March 30, 2016

TO: ALL HOLDERS OF REQUEST FOR PROPOSAL (RFP) DOCUMENTS
OSLER PARKING STRUCTURE
UNIVERSITY OF CALIFORNIA, SAN DIEGO
PROJECT NO.: 5009/A4L-403/966622

Enclosed are the following:

1. Addendum No. 3 dated March 30, 2016, to the RFP Documents
2. Revised Index of Contract Documents
3. Revised Request for Proposal Schedule
4. Revised Technical Proposal (see highlighted text for revisions)
   a. Revised Technical Proposal (Contents) – page 1 of 20
   b. Revised Technical Proposal Scoring – page 3 of 20
   c. Revised Tab 5 – Project Deviations from Request for Proposal – page 7 of 20
   d. Revised Deviations Matrix – page 10 of 20
   e. New Design Requirements Matrix – page 11 of 20
5. Revised University Furnished Information
6. Revised Specifications Index (Table of Contents)
7. New Section 04810 Unit Masonry Assemblies
8. New Section 14210 Electric Traction Elevators
9. New Section 14240 Hydraulic Elevators

NOTE: THE RFP DUE DATE REMAINS 2:00 P.M., THURSDAY, MAY 12, 2016.

Sincerely,

James R. Gillie
Senior Director of Construction Services
Facilities Design and Construction

Enclosures
ADDENDUM NO. THREE
TO THE
REQUEST FOR PROPOSAL (RFP) DOCUMENTS
March 30, 2016

General:

The following changes, additions, or deletions shall be made to the following documents; all other conditions shall remain the same.

I. REQUEST FOR PROPOSAL

Item# 1. INDEX OF CONTRACT DOCUMENTS

Delete “Index of Contract Documents” and substitute “Index of Contract Documents revised 3/30/16.”

2. REQUEST FOR PROPOSAL SCHEDULE

Delete “Request for Proposal Schedule” and substitute “Request for Proposal Schedule revised 3/30/16.”

3. TECHNICAL PROPOSAL

Delete “Technical Proposal” and substitute “Technical Proposal revised 3/30/16.”

4. UNIVERSITY FURNISHED INFORMATION

Delete “University Furnished Information revised 3/17/16” and substitute “University Furnished Information revised 3/30/16” which contains pdf version of revised Structure Limits drawing.

(Note: Revise the structure boundary limits to extend south per the Structural Limits drawing issued in University Furnished Information revised 3/30/16. The new south boundary shall not extend past the southernmost face of the Central Research Support Facility. The eastern edge of this additional area shall maintain a 45’ setback from the future Satellite Utility Plant and the western edge shall be an extension of the current Gilman Drive setback of 60’ established per the original exhibit.)

5. TECHNICAL SPECIFICATIONS

Delete “Specifications Index (Table of Contents)” and substitute “Specifications Index (Table of Contents) revised 3/30/16.”

Add new Section 04810 Unit Masonry Assemblies to “Technical Specifications.”

Add new Section 14210 Electric Traction Elevators to “Technical Specifications.”

Add new Section 14240 Hydraulic Elevators to “Technical Specifications.”
II. CLARIFICATIONS

Item# REVISIONS TO DPP

1. Per DPP, Section 3, page 12: Delete reference to parking space requirements of 8'-0" and replace with all parking spaces to be a minimum 8'-6" wide throughout.

2. Per DPP, Section 3, page 12: Delete reference to parking spaces being provided for Rita Atkinson Residences. Specific parking spaces designated for Rita Atkinson Residents are no longer a requirement. Pay stations to remain. The total number of overall spaces at 1,200 minimum remains.

3. Per DPP, Section 5, page 55: Clarify cement type to be CalPortland Type I cement. Other acceptable alternates are CalPortland Type III and Mitsubishi Type III. Technical specification 03300, Cast-in-place Concrete will be reissued at a future date to correlate with these requirements.

MISCELLANEOUS CLARIFICATIONS

1. The University discourages painting of the structure wherever practical due to costs associated with ongoing maintenance.

2. Vehicle parking ramps shall not exceed a slope of 5%.

3. The extent of offsite work required to accommodate curbs, gutters, curb cuts, signalized intersections, re-striping/repaving, or any improvements associated with accommodating traffic access to and egress from the structure is included in the proposer’s scope or work.

4. The University values the incorporation of daylighting on this project whenever possible and therefore encourages teams to take advantage of natural daylighting to the greatest extent practical.

QUESTIONS AND ANSWERS

1. QUESTION: Within the "Project Site and Development Setbacks" section of Article 4 ("Planning Concepts") of the DPP, one of the listed setback conditions (Page 24) states "A minimum 30-foot building setback is required from the existing south curb line of Osler Lane." However, the "5009 Osler Parking Structure Limits" drawing (File name "5009 Structure Limits REV1.pdf", Latitude 33, 3/15/16) shows a sixty foot (60'-0") setback from the south curb of Osler Lane. Please clarify which is correct.

   ANSWER: The “5009 Osler Parking Structure Limits” showing a setback of 60’ shall govern over the 30’ setback listed in the DPP.
2. **QUESTION:** Within the "Program Requirements" section of Article 3 ("Preliminary Program and Criteria") of the DPP, one of the bullet points (Page 24) states "Provide infrastructure to accommodate electric vehicle charging stations at a ratio of 2:100 parking spaces." However, Cal Green minimum requires a minimum of 3% of the total number of stalls. Please clarify which is desired.

**ANSWER:** Provide 3% or 3:100 parking spaces with provisions/infrastructure to accommodate electric vehicle charging stations to meet Cal Green requirements.

3. **QUESTION:** The documents within the RFP elude to the fact that the Design-Builder shall assume the role of technical assistance with regards to Environmental issues related to the campus and particularly to the construction site. Please explain the expectations the University and its agencies have regarding design, coordination, and implementation of environmental protection, preservation, and mitigation measures.

**ANSWER:** We will rely on the design-build team to assist in providing information to support the environmental document (Mitigated Negative Declaration) and wetland permit applications which will be done by our consultant, AMEC. The lists of information for both are provided on pages 37 and 38 of the DPP. Throughout design development, obtaining these pieces of information will be an interactive process. There will be mitigation measures we identify through this process that will apply to the design such as aesthetics, hydrology/water quality (BMPs and LIDs) and transportation/traffic.

4. **QUESTION:** During the site visitation there was mention of the access road to the parking lot remaining open and useable. For what duration of time is this road to remain open? Also, we would like to know are there any portions of the existing parking lot to remain usable while construction is underway on the parking garage?

**ANSWER:** The entire site boundary shown in the DPP on page 10 encompasses the complete site/project boundary that the design-build teams have access to and is included in the scope of work. The area of this boundary to the south where it abuts the Cage Wash Facility contains trash and service elements that serve the Cage Wash. Access to the areas will need to be maintained throughout the duration of the project and can be accomplished thru coordination with facility schedules for deliveries, trash, etc. The parking/loading/service area for the cage wash within the chain link fencing must remain accessible throughout the construction activities and can be accessed by the facility using Pharmacy Lane outside of our project boundary limit. Since there is a possibility that there will be another project to the south under construction (Satellite Utility Plant) concurrent with Osler, coordination between these two projects will be essential to assure adequate access at all times. The University does not intend to keep any parking spaces in this area open for use during the construction activities. Parking spaces and/or loading areas within the chain link fencing may be accessed and used by Cage Wash occupants only. This access will occur from the south using Pharmacy Way as the access drive.
5. **QUESTION:** On Page 13 of the Preliminary Program and Criteria several bullet points regarding the emergency phone, pay stations refer to (Section 7) for further information. We cannot locate Section 7. Where can we find this information? The same applies to the rooms where it states to see section 5.

**ANSWER:** The following two previously issued electronic DPP documents contain this information:

“DPP Osler Parking Structure Appendix and Attachments only wout utilities”

“DPP complete 03-08-16 wout attachments”
INDEX OF CONTRACT DOCUMENTS
(Contents)

REQUEST FOR PROPOSALS – (Bid Documents)
00 Index of Contract Documents
01 Proposal Schedule
02 Announcement to Prequalified Proposers
03 Request for Proposal
04 Technical Proposal
05 Design Requirements Matrix
06 Lump Sum Base Price Proposal
07 Lump Sum Base Price Proposal Form
08 Bid Bond
09 Proposal Evaluation Process

DESIGN BUILD CONTRACT
10 Agreement
11 General Conditions
12 Supplementary Conditions
13 Project Directory
14 Design Professional Rate Schedule for Additional Services
15 University Furnished Information
16 Detailed Project Program (DPP) dated February 2016
17 UC San Diego Design Requirements
18 Technical Specifications (Divisions 01-17)

EXHIBITS/STANDARD CONTRACT FORMS

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<thead>
<tr>
<th>Exhibit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Certificate of Insurance</td>
</tr>
<tr>
<td>1A</td>
<td>UCIP Coverage Summary</td>
</tr>
<tr>
<td>1B</td>
<td>Declaration of Contractor / Subcontractor Minimum Occupational Safety and Health Qualifications</td>
</tr>
<tr>
<td>1C</td>
<td>UCIP Insurance Manual</td>
</tr>
<tr>
<td>1D</td>
<td>UCIP Safety Standards Manual</td>
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<tr>
<td>2</td>
<td>Payment Bond</td>
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<td>3</td>
<td>Performance Bond</td>
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<td>4</td>
<td>Application for Payment/Certificate for Payment (Schedules 1 – 4)</td>
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<tr>
<td>5A</td>
<td>Selection of Retention Options</td>
</tr>
<tr>
<td>5B</td>
<td>Escrow Agreement for Deposit of Securities in Lieu of Retention and Deposit of Retention</td>
</tr>
<tr>
<td>6</td>
<td>Submittal Transmittal</td>
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<tr>
<td>7</td>
<td>(Not Used)</td>
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<tr>
<td>8</td>
<td>Cost Proposal/Field Order</td>
</tr>
<tr>
<td>9</td>
<td>Change Order</td>
</tr>
<tr>
<td>10A</td>
<td>Conditional Waiver and Release Upon Progress Payment</td>
</tr>
<tr>
<td>10B</td>
<td>Unconditional Waiver and Release Upon Progress Payment</td>
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<tr>
<td>11A</td>
<td>Conditional Waiver and Release Upon Final Payment</td>
</tr>
<tr>
<td>11B</td>
<td>Unconditional Waiver and Release Upon Final Payment</td>
</tr>
<tr>
<td>12</td>
<td>The Regents of the University of California Master Builder’s Risk Program</td>
</tr>
<tr>
<td>13</td>
<td>Report of Contractor &amp; Subcontractor Information &amp; Distribution of Contract Dollars</td>
</tr>
<tr>
<td>14</td>
<td>Self-Certification</td>
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<tr>
<td></td>
<td>Document Name</td>
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<td>---------------------------------------------------</td>
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<tr>
<td>15</td>
<td>Uniform Hazardous Waste Manifest</td>
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<tr>
<td>16</td>
<td>(Not Used)</td>
</tr>
<tr>
<td>17</td>
<td>Campus Shutdown Request</td>
</tr>
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<td>18</td>
<td>Letter of Design Review</td>
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<td>19</td>
<td>Daily Construction Progress Report</td>
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<td>20</td>
<td>Request for Information</td>
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<td>Standard for Cable Pulling</td>
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<td>22</td>
<td>Company Evaluation Form</td>
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<td>23</td>
<td>Material/Product Substitution Request</td>
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<td>24</td>
<td>Expanded List of Subcontractors</td>
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<td>25</td>
<td>(Not Used)</td>
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<td>26</td>
<td>(Not Used)</td>
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<td>27</td>
<td>Request for Inspection</td>
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<td>(Not Used)</td>
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<td>Certificate of Beneficial Occupancy</td>
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<td>31</td>
<td>Certificate of Substantial Completion</td>
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<td>32</td>
<td>Design Builder Claim Certification</td>
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<td>33</td>
<td>Subcontractor Claim Certification</td>
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<td>34</td>
<td>University CAD Standards</td>
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<td>PWC-100</td>
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<tr>
<td></td>
<td>DIR Public Works Project Registration Worksheet</td>
</tr>
<tr>
<td>Activity</td>
<td>Date</td>
</tr>
<tr>
<td>----------</td>
<td>------</td>
</tr>
<tr>
<td>A</td>
<td>Issue Date: RFP will be available to Prequalified Proposers, subcontractors, and design consultants.</td>
</tr>
<tr>
<td>B</td>
<td>Mandatory pre-proposal site meeting.</td>
</tr>
<tr>
<td>C</td>
<td>MEETING #1: The University will hold confidential one-on-one meetings with each Proposer prior to the Technical Proposal submittal for the purpose of answering questions, clarifying RFP and program requirements, reviewing and validating preliminary, etc.</td>
</tr>
<tr>
<td>D</td>
<td>Addendum Issued Issue Addendum to all teams after meeting #1.</td>
</tr>
<tr>
<td>E</td>
<td>MEETING #2: The University will hold confidential One-on-One meetings with each Proposer prior to the Technical Proposal Submittal for the purpose of answering questions, clarifying RFP and program requirements, reviewing and validating preliminary designs, etc.</td>
</tr>
<tr>
<td>F</td>
<td>Addendum Issued Issue Addendum to all teams after meeting #2.</td>
</tr>
<tr>
<td>G</td>
<td>RFI submission deadline</td>
</tr>
<tr>
<td>H</td>
<td>Addendum Issued Issue Addendum to all teams after receipt of RFI after submission deadline.</td>
</tr>
<tr>
<td>I</td>
<td>Lump Sum Base Price Proposal Submittal is due from Proposers and will be submitted to UC San Diego Facilities Design &amp; Construction, as defined in the Project's Lump Sum Base Price Proposal. Technical Proposal submittal is due from Proposers and will be received at UC San Diego Facilities Design &amp; Construction, as defined in the Technical Proposal.</td>
</tr>
<tr>
<td>J</td>
<td>The University’s Technical Review Committee will meet to review timely submitted Technical Proposals as described in the Proposal Evaluation Process document.</td>
</tr>
<tr>
<td>K</td>
<td>Proposers shall make an Oral Presentation and describe the best value aspects of their proposals. Cost shall not be discussed during the Oral Presentation.</td>
</tr>
<tr>
<td>L</td>
<td>Proposals and presentations will be scored according to identified scoring criteria.</td>
</tr>
<tr>
<td>M</td>
<td>Public Bid Opening</td>
</tr>
</tbody>
</table>

**Late Proposals:** Any proposal, modification, or revision, that is received at the designated UC San Diego Facilities Design & Construction location after the exact time specified for receipt of proposals is “late” and will not be considered unless it was the only proposal received. Late proposals and modifications that are not considered will be held unopened, unless opened for identification, and then returned to the Proposer after award.

