DOCUMENT 00 91 01

ADDENDUM NO. 1

1. GENERAL

This document includes requirements that clarify or supersede portions of the bid and/or contract requirements for the project. This Addendum is a Contract Document.

2. SUMMARY

The following changes, additions and deletions shall be made to the following document(s); all other conditions shall remain the same.

Please see attached Addendum #1 information from LPA, Inc. dated April 18, 2017

END OF DOCUMENT

ADDENDUM NO. 01

April 18, 2017

TO THE CONTRACT DOCUMENTS FOR
PIEDMONT HILLS HIGH SCHOOL
Building D Science & Classroom Buildings
for the
EAST SIDE UNION HIGH SCHOOL DISTRICT

DSA # 01-116180 - FILE NO. 43-H10

NOTICE TO BIDDERS

This Addendum forms a part of the Contract and modifies the original bidding documents dated 3/8/17. It is intended that all work affected by the following modifications shall conform to related provisions and general conditions of the Contract of the original drawings and specifications. Modify the following items wherever appearing in any drawings or sections of the specifications. Acknowledge receipt of Addendum No. 01 in the space provided on the Bid Form. Failure to do so may subject to disqualification.

This addendum is subject to DSA approval.

CHANGES TO PROJECT CONTRACT MANUAL

ITEM NO. AD1 -01 Delete Section 00 41 13. Replace in its entirety with attached Addendum 1 Section 00 41 13 Bid Form and Proposal.

ITEM NO. AD1 -02 Add Section 01 32 13. Add additional Section 01 32 13 issued herewith as part of Addendum 1.

ITEM NO. AD1 -03 Delete Section 01 50 00. Replace in its entirety with attached Addendum 1 Section 01 50 00 Temporary Facilities and Controls.

ITEM NO. AD1 -04 Delete Section 01 52 13. Replace in its entirety with attached Addendum 1 Section 01 52 13 Field Offices.

GENERAL CHANGES

ITEM NO. AD1 -05 Provide wall finish to walls in IDF Room D106 and IDF Room D116.

a) Provide 3/4" thick fire retardant treated plywood to all finished wall surfaces. Plywood attached w/ #10 wood screws to wall framing @ 16” OC. Plywood mounted 6” AFF to 7’-0” AFF.

CHANGES TO DRAWINGS

ITEM NO. AD1 -06 Delete sheet G0.3, Campus Site Plan. Replace with sheet G0.3, Campus Site Plan

a) Remove and replace (E) PRV at Ruskin Drive side of campus.
b) Refer to PRV detail 1/Civil C5.03

ITEM NO. AD1 -07 See additional sheet G0.6 - Construction Access Plan.

a) Contractor's access, layout space and proposed construction fencing.
b) Contractor delivery route via parking provided.
c) Relocate (5) connex containers on campus, Place min 20' from existing building.

ITEM NO. AD1 -08 Revise sheet C1.01, Site Demolition Plan, Demolition Legend "C".
a) Note to read as follows:
"REMOVE (E) BUILDING STRUCTURE, CONCRETE FOUNDATIONS WHERE OCCURS, AND ACCESS RAMP (CONCRETE/Metal), SEE DEMOLITION NOTE 2 SHEET C0.01."

ITEM NO. AD1 -09 Revise sheet L1.2, Material Plan to include concrete paving to ADA stall.
a) North end of Parking lot 'C' connection walk per C2.02. Install truncated domes per note "22".

ITEM NO. AD1 -10 Revise sheet A1.01, Site Plan, Parking Lot 'C'
a) ADA stall scope of work per C2.02 and L1.2.

ITEM NO. AD1 -11 Remove sheet A5.05, Interior Elevations. Replace with sheet A5.05, Interior Elevations.
a) Revise 01/5.05 Enlarged Plan – D104 Chem Storage casework.
b) Revise interior elevations J, K, L and M to depict casework revisions.
c) Provide casework per additional elevation N.

ITEM NO. AD1 -12 Revise sheet A2.03, Floor Plan – First Floor to clarification of wall types.
a) Revise wall type callout at plumbing shaft wall between Restroom D113, D114 to be type 'F1' in lieu of 'D5'.
b) Revise wall type callout between restroom entry area of Restroom D113 & D114 to be type 'D5' in lieu of 'D3'.
c) Revise wall type callout between IDF D116 & Elec D117 to be type 'C1' in lieu of 'D2'.
d) Revise wall type callout between Elec D117 & Fire Riser Room D117A to be type 'C3' in lieu of 'D5'.
e) Revise wall type callout between Elec. D117 & Restroom D118A to be type 'D3' in lieu of 'D4'.

