buildings. It retains a permanent surface treatment which requires no replacement, or refinishing over its lifetime. It only requires periodic cleaning with conventional janitorial supplies. This material is used throughout the major public areas of the building including the main entrance lobby and the primary corridor.

RESILIENT SHEET

Resilient sheet goods are used in the biotechnology, biology and anatomy spaces per the room data sheets provided in the RFP. This material is able to be maintained effectively and provides a reasonably durable finish to support the activity of these rooms. Should repairs be required, they can be performed on this material by replacing a section and matching it to the existing finish. The life expectancy of the material generally exceeds 15 years. A chemically resistant form of resilient sheet good material is used in the new general chemistry, organic chemistry and preparation/support spaces. It has similar maintenance and longevity expectations.

To support the technological feel of the space, an open ceiling is used throughout the public areas of the building. To connect to the outdoors and provide acoustic control, a wood slat ceiling is used in the Entrance & South Lobbies. This is a product which is both durable and attractive. Periodic cleaning is all that is required to maintain this material which is expected to last the life span of the building itself.

CARPET TILE

Carpet tile is used in the interaction spaces, private offices and conference spaces to absorb noise and provide comfort for footfall in these less travelled areas. Warranties for this material are available.

EXTERIOR FINISHES

For exterior finishes please refer to Tab 6. Building Systems Description, item 6. Exterior Closure / Wall and Roofing Systems.

LABORATORY ELEMENTS

The following items in the DBE's Proposal contribute to Increased Durability:

- AWS(WI) Premium Grade laboratory casework providing one of the highest grades of casework construction including joinery, surfaces, materials, and structural integrity.
- Institutional grade laboratory casework hardware including stainless steel five knuckle hinges, 100 lb. full extension slides, and stainless steel door and drawer pulls.
- Qualified laboratory casework and equipment manufacturers that have been in business for at least five years with an established dealership in the vicinity of the project and an extensive network of experienced installers.
- Chemical resistant lab casework and equipment finishes including epoxy resin benchtops, cabinet bodies, doors and drawer fronts, shelving systems, powder coated fume hood exteriors, fume hood liners, type 316 stainless steel furnishings in wet anatomy lab and prep, epoxy coated laboratory fittings and fixtures, and epoxy resin laboratory sinks.
- Heavy duty chrome plated cast brass laboratory service valves and fittings for long service life.
- Vented and fully lined acid and base storage cabinets to reduce corrosion from fumes generated by chemicals stored within.
- Tempered glass in cabinet doors to prevent breakage.

The following items in the DBE's Proposal contribute to Ease of Maintenance:

- Services to perimeter benches will be routed from the ceiling to the laboratory base cabinetry by means of a preformed sheet metal chase with a removable cover which is surface mounted on the walls. This chase will house hot and cold industrial water, laboratory gas, laboratory compressed air, laboratory vacuum, purified water, any specialty gases, electrical conduit, and low voltage conduit. This dedicated chase will allow maintenance personnel easy access to piping and conduit serving perimeter benching without cutting open walls.
- To allow access to piped services in chases behind laboratory base cabinets, units with doors and at knee openings will be provided with removable backs. Base cabinets with drawers will have removable backs and removable horizontal frame members.
- Water valves and needle valves for compressed air, gas, and vacuum will include renewable parts on surfaces subject to mechanical wear.
- Training will be provided for the use and maintenance of the laboratory equipment by qualified service representatives.
- Operation and Maintenance Manuals will be provided for all laboratory equipment, casework, and fume hoods.

The following items in the DBE's Proposal contribute to Minimized Initial Cost:

- Manufactured casework lowers fabrication labor cost compared to site-built cabinets.
- Multiple approved manufacturers for laboratory casework and equipment increases competition and lowers bid prices for subcontractors.

The following items in the DBE's Proposal Contribute to Minimized Replacement Cost:

- Laboratory casework systems and equipment utilize standardized components so replacement parts are not difficult to obtain.
- Color selections of laboratory casework and equipment will be from manufacturer's standard color lines so replacement parts will not require special color runs.

- Specified laboratory casework systems and equipment will be supported by local dealers and representatives.

All of the above items contribute to the Decreased Life Cycle Cost of Laboratory Equipment and Furnishings in the DBE's Proposal.

SUSTAINABLE DESIGN/LIFE CYCLE COSTING

Please see attached Life Cycle Cost Analysis on the following pages.

NIST BLCC 5.3-14: Comparative Analysis

Consistent with Federal Life Cycle Cost Methodology and Procedures, 10 CFR, Part 436, Subpart A

Base Case: Base System

Alternative: Design System

General Information

File Name: C:\Users\tflagg\Desktop\SCC Biotech.xml
 Date of Study: Wed May 27 10:12:19 PDT 2015
 Project Name: SCC Heating/Cooling System
 Project Location: California
 Analysis Type: FEMP Analysis, Energy Project
 Analyst: TF
 Comment: Base Building VS Design building
 Base Date: April 1, 2015
 Service Date: April 1, 2015
 Study Period: 15 years 0 months (April 1, 2015 through March 31, 2030)
 Discount Rate: 3%
 Discounting Convention: End-of-Year

Comparison of Present-Value Costs

PV Life-Cycle Cost

	Base Case	Alternative	Savings from Alternative
Initial Investment Costs:			
Capital Requirements as of Base Date	\$1,403,260	\$1,592,675	-\$189,415
Future Costs:			
Energy Consumption Costs	\$2,198,269	\$1,795,963	\$402,306
Energy Demand Charges	\$0	\$0	\$0
Energy Utility Rebates	\$0	\$0	\$0
Water Costs	\$0	\$0	\$0
Recurring and Non-Recurring OM&R Costs	\$211,005	\$221,574	-\$10,569
Capital Replacements	\$0	\$0	\$0
Residual Value at End of Study Period	-\$90,075	-\$255,585	\$165,509
	-----	-----	-----
Subtotal (for Future Cost Items)	\$2,319,199	\$1,761,952	\$557,247
	-----	-----	-----
Total PV Life-Cycle Cost	\$3,722,459	\$3,354,627	\$367,832

Net Savings from Alternative Compared with Base Case

PV of Non-Investment Savings	\$391,737
- Increased Total Investment	\$23,906

Net Savings	\$367,832

Savings-to-Investment Ratio (SIR)

$$SIR = 1.020$$

SIR = 10.33

Adjusted Internal Rate of Return

AIRR = 24.11%

Payback Period**Estimated Years to Payback (from beginning of Service Period)**

Simple Payback occurs in year 6

Discounted Payback occurs in year 7

Energy Savings Summary**Energy Savings Summary (in stated units)**

Energy	-----Average	Annual	Consumption-----	Life-Cycle
Type	Base Case	Alternative	Savings	Savings
Electricity	1,022,168.0 kWh	908,744.0 kWh	113,424.0 kWh	1,701,127.1 kWh
Natural Gas	56,734.0 Therm	25,572.0 Therm	31,162.0 Therm	467,366.0 Therm

Energy Savings Summary (in MBtu)

Energy	-----Average	Annual	Consumption-----	Life-Cycle
Type	Base Case	Alternative	Savings	Savings
Electricity	3,487.8 MBtu	3,100.8 MBtu	387.0 MBtu	5,804.5 MBtu
Natural Gas	5,673.4 MBtu	2,557.2 MBtu	3,116.2 MBtu	46,736.8 MBtu

Emissions Reduction Summary

Energy	-----Average	Annual	Emissions-----	Life-Cycle
Type	Base Case	Alternative	Reduction	Reduction
Electricity				
CO2	268,765.58 kg	1,075,897.71 kg	-807,132.13 kg	-12,105,324.64 kg
SO2	66.25 kg	3,566.40 kg	-3,500.15 kg	-52,495.12 kg
NOx	110.41 kg	1,609.79 kg	-1,499.38 kg	-22,487.60 kg
Natural Gas				
CO2	299,689.06 kg	135,080.35 kg	164,608.71 kg	2,468,792.64 kg
SO2	2,418.59 kg	1,090.14 kg	1,328.44 kg	19,923.94 kg
NOx	353.21 kg	159.20 kg	194.01 kg	2,909.68 kg
Total:				
CO2	568,454.64 kg	1,210,978.06 kg	-642,523.42 kg	-9,636,532.01 kg
SO2	2,484.83 kg	4,656.54 kg	-2,171.71 kg	-32,571.19 kg
NOx	463.62 kg	1,768.99 kg	-1,305.37 kg	-19,577.91 kg

NIST BLCC 5.3-14: Detailed LCC Analysis

Consistent with Federal Life Cycle Cost Methodology and Procedures, 10 CFR, Part 436, Subpart A

General Information

File Name: C:\Users\tflagg\Desktop\SCC Biotech.xml
 Date of Study: Wed May 27 10:04:46 PDT 2015
 Analysis Type: FEMP Analysis, Energy Project
 Project Name: SCC Heating/Cooling System
 Project Location: California
 Analyst: TF
 Comment: Base Building VS Design building
 Base Date: April 1, 2015
 Service Date: April 1, 2015
 Study Period: 15 years 0 months (April 1, 2015 through March 31, 2030)
 Discount Rate: 3%
 Discounting Convention: End-of-Year
 Discount and Escalation Rates are REAL (exclusive of general inflation)

Alternative: Base System**Initial Cost Data (not Discounted)****Initial Capital Costs**

(adjusted for price escalation)

Initial Capital Costs for All Components: \$1,403,260

Component: Base Systems**Cost-Phasing**

Date	Portion	Yearly Cost
April 1, 2015	100%	\$1,403,260

Total (for Component)		\$1,403,260

Energy Costs: Electricity

(base-year dollars)

Average	Average	Average	Average
Annual Usage	Price/Unit	Annual Cost	Annual Demand
1,022,168.0 kWh	\$0.15700	\$160,480	\$0
			\$0

Energy Costs: Natural Gas

(base-year dollars)

Average	Average	Average	Average
Annual Usage	Price/Unit	Annual Cost	Annual Demand
56,734.0 Therm	\$0.48900	\$27,743	\$0
			\$0

Life-Cycle Cost Analysis

	Present Value	Annual Value
Initial Capital Costs	\$1,403,260	\$117,559
Energy Costs		
Energy Consumption Costs	\$2,198,269	\$184,161
Energy Demand Charges	\$0	\$0
Energy Utility Rebates	\$0	\$0

Subtotal (for Energy)	\$2,198,269	\$184,161
Water Usage Costs	\$0	\$0
Water Disposal Costs	\$0	\$0

Operating, Maintenance & Repair Costs

Component: Base Systems		
Annually Recurring Costs	\$207,285	\$17,365
Non-Annually Recurring Costs	\$3,720	\$312
<hr/>		
Subtotal (for OM&R):	\$211,005	\$17,677
Replacements to Capital Components		
Component: Base Systems	\$0	\$0
<hr/>		
Subtotal (for Replacements):	\$0	\$0
Residual Value of Original Capital Components		
Component: Base Systems	-\$90,075	-\$7,546
<hr/>		
Subtotal (for Residual Value):	-\$90,075	-\$7,546
Residual Value of Capital Replacements		
Component: Base Systems	\$0	\$0
<hr/>		
Subtotal (for Residual Value):	\$0	\$0
Total Life-Cycle Cost	\$3,722,459	\$311,851

Emissions Summary

Energy Name	Annual	Life-Cycle
Electricity:		
CO2	268,765.58 kg	4,030,931.77 kg
SO2	66.25 kg	993.55 kg
NOx	110.41 kg	1,655.91 kg
Natural Gas:		
CO2	299,689.06 kg	4,494,720.54 kg
SO2	2,418.59 kg	36,273.81 kg
NOx	353.21 kg	5,297.41 kg
Total:		
CO2	568,454.64 kg	8,525,652.32 kg
SO2	2,484.83 kg	37,267.36 kg
NOx	463.62 kg	6,953.33 kg

Alternative: Design System**Initial Cost Data (not Discounted)****Initial Capital Costs**

(adjusted for price escalation)

Initial Capital Costs for All Components: \$1,592,675

Component: Design System**Cost-Phasing**

Date	Portion	Yearly Cost
April 1, 2015	100%	\$1,592,675
<hr/>		
Total (for Component)		\$1,592,675

Energy Costs: Electricity

(base-year dollars)

Average	Average	Average	Average
Annual Usage	Price/Unit	Annual Cost	Annual Demand
908,744.0 kWh	\$0.15700	\$142,673	\$0
			\$0

Energy Costs: Natural Gas
 (base-year dollars)

Average Annual Usage	Average Price/Unit	Average Annual Cost	Average Annual Demand	Average Annual Rebate
25,572.0 Therms	\$0.48900	\$12,505	\$0	\$0

Life-Cycle Cost Analysis

	Present Value	Annual Value
Initial Capital Costs	\$1,592,675	\$133,427

Energy Costs

Energy Consumption Costs	\$1,795,963	\$150,458
Energy Demand Charges	\$0	\$0
Energy Utility Rebates	\$0	\$0
Subtotal (for Energy):	\$1,795,963	\$150,458

Water Usage Costs	\$0	\$0
Water Disposal Costs	\$0	\$0

Operating, Maintenance & Repair Costs

Component: Design System		
Annually Recurring Costs	\$217,110	\$18,189
Non-Annually Recurring Costs	\$4,464	\$374
Subtotal (for OM&R):	\$221,574	\$18,563

Replacements to Capital Components

Component: Design System	\$0	\$0
Subtotal (for Replacements):	\$0	\$0

Residual Value of Original Capital Components

Component: Design System	-\$255,585	-\$21,412
Subtotal (for Residual Value):	-\$255,585	-\$21,412

Residual Value of Capital Replacements

Component: Design System	\$0	\$0
Subtotal (for Residual Value):	\$0	\$0

Total Life-Cycle Cost	\$3,354,627	\$281,036
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Emissions Summary

Energy Name	Annual	Life-Cycle
Electricity:		
CO2	1,075,897.71 kg	16,136,256.42 kg
SO2	3,566.40 kg	53,488.67 kg
NOx	1,609.79 kg	24,143.51 kg
Natural Gas:		
CO2	135,080.35 kg	2,025,927.90 kg
SO2	1,090.14 kg	16,349.88 kg
NOx	159.20 kg	2,387.73 kg

Total:		
CO2	1,210,978.06 kg	18,162,184.32 kg
SO2	4,656.54 kg	69,838.55 kg
NOx	1,768.99 kg	26,531.24 kg

4. SKILLED LABOR FORCE AVAILABILITY

SKILLED LABOR FORCE AVAILABILITY

Rudolph and Sletten is a member of Construction Employers' Association (CEA) and is signatory to the following trades in Northern California:

- Northern California Carpenters Regional Council
- Northern California District Council of Laborers
- Northern California Cement Masons
- Operating Engineers Local Union No. 3

Part of our agreement with each union trade includes the registered apprenticeship programs and standards that have been approved and adopted by the California Apprenticeship Council. Questions regarding any of the apprenticeship programs can be directed to Ginny Smith at CEA, (916) 978-8510.

As far as the Project Labor Agreement goes, Rudolph and Sletten is very used to working closely with the unions to ensure the terms of the PLA are met. Rudolph and Sletten will likely be meeting with the union trades in the PLA sometime during the preconstruction phase of the project to review the PLA and discuss the project workforce needs and trade scopes. In terms of labor force, Rudolph and Sletten's subcontractor base are part of our prequalified group of trusted, proven performers with whom we typically work with. It is through these previous experience and relationships that we feel confident quality labor will be provided to the BTSB project. If additional labor becomes a need or concern, we will work with our subcontractor managers and offices to increase workforce. Also, we will work the unions as needed to ensure quality individuals come from the halls. It is through regular schedule reviews and progress verification that we will keep tabs on the workforce and confirm the size of the subcontractor crews are adequate. This is one of the most important tasks that superintendent Jim Payne performs. With his level of experience and years in the field, Jim has an excellent handle on this and a very adequate gauge for proper crew size and how to effectively communicate and implement workforce changes.

Lastly, our design-build team acknowledges the requirements set forth in the Project Labor Agreement (PLA), specifically Items 14.4.1, 14.4.2 and Addendum B. We and our subcontractor workforce look forward fulfilling the pre-apprentice program requirements for qualifying SCCD students, employment of eligible SCCD students per the Joint Apprenticeship Program, and the project team participating in a "Construction Awareness Day" to expose SCCD students to the type of work and careers our fields collectively offer.

5. SAFETY

SAFETY

RUDOLPH AND SLETTEN IS A NATIONALLY RECOGNIZED LEADER IN CONSTRUCTION SAFETY.

SAFETY EXCELLENCE

Excellence in jobsite safety has been one of the enduring qualities of Rudolph and Sletten. For decades, our safety program has been looked upon as the model for the rest of the construction industry. The evidence of our excellent safety program is reflected in our long history of posting very good Experience Modification Rates and exceptionally low frequency ratings. Additionally, we have been the recipient of the Construction Employers Association's (CEA) Excellence in Safety award since its inception in 2003.