Revised 3/30/16 per Addendum No. 3
# TECHNICAL PROPOSAL

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   Oral Presentation ................................................................................................................................... 9
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   Deviations Matrix ................................................................................................................................. 10
   Design Requirements Matrix ............................................................................................................... 11
1. TECHNICAL PROPOSAL

Proposers shall submit a Technical Proposal conforming to the format outline herein and shall provide all requested information. FAILURE TO COMPLY WITH THE REQUIRED FORMAT AND/OR PROVIDE THE INFORMATION REQUESTED MAY RESULT IN A NON-RESPONSIVE SUBMITTAL.

Technical Proposals may be comprised of design narratives, drawings (no larger than 30” x 42”), perspectives, presentation boards, outline specifications, preliminary sizing calculations, catalog cut sheets, and other information as required and appropriate.

1.1. Technical Proposal Delivery

.1 Proposal Delivery Date

Refer to the Proposal Schedule for the Technical Proposal Submittal due date and time.

.2 Marking and Identification of Submittals

Proposer shall clearly mark the outside of each package to identify the following:

a. Project Name: Osler Parking Structure
b. Project Number: 5009
d. Date of Submittal

If the Proposals are sent by mail, courier or delivery service, the sealed package shall be marked with the notation “SEALED PROPOSAL ENCLOSED” on the face thereof.

.3 Designated Location for Receipt of Technical Proposals

Proposer shall assume full responsibility for timely delivery of proposals. Proposals shall be properly addressed to be received at:

<table>
<thead>
<tr>
<th>Hand Delivery or Overnight Express Carrier</th>
<th>U.S. Mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhonda Mitchell, Contracts Manager</td>
<td>Rhonda Mitchell, Contracts Manager</td>
</tr>
<tr>
<td>University of California, San Diego</td>
<td>University of California, San Diego</td>
</tr>
<tr>
<td>Facilities Design &amp; Construction</td>
<td>Facilities Design &amp; Construction</td>
</tr>
<tr>
<td>10280 North Torrey Pines Road, Suite 465</td>
<td>9500 Gilman Drive, Mail Code 0916</td>
</tr>
<tr>
<td>La Jolla, CA 92037</td>
<td>La Jolla, CA 92093-0916</td>
</tr>
</tbody>
</table>

LATE PROPOSALS: ANY PROPOSAL, MODIFICATION, OR REVISION, THAT IS RECEIVED AT THE DESIGNATED UC SAN DIEGO LOCATION AFTER THE EXACT TIME SPECIFIED FOR RECEIPT OF PROPOSALS IS “LATE” AND WILL NOT BE CONSIDERED UNLESS IT WAS THE ONLY PROPOSAL RECEIVED. LATE PROPOSALS AND MODIFICATIONS THAT ARE NOT CONSIDERED WILL BE HELD UNOPENED, UNLESS OPENED FOR IDENTIFICATION, AND THEN RETURNED TO THE PROPOSER AFTER AWARD.

.4 Technical Proposal Delivery Methods:

a. U.S. Mail
b. Courier (Hand Delivery)

See marking instructions in 1.1.2 above.

.5 Unacceptable Delivery Methods:

a. Oral
b. Telephonic

c. Facsimile
d. Email or other electronic means
1.2 Technical Proposal Scoring

The Technical Proposal will be scored as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Points Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAB 1 – Architecture - Image and Character (aesthetics, design, integration into campus neighborhood, innovative design)</td>
<td>300</td>
</tr>
<tr>
<td>TAB 2 – Project Functionality (pedestrian and vehicular circulation, ease of entry and exit, acknowledgement of existing visitor center, security)</td>
<td>120</td>
</tr>
<tr>
<td>TAB 3 – Sustainability Features Incorporated into Design and LEED Scorecards</td>
<td>30</td>
</tr>
<tr>
<td>TAB 4 – Compliance with Program Requirements</td>
<td>120</td>
</tr>
<tr>
<td>TAB 5 – Program Deviations: Deviations Matrix and Design Requirements Matrix (-20 points possible)</td>
<td>0</td>
</tr>
<tr>
<td>TAB 6 – Structural, Mechanical, Electrical &amp; Plumbing Design</td>
<td>50</td>
</tr>
<tr>
<td>TAB 7 – Quality Control Plan: Design and Construction</td>
<td>50</td>
</tr>
<tr>
<td>TAB 8 – Project Team, Work Plan and Schedule, including Environmental Analysis Needs Schedule</td>
<td>120</td>
</tr>
<tr>
<td>Oral Presentation</td>
<td>60</td>
</tr>
<tr>
<td><strong>Subtotal:</strong></td>
<td><strong>850</strong></td>
</tr>
<tr>
<td>TAB 9 - Program Enhancements (points will be awarded for the following enhancements):</td>
<td></td>
</tr>
<tr>
<td>a) Additional parking spaces: 0-80 points</td>
<td></td>
</tr>
<tr>
<td>b) Additional office space (up to 3,000 GSF max.): 0-50 points</td>
<td></td>
</tr>
<tr>
<td>c) Securable space for facility/grounds maintenance: 0-20 points</td>
<td></td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>1,000</strong></td>
</tr>
</tbody>
</table>

1.3 Technical Proposal Submittal Instructions

1. Required Copies

   One (1) original, five (5) hardcopies, and one (1) electronic copy of the written portion of the Technical Proposal shall be submitted in sealed boxes, envelopes, or other appropriate sealed containers.

2. Technical Proposal Format

   All Technical Proposals shall be submitted in 8.5” x 11” or 11” x 17” 3-ring or spiral bound binders. Items not physically suitable for inclusion may be submitted separately with a clear proposal reference to the separately furnished items.

   All narratives within the Technical Proposal shall be typed in Times New Roman or a comparable font that is easy to read utilizing 10 point font or larger.
.3 Presentation Boards

Proposer shall submit **one (1)** set of **three (3) only**, stand-alone foam core presentation boards, not larger than **30” x 42”** as part of the Proposal submittal. Easels shall be provided by Design Builder for every submitted Presentation Board, which will be returned after Bid Opening. **One (1) display board must identify materials and colors proposed (partial board acceptable).** Proposer shall number the boards sequentially in the order they wish them to be displayed during the evaluation.

Any plans submitted as part of a presentation board shall be to scale with the exception of perspectives and/or renderings.

The following drawings and perspectives shall be provided in the following formats:

(a) Presentation boards
(b) 11” x 17” sheets, and
(c) Electronically on a CD/DVD (in PDF format) within the technical proposal binder, as indicated:

.1 Schematic Design – Plans, Sections and Elevations as noted in .5 below, illustrating design solution and building elements.

.2 Perspective – Rendered perspective(s) of Osler Parking Structure exterior from vantage of Gilman Drive/Osler intersection looking southeast and other views of Proposer’s choice.

.3 Materials – included on one presentation board (partial acceptable), indicate all proposed exterior and interior materials and colors.

.5 Schematic Design Submittal

The following drawings shall be provided, at a minimum, on the three foam core boards (not larger than **30” x 42”) and within the technical proposal binder as 11” x 17” sheets, and on a thumbdrive (in Auto CAD format) as indicated herein.

.1 Site Plan, (scaled) to include the following:
   (a) Location of the proposed building.
   (b) Location of the proposed hardscape design elements in relation to existing facilities and site amenities.
   (c) Location of the proposed surface parking, roads, service areas, walks, plaza(s), retaining walls, and other various site/building features.
   (d) Building and site accessibility.

.2 Landscape Plan (Could be combined with Site Plan), to include the following:
   (a) Identification and location of proposed trees, shrubs, ground cover, special fill areas and lawn areas.
   (b) General notes to define the design intent and character.

.3 Fire Access Plan (Could be combined with Site Plan), to include the following:
   Include relationships with existing site elements and buildings.

.4 Parking Structure Plans (scaled to be easily legible, to include the following:
   Include all levels (ground level, typical, top level.)
   (a) Proposed parking spaces.
   (b) Circulation.
   (c) Entry and exit points.
   (d) Recommended equipment.
   (e) In tabular format: proposed construction type, occupancy, fire ratings, and
travel distances.
(f) Dimensions of major elements.

.5 Exterior Elevations, (scaled) to include the following:
Include all building elevations.
(a) Exterior elevations to include the following:
i. All major building elevations.
ii. Partial and hidden building elevations.
iii. Structural grid designations.
iv. Vertical floor elevation designations.

.6 Building Sections (scaled, can be partial) to include the following:
(a) Longitudinal, transverse or other section through building to demonstrate
   design intent.
(b) Vertical floor elevation designations.
(c) Item and material designations.

.7 Wall Sections, (scaled, can be partial) to include the following:
(a) Primary wall sections.
(b) Structural grid designations.
(c) Vertical floor elevation designations.
(d) Item and material designations.
(e) Grid to exterior wall dimensions.
(f) Dimensions of vertical openings.

.8 Typical Exterior/Interior Details (as required to demonstrate design intent)
(a) Scale: as required to demonstrate design intent
(b) Illustrate building systems relationships

2. TECHNICAL PROPOSAL SUBMITTAL (300 Points Maximum)
Each Proposer shall provide the following information with the content and format as described. Text
length references provided in this section are intended as guidelines. Page numbers displayed
below are suggestive only and are not intended as absolute limitations. The proposal shall be
indexed with tabs numbered and labeled in bold type denoting the sections as follows:

<table>
<thead>
<tr>
<th>Tab 1 – Architecture – Image and Character</th>
<th>Text Length: 8 pages</th>
<th>300 Points</th>
</tr>
</thead>
</table>

The design narrative may incorporate presentation boards and supporting materials to illustrate how the
proposed design elements and features further enhance the goals of the bridged design to provide:

A. A building that recognizes the high visibility and importance of the Osler Parking Structure in its
campus context.

B. A design which incorporates the optimum and most flexible arrangement of spaces, combined
with an economical system of construction, allowing excellent adaptability for future use.

C. Design quality and integration of architectural details or concepts consistent with the goal to
create an aesthetically pleasing structure:
1) Provides a highly desirable, comfortable and safe environment,
2) Fulfills program requirements,
3) Provides controllability of lighting
4) Lowers operating and maintenance costs

D. Sustainable high quality finishes and materials.
E. Other aesthetic considerations.

The Architectural Design narrative should identify the Design Context and Philosophical Design Intent (narrative information may also be shown on presentation boards). The evaluation team will be looking for design enhancements, architectural details, program flexibility, and project innovations that can be shown to improve overall project performance and utility.

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**Tab 2 – Project Functionality**

<table>
<thead>
<tr>
<th>Text Length: 4 pages</th>
<th>120 Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposer shall submit narrative/graphic information and may also submit presentation boards that illustrate how the proposed design meets the following:</td>
<td></td>
</tr>
<tr>
<td>A. Best Function of the Parking Structure including pedestrian and vehicular circulation, ease of entry and exit, ability to divide users, and security.</td>
<td></td>
</tr>
<tr>
<td>B. Include a narrative to summarize project that provide the University with added value to the project such as innovative traffic control, parking monitoring and parking communication systems.</td>
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<tr>
<td>C. Flexibility. Allows for shifting and segregating the parking for the different users of the Parking Structure – visitors and staff.</td>
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</tbody>
</table>

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**Tab 3 – Sustainability Features Incorporated into Design, LEED Scorecard**

<table>
<thead>
<tr>
<th>Text Length: 5 pages</th>
<th>30 Points</th>
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</thead>
<tbody>
<tr>
<td>Proposer shall submit narrative/graphic information that illustrates how the proposed design incorporates sustainability features, including:</td>
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</tr>
<tr>
<td>A. Project checklist showing minimum achievement of U.S.G.B.C LEED Silver Certification equivalency. (Green Parking Council)</td>
<td></td>
</tr>
</tbody>
</table>

Points will be subtracted for a sustainability design narrative/graphic presentation that appears incomplete, marginal or higher risk when compared with the competitive submittals. (Additional sustainability enhancements proposed that add value to the project should be presented in Tab 9.)

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**Tab 4 – Compliance with Program Requirements**

<table>
<thead>
<tr>
<th>Text Length: 2 pages</th>
<th>120 Points</th>
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<tbody>
<tr>
<td>Submit a Project Program Compliance Matrix and/or other narrative/graphic information that illustrates how the proposed design complies with the project program, including:</td>
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<tr>
<td>A. Project gross square footage,</td>
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<td>B. Incorporation of minimum 1,200 parking spaces,</td>
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<tr>
<td>C. Functionality of amenities and space requirements, as outlined in DPP,</td>
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<tr>
<td>D. Space adjacency.</td>
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</tbody>
</table>
Tab 5 – Project Deviations from Request for Proposal

Proposers shall submit the Deviations Matrix (Tab 5) and Design Requirements Matrix (Tab 5) (attached), to summarize each instance where the Lump Sum Base Price Proposal deviates from the requirements established in the Proposal Documents. Absent appropriate reference in the two matrices, the University will assume that the Design Builder will comply with the specific requirements of the Proposal Documents during both the design and construction phases of the project.