NOTABLE SAFETY AWARDS

- Consistent annual recipient of Construction Employer's Association (CEA), Award for Excellence in Safety Training and Performance
- 2004: Association of General Contractors (AGC) of America, Safety Award of Excellence in Recognition of Unique Safety Applications
- 1994 and 1996: AGC of California, Award for Best Safety Program and Safest Contractor in California
- Consistent annual recipient of AGC of America's Certificate of Commendation for Safety Excellence
- Golden Gate Partnership Recognition from CalOSHA 2013

Rudolph and Sletten is a nationally recognized leader in construction project safety. It is our firm belief that all injuries can be prevented and we will take every possible step to make that belief a reality. This commitment is shared by each of member our SCCD Biotechnology & Science Building Project Team and anything less will not be tolerated.

SAFETY PROGRAM

The keys to a successful safety program are awareness, clear communications, genuine concern for worker safety and the development of a "can do" attitude and team approach to accident prevention. A successful safety program not only results in cost savings for our clients, but also is good business. We have been successful in our safety efforts because we have established an effective injury prevention program that employs continuous leadership and effort by everyone involved: management, job supervision, and our crafts people themselves. We treat safety as an integral part of production and believe that the two cannot be separated. For this project, as with all Rudolph and Sletten projects, we will have full-time Safety Coordinators on-site throughout the duration of the construction activities. Their responsibilities include ensuring every individual on-site is safety-oriented for the project, meeting all the requirements of Rudolph and Sletten, SCCD and of course OSHA.

The Safety Coordinators will ensure all subcontractors on-site have the proper safety documents on file as well as maintaining Rudolph and Sletten safety documentation. All Rudolph and Sletten safety coordinators in the field are supported by the resources of our corporate safety department.

“ Since 2003, the Construction Employers' Association (CEA) has annually recognized deserving firms through its safety and recognition award program. Rudolph and Sletten, Inc. has been recognized for Excellence in Safety every year since the program's inception. ”

Michael Walton, Secretary
Construction Employers' Association (CEA)

MANAGING SAFETY PROGRAM REQUIREMENTS

Rudolph and Sletten's preliminary safety plan for SCCD's BTSB project is as follows:

During preconstruction, site logistics, equipment access and worker parking areas plans will be developed, in conjunction with SCCD staff. Items such as fence and barricade layout, location of the personnel hoist, crane pick points, etc. will be established after coordination of the requirements of the surrounding neighbors and the needs of the project.

Once the site logistics are developed, the project specific work plans for each of the major trades will be developed with input from our in-house safety department. The work plans will cover work hours, access points, pre-job inspections and meetings, etc. The specifics will be included in each respective trade's bid package information.

Any hazardous work activities, such as confined space access, South Tower demolition, MEP System shutdown and tie-ins, will be clearly delineated as noted in Rudolph and Sletten's Injury and Illness Prevention Manual. The field safety staff will take charge of the site and all activities on it.

JOBSITE SAFETY PERSONNEL

At Rudolph and Sletten, the project superintendents are directly responsible for each worker's safety on the project. Assisting the superintendents are trade positions that we call jobsite safety coordinators. The jobsite safety coordinators will be assigned to safety inspections and enforcement on a full-time basis for the duration of the project. They will be responsible for further refinement of the individual trade safety and work plans, as noted in the Instructions To Bidders, with Rudolph and Sletten's pre-task checklist program and the specifics of the site on a daily basis. The jobsite safety coordinators will also be responsible for the safety orientation that will be given to each and every worker on the site, including all subcontractors, as well as the twice daily "Head to Toe" job safety inspections that are our company standards. He will be responsible for correcting those safety issues that he can physically perform, and if there is something that he cannot perform, or is immediately hazardous to life and limb, then to stop the activity immediately and notify the project superintendents to take the appropriate action. The jobsite safety coordinators will also be responsible for all safety inspection reporting, injury reports and analysis.

In addition to the daily safety inspections and supervision, we will also have a full-time Health and Safety Inspector on site during especially hazardous operations such as steel erection. This person is Brian Miller, Environmental Health and Safety Director, who also serves as the leader of our Safety staff for the company. During these activities, Brian will be on site for the pre-task meeting, reviewing the site specific safety requirements of each activity, and then supervise the activities during the actual construction. The jobsite safety coordinator will report directly to Brian in defining the safety requirements for the operation.

This is just a brief description of our safety plan for the SCCD Biotechnology & Science Building project. The specifics will be further developed over the course of the project, and be codified in the Job Safety Manual that will be submitted for review and approval by the SCCD project team as needed prior to the start of construction.

EXPERIENCE MODIFICATION RATE (EMR)

YEAR	EMR
2014	0.76
2013	0.69
2012	0.81
2011	0.87
2010	0.87

TOTAL RECORDABLE INJURY/ILLNESS RATE

YEAR	TOTAL RECORDABLE INJURY/ILLNESS RATE	AVERAGE LOST WORK RATE
2014	1.35	0.45
2013	1.51	0.43
2012	1.92	0.77

6. BUILDING SYSTEMS DESCRIPTION

BUILDING SYSTEMS DESCRIPTION

1. LABORATORY PLANS

ORGANIC CHEMISTRY LABORATORY

Description – Instructional laboratory for study of the structure, properties, and reactions of organic compounds and organic materials, which in their various forms contain carbon atoms. Due to the use of potentially hazardous chemicals in many experiments and activities, students' primary work stations are inside chemical fume hoods. In addition, some open benchtop work will take place such as pre-lab presentation and discussion, lab write-up, glassware washing and drying, and other activities involving non-hazardous substances. Important adjacencies include balance room, instrument room, prep chemistry stockroom, and tech room. HVAC to provide 100% outside air ventilation and negative pressurization based on a 14-hour day occupancy. Finishes include epoxy flooring with integral base, gypsum board walls with epoxy paint, and acoustical ceiling.



Foothill College Full View Fume Hoods

Equipment and Furnishings – Island benches for 28 students in groups of four with multiple sinks. 16 four foot chemical fume hoods with lab vacuum, lab compressed air, lab natural gas, and industrial cold water with oval cupsinks. Flammable liquids storage cabinets and glassware kit storage to be provided below hoods. Lockable student storage drawers to be provided. Instructor station with lab vacuum, lab compressed air, lab natural gas, and AV inputs. White marker board, large flat panel video display monitor, and wireless data network to be provided. Safety shower/eyewash station and additional eyewash station at one student station. Accessible path of travel, workstations, hoods, sinks, safety equipment, and

storage according to code. Electrical power, lab vacuum, lab compressed air, lab natural gas, and sinks with industrial hot and cold water and purified water at perimeter benching. There will be Owner furnished movable equipment such as laptop cart, benchtop centrifuges, drying ovens, hotplates, Bunsen burners, and glassware.

Opportunities for Innovation and Quality Enhancement – Full view chemical fume hoods offer an opportunity for improved visibility of hood interiors by means of up to four safety glass sides in lieu of the typical single glass sash which can increase safety by allowing the instructor to more easily monitor activities inside the hood. Full view hoods also offer the added benefit of increased work area by eliminating the typical thick hood side walls for housing plumbing by moving plumbing to corner posts and providing single panes of safety glass for side walls.

Rectangular student benches perpendicular to the teaching wall could provide significantly increased surface area and possibly additional storage space for student open bench work stations. The proposed Sheldon Axis Infinity Student Laboratory Table provides approximately a total of 16 square feet of work surface or 4 square feet per student at each four-student island. However, a typical rectangular bench layout in a room of a similar square footage (though different proportions) could provide 7.5 square feet per student or almost double. Plus, more storage space under the bench could be provided compared to the Sheldon units.



Antelope Valley College Rectangular Benches

BIOLOGY LABORATORY 1

Description – Instructional laboratory for introductory, environmental, marine, and organismal biology, and physiology. Student work involves examination and study of various invertebrate, vertebrate, plant, and other types of organisms including their relationships and adaptations to their environment. Physiological studies relate structure to function, use instrumentation to measure physiological variables, and enables students to critically evaluate functional status. Important adjacencies include Prep Room, Biology Lab 2, Anatomy Dry Lab, and access to the outdoor regional environment. HVAC to provide 100% outside air ventilation and negative pressurization based on a 14-hour day occupancy. Finishes include sheet flooring with integral base, gypsum board walls with epoxy paint, and acoustical ceiling.

Equipment and Furnishings – Island benches for 32 students with lab vacuum, lab compressed air, lab natural gas, power, and data. Backdraft workstations for dissection at perimeter benching. One four foot chemical fume hood with lab vacuum, lab compressed air, lab natural gas, and industrial cold water with oval cupsink. Instructor station with lab vacuum, lab compressed air, lab natural gas, and AV inputs. White marker board, large flat panel video display monitor, and wireless data network to be provided. Safety shower/eyewash station. Accessible path of travel, workstations, hood, sinks, safety equipment, and storage according to code. Electrical power,

lab vacuum, lab compressed air, lab natural gas, and sinks with industrial hot and cold water and purified water at perimeter benching. One floor mounted CO2 incubator. There will be Owner furnished movable equipment such as laptop cart and microscope cabinets.



Cal State Stanislaus Biology Laboratory

Opportunities for Innovation and Quality Enhancement –

This laboratory will involve field studies for many of the courses which often require specialized equipment to obtain and hold specimens for laboratory examination such as buckets, nets, short boots, tall wader boots, cooler chests, GPS equipment, maps, aquaria, and herbaria. Laboratories with field study components often benefit by provision of an indoor or outdoor wash-off space and a small added field equipment storage room to store, charge, clean, dry, and deploy such equipment. This can allow the laboratory itself to be more flexible for teaching multiple disciplines as specialized equipment would be stored elsewhere.

Dissections for this laboratory will involve preserved specimens which often contain hazardous chemicals requiring proper ventilation when in use. The proposed design includes perimeter backdraft ventilation stations to eliminate these hazardous fumes from the breathing zone, but another option to consider would be pull-down ventilation articulated arms (“snorkels”) that could be deployed at the student islands during these activities. This could free perimeter benching for other purposes such as display and other non-dissection activities.



North Carolina State Field Equipment Storage

BIOLOGY LABORATORY 2

Description – Instructional laboratory for cellular, micro, and molecular biology. Student work involves microscopy, staining, aseptic techniques, identification, microbial growth, structure and function of biological molecules, cell structure and function, cell physiology and metabolism, genetics, and the techniques used in biotechnology to manipulate DNA. Important adjacencies include Prep Room, Biology Lab 1, and Anatomy Dry Lab. HVAC to provide 100% outside air ventilation based on a 14-hour day occupancy. Finishes include sheet flooring with integral base, gypsum board walls with epoxy paint, and acoustical ceiling.

Equipment and Furnishings – Island benches for 32 students with lab vacuum, lab compressed air, lab natural gas, power, and data. One four foot chemical fume hood with lab vacuum, lab compressed air, lab natural gas, and industrial cold water with oval cupsink. Instructor station with lab vacuum, lab compressed air, lab natural gas, and AV inputs. White marker board, large flat panel video display monitor, and wireless data network to be provided. Safety shower/eyewash station. Accessible path of travel, workstations, hood, sinks, safety equipment, and storage according to code. Electrical power, lab vacuum, lab compressed air, lab natural gas, and sinks with industrial hot and cold water and purified water at perimeter benching. One floor mounted CO2 incubator. There will be Owner furnished movable equipment such as laptop cart, microscope cabinets, refrigerator/freezer, and one four foot laminar flow hood.



Digital Projection Microscopy

Opportunities for Innovation and Quality Enhancement –

This laboratory includes the exploration of cellular functions at microscopic and submicroscopic scales. Imaging technologies to display functions at that level are integral to allowing students to understand structures and mechanisms involved. Incorporation of multiple imaging systems including digital display microscopes, document cameras, gel docs, and other digital imaging devices could be provided to help immerse students in this intricate subject matter and therefor improve comprehension.

Some institutions have found it beneficial to provide an additional small specialized support room for imaging technologies which must take place in a darkened environment to allow electrophoresis gels, biological markers, and biological structures to be visible. These technologies may also have outputs for digital recording of images for later display and discussion with larger class groups.



Darkened Confocal Imaging Room – UCSD

ANATOMY / HUMAN BIOLOGY

Description – Instructional laboratory for anatomy and human biology. Student work involves cell structure and function, human evolution, anatomy and physiology, genetics, anthropomorphic environmental impact, microscopic investigation of prepared slides of tissues and organs, gross anatomical dissection, and examination of prosected human material. Important adjacencies include Anatomy Wet Lab. HVAC to provide 100% outside air ventilation with negative pressurization based on a 14-hour day occupancy. Finishes include sheet flooring with integral base, gypsum board walls with epoxy paint, and acoustical ceiling.

Equipment and Furnishings – Movable tables for 30 students with power and data supplied from floor boxes. One four foot chemical fume hood with lab vacuum, lab compressed air, lab natural gas, and industrial cold water with oval cupsink. Movable instructor table power, data, and AV inputs in floor box. AV system to control cameras in Wet Lab. White marker board, large flat panel video display monitor, and wireless data network to be provided. Safety shower/eyewash station. Accessible path of travel, workstations, hood, sinks, safety equipment, and storage according to code. Electrical power, lab vacuum, lab compressed air, lab natural gas, and sinks with industrial hot and cold water and purified water at perimeter benching. Tall storage cabinets at perimeter for storage and display of anatomical models. There will be Owner furnished movable equipment such as microscope cabinets, anatomical models, and skeleton models on rolling stands.

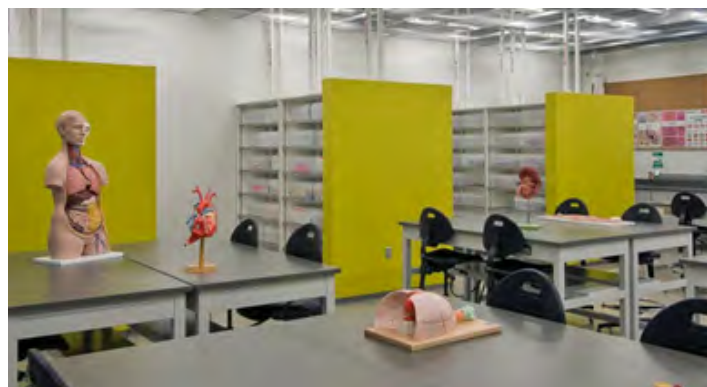


Scottsdale Community College Vented Specimen Storage

Opportunities for Innovation and Quality Enhancement

– This laboratory is anticipated to work in tandem with the Anatomy Wet Laboratory. The Wet Laboratory could need significant human prosection storage for various body parts so there could be an opportunity for innovative storage equipment fabricated in stainless steel to hold the body parts to display on the ventilated prosection tables.

This Dry Laboratory is currently planned to be used primarily for instruction and the study of anatomical models. However, some institutions also utilize similar laboratories for wet dissection functions to increase flexibility and expand course offerings. To accommodate dissection in this space, if desired as an option for long term flexibility, additional ventilation systems could be needed and potentially dissection specimen storage. Such storage can be incorporated inside the lab allowing students to access the dissection specimens without leaving the room.



Antelope Valley College Downdraft Table

BIOTECHNOLOGY LABORATORY 1 – CELL CULTURE

Description – Instructional laboratory for cell culture growing and thawing to produce proteins. Student work involves aseptic inoculation techniques, use of incubators, cGMP processes, and SOP (Standard Operating Procedures). Important adjacencies include Clean Room Suite, Skills Room, Gowning, Prep, and the BT-2 Lab. HVAC to provide a clean room environment with outside air ventilation based on a 14-hour day occupancy typically, but with the ability to provide 24-hour operation for occasional special experimental activities. Finishes include sheet flooring with integral base, gypsum board walls with epoxy paint, and acoustical ceiling.

Equipment and Furnishings – Movable tables with electrical receptacles, data ports, and lockable casters for 28 to 32 students with power and data supplied from floor boxes. Six HEPA filtered laminar flow hoods. White marker board, large flat panel video display monitor, and wireless data network to be provided. Safety shower/eyewash station. Accessible path of travel, workstations, hoods, sinks, safety equipment, and storage according to code. Electrical power, lab vacuum, lab compressed air, lab natural gas, and sinks with industrial hot and cold water and purified water at perimeter benching. There will be Owner furnished movable equipment such as laptop computer cart and an AV console.



Northwestern University Prefab Clean Room

Opportunities for Innovation and Quality Enhancement – As with all the biotechnology laboratory and laboratory support spaces in this facility this space is planned to support a training program focused on a fairly specific current local biotechnology industry. As the industry possibly changes over time, it might be beneficial if spaces for training workers could adapt as well. For example, the gowning spaces simulate the current needs to maintain industrial clean environments, but what if the industrial gowning protocols change? One possible option to consider could be to use demountable partitions for some or all of the biotechnology spaces allowing reconfiguration in the future to adapt to an evolving industry.