The Lump Sum Base Price Proposal shall include the cost of all proposed deviations from the Proposal Documents. Deviations from the Proposal Documents will not be allowed without prior written approval from Facilities Design & Construction Services. After the Award of Contract, proposed product substitutions shall be made according to Specification Section 01610, Product Delivery, Storage and Handling.

Tab 6 – Structural, Mechanical, Electrical and Plumbing Design

A. Proposer shall submit narrative/graphics and may submit a presentation board(s) that (i) indicates the University’s requirements will be met or exceeded, and (ii) includes information that describes the Design Builder’s proposal for the following systems:

1. The Structural Design discussion shall include the content as described below:
   a. Indicates the University’s requirements will be met or exceeded

2. The Mechanical Design discussion shall include the content as described below:
   a. Identify natural ventilation or mechanical system(s) design & controllability for thermal comfort
   b. Identify energy consumption and efficiency of major mechanical system(s)

3. The Electrical Design discussion shall include the content as described below:
   a. Identify power system(s) design & controllability
   b. Identify lighting system(s) design & controllability

4. The Plumbing discussion shall include the content as described below:
   a. Identify plumbing system(s) design

Tab 7 – Quality Control Plan: Design and Construction Phases

Proposer will provide a narrative that complies with Division 01 General Requirements, Section 01450, Quality Control, and address the following items:

A. The organization and reporting relationships of the project team members responsible for quality control. Provide a table showing quality control resource loading through completion of the project.

B. Quality control during design, construction document and construction.

C. Tracking and Compliance Log to assure the incorporation of University comments during the review and approval process.

D. Configuration control to assure compliance with program requirements.

E. Quality control procedures during construction including but not limited to appropriate storm water, pollution, airborne contaminate, and infection control measures.
Tab 8 – Project Team, Work Plan and Schedule including Environmental Analysis Needs Schedule

Text Length: 5 pages  120 Points

Each Proposer shall be responsible for developing and providing a Work Plan illustrating how it intends to staff and manage the tasks and resources necessary to accomplish the Work, commencing with the Notice to Proceed and ending with the completion of Construction.

A. **Project Approach.** Each Proposer shall describe its management and staffing plan, overall approach to accomplishing the project. Identify opportunities for improvement, project constraints, mobilization, and potential obstacles that may be associated with each phase of the project and how the Proposer will address each of these challenges. The project approach shall be consistent with and supported by the other elements of the Work Plan that are listed below:

1. Approach to staffing design and construction phase with Key Personnel identified (staffing plan).
2. Approach to key elements of project management and administration.
3. Proposed strategies for addressing project constraints and overcoming potential challenges that may be associated with each phase of the project and how the Proposer will address each of these issues.
4. The sequence of work to connect utilities with minimal service interruption.
5. Maintaining emergency vehicle and service vehicle access during construction.
6. Project delay mitigation measures.

B. **Preliminary Construction Schedule.** Submit a Preliminary Schedule and supporting narrative for the project following Notice to Proceed that are consistent with its Work Plan and that:

1. Describes the Proposer’s approach to the fast-track design and construction overlap of the project on within the schedule of Total Contract Time (Article 2.4 of the Request for Proposal section) from contract award to substantial completion.
2. Indicates significant contract activities, including submittal meetings with key decision makers, University reviews, and procurement activities and durations, including the activities required to complete the Schematic Design, Design Development and Construction Documents and obtain required approvals on a fast-track basis.
3. Identifies the division of the Work by construction Drawing Packages (limited to no more than three [3] Construction Document Packages) that will be submitted to the University and provide the proposed breakdown of design packages, by discipline, with typical list of drawings and specifications sections to be included in each package. Description includes how the design package strategy contributes to successful schedule implementation.

C. **Environmental Analysis Needs Schedule:** Submit a schedule that identifies all tasks associated with completing the Environmental Analysis Information Needs Checklist and other information required for the University to prepare and submit permit applications in a timely manner to various environmental agencies. The material required is listed in Part 4 of the DPP. All items listed shall be referenced in the published schedule as to when those items/activities will be accomplished. The environmental processing work associated with the existing wetlands is a critical path to the project’s schedule. It is anticipated that all information needed from the design/build team to successfully submit an accurate permit application will occur within 30 calendar days of award.
Oral Presentation  60 Points

Proposer shall make an oral presentation of its proposal following the University’s evaluation of Technical Proposals and prior to the public opening of the Lump Sum Base Price Proposals.

During the oral presentation, Proposers shall describe the most important aspects of their proposals and provide responses to questions from the Technical Evaluation Committee, which may address, but are not limited to, any proposal clarifications or project-related issues.

Proposed cost shall not be discussed during the oral presentation. The University’s summation of Proposal Clarification questions and answers shall be furnished by the University to selected Proposer and accepted by signature of selected Proposer for incorporation into its proposal by reference.

Tab 9 – Program Enhancements  150 Points

Proposer should clearly communicate all proposed added value enhancements that are being provided in the Lump Sum Base Price. Proposer must demonstrate that their proposed project enhancements are above and beyond the baseline requirements established in the RFP documents. The technical evaluation team can only award points in this tab for enhancements that are clearly presented with respect to the scope and details of what is being provided. Submit a clear narrative of the added benefits or value to the project. The highest points will be awarded in this tab to the Proposer that offers the best overall combination of added value and project enhancements and amenities consistent with the established performance and design goals of the project.
### DEVIATIONS MATRIX (TAB 5)
(Deviations from Specifications and/or Design Criteria\(^1\))

<table>
<thead>
<tr>
<th>SPECIFICATION SECTION / DESIGN CRITERIA</th>
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<tbody>
<tr>
<td>ITEM DESCRIPTION</td>
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<td>Division 1 General Requirements</td>
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<td>Division 2 Sitework</td>
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<td>Division 3 Concrete</td>
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<td><strong>Division 4 Masonry</strong></td>
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<td>Division 7 Thermal and Moisture Control</td>
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<td>Division 8 Openings</td>
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<td>Division 9 Finishes</td>
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<td>Division 13 Special Construction</td>
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<td>Division 14 Conveying Systems</td>
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<tr>
<td>Division 15 Mechanical</td>
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<td>Division 16 Electrical</td>
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\(^1\) Suggested format only. It is the Proposer’s responsibility and obligation to present its alternative concept narrative in each respective tab so that the University clearly understands the proposed deviations to the base price.
### DESIGN REQUIREMENTS MATRIX (TAB 5)

#### DIVISION I – GENERAL REQUIREMENTS

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<td>B. Design Requirements Format</td>
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<td>C. Special Program Requirements</td>
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<td>D. LEED (Requirements in Process)</td>
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<td>E. Environment, Health and Safety</td>
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<td>F. OSHPD (Not Used)</td>
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<td>G. Structural Engineering Requirements</td>
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<tr>
<td>H. Housing, Dining, and Hospitality (Not Used)</td>
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<td>I. Sports Facilities (Not Used)</td>
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<td>J. Animal Care Facilities (Not Used)</td>
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## DIVISION II – SITE REQUIREMENTS (CIVIL ENGINEERING)

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<td>B. Hydrology Studies and Stormwater Best Management Practices (BMP)</td>
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<td>C. SPCC Guidance for Oil or Liquid Filled Electrical and Other Operating Equipment</td>
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<td>D. Recycled Water Regulations</td>
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<td>E. Inspection Procedures</td>
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<tr>
<td>F. Building Requirements</td>
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<td>G. Site Requirements</td>
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<td>H. Site Clearing and Demolition</td>
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<tr>
<td>I. Earthwork</td>
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<td>J. Trenching, Backfilling and Compaction</td>
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<td>N. Concrete Curb and Gutter</td>
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<td>O. Water Meters (see project specifications)</td>
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**DIVISION II – SITE REQUIREMENTS (LANDSCAPE)**

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**DIVISION II – SITE REQUIREMENTS (RECYCLED WATER)**

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<tbody>
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<td>B. Inspection Procedures</td>
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**DIVISION III – BUILDING REQUIREMENTS (ARCHITECTURE)**

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<td>Noise and Vibration Control (Not Used)</td>
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<td>G.</td>
<td>Planning for Service Areas</td>
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<td>Membrane Roofing</td>
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<td>K.</td>
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<td>D. Ventilation and HVAC Design Standards</td>
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<td>D. Emergency Generator Set (Not Used)</td>
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<td>DIVISION III – BUILDING REQUIREMENTS (INTERIOR LIGHTING)</td>
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<td>A. Campus Lighting Policy</td>
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<td>B. Lighting for Distant Learning Spaces (Not Used)</td>
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<td>C. Lighting Design Requirements</td>
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<td>F. Laboratory Lighting (Not Used)</td>
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<td>C. General Assumptions and Provisions</td>
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<td>G. Specifically Permitted Uses and Exceptions</td>
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**DIVISION III – BUILDING REQUIREMENTS**

**(EXTERIOR LIGHTING DESIGN REQUIREMENTS)**

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**A. Introduction**

**B. Objectives**

**C. Summary of Lighting Principles**

**D. Recommendations**

**DIVISION III – BUILDING REQUIREMENTS**

**SECURITY**

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<th>Explanation</th>
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**A. General**

**B. System Requirements**
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<td>B. Entrance Conduits</td>
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<td>C. Requirements Applying to All Telecommunications Spaces</td>
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<td>D. Horizontal and Vertical Pathways</td>
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<td>E. Telecommunications Outlets</td>
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<td>I. Sample Drawings for Design and Construction Packages</td>
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</table>
I certify that the information set forth on this Design Requirements Matrix is, to the best of my knowledge, true, accurate, and complete.

______________________________
(COMPANY)

______________________________
(SIGNATURE)

______________________________
(PRINT NAME AND TITLE)

THE DESIGN REQUIREMENTS MATRIX MUST BE INCLUDED WITH TECHNICAL PROPOSAL.
The following information is made available for the convenience of Proposers and is not a part of the Contract. The information is provided subject to the provisions of subparagraph 3.1.1 of the General Conditions.

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<th>NO.</th>
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<tr>
<td>1.</td>
<td>Prevailing Wage information: Proposers can obtain prevailing wage information through the internet at <a href="http://www.dir.ca.gov">www.dir.ca.gov</a> or by contacting University's principal Facility office.</td>
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<td>2.</td>
<td>The University of California has contracts for materials, equipment and/or services with the suppliers listed on the Office of the President Procurement Services website at <a href="http://www.ucop.edu/procurement-services/for-suppliers/ucop-designated-construction-agreements.html">http://www.ucop.edu/procurement-services/for-suppliers/ucop-designated-construction-agreements.html</a>. Design Builder may enter into agreements with these suppliers that utilize the pricing and terms contained in the University-supplier agreements. The university does not represent or warrant that materials/equipment/services of these suppliers meet the requirements of the University’s construction contracts. Use of such suppliers shall not relieve Design Builder from its obligation to meet all contractual requirements in any contracts with the University. The university will not be a party to any agreements with such suppliers and accepts no performance obligations or liability with respect to such agreements.</td>
</tr>
<tr>
<td>3.</td>
<td>Site vegetation and jurisdictional resource layers in CAD: <a href="http://intranet.fdc.ucsd.edu/downloads/5009.20151022_VegJD_CAD_ToUCSD.zip">http://intranet.fdc.ucsd.edu/downloads/5009.20151022_VegJD_CAD_ToUCSD.zip</a></td>
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<td>4.</td>
<td>Site vegetation and jurisdictional resource layers in GIS Shapefiles: <a href="http://intranet.fdc.ucsd.edu/downloads/5009.20151021_VegJD_Shapefiles_ToUCSD.zip">http://intranet.fdc.ucsd.edu/downloads/5009.20151021_VegJD_Shapefiles_ToUCSD.zip</a></td>
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<td>5.</td>
<td>CAD version of the site survey and topographic information: <a href="http://intranet.fdc.ucsd.edu/downloads/5009.TOPO.zip">http://intranet.fdc.ucsd.edu/downloads/5009.TOPO.zip</a></td>
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SECTION 04810
UNIT MASONRY ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes unit masonry assemblies consisting of the following:
   1. Concrete masonry units (CMUs).
   2. Mortar and grout.
   3. Reinforcing steel.
   4. Masonry joint reinforcement.
   5. Ties and anchors.
   6. Miscellaneous masonry accessories.

B. Products furnished, but not installed, under this Section include the following:
   1. Dovetail slots for masonry anchors, installed under Division 3 Section "Cast-in-Place Concrete."
   2. Anchor sections of adjustable masonry anchors for connecting to structural frame, installed under Division 5 Section "Metal Fabrications."

C. Products installed, but not furnished, under this Section include the following:
   1. Steel shelf angles for unit masonry, furnished under Division 5 Section "Metal Fabrications."

1.2 DEFINITIONS

A. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.3 PERFORMANCE REQUIREMENTS

A. Provide structural unit masonry that develops indicated net-area compressive strengths (f'\text{\textsubscript{m}}) at 28 days.

B. Determine net-area compressive strength (f'\text{\textsubscript{m}}) of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.

C. Determine net-area compressive strength (f'\text{\textsubscript{m}}) of masonry by testing masonry prisms according to ASTM C 1314.
1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For the following:
   1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
   2. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement." Show elevations of reinforced walls.

C. Qualification Data: For testing agency.

D. Material Certificates: Include statements of material properties indicating compliance with requirements including compliance with standards and type designations within standards. Provide for each type and size of the following:
   1. Masonry units.
      a. Include material test reports substantiating compliance with requirements.
      b. For masonry units used in structural masonry, include data and calculations establishing average net-area compressive strength of units.
   2. Cementitious materials. Include brand, type, and name of manufacturer.
   3. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.
   4. Grout mixes. Include description of type and proportions of ingredients.
   5. Reinforcing bars.
   7. Anchors, ties, and metal accessories.

E. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.
   1. Include test reports, per ASTM C 780 for mortar mixes required to comply with property specification.
   2. Include test reports, per ASTM C 1019 for grout mixes required to comply with compressive strength requirement.

F. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1093 for testing indicated, as documented according to ASTM E 548.
B. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, through one source from a single manufacturer for each product required.

C. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from a single manufacturer for each cementitious component and from one source or producer for each aggregate.

D. Preconstruction Testing Service: University will engage a qualified independent testing agency to perform preconstruction testing indicated below. Payment for these services will be made by University. Retesting of materials that fail to meet specified requirements shall be done at Contractor's expense.

1. Concrete Masonry Unit Test: For each type of unit required, per ASTM C 140.
2. Mortar Test (Property Specification): For each mix required, per ASTM C 780.
3. Grout Test (Compressive Strength): For each mix required, per ASTM C 1019.
4. Prism Test: For each type of construction required, per ASTM C 1314.

E. Fire-Resistance Ratings: Where indicated, provide materials and construction identical to those of assemblies with fire-resistance ratings determined per ASTM E 119 by a testing and inspecting agency, by equivalent concrete masonry thickness, or by other means, as acceptable to authorities having jurisdiction.

F. Sample Panels: Build sample panels to verify selections made under sample submittals and to demonstrate aesthetic effects. Comply with requirements in Division 1 Section "Quality Control" for mockups.

1. Build sample panels in place for typical exterior wall in sizes approximately 48 inches long by 48 inches high by full thickness.
2. Where masonry is to match existing, erect panels adjacent and parallel to existing surface.
3. Clean exposed faces of panels with masonry cleaner indicated.
4. Protect approved sample panels from the elements with weather-resistant membrane.
5. Approval of sample panels is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; aesthetic qualities of workmanship; and other material and construction qualities specifically approved by University’s Representative in writing.

   a. Approval of sample panels does not constitute approval of deviations from the Contract Documents contained in sample panels unless such deviations are specifically approved by University’s Representative in writing.

G. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Quality Control."
1.6 DELIVERY, STORAGE, AND HANDLING

A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

D. Deliver preblended, dry mortar mix in moisture-resistant containers designed for lifting and emptying into dispensing silo. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in a metal dispensing silo with weatherproof cover.

E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.7 PROJECT CONDITIONS

A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.

1. Extend cover a minimum of 24 inches down both sides and hold cover securely in place.
2. Where 1 wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.

B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 days after building masonry walls or columns.

C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
2. Protect sills, ledges, and projections from mortar droppings.
3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Products: Subject to compliance with requirements, provide one of the products specified.
2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 MASONRY UNITS, GENERAL

A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to exceed tolerances and to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects, including dimensions that vary from specified dimensions by more than stated tolerances, will be exposed in the completed Work or will impair the quality of completed masonry.

2.3 CONCRETE MASONRY UNITS (CMUs)

A. Shapes: Provide shapes indicated and as follows:

1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
2. Provide square-edged units for outside corners, unless otherwise indicated.

B. Concrete Masonry Units: ASTM C 90.

1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2150 psi.
2. Weight Classification: Medium weight
3. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.
4. Exposed Faces: Provide color and texture matching the range represented by University’s Representative’s sample.

2.4 MASONRY LINTELS

A. General: Provide masonry lintels, complying with requirements below.

B. Masonry Lintels: Built-in-place masonry lintels made from bond beam concrete masonry units with reinforcing bars placed as indicated and filled with coarse grout. Cure precast lintels before handling and installing. Temporarily support built-in-place lintels until cured.
2.5 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C 150, Type I or II. Provide natural color or white cement as required to produce mortar color indicated.

B. Hydrated Lime: ASTM C 207, Type S.

C. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207, Type S.

D. Masonry Cement: ASTM C 91.

1. Products:
   b. Essroc, Italcementi Group; Brixment or Velvet.
   c. Holcim (US) Inc.; Mortamix Masonry Cement
   d. Lafarge North America Inc.; Magnolia Masonry Cement, Lafarge Masonry Cement, Florida Super Masonry, Trinity Super White Masonry Type S, Trinity White Masonry Type N.
   e. Lehigh Cement Company; Lehigh Masonry Cement, Lehigh White Masonry Cement.

E. Mortar Cement: ASTM C 1329.

1. Products:
   a. Lafarge North America Inc.; Lafarge Mortar Cement or Magnolia Superbond Mortar Cement.

F. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortar.

1. Products:
   b. Davis Colors; True Tone Mortar Colors.
   c. Solomon Grind-Chem Services, Inc.; SGS Mortar Colors.

G. Colored Cement Product: Packaged blend made from portland cement and lime, masonry cement, or mortar cement and mortar pigments, all complying with specified requirements, and containing no other ingredients.

1. Formulate blend as required to produce color indicated or, if not indicated, as selected from manufacturer's standard colors.
2. Pigments shall not exceed 10 percent of portland cement by weight.
3. Pigments shall not exceed 5 percent of masonry cement or mortar cement by weight.
4. Products:
   a. Colored Portland Cement-Lime Mix:
      2) Holcim (US) Inc.; Rainbow Mortamix Custom Color Cement/Lime.
      3) Lafarge North America Inc.; Eaglebond.
      4) Lehigh Cement Company; Lehigh Custom Color Portland/Lime Cement.
   b. Colored Masonry Cement:
      1) Capital Materials Corporation; Flamingo Color Masonry Cement.
      2) Essroc, Italcementi Group; Brixment-in-Color.
      3) Holcim (US) Inc.; Rainbow Mortamix Custom Color Masonry Cement.
      4) Lafarge North America Inc.; Florida Custom Color Masonry or Magnolia Masonry Cement.
      5) Lehigh Cement Company; Lehigh Custom Color Masonry Cement.
   c. Colored Mortar Cement:
      1) Lafarge North America Inc.; Magnolia Superbond Mortar Cement.

H. Aggregate for Mortar: ASTM C 144.
   1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
   2. For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.
   3. White-Mortar Aggregates: Natural white sand or crushed white stone.
   4. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

I. Aggregate for Grout: ASTM C 404.

J. Epoxy Pointing Mortar: ASTM C 395, epoxy-resin-based material formulated for use as pointing mortar for structural-clay tile facing units (and approved for such use by manufacturer of units); in color indicated or, if not otherwise indicated, as selected by University’s Representative from manufacturer's colors.

K. Refractory Mortar Mix: Ground fireclay or non-water-soluble, calcium aluminate, medium-duty refractory mortar that passes ASTM C 199 test; or an equivalent product acceptable to authorities having jurisdiction.
1. **Products:**
   a. Addiment Incorporated; Mortar Kick.
   b. Euclid Chemical Company (The); Accelguard 80.
   d. Sonneborn, Div. of ChemRex; Trimix-NCA.

L. **Water-Repellent Admixture:** Liquid water-repellent mortar admixture intended for use with concrete masonry units, containing integral water repellent by same manufacturer.

1. **Products:**
   a. Addiment Incorporated; Mortar Tite.
   b. Grace Construction Products, a unit of W. R. Grace & Co. - Conn.; Dry-Block Mortar Admixture.
   c. Master Builders, Inc.; Color Cure Mortar Admix or Rheomix Rheopel.

M. **Water:** Potable.

2.6 **REINFORCEMENT**

A. **Uncoated Steel Reinforcing Bars:** ASTM A 615/A 615M, Grade 60.

2.7 **MISCELLANEOUS ANCHORS**

A. **Unit Type Inserts in Concrete:** Cast-iron or malleable-iron wedge-type inserts.

B. **Dovetail Slots in Concrete:** Furnish dovetail slots with filler strips, of slot size indicated, fabricated from 0.034-inch, galvanized steel sheet.

C. **Anchor Bolts:** Headed or L-shaped steel bolts complying with ASTM A 36; with ASTM A 563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153/A 153M, Class C; of dimensions indicated.

2.8 **EMBEDDED FLASHING MATERIALS**

A. **Metal Flashing:** Provide metal flashing[ ], where flashing is exposed or partly exposed, complying with SMACNA's "Architectural Sheet Metal Manual Division 7 Section "Sheet Metal Flashing and Trim" and as follows:

   1. Fabricate continuous flashings in sections 96 inches long minimum, but not exceeding 12 feet. Provide splice plates at joints of formed, smooth metal flashing.
   2. **Rubberized-Asphalt Flashing:** Composite flashing product consisting of a pliable, adhesive rubberized-asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than 0.030 inch.

      a. **Products:**
1) Advanced Building Products Inc.; Peel-N-Seal.  
2) Carlisle Coatings & Waterproofing; CCW-705-TWF Thru-Wall Flashing.  
3) Dayton Superior Corporation, Dur-O-Wal Division; Dur-O-Barrier-44.  
5) Heckmann Building Products Inc.; No. 82 Rubberized-Asphalt Thru-Wall Flashing.  
6) Hohmann & Barnard, Inc.; Textroflash.  
7) Polyguard Products, Inc.; Polyguard 300.  
8) Polytite Manufacturing Corp.; Poly-Barrier Self-Adhering Wall Flashing.  

2.9 MISCELLANEOUS MASONRY ACCESSORIES  

A. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells with loops for holding reinforcing bars in center of cells. Units are formed from 0.142-inch steel wire, hot-dip galvanized after fabrication. Provide units with either two loops or four loops as needed for number of bars indicated.  

1. Products:  
   a. Dayton Superior Corporation, Dur-O-Wal Division; D/A 810, D/A 812 or D/A 817.  
   c. Hohmann & Barnard, Inc.; #RB or #RB-Twin Rebar Positioner.  
   d. Wire-Bond; O-Ring or Double O-Ring Rebar Positioner.  

2.10 MASONRY CLEANERS  

A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.  

1. Manufacturers:  
   a. Diedrich Technologies, Inc.  
   b. EaCo Chem, Inc.  
   c. ProSoCo, Inc.  
   d. Or equal.
2.11 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, or other admixtures, unless otherwise indicated.

1. Do not use calcium chloride in mortar or grout.
2. Limit cementitious materials in mortar to portland cement and lime.

B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

C. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.

D. Mortar for Unit Masonry: Comply with ASTM C 270 Property Specification. Provide type M or S mortar.

E. Pigmented Mortar: Use colored cement product or select and proportion pigments with other ingredients to produce color required. Do not add pigments to colored cement products.

1. Pigments shall not exceed 10 percent of portland cement by weight.

F. Grout for Unit Masonry: Comply with ASTM C 476.

1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
2. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143/C 143M.

2.12 SOURCE QUALITY CONTROL

A. University will engage a qualified independent testing agency to perform source quality-control testing indicated below:

1. Payment for these services will be made by University.
2. Retesting of materials failing to comply with specified requirements shall be done at Contractor’s expense.

B. Concrete Masonry Unit Test: For each type of unit furnished, per ASTM C 140.
PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
2. Verify that foundations are within tolerances specified.
3. Verify that reinforcing dowels are properly placed.

B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.

B. Build chases and recesses to accommodate items specified in this and other Sections.

C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.

D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.

1. Mix units from several pallets or cubes as they are placed.

F. Comply with construction tolerances in ACI 530.1/ASCE 6/TMS 602 and with the following:

1. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
2. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet, or 1/2 inch maximum.
3. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
4. For exposed bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch. Do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
5. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch.
6. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch except due to warpage of masonry units within tolerances specified for warpage of units.
7. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch from one masonry unit to the next.

3.3 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond or bond pattern indicated on Drawings; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 4-inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

D. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.

E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

F. Fill space between steel frames and masonry solidly with mortar, unless otherwise indicated.

G. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.

H. Fill cores in hollow concrete masonry units with grout 24 inches under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.

3.4 MORTAR BEDDING AND JOINTING

A. Lay hollow concrete masonry units as follows:
1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.

B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or sluash head joints.

C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness, unless otherwise indicated.

D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint), unless otherwise indicated.

3.5 ANCHORING MASONRY TO STRUCTURAL MEMBERS

A. Anchor masonry to structural members where masonry abuts or faces structural members to comply with the following:

1. Provide an open space not less than 1/2 inch in width between masonry and structural member, unless otherwise indicated. Keep open space free of mortar and other rigid materials.
2. Anchor masonry to structural members with anchors embedded in masonry joints and attached to structure.
3. Space anchors as indicated, but not more than 24 inches o.c. vertically and 36 inches o.c. horizontally.

3.6 LINTELS

A. Provide masonry lintels where shown and where openings of more than 12 inches for brick-size units and 24 inches for block-size units are shown without structural steel or other supporting lintels.

B. Provide minimum bearing of 8 inches at each jamb, unless otherwise indicated.

3.7 FLASHING, WEEP HOLES, CAVITY DRAINAGE, AND VENTS

A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated. Install vents at shelf angles, ledges, and other obstructions to upward flow of air in cavities, and where indicated.

B. Install reglets and nailers for flashing and other related construction where they are shown to be built into masonry.
3.8 REINFORCED UNIT MASONRY INSTALLATION

A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
   1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
   2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction.

B. Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 602.

C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
   1. Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
   2. Limit height of vertical grout pours to not more than 60 inches.

3.9 FIELD QUALITY CONTROL

A. Inspectors: University will engage qualified independent inspectors to perform inspections and prepare reports. Allow inspectors access to scaffolding and work areas, as needed to perform inspections.
   1. Place grout only after inspectors have verified compliance of grout spaces and grades, sizes, and locations of reinforcement.

B. Testing Agency: University will engage a qualified independent testing and inspecting agency to perform field tests and inspections indicated below and prepare test reports:
   1. Payment for these services will be made by University.
   2. Retesting of materials failing to comply with specified requirements shall be done at Contractor's expense.