Another option to consider for providing power and data to the movable student tables could be overhead service carriers in lieu of floor boxes. This provides a potential greater level of flexibility as power and data could be provided in more locations to support more table configurations.

The two small Class 1,000 (ISO 6) Clean Rooms may present another opportunity for adaptable solutions to address potential industry change over time. In lieu of fixed walls to enclose the clean rooms, an option to consider could be pre-engineered clean rooms using modular wall and ceiling panels that could potentially be disassembled and reconfigured to adjust to changing industry conditions.



WSU Biotech Overhead Service Carriers

BIOTECHNOLOGY LABORATORY 2 – BIOREACTORS

Description – Instructional laboratory for various volumes of “seed-train scalable growth” of bacteria, fungi, yeasts and/or mammalian cells placed in seed bioreactors to multiply with flexible controllers and process analytics. Student work involves cleaning, sterilization, inoculation, operation and monitoring of fermenters and bioreactors including cGMP processes, and SOP (Standard Operating Procedures). Important adjacencies include Prep, BT-1 Lab, BT-3 Lab, BT-4 Lab, and Bioreactor Utility Closet. HVAC to provide a clean room environment with outside air ventilation based on a 14-hour day occupancy typically, but with the ability to provide 24-hour operation for occasional special experimental activities. Finishes include sheet flooring with integral base, gypsum board walls with epoxy paint, and acoustical ceiling.

Equipment and Furnishings – Movable tables with electrical receptacles, data ports, and lockable casters for 30 students with power and data supplied from floor boxes. White marker board, large flat panel video display monitor, and wireless data network to be provided. Safety shower/eyewash station. Accessible path of travel, workstations, sinks, safety equipment, and storage according to code. 3 liter, 20 liter, and 100 liter bioreactors requiring power, electrically generated steam, O₂, N₂, CO₂, air, effluent waste discharge, and cooling water. Electrical power, lab vacuum, lab compressed air, lab natural gas, and sinks with industrial hot and cold water and purified water at perimeter benching. There will be Owner furnished movable equipment such as microscope cabinets and an AV console.



Movable Wall Benches at Biogen Idec

Opportunities for Innovation and Quality Enhancement –

As with the BT-1 Lab overhead services carriers could be considered for power and data distribution to the student tables for potential increased flexibility in terms of furniture arrangements.

In addition, movable perimeter benching could be considered to increase long-term flexibility in lieu of fixed laboratory casework. Sink units can even be made movable with the provision of recessed wall hook-up panels.



Moveable Sink Unit



Wall Hook-Up Box at MD Anderson

Light colored benchtops is an option to consider to improve light reflectance and overall room illumination for a small upcharge compared to standard black benchtops.

BIOTECHNOLOGY LABORATORY 3 – PURIFICATION & RECOVERY

Description – Instructional laboratory for recovering, isolating, and purifying proteins. Student work involves centrifugation, ultrafiltration, cell disruption, and chromatography techniques as well as cGMP processes, and SOP (Standard Operating Procedures). Important adjacencies include Prep, BT-1 Lab, BT-2 Lab, and BT-4 Lab. HVAC to provide a clean room environment with outside air ventilation based on a 14-hour day occupancy typically, but with the ability to provide 24-hour operation for occasional special experimental activities. Finishes include sheet flooring with integral base, gypsum board walls with epoxy paint, and acoustical ceiling.

Equipment and Furnishings – Tablet arm chairs for 30 students with power and data supplied from floor boxes. White marker boards, large flat panel video display monitor, and wireless data network to be provided. Safety shower/eyewash station. Accessible path of travel, workstations, sinks, safety equipment, and storage according to code. Cell disrupter equipment requiring power and water and filtration unit requiring power. Electrical power, lab vacuum, lab compressed air, lab natural gas, and sinks with industrial hot and cold water and purified water at perimeter benching. There will be Owner furnished movable equipment such as microscope cabinets, centrifuges, and an AV console.

Opportunities for Innovation and Quality Enhancement – A significant portion of this space appears to be dedicated to what is basically a classroom function with tablet arm chairs, white board, instructor station, and large video monitor.

An option to consider could be to remove the classroom function from the laboratory environment and house it in more typical classroom space and thereby reduce the area of the laboratory function. The classroom space could be directly adjacent to the laboratory space separated by windows to provide maximum visibility if desired, and if adequate glazing is provided, views through the classroom to the lab from the corridor. This could have several important benefits including lower construction cost for the classroom area since it would not necessarily need the same level of finishes and environmental controls as the laboratory portion. And it could lower operating costs as the classroom area should not need the 100% outside air ventilation that the laboratory area requires.

Another potential option to consider would be provision of folding/nesting tables and chairs in lieu of tablet arm chairs. This might require more overall area, but if construction costs are lowered by separating the classroom function and the laboratory function, there might be an even trade off of costs. The benefits of tables and chairs compared to tablet arm chairs are numerous including accommodation of laptop computers at student stations, more space for books and papers, more options for room layouts (rows, seminar, conference room, presentation, etc.), and better arrangements for collaboration.



University of Notre Dame Classroom/Lab Combination



University of Missouri Flexible Classroom Tables

BIOTECHNOLOGY LABORATORY 4 – QA / QC

Description – Instructional laboratory for hands-on small scale research and development instrumentation training and exposure to assessment techniques. Student work involves electrophoresis, High Performance Liquid Chromatography (HPLC), Enzyme Linked Immunosorbant Assay (ELISA), Polymerase Chain Reaction (PCR), and other techniques as well as cGMP processes, and SOP (Standard Operating Procedures). Important adjacencies include Prep, BT-1 Lab, BT-2 Lab, and BT-3 Lab. HVAC to provide a clean room environment with outside air ventilation based on a 14-hour day occupancy typically, but with the ability to provide 24-hour operation for occasional special experimental activities. Finishes include sheet flooring with integral base, gypsum board walls with epoxy paint, and acoustical ceiling.



TSRI Movable Bench System

Equipment and Furnishings – Island benches and perimeter benches including workstations for 25 students including electrical power, lab vacuum, lab compressed air, lab natural gas, and sinks with industrial hot and cold water and purified water. White marker boards, large flat panel video display monitor, and wireless data network to be provided. Safety shower/eyewash station. Accessible path of travel, workstations, sinks, safety equipment, and storage according to code. Two “biotent” spaces, each with a six foot laminar flow hood. There will be Owner furnished movable equipment such as ELISA plate readers, movable laptop cart, and an AV console.

Opportunities for Innovation and Quality Enhancement –

An option to consider for the island and perimeter benches to increase long term flexibility could be the use of “plug and play” movable benching systems with user-configurable components including benchtops, shelving, and storage. There are numerous options for such systems with varying load capacities and configurations. Almost all rely on ceiling panels or overhead service carriers to connect to electrical power, data, laboratory natural gas, laboratory vacuum, laboratory compressed air, and specialty gases. Some systems even include movable sink units relying on quick connects for water, flexible tubing for vent connections, and floor sinks for waste discharge. With most manufacturers producing such furnishings systems, pricing has become fairly competitive allowing use in many industry and academic laboratories.

A further option to consider for the “biotent” spaces would be the expansion of “soft walls” (suspended transparent flexible plastic strips) from two sides as currently planned to three sides or more. The advantage of more soft wall is the potential for increased long term flexibility by avoiding fixed built in structures that could impede changing configurations.



UCSF Movable Bench System



UCSD Flexible Soft Wall “Biotent”

2. STRUCTURAL FRAMING / FOUNDATION SYSTEMS

The Biotechnology & Science Building project at the Vacaville Campus of the Solano Community College is proposed to be a one-story steel framed building with a high bay open lobby space. The building has classroom and lab areas as well as supporting spaces. The roof framing consists of 18 gauge metal deck spanning approximately 10 feet to steel wide flange beams. A high lobby structure with the roof at 24' has been added, with the majority of the building at 17' roof height. Skylight openings in the roof have been accommodated between beams and will provide natural light into the building. The wide flange beams span up to 40 feet to steel wide flange girders spanning to wide flange columns. The columns have been positioned to minimize the impact to the high traffic areas, while maintaining a sufficient number for efficiency of the structure. Both interior and exterior walls will be constructed of metal stud framing.

Additional building enhancements include the exterior steel framed canopies which have been placed at the lobby and quad which provide protection from the elements in these high traffic and gathering areas. The cantilevered columns will be utilized for structural support of the girders and joists at the canopies. A full height glazing system will be utilized at the lobby. The adjacent 2 story classroom building will be modified at the interface with the new building to provide an open view to the classroom. The existing building's steel braced frame will be exposed as part of this modification. The building otherwise will remain unaltered structurally.

Integrated Steel Delivery will be utilized in this project to accelerate the steel delivery to the site and reduce costs. By putting the Structural Engineer, Steel Fabricator, and Steel Detailing team in a collaborative role during design phase to share information and identify open design issues and drive these to closure the steel is delivered faster and with fewer conflicts. The sharing of electronic 3-D models by the Structural Engineer and Steel Detailing team results in increased efficiency and accuracy while shortening the schedule. Buehler & Buehler, Structural Engineers, Inc. and Golden State Steel have utilized this methodology successfully on past projects.

Several lateral systems were studied including brace frame, tilt-up and CMU construction as well as a steel moment frame as proposed in the RFP. The facility's plans for future expansion as well as for interior open spaces made moment frames an obvious best fit solution. Despite the increased cost, the moment frame lateral system chosen in order to best enhance the building by providing a structural system that allows for flexibility. The layout of frames is coordinated with the floor plan modifications and provides an open plan free of interior and exterior braces or hardened walls with flexibility for expansion and future building modifications.

The mechanical area of the roof is framed with a metal deck and concrete roof in order to minimize the impacts of vibration and noise from the mechanical units. The mechanical units on the roof are screened with a steel and metal panel screen wall. The exterior on grade yard has also been screened. Suspended ductwork will be coordinated with reduced roof steel beam depths along the primary routing to maximize the available space below the duct and to optimize the building height.

The foundation system consists of a perimeter grade beam with spread footings at interior and exterior column locations. The ground level slab will be comprised of a 5-inch-thick reinforced concrete slab on grade over vapor barrier and gravel base. Water/cement ratio of the slab will be minimized to a ratio of 0.45 to reduce residual moisture in the slab for flooring. The geotechnical report notes some concern with overall and differential settlement including effects of seismic settlement. To best provide continuity of the building and to avoid excessive damage following a seismic event, the exterior and primary interior spread footings are connected with a grade beams. This methodology of connecting the foundation where settlement can occur is consistent with past DSA projects.

The project is located in Vacaville CA and is under the Division of the State Architect (DSA) Jurisdiction as a school building. The team has worked extensively with DSA in the past and will be a collaborative partner with the plan reviewers and field staff. The 2013 CBC will be utilized for all design documents.

3. ELECTRICAL SYSTEMS

Site electrical work includes primary conduits and pull boxes for PG&E primary distribution to a new PG&E-provided pad-mounted transformer. The conduits will be in a joint trench with the new gas line. Secondary conduits from the transformer to a 1600A 480V exterior switchboard are also provided in the joint trench. A 600A emergency distribution switchboard and three transfer switches for Life Safety, Required Standby, and Optional Standby loads are provided adjacent to the main switchboard outside in the service yard as well as a sound-attenuated enclosed 300kW standby generator with an integral sub-base fuel tank with 72 hour capacity. Site lighting in the yard area and along the new access road is provided by the addition of four light poles that will match existing parking lot poles and fixtures.

Transformers, distribution panels, normal lighting, and emergency panels are located within the electric room and underground feeders supply individual 225A Lab Panels accessible from outside the Labs. These panels feed the bulk of the equipment, devices, and plug mold within the labs and adjacent support spaces; critical loads and receptacles are fed from the generator-backed panel in the Electric Room. Metering for various sub-divisions of the electrical system is provided and energy consumption will be publicly displayed such that building users are aware of what their consumption is. Power generated from on-site renewable PV and wind sources will be displayed adjacent to the consumption display. The attached maintenance-friendly preliminary one-line diagram shows the anticipated arrangement distribution arrangement.

LED lighting is used throughout the building with innovative Title-24 compliant occupancy and daylighting controls and local manual control switches in each space. Three-way and 4-way switching is used where needed. Most fixtures are 2'x4' lay-in troffers; pendant-hung direct/indirect linear fixtures are used in the main Lobby, Corridor, Conference Room, and Interactive Spaces. Explosion proof fixtures are used in the Chemical Storage Room and the Wet Anatomy Lab is equipped with dual-headed surgery lights per the Criteria documents. Exterior LED wall packs on the north side of the building provide illumination for egress and security. Generous quantities of exterior surface-mounted downlights

provide a sense of place and an appealing nighttime entry to the building from the main entrance on the west and from the courtyard to the south.

Tele/Data fiber and copper backbone from the 2nd floor Server Room (MDF) in the existing building are extended via two 4" conduit pathways to the new IDF which is built-out with overhead ladder racking, ground bar, and cabinet or 2-post rack with punch-down and patch panels per District Standards. Horizontal Category 6 cabling to all work area outlets and supported equipment (A/V, Security, Fire Alarm panel, etc.) is included via conduit stubs to accessible ceilings and j-hook pathways, appropriately fire-safed at wall penetrations. Terminations, testing, and documentation for the required 25 year warranty is included.

A stand-alone Edwards EST3 Fire Alarm system with all wire in red conduit is provided as required. Security systems (Access Control, Intrusion Detection, and Surveillance) are provided per District Standards. Exact camera quantities and placement will be coordinated with the District.

AV systems with integrated controls and pathways per District Standards are also included. Red light/green light systems for the ante-rooms to the Bio-Technology Labs is provided for real-world simulation and training.

4. PLUMBING SYSTEM

The building will be served by the following plumbing systems:

- Domestic hot and cold water utilizing Type L Copper Pipe with pressed fittings.
- Industrial Hot and Cold Water utilizing Type L Copper Pipe with pressed fittings.
- Sanitary Sewer (Waste and Vent) utilizing PVC piping with glued fittings for under ground installation and PVC DWV piping with glued fittings for above ground installation.
- Laboratory waste and vent utilizing PVC piping with glued fittings for underground installation. System to serve eyewashes and showers and will drain to underground storage tank for disposal.
- Natural gas system utilizing black steel piping with threaded fittings.

- Storm water system utilizing Cast Iron Pipe and fittings.
- CO₂, O₂ & Nitrogen system utilizing Type L copper cleaned and capped with brazed fittings. Supply tanks to be stored in mechanical room.
- Compressed air system utilizing Type L copper cleaned and capped with brazed fittings. Air to be supplied by air compressor skid located in mechanical room.
- Vacuum system utilizing Type L copper with soldered fittings. Vacuum to be supplied by vacuum skid in mechanical room.
- Reverse Osmosis system using Sch 80 PVC pipe with solvent weld fittings. RO water to be produced by purification equipment located in mechanical room. System to be sterilized during commissioning to ensure purity.
- Tempered water to emergency eyewashes and showers to be provided via mixing valve located at each fixture.
- Domestic & Industrial hot water to be generated by commercial Gas hot water heater located in the mechanical room.

5. HVAC SYSTEM

The building will be served by a mechanical plant located on the outside of the facility. The plant incorporates a 180 ton air cooled chilled water system and a 3,766,000 BTU/h heating system. The heating system utilizes two high efficiency boilers with an input capacity of 1,999,000 BTU/h each. The heating and cooling hydronic systems both incorporated primary/secondary pumping systems with variable frequency drives on the secondary system for variable flow.

The heating water and chilled water will be distributed throughout the building to the air handlers and the reheat coils located on the variable air volume boxes to provide additional heating and cooling.

The building is served by three custom air handlers, and split system DX cooling only units for 24 hour cooling areas. The air handlers AHU-1 and 2 are 100% outside air units due to the project requirements and the amount of exhaust required for the laboratory areas served by the air handlers. The AHU-3 unit handles the Lobby and supporting areas.

The AHU-1 and 2 units are dual tunnel units such that one side of the unit is the exhaust portion, while the other side is the supply/conditioned portion. The units incorporate run around heat coils to preheat or pre-cool the outside air while reclaiming the heating or cooling from the building exhaust. The supply air is cooled further utilizing a chilled water coil, or heated using a hot water coil. The units also are variable air volume units incorporating variable frequency drives for additional savings when the building is unoccupied. These two units serve the Biotechnology, Biology, and the Chemistry areas.

The remaining custom air handling unit AHU-3 is a four pipe, variable air volume unit, with variable air volume terminal boxes with reheat coils for individual zone control. This unit serves the Conference, Corridors, Lobby, Offices and Restrooms.

The split systems, serve areas that require 24 hour cooling or off hour occupancy. These stand alone systems prevent the main plant system and building air handlers from needing to operate during off-hours.

The individual variable air volume boxes will interlocked with the occupancy sensors such that if the room is not occupied, the box will close to 10% of the air volume and the associated air handler will also reduce in capacity.

The building will have high plume laboratory exhaust fans, for the chemical fume hoods in the lab areas. The fans are controlled with variable frequency drives for energy savings.

LOAD CALCULATIONS:

1. Load calculation method / software: EnergyPro
2. Summer outdoor design conditions: 99.3 ° F. dry bulb, 67.2 ° F. wet bulb.
3. Winter outdoor design conditions: 30 ° F. dry bulb
4. Indoor design conditions: 72 ° F.; 50% RH cooling; 72 ° F heating

6. EXTERIOR CLOSURE / WALL AND ROOFING SYSTEMS

The R&S | SGJJR team's proposal for the Exterior Envelope is as follows:

- Create a cost effective solution for the exterior enclosure.
- Use materials that relate to the existing Vacaville Center.
- Create a building that exceeds Title 24 in its performance with appropriate glazing to wall ratio and effective insulation in the wall assemblies.
- Selection of materials that are readily available to allow for ease of construction and maintenance over the long term.

The Exterior wall of the new building is composed of Exterior Cement Plaster, Storefront Aluminum Mullions with High Performance Low-E Insulated Window Glazing and an Exterior Aluminum Louvered Canopy to mark the building entrance. An accent material, a cement fiber board panel system with frequent joints will be used to frame the primary entrance glazing in a color that compliments the Vacaville Center building's use of accent colors and ties the existing building into the new building.

The South Terrace is an outdoor space that is defined by a cluster of faculty offices along the south of the building, a secondary building entrance into the viewing gallery. A trellised arcade extends from the new building lobby to the biology lab cluster and provides a shaded exterior walkway which doubles as an exterior classroom. The intimacy of the windows into the faculty offices responds to the movement of pedestrians along this important building feature. The wall materials are Exterior Cement Plaster, the windows are Anodized Aluminum Mullions with high performance glass and a silkscreened frit pattern to provide a degree of privacy to the offices and also to reduce glare to the southern exposure. The Exterior Trellis is painted Aluminum louvers in a painted steel frame structure.

The roof material is a built up system with an integral light color to reduce the heat island effect. A perforated corrugated metal screen wall conceals the mechanical equipment, exhaust fans and duct routing while allowing ventilation to support the equipment functionality. The roof itself will be a light color with a high albedo content to reflect light and allow the building to remain cooler. A prefinished aluminum parapet coping encapsulates the roofing material at the top of the wall and will complement the wall color and provide a durable system to protect the wall.

Paving materials for the site include select areas of integral color concrete at the entry plaza to define paths and create a sense of orientation. A contrasting grey DNA strand pattern is also added along the entry courtyard to hint to a science theme. The balance of the site walk areas are standard gray concrete to match the existing pathways and paved areas. Turflock is used for portions of the fire truck access on the east side of the project. This material allows water to be returned to ground sources rather than running off the site, it also integrates with the landscape materials planned for the north quad. A light colored concrete will be used at the north service corridor to integrate with the interior materials and provide improved light levels while reducing the heat island effect of asphalt or darker colored materials.

7. SITE UTILITIES

Proposed domestic water, fire water, sanitary sewer, storm drain, and all dry utility relocations and/or service connections will be designed according to specified codes and/or campus standards. With the exception of water and joint trench facilities, which have proposed points of connection within North Village Parkway, all other utilities have points of connections located in general proximity to the proposed building area and within the existing campus facility, as indicated on the criteria documents.

From the criteria documents, the proposed sanitary sewer service is currently planned to connect to a manhole located off the southwest corner of the existing building. The criteria documents appear to show the inverts of the existing 24" storm drain and existing 8" sewer line near this location having approximately the same invert which may make the sewer connection shown in the criteria documents to be infeasible as currently designed. These invert elevations are to be verified via field survey information and an alternate design explored as necessary.

A new domestic and fire water line will be connected to the existing water main in North Village Parkway and will connect to the proposed building along the north side of the building. It is understood that work within North Village Parkway will require an encroachment permit to be coordinated with the City of Vacaville.

8. STORMWATER SYSTEM

The existing site area, as indicated in the criteria documents, drains directly to underground storm drain piping. Similarly, the existing building has drain piping on both the east and west sides of the building which conveys drainage from the building directly to the piped system.

In order to comply with current California State Water Resources Control Board Phase II NPDES Permit for Small Municipal Storm Sewer Systems (MS4s), the proposed site is required to treat stormwater runoff prior to discharge to the municipal system. The criteria documents indicate a proposed stormwater bioretention area north of the new building and bioswale to the south of the new building, both to be designed in accordance with the requirements described in the July 2014 BASMAA Post Construction Manual.

Additionally, since the District wishes to pursue LEED Certification and the Silver level, the stormwater management system may also be designed to comply with LEED Sustainable Site Credits 6.1 and 6.2. Credit SS6.1, requires post-development peak discharge rate and quantity from exceeding the pre-development peak discharge rate and quantity for certain storm events. One strategy for achieving this goal is through bioretention. Therefore a strategy to be explored during the design phase will be to evaluate the feasibility of substituting the bioswale design (which provides little benefit in regards to Credit SS6.1) for a bioretention solution.

The location of the new building requires some existing storm drain piping on the east side of the building to be removed. After removal, all existing pipe ends and/or openings will be plugged/capped in accordance with City of Vacaville standards. Stormwater, once treated through the methods described above, will either infiltrate into subsurface soils or be discharged via underground pipes to the existing piped conveyance system. All new underground storm drain piping and structures will be designed in accordance with the City of Vacaville standards and specifications

Based on the Statewide Construction General Permit requirements (Order No. 2009-0009-DWQ and amendments thereto) and as outlined in the Criteria Documents, a Storm Water Pollution Prevention Plan will be prepared by a qualified SWPPP developer (QSD).

9. COORDINATION OF BUILDING SYSTEMS

Coordination of building systems is an integral part of SmithGroupJJR's design process. Early in the design process we will engage our engineering and specialty consultants, the construction team, and the SCCD construction management consultant in a fully collaborative and integrative effort. In addition to BIM technology, we use a variety of tools to support the development of the highest quality technical documentation. We schedule frequent consultant coordination meetings to review the project's progress and to exchange critical information that may impact cost, schedule and constructability issues. SmithGroupJJR has developed documentation standards to ensure the consistency of technical documentation across all building disciplines. Internal peer reviews performed by in-house senior technical architects are scheduled at each critical project milestone. Our peer reviewers target completeness, constructability, accuracy, and coordination of building systems across all disciplines.

As far as the existing capacity of the proposed utility lines and estimated demand on the completed system, our team believes system capacities to be adequate. However, clearly more study and analysis through the design process will yield greater level of certainty. In regard to interoperability of the various building systems, the Building Management System (BMS), compliant with ASHRAE Standard 135, BACnet compliant and open protocol, is our major workhorse when it comes to controlling major building system equipment. The BMS will have the capability to offer full access to programming along with compatibility for the laboratory controls. The control system or BMS will incorporate remote access through the internet with password protection. The use of control through an Apple iPhone or similar device will allow the end user to troubleshoot, control, change temperatures and or pressures remotely. The system will incorporate alarms for areas out of temperature, pressure or humidity ranges. Alarms will be broadcast to emails, phones, and or central monitoring locations within the Solano Community College District. The BMS System will also be compatible with central equipment such as air handlers, chillers, boilers, exhaust fans and laboratory equipment. The seamless interface will allow remote annunciation of any equipment issues. Troubleshooting of systems and or temperatures can be accomplished by utilization of historic trends. The BMS System will provide

trends of all agreed upon points as discussed with District personnel prior to programming the system.

Temperatures, pressures, and air flows of all systems will be monitored and alarmed. Current sensing relays will be incorporated for “run status” of all HVAC equipment. Recommended status and alarms will be agreed upon with facilities prior to programming the BMS System.

The BMS will incorporate as-built graphic representation of all systems. Floor plans will be incorporated indicating all duct systems, VAV boxes, hoods, chillers, boilers and pumps along with locations of thermostats and fire/smoke dampers. Zone temperatures, air flows, humidity and air balance will be easily controlled through the BAS graphic system. The power for the BAS System will incorporate 4-hour battery back up and be connected to the emergency power system.

The full integration of a BACnet compliant system and equipment also incorporating BACnet, will provide compatibility, ease of maintenance and operating efficiency will all building systems. The BMS System will also provide inputs/outputs that will be utilized by the real-time energy water use panels provided at the entrance of the building. These panels will allow students to visualize the power and water usage of the building anytime.

Lighting controls will be fully programmable.

10. ARCHITECTURAL APPROACH

The R&S | SGJJR team’s architectural concept for the Solano Community College District Biotechnology & Science Building was developed to create a facility that:

- Supports the College’s Vision and Mission to create a state-of the-art building dedicated to excellence in Science Education.
- Is universally accessible and provides enhanced wayfinding features.
- Integrates with the existing Vacaville Center to create a “sense of campus” through an inviting, light filled entrance lobby that acts as a link between the West side of the campus to the North campus quad.

- Creates connections between interior spaces and exterior shaded spaces. These spaces promote interaction and provide opportunities for outdoor classroom.
- Promotes the idea of Education on Display by providing glazed walls between the teaching laboratories and the public spaces. Additionally, the building is engaged with the existing North Campus Quad.
- Puts sustainability at the forefront of the design.

The Criteria Documents’ requirements for adjacency, function and size have been closely adhered to in our proposal. All of the program spaces have been accommodated and have maintained and reinforced functional relationships. In addition, through careful planning and high efficiency, our proposal includes additional spaces which add value to the proposal.

Please see enhancements section for detailed information.

The R&S | SGJJR team’s architectural concept incorporates the requirements of the Solano Community College Mater Plan and Design Standards, including Landscape and Signage Standards. The end result is a building and site design that is responsive to the existing and future campus fabric and is shaped to provide a lasting value to the Solano Community College District.

Our proposed planning scheme consists of two distinct and interrelated functional “Wings” linked by a viewing gallery:

- The Laboratory Wing is located on the north side and houses the majority of the laboratory functions.
- The Activity Wing is located on the south side and faces the entry plaza. This wing includes the entrance lobby, the south terrace, the interaction areas, the conference room, and the faculty offices.

The viewing gallery is conceived as a high-ceiling open space flooded with natural light that provides visual access to the teaching laboratories. Along the viewing gallery’s North side the laboratories are visible to the passerby through large glazed openings which showcase the science experiments and classroom activities taking place inside them. These activities include bioreactor processing, experiments conducted in fume hoods as well as presentations to classes all of which promote the idea that Science is interesting and fun. To create drama and enhance the viewing experience, the teaching labs have overhead “solar tubes” to bring daylight deep into the spaces and highlight the activities and equipment.

Along the south side, the viewing gallery widens to create interaction spaces outside the clusters of faculty offices. At the mid-point of the journey, the viewing gallery opens dramatically to the south providing views and direct access to the shaded terrace and to the North Campus Quad beyond.

The Activity Wing supports and complements the Laboratory Wing, and accommodates the following functions:

The Entry Plaza: A shade canopy floats over the Entry Plaza and defines the outdoor space and marks the Biotechnology and Science Building entrance. The Entry Plaza is bound by the entrance lobby on the west, the existing Vacaville Center Building on the south, and the strategically placed Biotechnology Lab 1 on the north. The Entry Plaza provides a shaded and thermally comfortable exterior space with seating areas. Trees offer additional shading.

The Entrance Lobby: The Entrance Lobby is the focal point of the building, and provides a direct link between the Entry Plaza and the South Terrace. The lobby creates a “grand entrance” for the building. On the north side of the Entrance Lobby, a large window reveals the Bioreactor Laboratory, showcasing its complex equipment that conveys the dynamic character of scientific exploration. On the south side, the Multipurpose Classroom is visually and physically connected to the Entrance Lobby. The lobby provides an overflow space for the classroom’s special academic programs, such as college orientation and evening math events among others. The lobby also houses a concession space and plenty of seating options. A directory screen is located in the entry lobby to enhance wayfinding.

The South Terrace: The South Terrace is a long arcaded space that overlooks the existing amphitheater and the North Campus Quad. This space offers plenty of opportunities for seating and direct access to the Entry Lobby, the exterior portion of the concession counter, and the viewing gallery. The South Terrace can function as an exterior classroom area.

The Faculty Offices: The faculty offices are organized in two “pods” of five offices each, organized around a semi-public quiet interaction area that promotes student/faculty interaction and peer to peer engagement for the students.

11. APPROACH TO SUSTAINABILITY

As a high performance building, daylighting is a primary design strategy to meet the experiential, sustainability, and energy goals of the new SCCD Biotechnology & Science Building. Considering daylight as the primary source of illumination aims to save energy by reducing or eliminating the need for electric lighting systems during daylight hours, and aims to maximize human health and comfort through visual connectivity to the sky and natural exterior environment. To understand and tune the daylighting performance of the proposed building, we will model and run simulations to understand the available daylight and develop the building accordingly based on the physics of light and material properties.

BUILDING FORM AND MASSING

The overall form and massing of a building are the first and most critical elements of a successful daylighting design. Key moves include minimizing floorplate depths and difficult exposures to control for visual comfort. Our proposal stretches the program into two narrow bars, with long north-south exposures connected by an entrance lobby. The long north and south exposures offer clear access to diffuse daylight on the north and easily controlled daylight on the south, while minimizing east and west exposures. The use of solar tubes and skylights contributes to the daylighting scheme.

EXTERIOR SHADE ELEMENTS

Our proposal for the SCCD Biotechnology & Science Building also features exterior shading elements integrated with the building skin and massing. Given the Vacaville climate, a well shaded skin is critical for daylighting performance, energy performance, and mechanical system design. We aim to exploit a very high performing building skin to reduce the requisite active system loads, both mechanical conditioning and electric lighting.

On the south facades, an exterior horizontal sunshade provides shade to the vision glass, keeping direct beam from striking occupants inside and also mitigating solar loads and thermal comfort. The west exposure features vertical fin elements to similarly shade the glass from low angle afternoon sun, while keeping daylight apertures open to diffuse illumination from the sky and other reflected indirect sources. The west exposure of the Entrance Lobby features an expansive span of

glass, shaded by a deep exterior shade canopy. The louvered canopy not only provides direct sun relief to the

Entrance Lobby, but also creates a tempered outdoor space that is shaded, comfortable, and enhances visual connectivity to the surrounding campus. Typically, a west facing exposure is difficult to shade with an overhang geometry, but given the need for a protected exterior space, this scheme provides a unique opportunity to shade both the building and exterior Entry Plaza with a single canopy structure. Additionally, by providing shade to the exterior space adjacent to the Entrance Lobby the exterior ambient temperature is also mitigated, creating a comfortable stepped thermal gradient as one moves in and out of the building.

LEED

The design process for a LEED certified project is marked by early goal setting and planning. In the early stages of the project the design-build team will work with the SCCD, the criteria architect, and the SCCD project management team to refine the projects' environmental goals. Energy modeling and life cycle cost analysis will be used to help weigh the benefits of the environmental strategies. This integrated approach will optimize the building's performance and allow a seamless assimilation of green technologies. Using the LEED checklist, the environmental goals will be tracked at each phase of the project, ensuring that each strategy is implemented and integrated with the whole design.

7. OPPORTUNITIES FOR INNOVATION

OPPORTUNITIES FOR INNOVATION

A. CHEMISTRY LAB AND SUPPORT SPACE

In the RFP documents, SCCD indicated a need to improve the relationship of the new Organic Chemistry Laboratory and the support spaces with the existing General Chemistry Lab located in the existing Vacaville Center. During the confidential meetings SCCD further clarified that while the existing General Chemistry Lab was undersized, lacked sufficient fume hoods and support space to operate as an effective General Chemistry Lab for the College. The R&S | SGJJR team's proposal offers a new state-of-the-art General Chemistry Lab of 1,344 ASF to replace the existing 1,271 SF with 6 new fume hoods, new casework, improved service utility infrastructure and up to date safety features. The new lab is adjacent to the new chemistry preparation, chemical stock room, cart & balance rooms, chemical vault and dispensing and provides this access without the need to traverse a public corridor. The new General Chemistry & Organic Chemistry Labs will have glazing toward the viewing gallery and access to natural light through the introduction of skylights and solartubes into both the public space and the laboratory. Further opportunities to promote interaction between the Biology Teaching Labs, the Biology Faculty and the Biotech Labs are promoted in the new placement recognizing the ever increasing role that interdisciplinary collaboration plays in Science Education.