C. Testing Frequency: One set of tests for each 5000 sq. ft. of wall area or portion thereof.

D. Concrete Masonry Unit Test: For each type of unit provided, per ASTM C 140.

E. Mortar Test (Property Specification): For each mix provided, per ASTM C 780. Test mortar for compressive strength.

F. Grout Test (Compressive Strength): For each mix provided, per ASTM C 1019.

G. Prism Test: For each type of construction provided, per ASTM C 1314 at 7 days and at 28 days.
3.10 REPAIRING, POINTING, AND CLEANING

A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.

B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.

C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
   1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
   2. Test cleaning methods on sample wall panel; leave one-half of panel uncleared for comparison purposes. Obtain University's Representative's approval of sample cleaning before proceeding with cleaning of masonry.
   3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
   4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
   6. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.
   7. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.
   8. Clean stone trim to comply with stone supplier's written instructions.
   9. Clean limestone units to comply with recommendations in ILI's "Indiana Limestone Handbook."

3.11 MASONRY WASTE DISPOSAL

A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.

B. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.
   1. Crush masonry waste to less than 4 inches in each dimension.
   2. Mix masonry waste with at least two parts of specified fill material for each part of masonry waste. Fill material is specified in Division 2 Section "Earthwork."
   3. Do not dispose of masonry waste as fill within 18 inches of finished grade.
C. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above, and other masonry waste, and legally dispose of off University's property.

END OF SECTION 04810
SECTION 14210

ELECTRIC TRACTION ELEVATORS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes electric traction passenger elevators.

1. Seismic switches required by ASME A17.1 are included.

B. Related Sections include the following:

1. Division 3 Section "Cast-in-Place Concrete" for setting sleeves, inserts, and anchoring devices in concrete.

2. Division 5 Section "Metal Fabrications" for the following:
   a. Attachment plates and angle brackets for supporting guide-rail brackets.
   b. Machine beams.
   c. Divider beams.
   d. Hoist beams.
   e. Structural-steel shapes for subsills and entrance frames.
   f. Pit ladders.

3. Division 5 Section "Ornamental Formed Metal" for combination units that contain hall push-button stations.

4. Division 13 Section "Fire Detection and Alarm System" smoke detectors in elevator lobbies to read: smoke detectors in elevator lobbies and machine rooms to initiate emergency recall operation and circuit breakers serving elevators shall have shunt trip, activated by heat detectors in machine rooms to disconnect power from elevator equipment before sprinkler activation and for connection to elevator controllers.

5. Division 16 Sections for electrical service for elevators to and including fused disconnect switches shall be readily accessible to qualified persons and within sight of the controller and standby power source, transfer switch, and connection from auxiliary contacts in transfer switch to controller.

1.2 DEFINITIONS

A. Defective Elevator Work: Operation or control system failures; performances below specified ratings; excessive wear; unusual deterioration or aging of materials or finishes; unsafe conditions; the need for excessive maintenance; abnormal noise or vibration; and similar unusual, unexpected, and unsatisfactory conditions.
B. In all cases, where a device or a part of the equipment is herein referred to in the singular number, it is intended that such reference shall apply to as many such devices or parts as are required to complete the installation.

C. All terms in these specifications have their definition given in the latest edition of the American Society of Mechanical Engineers, Safety Code for Elevators, Dumbwaiters, and Escalators ASME A17.1, including revisions and authorized changes in effect on the date of these specifications.

1.3 SUBMITTALS

A. Product Data: Include capacities, sizes, performances, operations, safety features, finishes, and similar information.

B. Shop Drawings: Show plans, elevations, sections, and large-scale details indicating service at each landing, machine room layout, coordination with building structure, relationships with other construction, and locations of equipment and signals. Indicate variations from specified requirements, maximum dynamic and static loads imposed on building structure at points of support, and maximum and average power demands.

C. Samples: For exposed finishes of cars, hoistway doors and frames, and signal equipment; 3-inch-square samples of sheet materials; and 4-inch lengths of running trim members.

D. Manufacturer Certificates: Signed by elevator manufacturer certifying that hoistway, pit, and machine room layout and dimensions, as shown on Drawings, and electrical service including standby service as shown and specified, are adequate for elevator system being provided.

E. Maintenance Manuals: Include operation and maintenance instructions, parts listing with sources indicated, recommended parts inventory listing, emergency instructions, and similar information. Include diagnostic and repair information available to manufacturer's and Installer's maintenance personnel. Submit for University's information at Project closeout as specified in Division 1.

F. Inspection and Acceptance Certificates and Operating Permits: As required by authorities having jurisdiction for normal, unrestricted elevator use.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Elevator manufacturer or an experienced installer approved by elevator manufacturer who has completed elevator installations similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance within the past 5 years.

B. Regulatory Requirements:

1. Contractor shall be responsible for obtaining, in a timely manner all permits required by Labor Code section 7301.1.
2. In addition to local governing regulations, comply with applicable provisions in ASME A17.1, "Safety Code for Elevators and Escalators."

3. Seismic Risk Zone: Project is located in Zone 4


5. California Code of Regulations, Titles 8, 19, and 24; California Code of Regulations. For Title 24, the applicable edition will be that in effect on the date preliminary drawings (as defined in the State Administrative Manual) are presented for review. Generally, these will be the Design Development documents. ANSI Z97.1 for laminated glass in elevators and hoistways.

6. As required by local fire jurisdiction.

7. In the event of conflict, the more-stringent Code requirements shall apply.

C. All of the work required to be provided as described in this section of the specifications shall be provided by a single entity sub-contractor skilled in this specialty, holding a valid C-11 California contractor's license.

D. Accessibility Requirements: In addition to local governing regulations, comply with Section 4.10 in the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines (ADAAG)." Section 407 in ICC A117.1.

1.5 COORDINATION

A. Coordinate installation of sleeves, block outs, elevator equipment with integral anchors, and other items that are embedded in concrete or masonry for elevator equipment. Furnish templates, sleeves, elevator equipment with integral anchors, and installation instructions and deliver to Project site in time for installation.

B. Coordinate locations and dimensions of other work relating to electric traction elevators including pit ladders, sumps, and floor drains in pits; entrance subsills; and electrical service, electrical outlets, lights, and switches in pits and machine rooms.

1.6 PERMITS, TESTS, AND INSPECTIONS

A. Obtain and pay for the following:

1. All necessary permits, licenses and inspection fees necessary to complete the elevator installation.

2. Perform tests as required by governing authorities and/or the ASME current A17.2 Elevator Inspectors' Manual.

B. Perform such tests in the presence of authorized representatives of such authorities.

C. Provide manpower and equipment to perform speed and performance tests indicated in the specifications.
1.7 WARRANTY

A. Warranty: Written warranty University's standard form, signed by contractor agreeing to repair, restore, or replace defective elevator work within specified warranty period.

1. Warranty Period: 12 months.

1.8 MAINTENANCE SERVICE

A. Initial Maintenance Service: Beginning at Substantial Completion, provide 12 months' full maintenance service by skilled employees of the elevator Installer. Include monthly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper elevator operation at rated speed and capacity. Provide parts and supplies as used in the manufacture and installation of original equipment.

1. Perform maintenance, including emergency callback service, during normal working hours.
2. Include 24-hour-per-day, 7-day-per-week emergency callback service.
   a. Response Time: Two hours or less.

B. All maintenance work shall be performed by competent personnel under the supervision and direct employ of the Elevator Company.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide electric traction elevators by one of the following, or equal:

1. Mitsubishi
2. Otis Elevator Co.
3. Schindler Elevator Corp.
4. Thyssen
5. Or equal

2.2 MATERIALS AND COMPONENTS

A. Geared Traction Passenger or Service Elevators:

1. Capacity:
   a. Passenger: 3,500 lb.
   b. Service: 4,000 lb., Class "A" Loading.

2. Speed: 350 fpm.
3. Roping: 1:1

4. Microprocessor Control:
   a. "Open Architecture" controller, as manufactured by Motion Control Engineering, Inc., or SmartRise Engineering, Inc.

5. Motor Control: SCR Soft Start; DC, variable voltage with closed-loop feedback and automatic stopping accuracy. (AC motor controls are not acceptable.)

6. Platform Size:
   a. Passenger: 7 ft. wide X 6 ft.-2 in. deep.
   b. Service: 5 ft.-8 in. wide X 8 ft.-8 in. deep.

7. Inside "Clear" Size with Interior Finish:
   a. Passenger: 6 ft.-8 in. wide X 5 ft.-5 in. deep.
   b. Service: 5 ft.-4in. wide X 7 ft.-9 in. deep.

8. Entrance Size:
   a. Passenger: 3 ft.-6 in. wide X 7 ft. high.
   b. Service: 4 ft. wide X 7 ft. high.

9. Entrance Type:

10. Door Operation: High-speed, heavy-duty master DC door operator.
   a. Minimum Opening Speed: 2-1/2 fps.


   a. Alternate: Geared basement, when required.

13. Car Safety: Flexible guide clamp, Type B.
14. Counterweight Safety: Same as car, when required.
17. Compensation: Whisper-Flex, with pit guide assembly when required.
   a. Interior Finishes: As approved by the University's Representative and selected from manufacturer's standard material/color selection. Flooring shall be VCT, Walls shall be stainless steel panels 316L, handrails shall be stainless steel 316L, and ceiling shall be from manufacturer's standard selection.
b. Car Height to Canopy: 8 ft Passenger Elevators

c. Car Height to Canopy; 10 ft. extend rear portion of Service Elevators to maximum height, width and depth behind crosshead.

19. Entrances:

a. Passenger: Brushed stainless steel doors and frames at all floors.
b. Service: Painted "Prime" finished doors and frames at all floors.

20. Signals:

a. Registration Lights: Vandalism-resistant car and corridor pushbuttons.
b. Passenger and Service:

1) For 1 to 3 Elevators in a Group: Single corridor riser.
2) For 4 or more Elevators in a Group: Dual corridor riser.

c. Passenger: Dual car operating panels.
d. Service: Single car operating panel.


a. Digital type in "Firefighter's Control Room Panel,' when required by Code.

22. Hall Lanterns (Passenger Elevators): Vandalism-resistant type at all floors with gongs (twice for "down" direction).

23. Car Lanterns (Service Elevators): Vandalism-resistant type, mounted in both car entrance columns with gongs (twice for "down" direction).

24. Corridor Car Position Indicator (Service): Vandalism-resistant type, mounted above, or adjacent to, hoistway entrance at main service level.


26. Additional Features:

b. Car and counterweight roller guides.
c. Car top inspection station.
d. Emergency car lighting, including battery pack.
f. Standby Power Transfer (Automatic to Main Floor) with Manual Override: When required by Code.
g. Handicapped Accommodations: No stick-on or riveted plates.
h. Hinged car front return panel, for application of integral car operating panel.
i. Hoistway access switches.
j. Independent service feature.
k. Platform isolation.
l. Load-weighing device.
m. Anti-nuisance feature.
o. Extruded aluminum car and hoistway entrance sills.
p. Mount fixture faceplates with vandalism-resistant fasteners.
q. Angle Sill Supports: Furnish and install.
r. Sound-Powered Car Emergency Telephone Jack and Paging Speaker: When required by Code.
t. Seismic design and operation.
u. Provide hooks and vinyl-covered pads for all elevators.
v. Non-proprietary wiring diagrams, operating and diagnostic instructions, diagnostic means, and parts ordering information.
w. Engraving: Filled with black paint.
x. Cab Lighting shall be LED

2.3 PERFORMANCE

A. Speed: Plus or minus 3 percent contract speed under any loading condition.

B. Capacity: Safely lower, stop and hold up to 125 percent of rated load.

C. Stopping Accuracy: Plus or minus 1/4 inch under any loading condition.

D. Door Opening Time: Seconds from start of opening to fully open:
   1. Passenger Elevators: 1.7 seconds.
   2. Service Elevators: 2.7 seconds.

E. Door Closing Time: Seconds from start of closing to fully closed:
   1. Passenger Elevators: 2.4 seconds
   2. Service Elevators: 4.4 seconds

2.4 OPERATION

A. Microprocessor Based Supervisory Control System:
   1. Operate elevators without attendants as a group capable of balancing service and continuing operation with one or more cars removed from the system.
   2. Operate elevators from buttons located at each floor and in each car. Slow down and automatically stop cars at landings corresponding to registered calls. Make stops at successive floors for each direction of travel irrespective of order in which calls are registered, except when bypassing hall calls to balance and improve overall service. Stop only one car in response to a particular hall call. Assign hall calls to specific elevators and periodically review and modify these assignments to improve service. Simultaneous to initiation of slow down of a car for a hall call, cancel that call. Render hall button ineffective until car doors begin to close after passenger transfer. Cancel car calls in the same manner. Give priority to coincidental car and hall calls in call assignment. Cancel car calls upon direction reversal.
3. At other than dispatching floors, hold doors open an adjustable interval of 3.0 to 8.0 seconds. Cancel initial door open interval when door protective system is actuated, and establish an adjustable door open interval from 1.0 to 3.0 seconds following actuation of protective system.

4. Operate system to meet changing traffic conditions on a demand basis. (Dispatch from terminal landings may be used when most traffic is in one direction.) Include provisions for handling traffic which may be heavier in either direction, intermittent or very light. As traffic demands change, automatically and continually modify elevator response to provide the most-effective means to handle traffic conditions. Assign hall calls to individual cars, review assignments; provide means to sense long-wait hall calls and preferentially serve them; and accomplish direction reversal without closing and reopening doors.

5. Use factory reprogrammable software. Design basic algorithm to optimize service based on equalizing system's response to registered hall calls at shortest possible level and equalizing trip time at shortest possible level.