The R&S | SGJJR team's proposal includes a repurposing of the existing General Chemistry Lab into a Shared use General Purpose Classroom. This existing 1,271 SF space is located adjacent to the new Entry Lobby and will have direct access and visibility from and to the main entrance, outdoor entry plaza area to support the range of programs that are planned to occur in that space including program introductions/ orientations, the immersion events which bring elementary school students to the campus and a variety of other special events enabled by using this critical space as a multipurpose classroom with visibility and direct access to the lobby

B. ENTRY DESIGN AND COMMUNITY SPACE

An enhanced entry and public gathering space was identified by the Campus as a priority. The R&S | SGJJR team's proposal moves the North wing of the building to the west which does two significant things – it provides greater definition to the entry plaza/entrance lobby and secondly it provides greater visibility into the Biotechnology Lab 1 and the Bioreactor space within the Biotechnology classroom cluster. The area of the Entry Lobby has been increased over the criteria documents to fulfill the expectations of the College that the space provides a welcoming entrance experience, a gracious presence on the west, opportunities for informal gathering, breakout space for building tours, program orientations and small group discussions outside the regular classroom setting. By introducing glazing and access to the enhanced classroom in the Vacaville Center, the entrance lobby is able to support orientation events in both the classroom as a formal presentation and in the lobby as a starting point to the program introduction.

In addition to increased area in the lobby – access and visibility to the existing amphitheater and North Campus Quad is provided with a glass wall looking to the east with a secondary entry/exit door to promote use of this important campus amenity.

The concession function is located at a hinge point between the entry lobby and the viewing gallery to promote interaction and visibility to this important activity in the life of the building. However, the concession allows the flow of traffic from the existing Vacaville center to the new building and the two formal entrances accessing the Outdoor Entry Plaza and the South Terrace.

C. CIRCULATION

The planning of the R&S | SGJJR team's proposal provides an elegant solution to the circulation of people coming and going to classes, gathering to meet faculty, and provides a clear means of wayfinding for each set of classrooms. Natural light is introduced through skylights above the Viewing Gallery which illuminates passersby and creates an attraction to the key elements of the building. There are three levels of interaction space organized along the major east west circulation from the public entrance lobby to the semipublic interaction spaces outside the office clusters to the smaller alcoves outside the Biology Classrooms. Each of these spaces is clearly visible from the primary viewing gallery and supports the intended level of visibility and accessibility of the classrooms. The biotech classroom/laboratories are highly visible near the entrance lobby, the chemistry and biology laboratories are equal in presence and accessibility and the anatomy labs are removed from the public area to create a level of discretion appropriate to the materials that they contain.

The building is connected to the existing site elements in a stronger way than the criteria documents with the secondary entrance from the main entry lobby, and the gateway to the south terrace that is formed with the 2 clusters of offices.

The central spine of the viewing gallery can also extend to the east should future expansion take place beyond the anatomy labs, and likewise, the north south secondary corridor connects to the service walk along the north façade to support deliveries, access from the parking areas to the north and to future classrooms on the north should they arise.

D. COLUMN FREE SPACES

The College noted that it desired to see an improvement in the relationship of the building structure to the laboratory/classroom space partitions. The R&S | SGJJR team's proposal provides an enhanced coordination of building walls and superstructure such that columns are placed to align with demising walls between laboratories, and corridor walls. Additionally, the columns have been positioned to minimize the impact to the high traffic areas, while maintaining a sufficient number for efficiency of the structure. The lateral resisting system for

the building is a steel moment frame. This system provides seismic restraint with stronger columns and beams in lieu of shear walls or diagonal braces, both of which can be disruptive to planning freedom and future modifications.

E. CLASSROOM/LABORATORY DAYLIGHTING

The R&S | SGJJR team's planning concept provides daylight into the laboratory spaces in several ways. First, by moving the North Wing of the building to the west and repositioning the Biotechnology Labs at the western end of the wing, there is a new opportunity to allow daylight and views into the south elevation of the biotechnology lab 1 and the Bioreactor lab. An outdoor canopy provides shading to the southern expanse of glazing to reduce glare and allow a clear view into the biotechnology labs. This scheme allows the Biotechnology Lab 1 to work as a "sign" for the building. The second way that the R&S | SGJJR team's planning concept promotes daylight is by opening up the south façade at the midpoint of the building to allow both daylight and views into the viewing gallery, interaction spaces and the chemistry lab glazed partitions facing the viewing gallery. Our proposal provides 6 skylights throughout the viewing gallery which will daylight this space and provide an opportunity for borrowed light into the laboratories through tall glazed partitions in the viewing gallery. We also have introduced solar tubes into the labs where we don't have access to the outside. This allows daylight to be placed in precise locations to enhance learning and functional use of the spaces. Similar to the criteria documents – our proposal provides clerestory lighting at the north side of the prep rooms for biotech and chemistry, so those important support spaces can have daylight without compromising the perimeter walls for counters, casework and equipment.

F. OUTDOOR STUDENT GATHERING SPACES

The west entry plaza is intended to provide a gathering space for the Students, Faculty, Staff and the broader community. The entry plaza is also immediately accessible to the Bioreactor space and the repurposed general classroom to allow ease of access for these rooms to support outdoor teaching. The shade structure which marks the entry supports the use of this space with improved comfort and protection from the sun. Visibility to the Entrance Lobby creates a broader sense of community and transparency.

The South Terrace works like an outdoor porch for students and faculty to gather informally. The proposal provides a shade structure to shelter this space, create definition and shade the faculty offices from the southern sun. The south terrace overlooks and can be used as an overflow to the amphitheater space in the North Quad for outdoor events and as a point of reference to the future development of the campus. Ease of access to both the lobby and the secondary south entrance are provided to the South Terrace to create a sense of connection from multiple points in the building. The South Terrace can also view into the chemistry lab space on the North Wing providing an opportunity to view teaching in progress.

G. DROUGHT TOLERANT & LOW MAINTENANCE LANDSCAPING

The landscape design is guided around a water-wise, utilizing low-water use and drought-tolerant species that have been proven for their toughness and durability. Furthermore, species will be coordinated with the existing landscape and comply with the intent of the Master Plan. Trees will be used to create outdoor spaces and shaded pathways and plazas on the South Terrace and the approach to the West Plaza. Tree species have been indicated to create a natural setting into which the building is “placed.” The fire lane pathways, building entries and parking lot have all been defined with different tree species.

The understory planting will take a similar approach utilizing low-maintenance and drought tolerant plant materials to highlight circulation and outdoor spaces. Species such as Lily Turf, Eualia Grass, Deer Grass, Russian Sage, Spring Cinquefoil, Salvia and Aloe will provide interest, color and texture.

A bioswale with sloped sides will gather and cleanse storm water creating an educational element teaching students about storm water and water conservation. The bioswale will collect water from the entry plaza and the run off from the north walkway. See the civil narrative for more detail on the operation of the storm water management approach.

The irrigation design will utilize a new automatic controller, high efficiency spray heads for any ground cover or turf areas and bubblers for the shrub zones. Irrigation will be provided to all trees, plant and turf areas. Existing irrigation that may become damaged during construction will be refurbished as necessary to maintain irrigation to existing plant materials.

Finally, paved plazas, sidewalks and paths which provide ADA access to the site but also support the concept for outdoor teaching and gathering as well as service requirements and for general site circulation needs.

8. QUALITY ENHANCEMENTS

QUALITY ENHANCEMENTS

ENHANCEMENTS PROPOSED BY THE DISTRICT

- Added two (2) faculty offices.
- More efficient core and structural systems that will increase the functional uses of the building for the district without changing the exterior building system envelope or the public space design.
- Compression of the construction schedule as compared to the milestone schedule shown in the RFP.
- Recycled content in materials - structural steel recycled steel content will be 75% or higher. Fly ash will be used in the concrete mix designs.

TEAM-PROPOSED ARCHITECTURAL QUALITY ENHANCEMENTS

The R&S | SGJJR team's proposal provides added value in a number of areas as identified below:

1. Enhanced Building Entry Experience.

Value added: The building entry is a focal point enhanced by the following:

- The Biotechnology program opens to the entry plaza, to “announce” the building’s science programs.
- The building signage can be seen from both the western and southern approaches.
- A shaded entry plaza, with seating and landscaped areas, frames the entry lobby.
- A pattern on the entry plaza paving hints to a science theme.
- An inviting high-bay glazed entry lobby links both visually and physically the West campus approach to the North Campus Quad.

- The Entry Lobby accommodates a concession area, plenty of seating space, and direct views into the Multipurpose Classroom and the Bioreactor Lab.

2. New General Chemistry Lab:

During the confidential meetings the Faculty indicated that the Vacaville Center’s existing General Chemistry Lab is small for its function and does not provide the needed number of fume hoods to conduct chemistry classes. This team’s proposal provides a new state-of-the-art General Chemistry Lab to replace the existing Vacaville Center’s general chemistry lab.

Value added: Provides a new state-of-the-art 1,344 square feet general chemistry lab, equipped with 6 new fume hoods, new casework, new service utilities, and up-to-code safety features to support a class of 30 students. The new General Chemistry Lab has direct access to the new chemistry prep room, and along with the new Organic Chemistry Lab forms a cohesive “chemistry cluster” in the Laboratory Bar of the new Biotechnology & Science Building.

3. Enhanced New Classroom Location:

During the confidential meetings, the faculty expressed an interest to use the new Biotechnology & Science Building entry lobby as a “spill space” to the Multipurpose Classroom when conducting orientation and special programs. This team’s proposal includes the renovation of the existing Vacaville’s Center general chemistry lab into the new programmed multipurpose classroom.

Value added: Replaces a not so adequate General Chemistry Lab and includes a new state-of-the-art multipurpose classroom that provides, through a large glazed partition with doors, direct physical and visual connection to the new Biotechnology & Science Building Entry Lobby.

4. **Enhanced Solar Shading and Outdoor Occupant**

Comfort: During the design phase the design-build team will work to refine strategies to create thermally comfortable exterior spaces that can function as extensions of the interior educational and interaction areas.

Value added: A design process that includes validation of outdoor occupant comfort to ensure that exterior spaces will be enjoyed by the users. The following features will enhance occupant comfort in outdoor spaces:

- Solar shading in the entry plaza and the south terrace is provided through the introduction of canopies that provide abundant shading while maintaining a view to the sky.
- The canopy over the entry plaza provides solar shading for the Biotechnology Lab 1 south façade and for the entrance lobby's west facade.
- The south terrace canopy provides solar shading for most of the south facing spaces, including faculty offices and interaction areas.
- Carefully selected trees and vegetation provide additional shade.

5. **Enhanced Building Efficiency:** An efficient planning scheme that reduces circulation space in favor of interaction and educational spaces.

Value added: Provides a lobby/Interaction Space 1 (IS-1) that is almost double the size of the programmed space, and four interaction areas that are each larger than the programmed spaces. Virtually every lab in the building is larger than the programmed labs.

6. **Enhanced Education and Science on Display:** The building's planning was conceived to highlight the concept of "Education and Science on Display."

Value added: Through the use of interior and exterior glazed partitions, all the laboratories, except for the anatomy labs, showcase the science that is learned within.

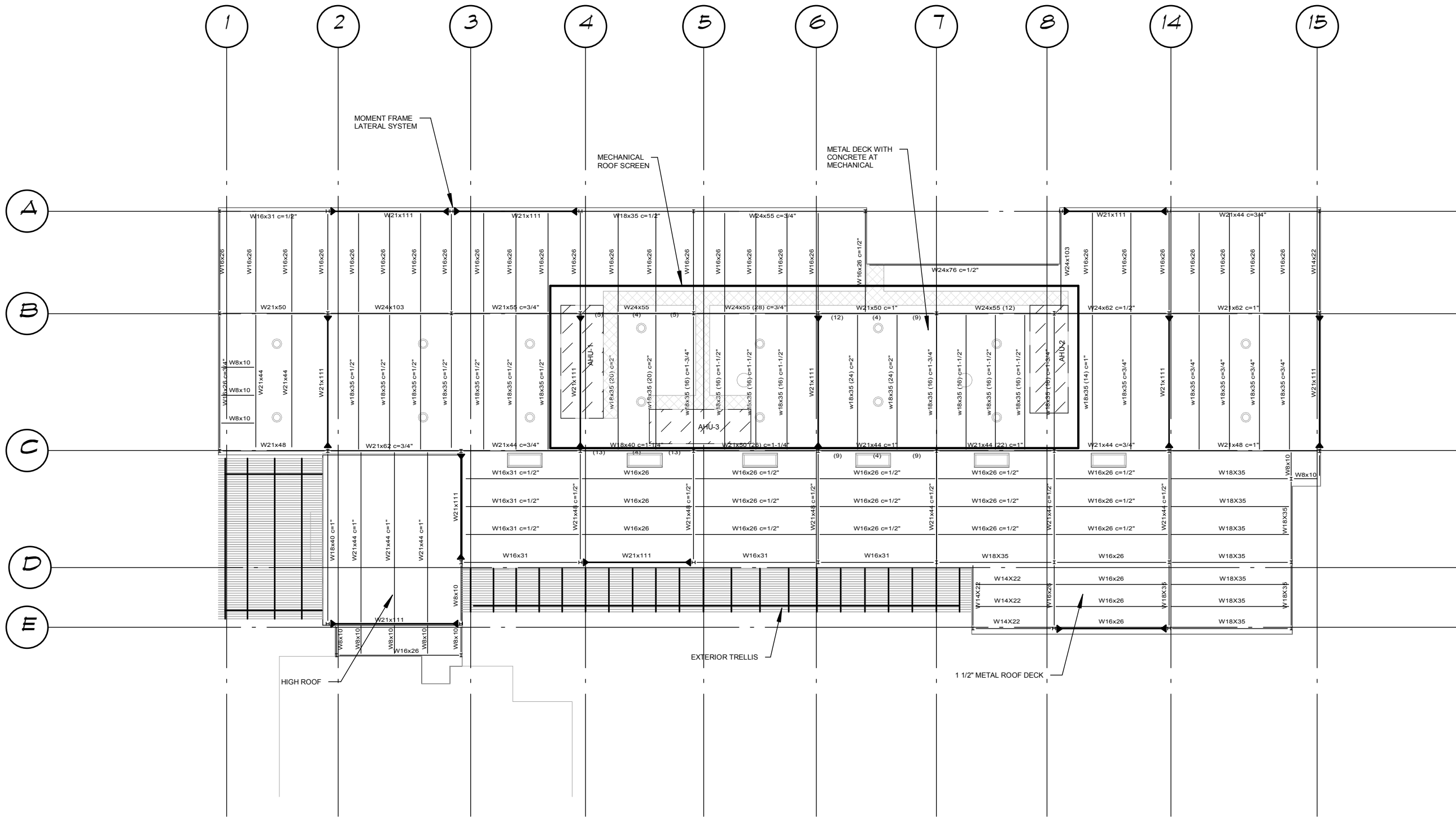
- The Biotechnology Lab 1 opens into the entry plaza.
- The Bioreactor Lab opens into the entrance lobby.
- The Multipurpose Classroom opens into the entrance lobby.
- The new General Chemistry Lab is strategically located so that it can be showcased from the North Campus Quad.
- The two biology labs have south facing windows that open into the North Campus Quad.
- The organic chemistry and balances room opens into the viewing gallery.

7. **Enhanced Interaction Space Outside each Cluster of Faculty Offices:** This semi-public space is separated, though visible from, the public corridor.

Value added: Creates an opportunity to peer to peer learning, as well as faculty student interaction outside.

- These enhanced interaction spaces provide additional visual and acoustic privacy for the faculty offices as well.
- The addition of writeable surfaces such as write-on or wipe off paint in these areas can support spontaneous discussion and contain a record of ideas shared in the community of the college.

9. OTHER INFORMATION



Roof Framing Plan

SMITHGROUP JJR

SMITHGROUP, INC
301 BATTERY STREET
7TH FLOOR
SAN FRANCISCO, CA 94111
T 415.227.0100
F 415.908.0862
www.smithgroup.com


Buehler & Buehler
Structural Engineers, Inc.
600 Q Street, Suite 200, Sacramento, CA 95811
tel 916.443.0303 fax 916.443.0313
Sacramento . Phoenix . San Francisco

Roof Framing Plan

DRAWING TITLE

ISSUED WITH

DRAWING REFERENCE

1/32" = 1'-0"

DRAWING SCALE

05/13/13

DATE

SOLANO CCD BIOTECH
AND SCIENCE BLDG

PROJECT NAME

SS202.L79

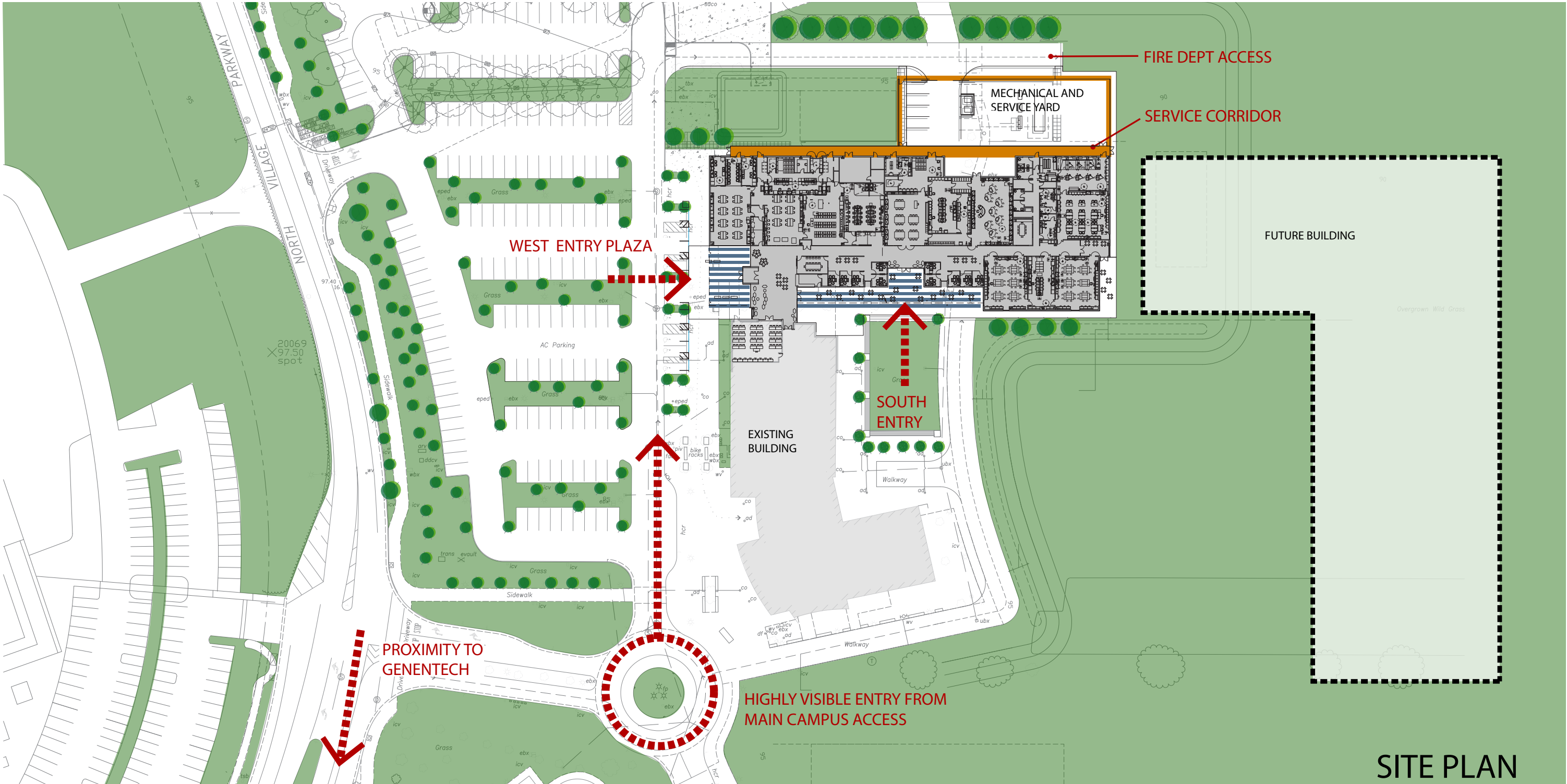
PROJECT NUMBER

S1

DRAWING NUMBER

CAMPUS CONNECTIVITY

The Building Integrates with the existing Vacaville Center to create a “sense of campus”. The main entrance is highlighted by an inviting shaded entry plaza and a light filled lobby that acts as a link between the west side of the campus and the North Campus Quad. An additional shaded entrance on the south side connects the building directly to the North Campus Quad.



SITE PLAN

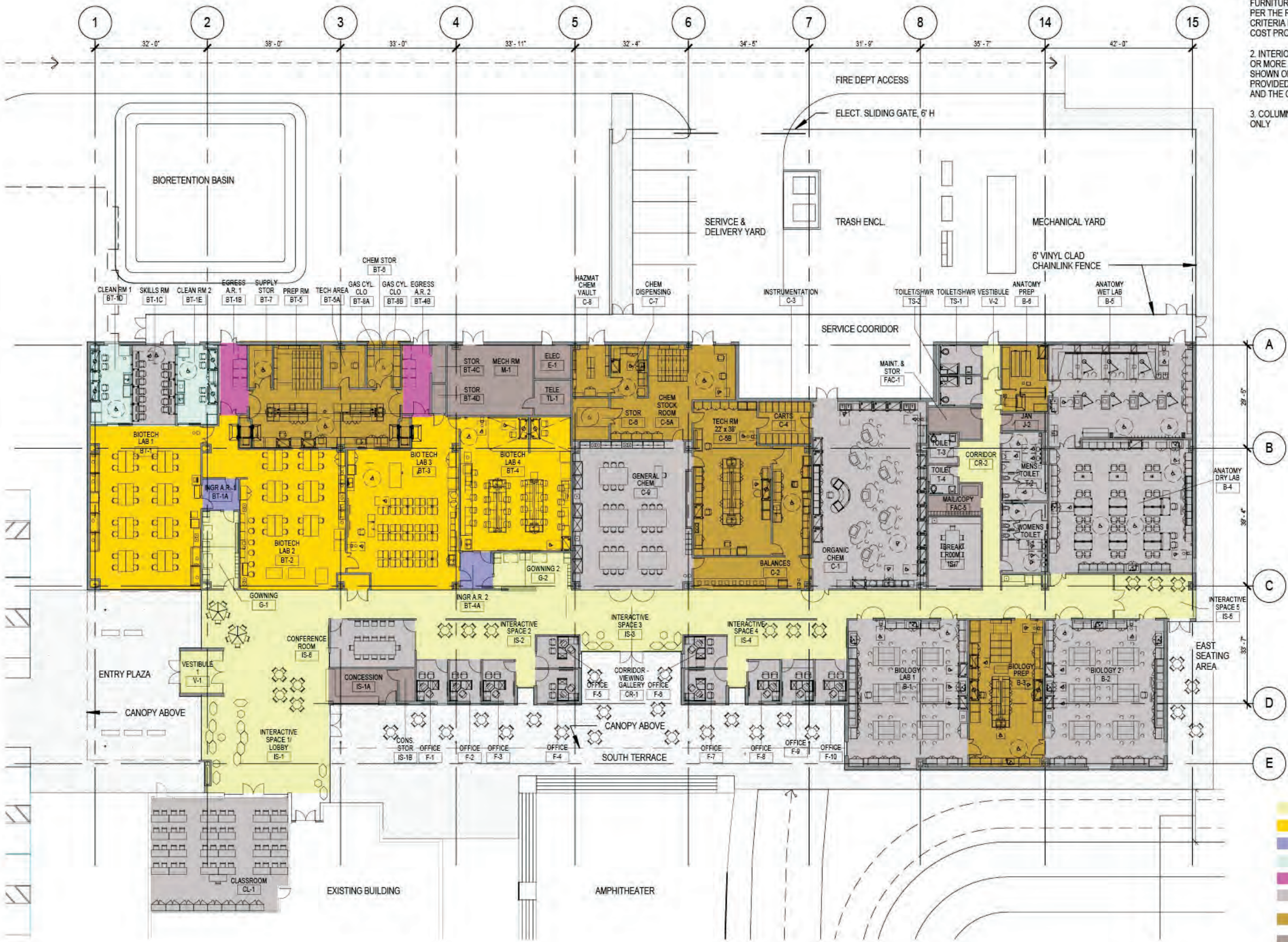
SMITHGROUP, INC
301 BATTERY STREET
7TH FLOOR
SAN FRANCISCO, CA 94111
T 415.227.0100
F 415.908.0862
www.smithgroup.com

SHEET NOTES

1. THE FURNITURE AND EQUIPMENT SHOWN LAYOUT ON THIS FLOOR PLAN IS DIAGRAMMATIC AND SHOWN FOR REFERENCE ONLY. ALL CFCI FURNITURE AND EQUIPMENT WILL BE PROVIDED PER THE REQUIREMENTS OF THE RFP AND THE CRITERIA DOCUMENTS, AND AS DETAILED IN THE COST PROPOSAL.

2. INTERIOR GLAZED OPENINGS LOCATED 7'-0" OR MORE ABOVE FINISHED FLOOR ARE NOT SHOWN ON THIS FLOOR PLAN. THESE WILL BE PROVIDED PER THE REQUIREMENTS OF THE RFP AND THE CRITERIA DOCUMENTS.

3. COLUMN LINES ARE SHOWN FOR REFERENCE ONLY



COLOR LEGEND

- INDOOR TRANSITIONAL SPACES
- BIOTECH. BIO-PROCESSING LABS
- BIOTECH. INGRESS ANTEROOMS
- BIOTECH. CLEAN ROOMS
- BIOTECH. EGRESS AIRLOCKS
- CLASSROOMS, TEACHING LABS, OFFICES/ OFFICE SUPPORT
- PREP. ROOMS, TECHS. & LAB SUPPORT SPACES
- BUILDING SUPPORT

N

FLOOR PLAN

DRAWING TITLE

ISSUED WITH

DRAWING REFERENCE

1" = 30'-0"

DRAWING SCALE

5/27/2015

DATE

SCCD BIOTECH + SCIENCE BLDG

PROJECT NAME

SS202.L79

PROJECT NUMBER

A201

DRAWING NUMBER

SMITHGROUP, INC
301 BATTERY STREET
7TH FLOOR
SAN FRANCISCO, CA 94111
T 415.227.0100
F 415.908.0862
www.smithgroup.com

SHEET NOTES

1. REFLECTED CEILING PLAN PROVIDED TO
SHOW ANTICIPATED CEILING HEIGHTS



REFLECTED CEILING PLAN

DRAWING TITLE

ISSUED WITH

DRAWING REFERENCE

1" = 30'-0"

DRAWING SCALE

05/27/2015

DATE

SSCD BIOTECH + SCIENCE BLDG

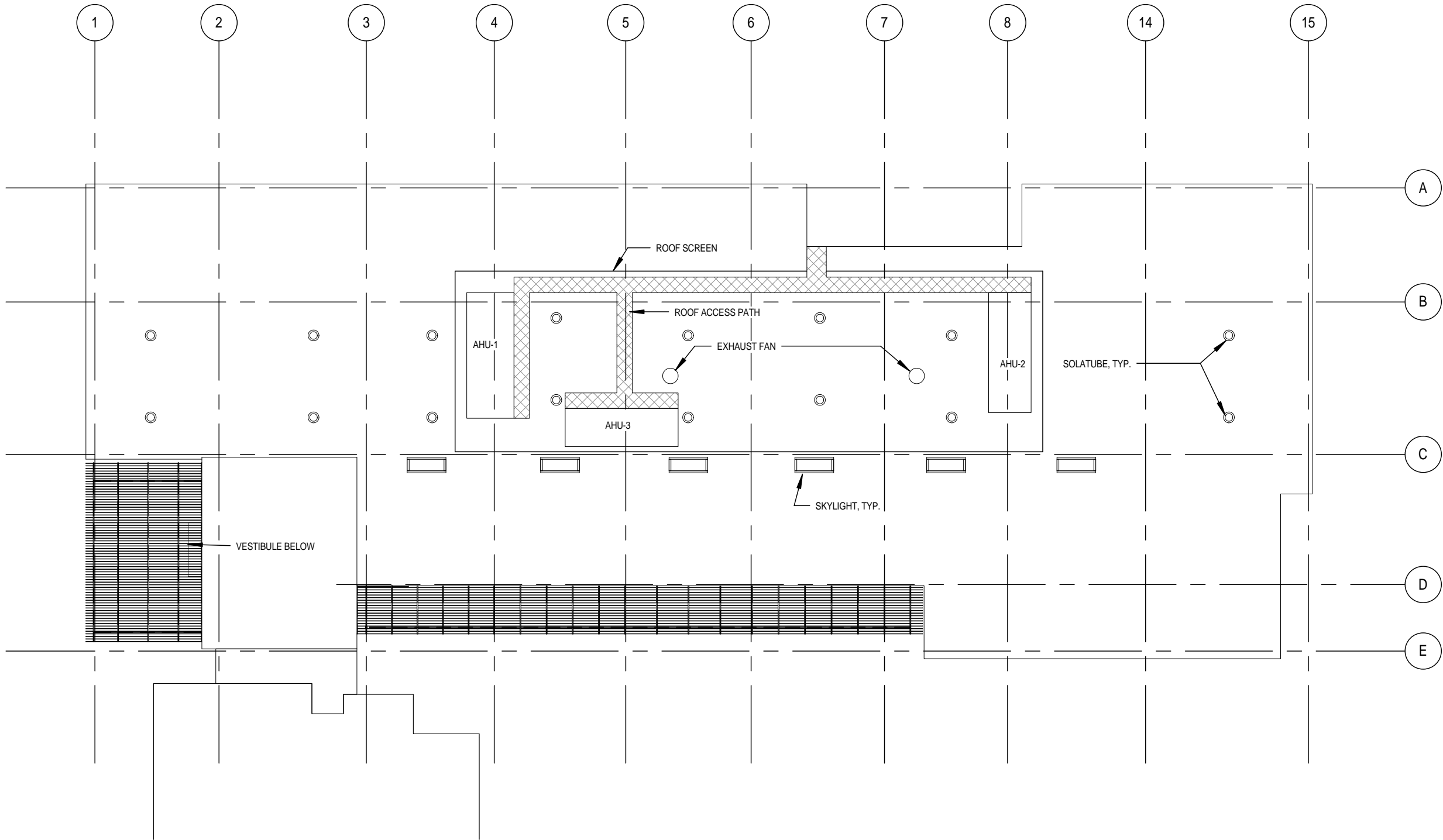
PROJECT NAME

SS202.L79

PROJECT NUMBER

A301

DRAWING NUMBER



ROOF PLAN

DRAWING TITLE

ISSUED WITH

DRAWING REFERENCE

1" = 30'-0"