6. Serve floors below dispatch terminal, if applicable, in a manner which logically minimizes delay in passing or stopping at the terminal in both directions of travel. Provide manual means to force a stop at the dispatch terminal when passing to or from levels below.

7. Required Features:
   a. Dispatch Protection: Backup dispatching in the event primary dispatcher fails.
   b. Delayed Car Removal: Remove delayed car from group operation.
   c. Position Sensing: Reset at each floor when stop is made.
   d. Landing Button Failure: Multiple power sources for button risers.
   e. Duplicate Communicator Link: Communication links duplicated by all group and individual car computers.
   f. Provide group control with on-site monitoring and non-proprietary diagnostic capability. Provide color VDU monitor for building use which displays status of each elevator, each car and each registered call.

8. Include accumulation of hall call registration information as part of monitoring capability.
   a. Provide memory capacity for at least the immediate five, 24-hour periods, in hourly blocks of 10 or 15-minute segments, running from hour to hour (e.g., 2:00 p.m. to 3:00 p.m.).
      1) Accumulate information for the University's retrieval and use as follows:
         a) Summary of hall call registration events by floor, direction, and duration, totaled in minute segments (10 or 15 minutes) and 60-minute blocks with breaks made on the hour using an internal clock.
         b) Indication of hall call registration duration averaged for minute and hourly periods.
         c) Indication of percentage of calls answered within 30 and 60 seconds in each minute and hourly period.
d) Indication of time periods during which individual elevators are not in group operation (operating separately or out of service).

e) Provide means for connection to elevator control using standard connector or clip-on wiring, directions, software, etc., to accomplish information retrieval via University's printer and IBM computer (or provide machine room printer and keyboard, with instructions, to accomplish same purpose).

9. Diagnostic Capability: Provide non-proprietary means to diagnose and correct any mechanical or solid-state deficiency which may occur. The diagnostic capability shall not extend to proprietary or patented information which may be contained in any replaceable mechanical or solid-state component.

2.5 ELEVATOR COMMUNICATION SYSTEM

A. Provide an ADA-compliant system of components, as required; push button operation; Building powered,

1. Wurtec S3 Communicator, Part # 11-933;
2. Wurtec S3 Master Station 24 volt (isolated) DC power:
   a. Part # 11-598 S1A Stainless Steel Surface Mounted.
   b. Part #11-598 F1A Stainless Steel Flush Mounted.

B. Contractor is responsible for coordination to assure the elevator installer provides elevator phone complete with all wire, conduit and the programming of the elevator telephones in each elevator car. The contractor shall provide the telephone line in conduit, and hard wire the telephones to the Telecommunication cables in the elevator control room for a complete installation.

   1. The University (ACT Telecom.) will provide dial tone and assign a 5-digit number to each elevator telephone.
   2. The University will inspect the telephones for correct programming.

2.6 DOOR OPERATOR AND OPERATION

A. Door Operator: High-speed, heavy duty, DC type. Provide the following:

   1. Product: G.A.L. MOVFR (This is necessary item, that is only available from the listed source, or it is required to match existing Campus standards, and no other product shall be furnished.)

B. The door operator shall be capable of opening at no less than 2-1/2 fps, accomplishing reversal in no more than 2-1/2 inches of door movement. Doors shall open automatically when the car arrives at a floor to permit egress of passengers. After a timed interval, the doors shall automatically close.
PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to beginning the installation of equipment, examine the hoistway and machine room areas and verify that no irregularities exist that would affect quality of execution of work as specified. Particularly, note:

1. Hoistway size and plumbness.
2. Sill supports and pockets.
3. Support areas for brackets, beams, etc.
4. Divider beams.

B. Do not proceed with installation until previous work conforms to project requirements.

3.2 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver materials in manufacturer's original, unopened protective packaging.

B. Store materials in original protective packaging. Prevent soiling and physical or moisture damage.

C. Protect equipment and exposed finishes during transportation, erection and construction period against damage and stains.

3.3 INSTALLATION

A. Install each equipment item in accordance with accepted manufacturer's directions, referenced codes, specifications, and approved submittals.

B. Install machine room equipment with clearances complying with referenced codes and specifications.

C. Install items so that they may be removed by portable hoists or other means for maintenance and/or repair.

D. Install items so that access for maintenance is safe and readily available.

E. The following equipment shall be thoroughly cleaned of oil, grease, scale and other foreign matter, and given one coat of field-applied machinery enamel. Damaged factory painted surfaces shall be neatly touched-up with original paint and color.

1. All equipment and metal work installed as a part of this work, which does not have special architectural finish and which is exposed in the hoistway.
F. All natural metals shall be stretcher-leveled, re-squared sheets. Sheets shall be .063 inch minimum for door facings, and .074 inch minimum for entrance frames and front returns. Unless otherwise noted, grain of belting shall run in the direction of the longest dimension. A brushed finish shall be provided by first removing tool-and-die marks and then finishing with No. 80, 100, and 120 grit sanding belts. All surfaces shall be perfectly smooth, without waves.

G. Provide detailed information relative to recommended methods of preparation, cleaning and application of primed elevator door entrances for final paint.

3.4 FIELD QUALITY CONTROL

A. Work at the job site shall be checked during the course of installation. Full cooperation with the University is mandatory. Any corrective work they require shall be accomplished prior to performing further installation dependent upon or related to the required correction.

B. Have Code Authority acceptance inspection performed.

3.5 ADJUSTMENTS

A. Align guide rails vertically to provide the specified quality of ride. Secure joints without gaps and file any irregularities to a smooth surface.

B. Balance cars to equalize force of roller guides on rails.

C. Lubricate all equipment in accordance with manufacturer's instructions.

D. Adjust drive unit, motor control, brakes, controllers, leveling switches, limit switches, stopping switches, door operators, interlocks and safety devices, to achieve required performance levels.

3.6 CLEANUP

A. Keep work areas orderly and free from debris during progress of work. Remove packaging materials on a daily basis as equipment is removed.

B. Remove all loose materials and filings resulting from the work.

C. Clean machine room equipment and floor.

D. Clean hoistway, car, car enclosures, entrances, operating and signal fixtures.

3.7 ACCEPTANCE REVIEW AND TESTS

A. General: Final acceptance of the installation shall be made only after all field quality control reviews and performance tests are complete; identified corrective measures are complete; complete operating, diagnostic, and parts ordering information is submitted
and approved by the Facilities Management; and operating certificates have been received.

B. Test Results:

1. In all test conditions, specified speed and performance times shall be met; leveling accuracy shall be maintained without re-leveling; and ride quality shall be acceptable to the University.

2. Should tests reveal any defects or poor workmanship; any variance or noncompliance with the requirements of the specified Code and/or ordinances; or any variance or noncompliance with the requirements of these specifications; the following work and/or repairs shall be completed at no expense to the University.

   a. Replace all equipment that does not meet Code or specification requirements.
   b. Perform all work and furnish all labor, materials, and equipment necessary to complete the specified operation and/or performance.
   c. Perform all retesting required by the governing Code Authority and the University to verify the specified operation and/or performance.

3.8 NON-PROPRIETARY INFORMATION

A. Submittals: Provide all information and wiring diagrams necessary to diagnose elevator trouble-calls in six neatly bound manuals with a Table of Contents and corresponding locator tabs.

B. Manuals shall provide necessary information to thoroughly maintain, diagnose, adjust and order parts for all equipment. All information must be submitted to the University's Representative within 30 days prior to the acceptance of the elevator installation. Acceptance will be delayed until all specified information is received, reviewed and approved by the University's Representative. The information shall include, but not limited to the following:

1. Supporting mechanical and software manuals with appropriate diagnostic means for the necessary maintenance, adjustment and diagnostic functions of the group dispatch, car control and motion control systems. The diagnostic means, which shall be the property of the University, may be a handheld "smart" tool or may be integrated into the control system. If a handheld tool is provided, it shall be programmed for the specified elevator system only. If periodic reprogramming of the tool is required, this service shall be provided by the Elevator Company, at no additional cost to the University, for the lifetime of the equipment.

2. Complete wiring diagrams of "as-installed" elevator circuits with index of location and function of all components.

3. Complete lubricating instructions and frequency charts, including recommended grade of lubricants.

4. Supply of all parts as recommended by manufacturer for all replaceable mechanical or solid-state components. The manufacturer shall provide the University's Facilities Management with a copy of the complete recommended spare parts list.
C. Parts Catalog: A comprehensive parts catalog containing all components of the elevator system with part numbers and available vendors shall be provided. This shall include but is not limited to all mechanical, control, and fixture parts.

D. Diagnostic and Special Test Equipment: Special equipment or tools necessary for the repair, adjusting, or troubleshooting of the operation of the elevator and any component such as a door operator, selector, or controller of the elevator shall be included in the project and furnished to the University at no additional cost.

1. Items Shall Include: All required hardware, firmware, software, cables and associated apparatus for complete function, and training manuals specific to the equipment installed which are available to the vendor shall be included.

E. Updates or Future Publications: Any and all information, printed material, and or publications pertaining to the provided elevator equipment that updates or recommends any changes to, or operational problems of the equipment shall be provided to the University at no cost. This shall include any and all information that is provided to the vendor’s branch offices, service representatives and mechanics, or factories.

F. Service Tools: Service tools provided shall be fully compatible with existing equipment. As part of the Final Acceptance Test, service tools shall be demonstrated to operate completely and to be fully functional. This test shall be witnessed by the University and documented.

G. Reprogramming: There shall be no cost to the University for reprogramming or recharging of the service tool at any time.

3.9 PROTECTION

A. Temporary Use: Do not use elevators for construction purposes unless cars are provided with temporary enclosures, either within finished cars or in place of finished cars, to protect finishes from damage.

1. Provide full maintenance service by skilled, competent employees of elevator Installer for elevators used for construction purposes. Include preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper elevator operation at rated speed and capacity. Use same parts and supplies as used in the manufacture and installation of original equipment.

2. Provide protective coverings, barriers, devices, signs, and other procedures to protect elevators. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop, make required repairs and refinish entire unit, or provide new units as required.
3.10 DEMONSTRATION AND TRAINING

A. Formal Training: Formal classroom training from the manufacturer shall be provided if UCSD Elevator Shop personnel have not previously received formal training on a proposed piece of equipment.

B. Training: Elevator manufacturer shall provide training personnel to the University of California, San Diego Campus for the purpose of teaching and instructing an adjuster level training program to the UCSD Elevator Shop personnel. At the University's option, three UCSD Elevator Shop personnel may travel to the Contractor's Training Center. Contractor shall be responsible for the cost of the program. The University shall be responsible for travel expenses. All training shall be made available prior to the end of the warranty period with reasonable and adequate notice of a minimum of 90 days so that accommodations and scheduling can be accomplished.

C. On-Site Training: Contractor shall provide one 8-hour session of training at new installation locations on the complete operation, adjusting, and troubleshooting of the elevator system. Training shall include complete instruction on the use of any service or adjusting tools.

3.11 FINAL TESTING AND ACCEPTANCE

A. Testing: Elevator Contractor shall provide testing of load, speed, endurance, and operation in accordance with ASME A17.2, 2001.

B. Inspection and Acceptance: The UCSD Elevator Shop shall witness final acceptance tests. Acceptance requirements of UCSD acceptance documents and ASME A17.2 Copies of the UCSD inspection document that will be used for the elevator inspection will be made available to the Elevator Contractor or General Contractor upon request.

1. Notification: The UCSD Elevator Shop shall be notified a minimum of 3 working days prior to the scheduled testing and inspection.

END OF SECTION 14210
SECTION 14240
HYDRAULIC ELEVATORS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes hydraulic passenger and service elevators.

1. Seismic switches required by ASME A17.1 are included.
2. Provide non-proprietary, microprocessor based control systems with diagnostic capability.

B. Related Sections include the following:

1. Division 3 Section "Cast-in-Place Concrete" for setting sleeves, inserts, and anchoring devices in concrete.
2. Division 5 Section "Metal Fabrications" for the following:
   a. Attachment plates and angle brackets for supporting guide-rail brackets.
   b. Divider beams.
   c. Structural-steel shapes for subsills and entrance frames.
   d. Pit ladders.
3. Division 5 Section "Ornamental Metal" for combination units that contain hall push-button stations.
4. Division 13 Section "Fire Detection and Alarm System" for smoke detectors in elevator lobbies and machine rooms to initiate emergency recall operation and circuit breakers serving elevators shall have shunt trip, activated by heat detectors in machine rooms to disconnect power from elevator equipment before sprinkler activation and for connection to elevator controllers.
5. Division 16 Sections for electrical service for elevators to and including fused disconnect switches shall be readily accessible to qualified persons and within sight of the controller and standby power source, transfer switch, and connection from auxiliary contacts in transfer switch to controller.

1.2 DEFINITIONS

A. Defective Elevator Work: Operation or control system failures; performances below specified ratings; excessive wear; unusual deterioration or aging of materials or finishes; unsafe conditions; the need for excessive maintenance; abnormal noise or vibration; and similar unusual, unexpected, and unsatisfactory conditions.
B. In all cases, where a device or a part of the equipment is herein referred to in the singular number, it is intended that such reference shall apply to as many such devices or parts as are required to complete the installation.

C. All terms in these specifications have their definition given in the latest edition of the American Society of Mechanical Engineers, Safety Code for Elevators, Dumbwaiters, and Escalators ASME A17.1, including revisions and authorized changes in effect on the date of these specifications.

1.3 SUBMITTALS

A. Product Data: Include capacities, sizes, performances, operations, safety features, finishes, and similar information.

B. Shop Drawings: Show plans, elevations, sections, and large-scale details indicating service at each landing, machine room layout, coordination with building structure, relationships with other construction, and locations of equipment and signals. Indicate variations from specified requirements, maximum dynamic and static loads imposed on building structure at points of support, and maximum and average power demands.