DRAWING SCALE

05/27/2015

DATE

SCCD BIOTECH + SCIENCE BLDG

PROJECT NAME

SS202.L79

PROJECT NUMBER

A202

DRAWING NUMBER

RENDERING KEYPLAN

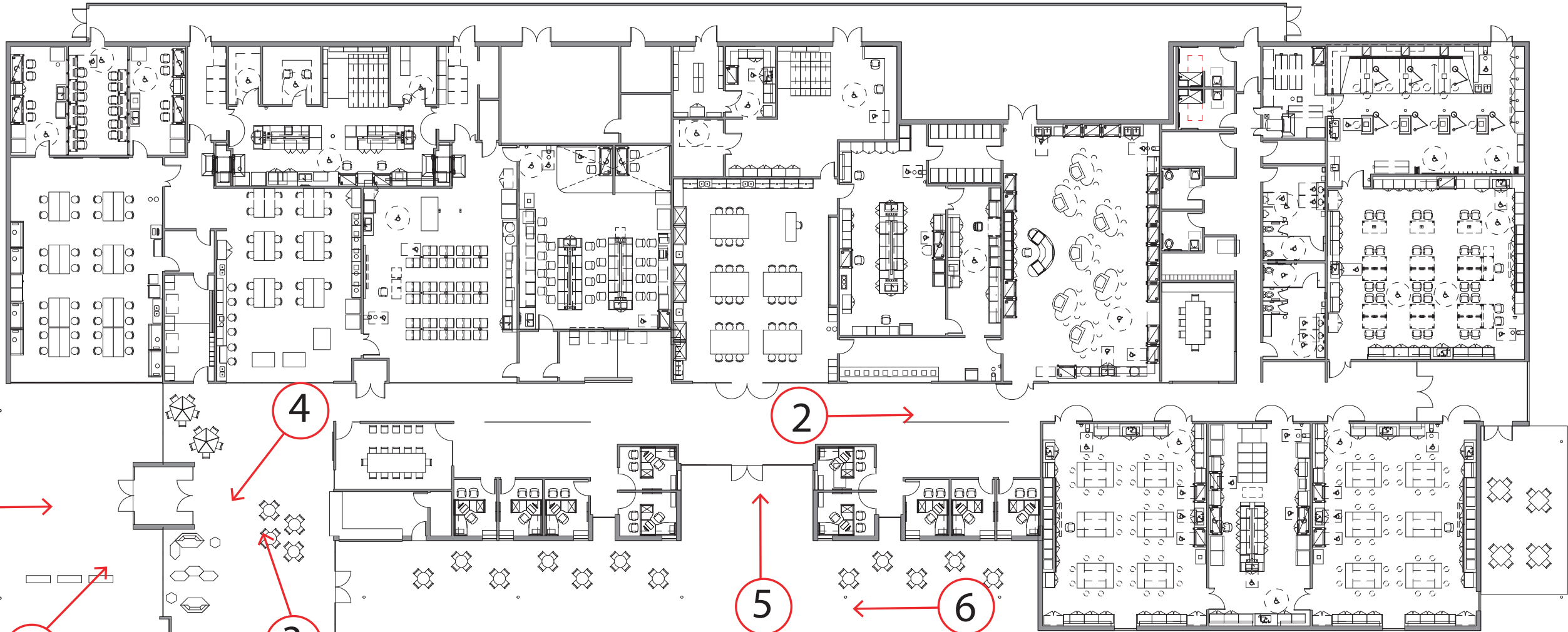
7



4



2



7

1

4

3

2

5

6



1



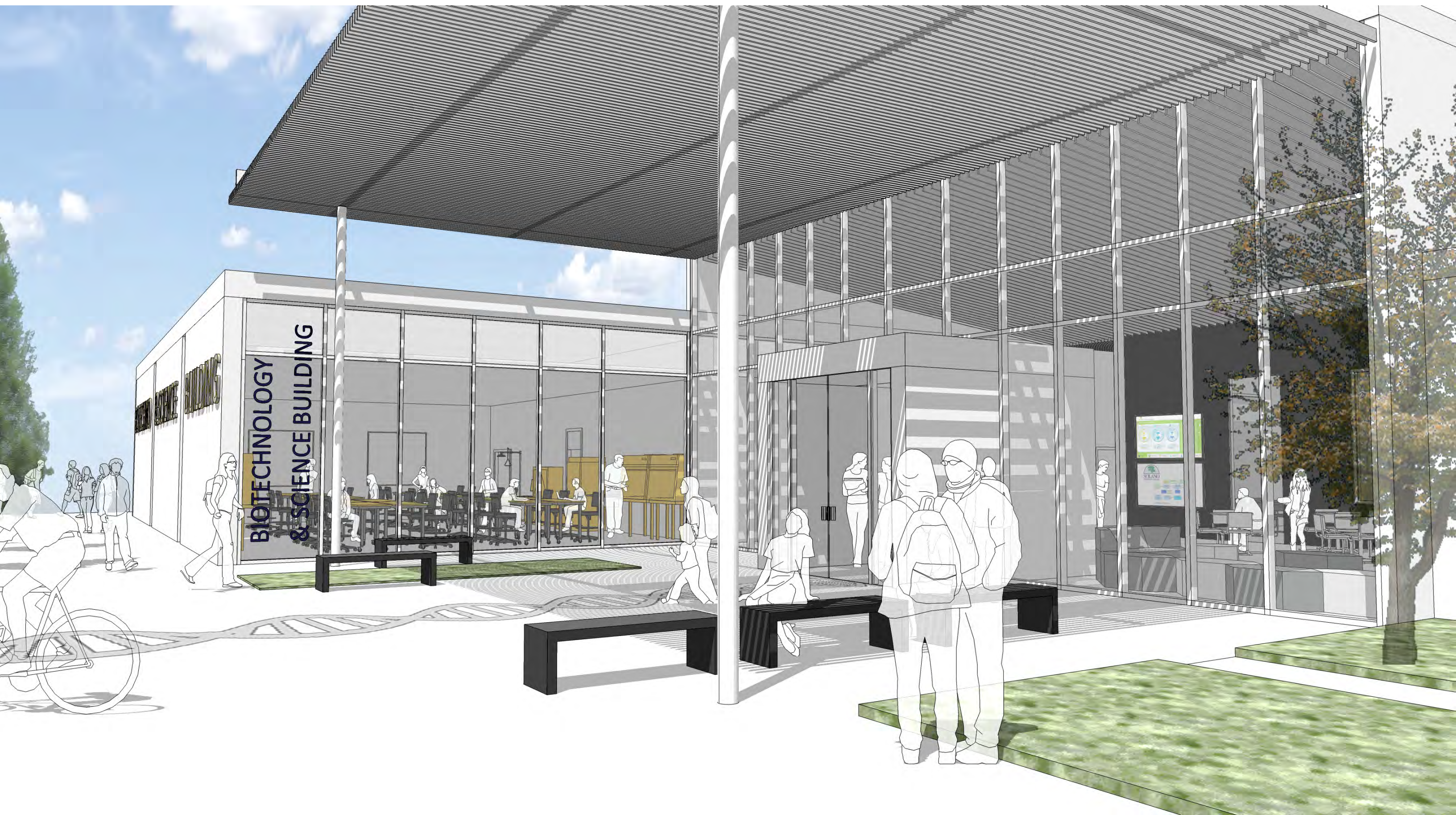
3



5



6



RENDERING 1

On the south side of the Entry Plaza, the Biotechnology Lab reveals the new Biotechnology & Science Building's academic programs.



RENDERING 2

The Viewing Gallery is a high-ceiling open space flooded with natural light. Along the south side, the Viewing Gallery widens to accommodate interaction areas outside the cluster of faculty offices.



RENDERING 3

On the north side of the Entrance Lobby, a large glazed partition reveals the Bioreactor Lab, showcasing its complex equipment.



RENDERING 4

The Multipurpose Classroom is visually and physically connected to the Entrance Lobby. The Entrance lobby provides an overflow space for the classroom's special academic programs



RENDERING 5

The General Chemistry Lab is showcased behind large glazed partitions, placing “Science on Display” on the North Campus Quad.



RENDERING 6

The South terrace is a long arcaded space that overlooks the North Campus Quad. The South Terrace can function as an exterior Classroom.

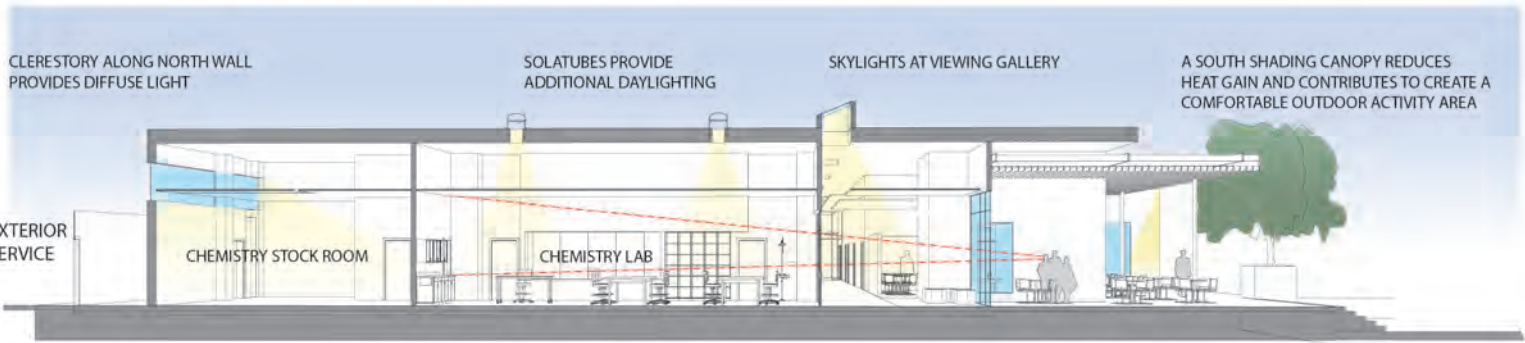


RENDERING 7

The Building's main entrance is highlighted by an inviting shaded Entry Plaza and a light filled high-bay Entrance Lobby, which together create a "Grand Entrance" to the Building.

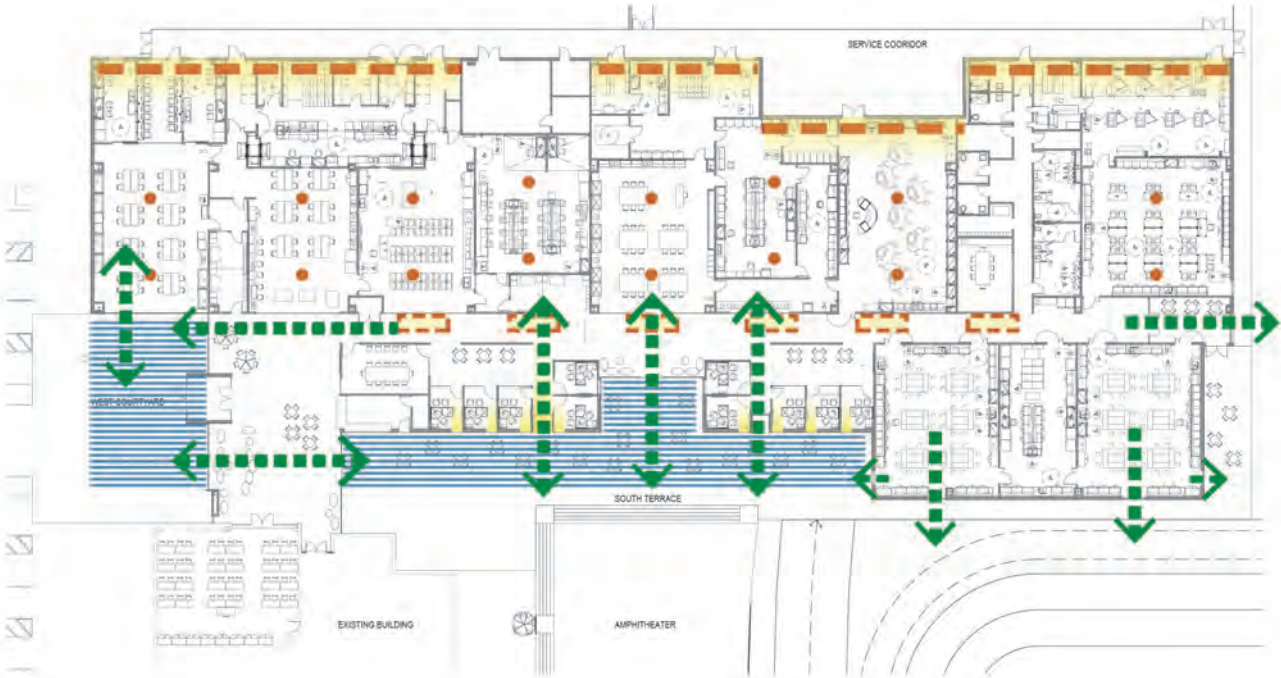
DAYLIGHTING AND SHADE

As a high performance building, daylighting is a primary design strategy to meet the experiential, sustainability, and energy goals of the new SCCD Biotechnology & Science Building. Given the Vacaville climate, a well shaded skin is critical for daylighting performance, energy performance, and mechanical system design. Our proposal features exterior shading elements integrated with the building skin and massing.



DAYLIGHT AND VIEWS

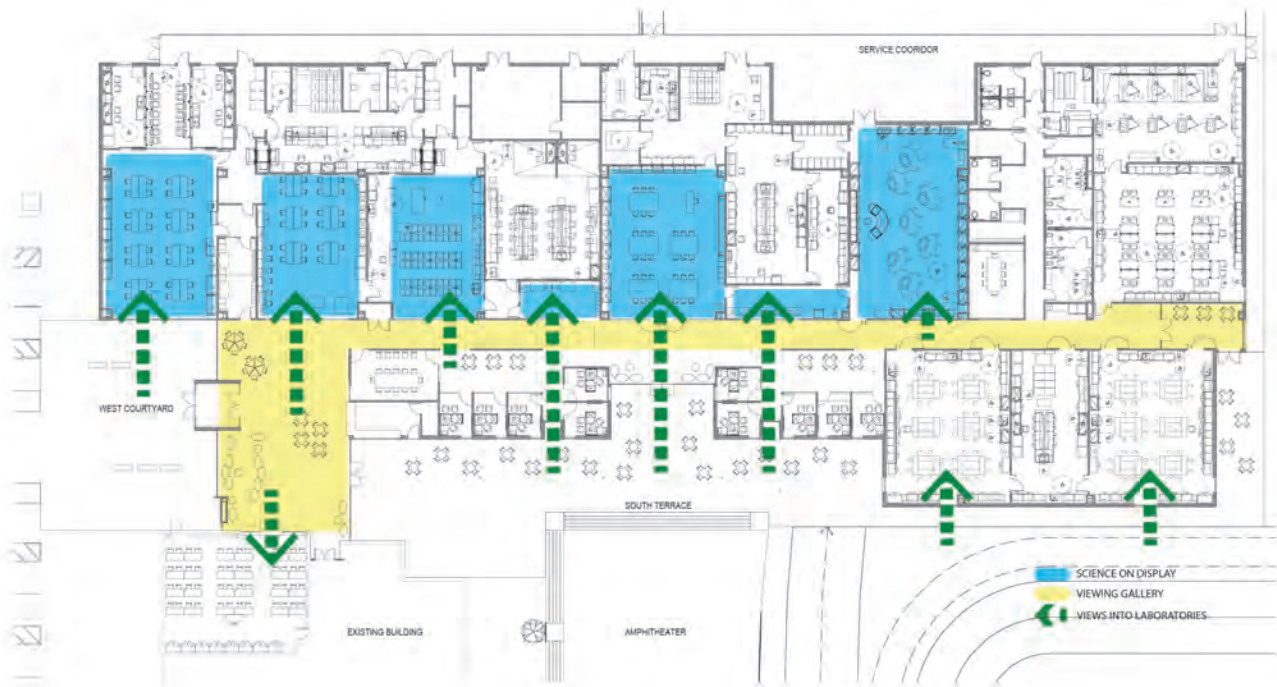
Glazing and skylights provide daylight and direct and indirect connection to the exterior. Solatubes allow daylight to be placed in precise locations to enhance learning.



- SOLAR SHADING
- NATURAL DAYLIGHT
- VIEWS TO EXTERIOR
- CLERESTORY
- SKYLIGHT
- SOLATUBE

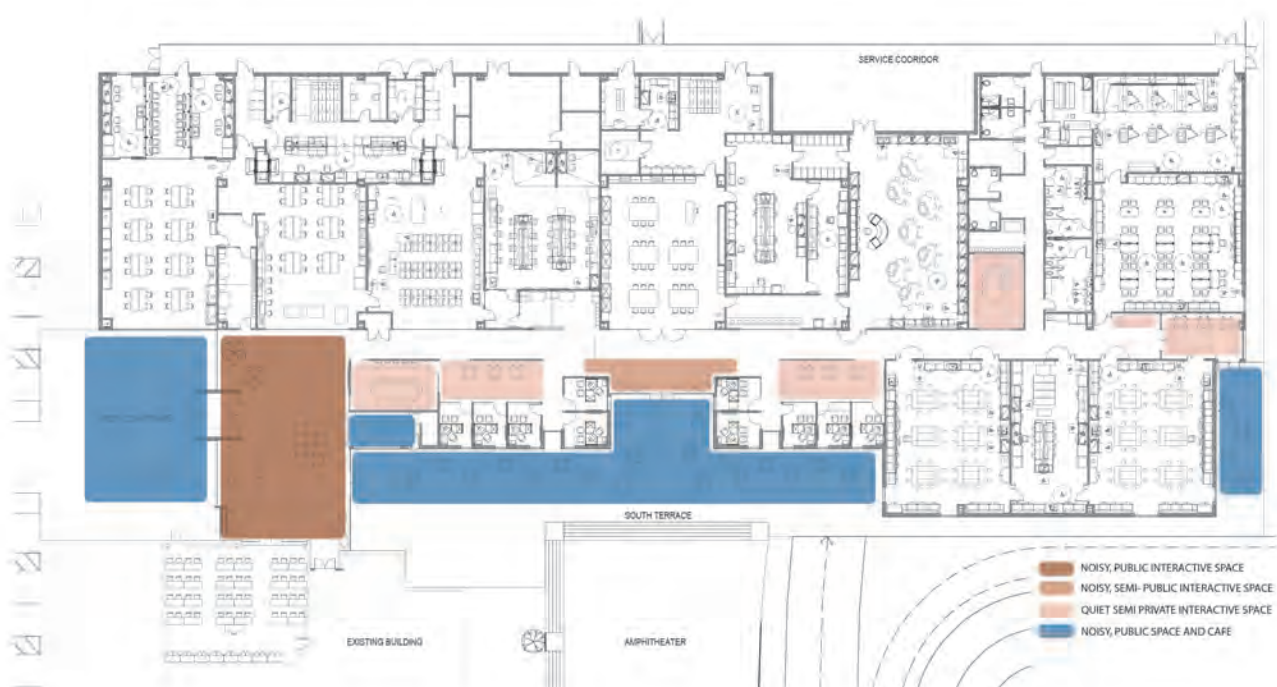
SCIENCE ON DISPLAY

The viewing gallery is conceived as a high-ceiling rectilinear open space flooded with natural light that provides visual access to the teaching laboratories. Along the viewing gallery's north side the laboratories are visible to the passerby through large glazed openings which showcase the activities taking place inside them. The planning scheme helps to promote the idea that science is interesting and fun. At the mid-point of the journey, the viewing gallery opens dramatically to the south allowing views to the General Chemistry Lab and literally placing "Science on Display" on the North Campus Quad.