C. Samples: For exposed finishes of cars, hoistway doors and frames, and signal equipment; 3-inch-square samples of sheet materials; and 4-inch lengths of running trim members.

D. Manufacturer Certificates: Signed by elevator manufacturer certifying that hoistway, pit, and machine room layout and dimensions, as shown on Drawings, and electrical service as shown and specified, are adequate for elevator system being provided.

E. Maintenance Manuals: Include operation and maintenance instructions, parts listing with sources indicated, recommended parts inventory listing, emergency instructions, and similar information. Include diagnostic and repair information available to manufacturer’s and Installer’s maintenance personnel. Submit for University's information at Project closeout as specified in Division 1.

F. Inspection and Acceptance Certificates and Operating Permits: As required by authorities having jurisdiction for normal, unrestricted elevator use.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Elevator manufacturer or an experienced installer approved by elevator manufacturer who has completed elevator installations similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance within the past 5 years.

B. Regulatory Requirements:
1. Contractor shall be responsible for obtaining, in a timely manner, all permits required by Labor Code section 7301.1.

2. In addition to local governing regulations, comply with applicable provisions in ASME A17.1, "Safety Code for Elevators and Escalators."

3. Seismic Risk Zone: Project is located in Zone 4.


5. California Code of Regulations, Titles 8, 19, and 24; California Code of Regulations. For Title 24, the applicable edition will be that in effect on the date preliminary drawings (as defined in the State Administrative Manual) are presented for review. Generally, these will be the Design Development documents.

6. ANSI Z97.1 for laminated glass in elevators and hoistways.

7. As required by local fire jurisdiction.

8. In the event of conflict, the more-stringent Code requirements shall apply.

C. All of the work required to be provided as described in this section of the specifications shall be provided by a single entity sub-contractor skilled in this specialty, holding a valid C-11 California contractor's license.

D. Accessibility Requirements: In addition to local governing regulations, comply with Section 4.10 in the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines (ADAAG)." Section 407 in ICC A117.1.

1.5 COORDINATION

A. Coordinate installation of sleeves, block outs, elevator equipment with integral anchors, and other items that are embedded in concrete or masonry for elevator equipment. Furnish templates, sleeves, elevator equipment with integral anchors, and installation instructions and deliver to Project site in time for installation.

B. Coordinate locations and dimensions of other work relating to hydraulic elevators including pit ladders, sumps, and floor drains in pits; entrance subsills; and electrical service, electrical outlets, lights, and switches in pits and machine rooms.

1.6 PERMITS, TESTS, AND INSPECTIONS

A. Obtain and Pay For:

1. All necessary permits, licenses and inspection fees necessary to complete the elevator installation.

2. Perform tests as required by governing authorities and/or the ASME current A17.2 Elevator Inspectors' Manual.

B. Perform such tests in the presence of authorized representatives of such authorities.
C. Provide manpower and equipment to perform speed and performance tests indicated in the specifications.

1.7 WARRANTY

A. Warranty: Written warranty University’s standard form, signed by contractor agreeing to repair, restore, or replace defective elevator work within specified warranty period.
   1. Warranty Period: 12 months.

1.8 MAINTENANCE SERVICE

A. Initial Maintenance Service: Beginning at Substantial Completion, provide 12 months’ full maintenance service by skilled employees of the elevator Installer. Include monthly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper elevator operation at rated speed and capacity. Provide parts and supplies as used in the manufacture and installation of original equipment.
   1. Perform maintenance, including emergency callback service, during normal working hours.
   2. Include 24-hour-per-day, 7-day-per-week emergency callback service.
      a. Response Time: Two hours or less.

B. All maintenance work shall be performed by competent personnel under the supervision and direct employ of the Elevator Company.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide Hydraulic elevators by one of the following, or equal:
   1. Thyssen
   2. Mitsubishi
   3. Otis Elevator Co.
   4. Schindler Elevator Corp.

2.2 MATERIALS AND COMPONENTS

A. Hydraulic Passenger or Service Elevators:
1. CAPACITY:
   a. PASSENGER: 3500#
   b. SERVICE: 4000# CLASS "A" LOADING

2. SPEED: 150 F.P.M.

3. Microprocessor Control:
   a. "Open Architecture" controller, as manufactured by Motion Control Engineering, Inc., or SmartRise Engineering, Inc.

4. MOTOR CONTROL: SCR SOFT START DC, VARIABLE VOLTAGE WITH CLOSED LOOP FEEDBACK AND AUTOMATIC STOPPING ACCURACY

5. PLATFORM SIZE:
   a. PASSENGER: 7'-0" WIDE X 6'-2" DEEP
   b. SERVICE: 5'-8" WIDE X 8'-8" DEEP

6. INSIDE CLEAR SIZE WITH INTERIOR FINISH
   a. PASSENGER: 6'-8" WIDE X 5'-5" DEEP
   b. SERVICE: 5'-4" WIDE X 7'-9" DEEP

7. ENTRANCE SIZE:
   a. PASSENGER: 3'-6" WIDE X 7'-0" HIGH
   b. SERVICE: 4'-0" WIDE X 7'-0" HIGH

8. ENTRANCE TYPE:
   a. PASSENGER: SINGLE-SPEED, CENTER OPENING
   b. SERVICE: TWO-SPEED, SIDE OPENING

9. DOOR OPERATION: HIGH-SPEED, HEAVY-DUTY, MASTER DC DOOR OPERATOR (MINIMUM OPENING SPEED 2-1/2 F.P.S.)

10. DOOR PROTECTION: INFRARED PROXIMITY DEVICES WITH LIGHT RAYS, DIFFERENTIAL TIMING FEATURE, AND NUDGING,

11. MACHINE: DIRECT PLUNGER, OIL

12. GUIDE RAILS: PLANED STEEL TEES

13. BUFFERS: SPRING

14. CAR ENCLOSURE: STEEL CAR SHELL WITH BRUSHED STAINLESS STEEL DOORS, TRANsom AND SWING TYPE RETURN PANELS.
   a. INTERIOR FINISHES: AS APPROVED BY THE UNIVERSITY'S REPRESENTATIVE. SHALL BE SELECTED FROM MANUFACTURER’S STANDARD MATERIAL/COLOR SELECTIONS. FLOOR TO BE VCT, WALLS TO BE STAINLESS STEEL PANELS 316L, HANDRAILS TO BE STAINLESS STEEL 316L, and CEILING TO BE FROM MANUFACTURER’S STANDARD SELECTIONS.
b. CAR HEIGHT TO CANOPY SHALL BE 10'-0". EXTEND REAR PORTION OF SERVICE ELEVATORS TO MAXIMUM HEIGHT, WIDTH, AND DEPTH BEHIND CROSSHEAD

15. ENTRANCES:
   a. PASSENGER: BRUSHED STAINLESS STEEL DOORS AND FRAMES AT ALL FLOORS
   b. SERVICE: PAINTED "PRIME" FINISHED DOORS AND FRAMES AT ALL FLOORS

16. SIGNALS:
   a. REGISTRATION LIGHTS: VANDAL-RESISTANT CAR AND CORRIDOR PUSHBUTTONS
   b. PASSENGER/SERVICE:
      1) SINGLE CORRIDOR RISER FOR ONE (1) TO THREE (3) ELEVATORS IN A GROUP
      2) DUAL CORRIDOR RISER FOR MORE THAN THREE (3) ELEVATORS IN A GROUP
   c. PASSENGER: DUAL CAR OPERATING PANELS
   d. SERVICE: SINGLE CAR OPERATING PANEL

17. POSITION INDICATORS: VANDAL-RESISTANT TYPE ABOVE CAR ENTRANCE
   a. DIGITAL TYPE IN FIREFIGHTER'S CONTROL ROOM PANEL - WHEN REQUIRED BY CODE

18. HALL LANTERNS:
   a. PASSENGER: VANDAL-RESISTANT TYPE AT ALL FLOORS WITH GONGS (TWICE FOR DOWN DIRECTION)

19. CAR LANTERNS:
   a. SERVICE: VANDAL-RESISTANT TYPE MOUNTED IN BOTH CAR ENTRANCE COLUMNS WITH GONG (TWICE FOR DOWN DIRECTION)

20. CORRIDOR CAR POSITION

21. INDICATOR:
   a. SERVICE: VANDAL-RESISTANT TYPE MOUNTED ABOVE OR ADJACENT TO HOISTWAY ENTRANCE AT MAIN SERVICE LEVEL

22. COMMUNICATION SYSTEM: PROVIDE SPECIFIED TELEPHONE (ADA PUSH BUTTON TYPE) IN THE ELEVATOR CAR.
23. ADDITIONAL FEATURES:

a. CAR ROLLER OR SLIDE-TYPE GUIDES
b. CAR TOP INSPECTION STATION
c. EMERGENCY CAR LIGHTING - BATTERY PACK
d. EMERGENCY OPERATION SECTION 211, ASME A17.1-1996
   FIREFIGHTER'S SERVICE, INCLUDING ALTERNATE FLOOR RETURN]  
e. EMERGENCY AUTOMATIC LOWERING DEVICE - BATTERY POWERED
f. HANDICAPPED ACCOMMODATIONS (NO STICK-ON OR RIVETED PLATES)
g. HINGED CAR FRONT RETURN PANEL FOR APPLICATION OF INTEGRAL CAR OPERATING PANEL
h. HOISTWAY ACCESS SWITCHES
i. INDEPENDENT SERVICE FEATURE
j. PLATEN PLATE ISOLATION
k. FIREFIGHTER'S CONTROL ROOM PANEL AND REMOTE WIRING - WHEN REQUIRED BY CODE
l. EXTRUDED ALUMINUM CAR AND HOISTWAY ENTRANCE SILLS
m. MOUNT ALL FIXTURE FACEPLATES WITH VANDAL-RESISTANT FASTENERS
n. ANGLE SILL SUPPORTS - FURNISH AND INSTALL
o. SOUND POWERED CAR EMERGENCY TELEPHONE JACK AND PAGING SPEAKER - WHEN REQUIRED BY CODE
p. HYDRAULIC PUMP ASSEMBLY AND CONTROLLER SOUND ISOLATION
q. OIL VISCOSITY CONTROL DEVICE OR TANK HEATERS
r. SEISMIC DESIGNS AND OPERATIONS
s. PROVIDE HOOKS AND VINYL COVERED PADS FOR ALL ELEVATORS
t. JACK HOLE, OUTER CASING, AND WATERTIGHT PVC SLEEVE. UNION-GARD 160 OR EQUAL
u. WATERTIGHT PVC SLEEVE FOR UNDERGROUND PIPING - WHEN REQUIRED
v. NON-PROPRIETARY WIRING DIAGRAMS, OPERATING AND DIAGNOSTIC INSTRUCTIONS, DIAGNOSTIC MEANS, AND PARTS ORDERING INFORMATION
w. ALL ENGRAVING SHALL BE FILLED WITH BLACK PAINT
x. CAB LIGHTING TO BE LED

2.3 PERFORMANCE

A. Speed: ± 10% contract speed under any loading condition.

B. Capacity: Safely lower, stop and hold up to 125% of rated load.

C. Stopping Accuracy: ± 1/4" under any loading condition.

D. Door Opening Time: Seconds from start of opening to fully open:
1. Passenger Elevators: 1.7 seconds.
2. Service Elevators: 2.7 seconds.

E. Door Closing Time: Seconds from start of closing to fully closed:
1. Passenger Elevators: 2.4 seconds
2. Service Elevators: 4.4 seconds

F. Pressure: Fluid system components shall be designed and factory tested for 500 p.s.i. Maximum operating pressure shall be 400 p.s.i.

2.4 OPERATION

A. Group Automatic: (Three [3] elevators or more in a group)

1. Microprocessor-based, non-proprietary group dispatch, car control and motion control systems including as a minimum the features described hereafter, manufactured by a. Motion Control Engineering, Inc. “This is a necessary item, that is only available from the listed source, or it is required to match existing Campus standards, and no other product shall be furnished”
2. Operate elevators without attendants as a group capable of balancing service and continuing operation with one or more cars removed from the system.
3. Operate elevators from buttons located at each floor and in each car. Slow down and automatically stop cars at landings corresponding to registered calls. Make stops at successive floors for each direction of travel irrespective of order in which calls are registered, except when bypassing hall calls to balance and improve overall service. Stop only one car in response to a particular hall call. Assign hall calls to specific elevators and periodically review and modify these assignments to improve service. Simultaneous to initiation of slow down of a car for a hall call, cancel that call. Render hall button ineffective until car doors begin to close after passenger transfer. Cancel car calls in the same manner. Give priority to coincidental car and hall calls in call assignment. Cancel car calls upon direction reversal.
4. At other than dispatching floors, hold doors open an adjustable interval of 3.0 to 8.0 seconds. Cancel initial door open interval when door protective system is actuated, and establish an adjustable door open interval from 1.0 to 3.0 seconds following actuation of protective system.
5. Operate system to meet changing traffic conditions on a demand basis. (Dispatch from terminal landings may be used when most traffic is in one direction.) Include provisions for handling traffic which may be heavier in either direction, intermittent or very light. As traffic demands change, automatically and continually modify elevator response to provide the most-effective means to handle traffic conditions. Assign hall calls to individual cars, review assignments; provide means to sense long-wait hall calls and preferentially serve them; and accomplish direction reversal without closing and reopening doors.
6. Use factory reprogrammable software. Design basic algorithm to optimize service based on equalizing system's response to registered hall calls at shortest possible level and equalizing trip time at shortest possible level.

7. Serve floors below dispatch terminal, if applicable, in a manner which logically minimizes delay in passing or stopping at the terminal in both directions of travel. Provide manual means to force a stop at the dispatch terminal when passing to or from levels below.