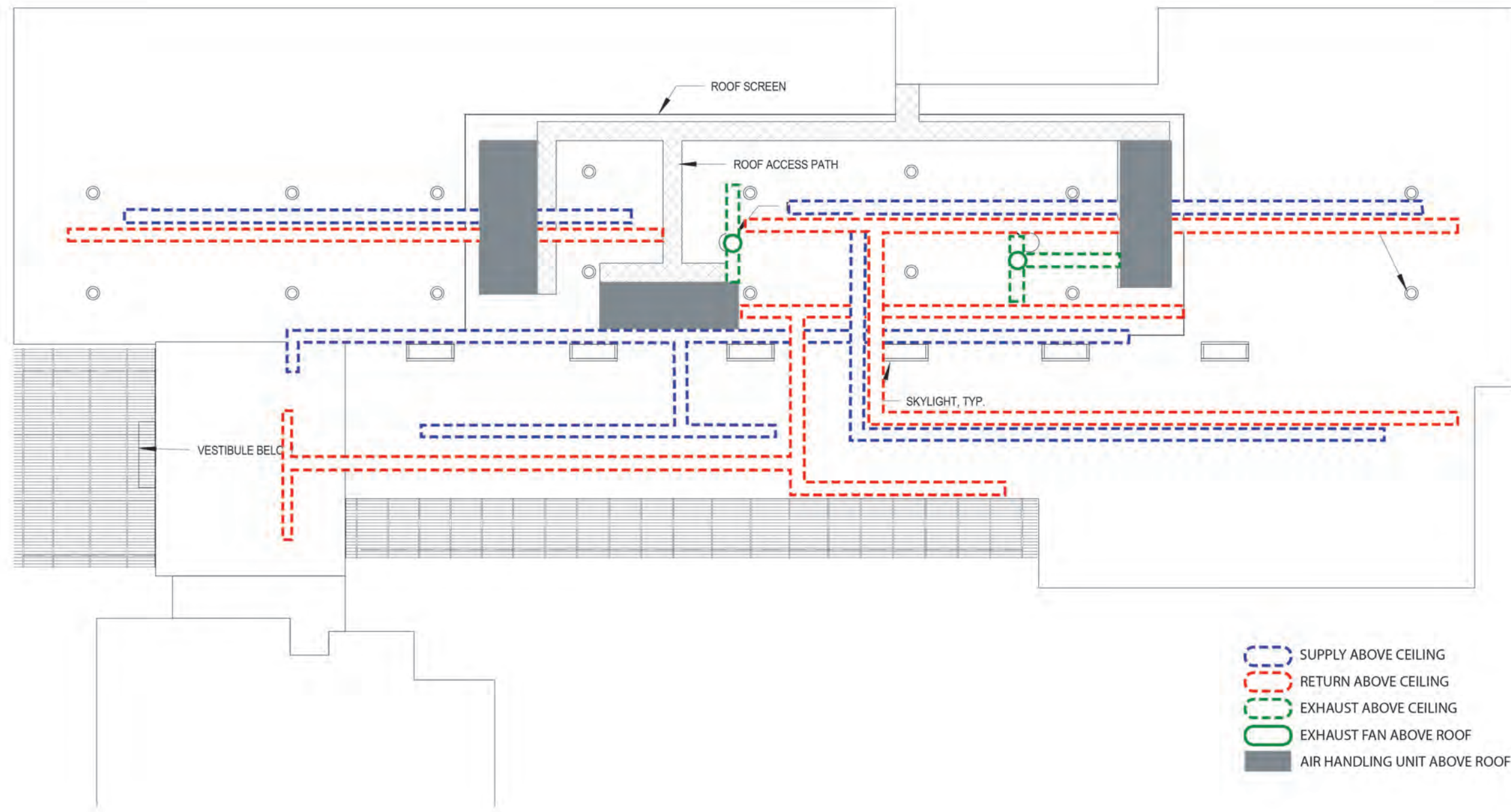


LEARNING EVERYWHERE

The building is intended as a learning environment, recognizing that the classroom is only one area where learning can occur. Different types of environments have been distributed throughout the building and are zoned as indicated on the following diagram. The building will be energized by a full array of environments to learn in a way that suits each individual's learning style.



MECHANICAL DIAGRAM



10. PROPOSAL (EXHIBIT C)

ED2 International
1426 Fillmore St, Suite 302
San Francisco, California 94115
Phone: (415) 474-1400

**Biotechnology & Science Building
New Construction – Design/Build Contract
SCCD Project No. 15-012
SOLANO COMMUNITY COLLEGE DISTRICT**

EXHIBIT C

PROPOSAL TO THE SOLANO COMMUNITY COLLEGE DISTRICT

ON OR BEFORE: 5:00 PM, May 20, 2015

DELIVER TO: Solano Community College District
Bond Purchasing Office
4000 Suisun Valley Parkway, Building 600
Fairfield, CA 94534
Attention: Laura Scott, Bond Purchaser

FOR: Biotechnology & Science Building
#15-012

Plainly mark outside of envelope with "Proposal For" followed by the above title.

The undersigned hereby proposes and agrees to furnish all labor, materials, and equipment, and to perform all work required for the above-named Project in the manner and time prescribed in the Design Build Request for Proposal dated March 20, 2015, and such addenda thereto as may be issued.

The undersigned certifies that in preparation of this Proposal, no bid was received by the Design/Builder from a bid depository, which depository (as to any portion of the work) prohibits or imposes sanctions for the obtaining by proposer, or the submission to proposer by any subcontractor or vendor or supplier of goods and services, of a bid outside the bid depository. This certification shall constitute a warranty, the falsity of which shall entitle the Solano Community College District to pursue any remedy authorized by law, and shall include the right, at the option of the Solano Community College District, of declaring any contract made as a result thereof to be void.

By signature hereof, the Design/Builder swears under penalty of perjury that representations of the Proposal with respect to proposer's license are true and that no more than one final unappealable finding of contempt of court by a Federal Court has been issued against the Design/Builder within the immediately preceding two-year period because of the Design/Builder's failure to comply with an order of a Federal Court which orders the Design/Builder to comply with an order of the National Labor Relations Board.

If awarded the contract, the undersigned agrees to sign the contract, to furnish the bonds and Certificate of Liability Insurance called for, and to start the work when notified.

Design/Builder's security of bid bond, cash, cashier's check, or certified check in amount equal to ten percent (10%) of the Stipulated Sum total accompanies this Proposal.

ED2 International
1426 Fillmore St, Suite 302
San Francisco, California 94115
Phone: (415) 474-1400

Biotechnology & Science Building
New Construction – Design/Build Contract
SCCD Project No. 15-012
SOLANO COMMUNITY COLLEGE DISTRICT

EXHIBIT C (Continued)

THIS PROPOSAL IS SUBMITTED BY (check one):

☐ Individual ☐ Partnership
☐ Joint Venture ☒ Corporation California
State in which incorporated

NOTE: If Design/Builder is a corporation, the State in which incorporated shall be inserted above and the legal name of the corporation shall be set forth below, together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation; if Design/Builder is a partnership, the true name of the firm shall be set forth below, together with the signature of a partner authorized to sign contract on behalf of the partnership; and if Design/Builder is an individual, that person's signature shall be placed below.

If signature is by an agent, other than an officer of a corporation or a member of a partnership, a Power of Attorney must be submitted with the Proposal; otherwise, the Proposal will be regarded as irregular and unauthorized. If Proposal is submitted by partnership or joint venture, the members are:

Business Address 1600 Seaport Boulevard, Suite 350, Redwood City, CA 94063

Business Telephone Number (650) 216-3600 Fax Number (650) 599-9030

NOTE: If proposing as a joint venture, each person submitting the proposal shall provide the information required below with respect to his or her licensure.

IMPORTANT – READ BEFORE SIGNING: Proposal must be executed in same name-style in which the Design/Builder is licensed and pre-qualified. Design/Builder proposing jointly or as a combination of several business organizations are specially cautioned that such Design/Builder must be jointly licensed and pre-qualified in the same form and style in which the bid is executed.

Legal Name of Design/Builder Rudolph and Sletten, Inc.

Federal I.D. Number 94-1507-451

Contractor's License Number 198069 License Classification: A, B

Expiration Date of Contractor's License: September 30, 2015

SIGN HERE: Martin Sisemore Martin Sisemore
Signature of Proposer

DATE: 26/May/2015 President and CEO
Day/Month/Year Title of Proposer

PROPOSAL (EXHIBIT C)

EXHIBIT C: PROPOSAL TO THE SOLANO COMMUNITY COLLEGE DISTRICT HAS BEEN SUBMITTED UNDER A SEPARATE SEALED ENVELOPE MARKED “PROPOSAL FOR BIOTECHNOLOGY & SCIENCE BUILDING.”

11. COST BREAKDOWN (EXHIBIT D)

ED2 International
1426 Fillmore St, Suite 302
San Francisco, California 94115
Phone: (415) 474-1400

Biotechnology & Science Building
New Construction – Design/Build Contract
SCCD Project No. 15-012
SOLANO COMMUNITY COLLEGE DISTRICT

EXHIBIT D

COST BREAKDOWN

Design/Builder shall enter the estimated cost of the major project elements as listed below.
The total of all cost elements below shall equal the Stipulated Sum.

1. \$ 22,326,297 Biotechnology & Science Building (Shall include all core, shell, tenant improvements costs)
2. \$ 1,218,680 Sitework Improvements
3. \$ 1,176,671 Furniture, Fixtures, Equipment (CFEI)
4. \$ 278,352 Onsite/Offsite Utilities
5. \$ 2,930,000 FF&E Allowance
6. \$ 27,930,000 **Total of the Above (Must Equal Stipulated Sum)**

SIGN HERE:

Martin Sisemore
Signature of Proposer

Martin Sisemore

DATE: 26/May/2015

Day/Month/Year

President and CEO

Title of Proposer

END OF SECTION

THE AMERICAN INSTITUTE OF ARCHITECTS

AIA Document A310 Bid Bond

KNOW ALL MEN BY THESE PRESENTS, THAT WE Rudolph and Sletten, Inc.

1600 Seaport Blvd., Suite 350, Redwood City, CA 94063-5575

as Principal, hereinafter called the Principal, and Travelers Casualty and Surety Company of America

21688 Gateway Center Drive, Diamond Bar, CA 91765

a corporation duly organized under the laws of the State of CT

as Surety, hereinafter called the Surety, are held and firmly bound unto Solano Community College District

4000 Suisun Valley Pkwy, Bldg. 600, Fairfield, CA 94534

as Obligee, hereinafter called the Obligee, in the sum of Ten Percent of Amount Bid

Dollars (\$ 10%),

for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for Bio Technology & Science Building (Design-Build)

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and materials furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this 24th day of April, 2015

Cara Harper
(Witness)

Rudolph and Sletten, Inc.

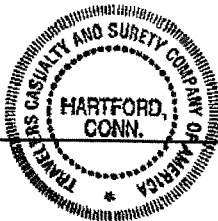
(Principal)

(Seal)

By: M.P. Sletten

(Title)

Maria Pena
(Witness)



Travelers Casualty and Surety Company of America

(Surety)

(Seal)

By: Lisa L. Thornton

Attorney-in-Fact

(Title)

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

Civil Code § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy or validity of that document.

State of California)
) ss
County of Los Angeles)


On APR 24 2015, before me, Maria Pena, Notary Public, personally appeared Lisa L. Thornton, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.



(Seal)

Signature: 
Maria Pena, Notary Public



POWER OF ATTORNEY

Farmington Casualty Company
 Fidelity and Guaranty Insurance Company
 Fidelity and Guaranty Insurance Underwriters, Inc.
 St. Paul Fire and Marine Insurance Company
 St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company
 Travelers Casualty and Surety Company
 Travelers Casualty and Surety Company of America
 United States Fidelity and Guaranty Company

Attorney-In Fact No. 225527

Certificate No. 006174165

KNOW ALL MEN BY THESE PRESENTS: That Farmington Casualty Company, St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company are corporations duly organized under the laws of the State of Connecticut, that Fidelity and Guaranty Insurance Company is a corporation duly organized under the laws of the State of Iowa, and that Fidelity and Guaranty Insurance Underwriters, Inc., is a corporation duly organized under the laws of the State of Wisconsin (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint

E. S. Albrecht Jr., C. K. Nakamura, Noemi Quiroz, Lisa L. Thornton, and Maria Pena

of the City of Los Angeles, State of California, their true and lawful Attorney(s)-in-Fact, each in their separate capacity if more than one is named above, to sign, execute, seal and acknowledge any and all bonds, recognizances, conditional undertakings and other writings obligatory in the nature thereof on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

IN WITNESS WHEREOF, the Companies have caused this instrument to be signed and their corporate seals to be hereto affixed, this 16th day of December, 2014.

Farmington Casualty Company
 Fidelity and Guaranty Insurance Company
 Fidelity and Guaranty Insurance Underwriters, Inc.
 St. Paul Fire and Marine Insurance Company
 St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company
 Travelers Casualty and Surety Company
 Travelers Casualty and Surety Company of America
 United States Fidelity and Guaranty Company



State of Connecticut
 City of Hartford ss.

By: Robert L. Raney
 Robert L. Raney, Senior Vice President

On this the 16th day of December, 2014, before me personally appeared Robert L. Raney, who acknowledged himself to be the Senior Vice President of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, and that he, as such, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

In Witness Whereof, I hereunto set my hand and official seal.
 My Commission expires the 30th day of June, 2016.



Marie C. Tetreault
 Marie C. Tetreault, Notary Public

This Power of Attorney is granted under and by the authority of the following resolutions adopted by the Boards of Directors of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, which resolutions are now in full force and effect, reading as follows:

RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President, any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary may appoint Attorneys-in-Fact and Agents to act for and on behalf of the Company and may give such appointee such authority as his or her certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors at any time may remove any such appointee and revoke the power given him or her; and it is

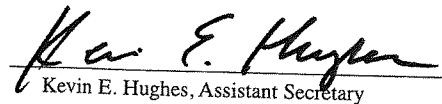
FURTHER RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President may delegate all or any part of the foregoing authority to one or more officers or employees of this Company, provided that each such delegation is in writing and a copy thereof is filed in the office of the Secretary; and it is

FURTHER RESOLVED, that any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact and Agents pursuant to the power prescribed in his or her certificate or their certificates of authority or by one or more Company officers pursuant to a written delegation of authority; and it is

FURTHER RESOLVED, that the signature of each of the following officers: President, any Executive Vice President, any Senior Vice President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any Power of Attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such Power of Attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding on the Company in the future with respect to any bond or understanding to which it is attached.

I, Kevin E. Hughes, the undersigned, Assistant Secretary, of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this _____ day of APR 24 2015, 20 ____.


Kevin E. Hughes, Assistant Secretary



To verify the authenticity of this Power of Attorney, call 1-800-421-3880 or contact us at www.travelersbond.com. Please refer to the Attorney-In-Fact number, the above-named individuals and the details of the bond to which the power is attached.

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

CIVIL CODE § 1189

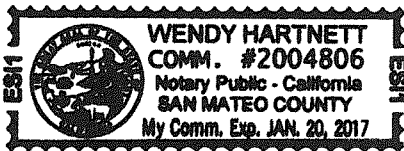
A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
 County of SAN MATEO)
 On 5-1-15 before me, WENDY HARTNETT, Notary Public,
 Date Here Insert Name and Title of the Officer
 personally appeared MIKE MUHRMAN
 Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.



Signature [Signature]
 Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though this section is optional, completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document

Title or Type of Document: BID BOND Document Date: _____
 Number of Pages: _____ Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: <u>MIKE MUHRMAN</u>	Signer's Name: _____
<input checked="" type="checkbox"/> Corporate Officer — Title(s): <u>VICE PRESIDENT</u>	<input type="checkbox"/> Corporate Officer — Title(s): _____
<input type="checkbox"/> Partner — <input type="checkbox"/> Limited <input type="checkbox"/> General	<input type="checkbox"/> Partner — <input type="checkbox"/> Limited <input type="checkbox"/> General
<input type="checkbox"/> Individual <input type="checkbox"/> Attorney in Fact	<input type="checkbox"/> Individual <input type="checkbox"/> Attorney in Fact
<input type="checkbox"/> Trustee <input type="checkbox"/> Guardian or Conservator	<input type="checkbox"/> Trustee <input type="checkbox"/> Guardian or Conservator
<input type="checkbox"/> Other: _____	<input type="checkbox"/> Other: _____

Signer Is Representing: _____ Signer Is Representing: _____

COST BREAKDOWN (EXHIBIT D)

EXHIBIT D: COST BREAKDOWN HAS BEEN SUBMITTED UNDER A SEPARATE SEALED ENVELOPE ALONG WITH EXHIBIT C, MARKED “PROPOSAL FOR BIOTECHNOLOGY & SCIENCE BUILDING.”