8. Required Features:

   a. Dispatch Protection: Backup dispatching in the event primary dispatcher fails.
   b. Delayed Car Removal: Remove delayed car from group operation.
   c. Position Sensing: Reset at each floor when stop is made.
   d. Landing Button Failure: Multiple power sources for button risers.
   e. Duplicate Communicator Link: Communication links duplicated by all group and individual car computers.
   f. Provide group control with on-site monitoring and non-proprietary diagnostic capability. Provide color VDU monitor for building use which displays status of each elevator, each car and each registered call.

9. Include accumulation of hall call registration information as part of monitoring capability.

   a. Provide memory capacity for at least the immediate five, 24-hour periods, in hourly blocks of 10 or 15-minute segments, running from hour to hour (i.e., 2:00 p.m. to 3:00 p.m.).

      1) Accumulate information for the University's retrieval and use as follows:

         a) Summary of hall call registration events by floor, direction, and duration, totaled in minute segments (10 or 15 minutes) and 60-minute blocks with breaks made on the hour using an internal clock.
         b) Indication of hall call registration duration averaged for minute and hourly periods.
         c) Indication of percentage of calls answered within 30 and 60 seconds in each minute and hourly period.
         d) Indication of time periods during which individual elevators are not in group operation (operating separately or out of service).
         e) Provide means for connection to elevator control using standard connector or clip-on wiring, directions, software, etc., to accomplish information retrieval via University's printer and IBM computer (or provide machine room printer and keyboard, with instructions, to accomplish same purpose).

10. Diagnostic Capability: Provide non-proprietary means to diagnose and correct any mechanical or solid-state deficiency which may occur. The diagnostic
capability shall not extend to proprietary or patented information which may be contained in any replaceable mechanical or solid-state component.

B. Duplex Selective Collective: Two (2) elevators

1. Non-proprietary, microprocessor or mechanical relay based controls.

   a. Elevators shall operate without attendants from buttons adjacent to the entrance jamb at each floor and in the car. With two cars in service and no calls registered, one car shall normally park at the entry floor ("home" car). The other car shall park where last used ("free" car). Registration of a hall call above the entry floor, or a car call in the free car shall cause that car to start and begin operation. When a car has been started, it shall respond to calls registered for the direction of its travel in the order in which the floors are reached. Once the direction of travel has been established, the car will not reverse direction until all car calls have been answered or until all hall calls, ahead of the car and corresponding to the direction of car travel, have been answered.

   b. Cars shall slow down and stop automatically at floors corresponding to registered calls, in the order in which they are approached in each direction of travel. As slow down is initiated for a hall call, that call shall be automatically canceled and the hall button for that direction of travel remain ineffective until the elevator leaves the floor. Car calls shall be similarly canceled. The car shall remain at the arrival floor an adjustable time interval to allow passenger transfer.

   c. The car shall only answer calls corresponding to the direction in which the car is traveling except that it may answer a call in the opposite direction if that call is the highest call registered.

   d. When the free car is clearing calls, the home car shall respond to:

      1) A call registered on the home car buttons,
      2) An up hall call registered below the free car while the free car is traveling up,
      3) An up or a down call registered above the car while the free car is traveling down,
      4) Hall call registered and the free car is delayed in its normal operation for a predetermined period.

   e. When both cars are clearing calls, only one car shall stop in response to any registered hall call. The first car to clear its calls shall return to the main floor and become the home car. Should the last service required bring both cars to the main floor, the car that arrived first shall become the free car.

   f. Registration of a call shall cause the appropriate button to illuminate. When the call is answered, the light shall go out.

   g. Basement calls, when applicable, shall be answered by the "home" car unless the free car is parked at the floor where the call occurs. If no car is parked at the main level, the first down traveling car shall answer the
basement call. Stops shall not be made at the main floor by cars traveling to or from basement stops unless there are calls registered for service at that floor.

C. Selective Collective: One (1) elevator with three (3) or more stops

1. Non-proprietary, microprocessor or mechanical relay based controls.
   a. Elevator shall operate without an attendant from buttons located in each floor entrance jamb and in the car. The registration of a hall call, when the car is idle, shall automatically start the elevator and dispatch it to the corresponding floor. If a call is registered at the floor when the car is idle, the doors shall automatically open.
   b. Once the direction of travel has been established, the car will not reverse direction until all car calls have been answered or until all hall calls, ahead of the car and corresponding to the direction of travel, have been answered.
   c. Cars shall slow down and stop automatically at floors corresponding to registered calls, in the order in which they are approached in each direction of travel. As slow down is initiated for a hall call, that call shall be automatically canceled and the hall button for that direction of travel remain ineffective until the car leaves the floor. Car calls shall be similarly canceled. The car shall remain at the arrival floor an adjustable time interval to allow passenger transfer.
   d. The car shall only answer calls corresponding to the direction in which the car is traveling except that it may answer a call in the opposite direction if that call is the highest (or lowest) call registered.
   e. Registration of a call shall cause the appropriate button to illuminate. When the call is answered, the light shall go out.

D. Two-stop Collective: One (1) elevator with two (2) stops

1. Non-proprietary, microprocessor or mechanical relay based controls.
   a. Elevator shall operate without attendant from buttons in the car and at each floor. With the car idle and doors closed, pressure on the hall button at the other floor shall call the car. Pressure on the hall button for the other floor shall automatically dispatch the car to that floor. If a call is registered while the car is in transit, the car shall remain at the arrival floor for an adjustable time interval to allow passenger transfer.
   b. Registration of a car or hall call shall cause the appropriate button to illuminate. When the car is answered, light shall go out.

2.5 ELEVATOR COMMUNICATION SYSTEM

A. System (ALL PROJECTS)
B. Elevator phone shall be ADA compliant (push button), Wurtec S3 Communicator, Building Powered, Part #11-933. “This is a necessary item, that is only available from the listed source, or it is required to match existing Campus standards, and no other product shall be furnished.”

1. The Contractor to assure the elevator installer provides elevator phone complete with all wire, conduit and the programming of the elevator telephones in each elevator car. The contractor shall provide the telephone line in conduit and hard wire the Telephones to the Telecommunication cables in the elevator control room for a complete installation.

2. The University (ACT Telecom.) will provide dial tone and assign a 5 digit number to each elevator telephone.

3. The University will inspect the telephones for correct programming.

2.6 DOOR OPERATOR AND OPERATION

A. Door operator shall be a high-speed, heavy duty, DC type. The operator shall be

1. G.A.L. This is a necessary item, that is only available from the listed source, or it is required to match existing Campus standards, and no other product shall be furnished.”

B. The door operator shall be capable of opening at no less than 2-1/2 f.p.s. and accomplishing reversal in no more than 2-1/2” of door movement. Doors shall open automatically when the car arrives at a floor to permit egress of passengers. After a timed interval, the doors shall automatically close.

2.7 WELL HOLE AND CASINGS

A. Well hole is to be provided under this Section. No extra will be allowed for unforeseen conditions of any kind or spoil removal.

B. Install steel outer casing, minimum 18” diameter with welded, waterproof bottom. Install 1/2” wall thickness watertight PVC sleeve over jack assembly prior to insertion into the outer casing. Extend PVC sleeve through pit floor slab to underside of jack support beams. I.D. of PVC sleeve shall be minimum 5” larger than O.D. of jack unit cylinder. Backfill entire void between outer wall of PVC sleeve and steel casing with sand. Fill entire void between cylinder and PVC sleeve with Union-Gard 160 “This is a necessary item, that is only available from the listed source, or it is required to match existing Campus standards, and no other product shall be furnished.”

C. Piping and Oil: Provide piping, connections and oil for the system. Buried piping, when required, shall be protected with watertight Schedule 40 PVC sleeve between elevator machine room and pit. A minimum of two (2) sound isolation couplings shall be provided between the pump unit and jack unit. Provide pipe stands or isolated overhead hangers as required.
PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to beginning the installation of equipment, examine the hoistway and machine room areas and verify that no irregularities exist that would affect quality of execution of work as specified. Particularly, note:

1. Hoistway size and plumbness.
2. Sill supports and pockets.
3. Support areas for brackets, beams, etc.
4. Divider beams.

B. Do not proceed with installation until previous work conforms to project requirements.

3.2 PRODUCT DELIVERY, STORAGE and HANDLING

A. Deliver materials in manufacturer’s original, unopened protective packaging.

B. Store materials in original protective packaging. Prevent soiling and physical or moisture damage.

C. Protect equipment and exposed finishes during transportation, erection and construction period against damage and stains.

3.3 INSTALLATION

A. Install each equipment item in accordance with accepted manufacturer’s directions, referenced codes, specifications, and approved submittals.

B. Install machine room equipment with clearances complying with referenced codes and specifications.

C. Install items so that they may be removed by portable hoists or other means for maintenance and/or repair.

D. Install items so that access for maintenance is safe and readily available.

E. The following equipment shall be thoroughly cleaned of oil, grease, scale and other foreign matter, and given one coat of field-applied machinery enamel. Damaged factory painted surfaces shall be neatly touched-up with original paint and color.

1. All equipment and metal work installed as a part of this work, which does not have special architectural finish and which is exposed in the hoistway.

F. All natural metals shall be stretcher-leveled, resquared sheets. Sheets shall be .063" minimum for door facings, and .074" minimum for entrance frames and front returns. Unless otherwise noted, the grain of belting shall run in the direction of the longest dimension. A brushed finish shall be provided by first removing tool-and-die marks and then finishing with No. 80, 100, and 120 grit sanding belts. All surfaces shall be perfectly smooth and without waves.

G. Provide detailed information relative to recommended methods of preparation, cleaning and application of primed elevator door entrances for final paint.

3.4 FIELD QUALITY CONTROL

A. Work at the job site shall be checked during the course of installation. Full cooperation with the University is mandatory. Any corrective work they require shall be accomplished prior to performing further installation dependent upon or related to the required correction.

B. Have Code Authority acceptance inspection performed.

3.5 ADJUSTMENTS

A. Align guide rails vertically to provide the specified quality of ride. Secure joints without gaps and file any irregularities to a smooth surface.

B. Balance cars to equalize force of roller guides on rails.

C. Lubricate all equipment in accordance with manufacturer's instructions.

D. Adjust drive unit, motor control, brakes, controllers, leveling switches, limit switches, stopping switches, door operators, interlocks and safety devices, to achieve required performance levels.

3.6 CLEANUP

A. Keep work areas orderly and free from debris during progress of work. Remove packaging materials on a daily basis as equipment is removed.

B. Remove all loose materials and filings resulting from the work.

C. Clean machine room equipment and floor.

D. Clean hoistway, car, car enclosures, entrances, operating and signal fixtures.
3.7 ACCEPTANCE REVIEW AND TESTS

A. General: Final acceptance of the installation shall be made only after all field quality control reviews and performance tests are complete; identified corrective measures are complete; complete operating, diagnostic, and parts ordering information is submitted and approved by the Facilities Management; and operating certificates have been received.

B. Test Results:

1. In all test conditions, specified speed and performance times shall be met; leveling accuracy shall be maintained without releveling; and ride quality shall be acceptable to the University.

2. Should tests reveal any defects or poor workmanship; any variance or noncompliance with the requirements of the specified Code and/or ordinances; or any variance or noncompliance with the requirements of these specifications; the following work and/or repairs shall be completed at no expense to the University.

   a. Replace all equipment that does not meet Code or specification requirements.
   b. Perform all work and furnish all labor, materials, and equipment necessary to complete the specified operation and/or performance.
   c. Perform all retesting required by the governing Code Authority and the University to verify the specified operation and/or performance.

3.8 NON-PROPRIETARY INFORMATION

A. Submittals: Provide non-proprietary information and wiring diagrams in six (6) neatly bound manuals with a Table of Contents and corresponding locator tabs. One (1) set shall be on reproducible mylars.

B. Manuals shall provide necessary information to thoroughly maintain, diagnose, adjust and order parts for all equipment. All information must be submitted to the University's Representative within 30 days prior to the acceptance of the elevator installation. Acceptance will be delayed until all specified information is received, reviewed and approved by the University's Representative. The information shall include, but not limited to the following:

1. Supporting mechanical and software manuals with appropriate diagnostic means for the necessary maintenance, adjustment and diagnostic functions of the group dispatch, car control and motion control systems. The diagnostic means, which shall be the property of the University, may be a hand held "smart" tool or may be integrated into the control system. If a hand held tool is provided, it shall be programmed for the specified elevator system only. If periodic reprogramming of the tool is required, this service shall be provided by the Elevator Company, at no additional cost to the University, for the lifetime of the equipment.
2. Complete wiring diagrams of "as-installed" elevator circuits with index of location and function of all components.
3. Complete lubricating instructions and frequency charts, including recommended grade of lubricants.
4. Supply of all parts as recommended by manufacturer for all replaceable mechanical or solid-state components. The manufacturer shall provide the University's Facilities Management with a copy of the complete recommended spare parts list.

3.9 PROTECTION

A. Temporary Use: Do not use elevators for construction purposes unless cars are provided with temporary enclosures, either within finished cars or in place of finished cars, to protect finishes from damage.

1. Provide full maintenance service by skilled, competent employees of elevator Installer for elevators used for construction purposes. Include preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper elevator operation at rated speed and capacity. Use same parts and supplies as used in the manufacture and installation of original equipment.

2. Provide protective coverings, barriers, devices, signs, and other procedures to protect elevators. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop, make required repairs and refinish entire unit, or provide new units as required.

3.10 DEMONSTRATION AND TRAINING

A. Engage a factory-authorized service representative to train University's maintenance personnel in the operation of the controls, systems, cars including emergency adjustments and general maintenance. Demonstration and training shall be on site for a duration of a minimum of 4 hours and a maximum of 6 hours. Refer to Division 1 Section Project Closeout.

END OF SECTION 14210