ITEM NO. AD1 -13 Revise sheet A2.04, Second Floor Plan – Second Floor clarification of wall types.
a) Revise wall type call out at shaft wall in Classroom D201 to be type 'B1' in lieu of 'D5'.
b) Revise wall type call out at shaft wall in Classroom D202 to be type 'B1' in lieu of 'D5'.
c) Revise wall type call out at shaft wall in Classroom D203 to be type 'B1' in lieu of 'D5'

ITEM NO. AD1 -14 Revise sheet A3.26, Wall Sections, revise Detail 20 for framing at balcony overhang shown to match framing detail 02/A8.13 and 3/S3.26.

ITEM NO. AD1 -15 Revise sheet A8.10, Exterior Details to include tapered rigid insulation.
a) Provide tapered insulation, typical, at all flat roofs to create slope per industry standards and slopes indicated on A2.11 Roof Plan

ITEM NO. AD1 -16 Delete sheet A9.01, Corrections on Sheet A9.01 Wall types & details
a) Make corrections on various wall types, see clouded areas on revised sheet A9.01.

ITEM NO. AD1 -17 Delete sheet E0.20. Replace with sheet E0.20, Lighting Fixture Schedule.
a) Revise light fixture LN1 and LN2.
b) Revise LS2-20.

ITEM NO. AD1 -18 Delete sheet E1.11, Electrical Site Plan. Replace with sheet E1.11, Electrical Site Plan.
a) Provide conduit for security camera to IDF D116.
b) Label and wire security cameras to match low-voltage drawing T2.11.

ITEM NO. AD1 -19 Delete sheet E2.12. Replace with sheet E2.12, Second Floor Lighting Plan for LS2 mounting.
a) Revise keynotes 1209 and 1210.

ITEM NO. AD1 -20 Delete sheet T2.11. Replace with sheet T2.11 Technology Floor Plan – 1st Level
- a) Relocated security key pads
- b) Provide clocks and speakers in Prep Room 101, Chem Storage D104, and Prep Room 109
- c) Provide motion sensors in Roof Access rooms.
- d) Revise camera labels per revisions.

ITEM NO. AD1 -21 Delete sheet T2.21. Replace with sheet T2.21, Technology Floor Plan – 2st Level
- a) Provide motion sensor to Roof Access D204.
- b) Provide data circuit in Classroom D201.

ITEM NO. AD1 -22 Delete sheet T4.01. Replace with sheet T4.01, Technology Typical Details.
- a) Revise MDF Copper Backbone Elevation Standard detail to include call-out for 25 pair ISP termination tails.

ITEM NO. AD1 -23 Delete sheet T4.02. Replace with sheet T4.02, Technology Typical Details.
- a) Revise General Sheet Note 5 to include (E) MDF locations.
- b) Revise Detail 4/T4.01 to include notation for D1 and D2.

CHANGES TO SPECIFICATIONS

ITEM NO. AD1 - 24 Delete Section 27 10 00 - Structured Cable
- a) Replace in its entirety with attached replacement section 27 10 00 - Structured Cable

ITEM NO. AD1 - 25 Delete Section 27 11 16 - Cabinets, Enclosures, and Racks
- a) Replace in its entirety with attached replacement section 27 11 16 - Cabinets, Enclosures, and Racks.

ITEM NO. AD1 - 26 Delete Section 27 11 23 - Cable Runway
- a) Replace in its entirety with attached replacement section 27 11 23 - Cable Runway

ITEM NO. AD1 - 27 Delete Section 27 51 16 - Public Address & Mass Notification System
- a) Replace in its entirety with attached replacement section 27 51 16 - Public Address & Mass Notification System.

ITEM NO. AD1 - 28 Delete Section 28 16 00 – Intrusion Detection
- a) Replace in its entirety with attached replacement section 27 16 00 – Intrusion Detection.

ITEM NO. AD1 - 29 Delete Section 28 23 00 – Video Surveillance
- a) Replace in its entirety with attached replacement section 28 23 00 – Video Surveillance

END OF ADDENDUM NO. 1

DOCUMENT 00 41 13

BID FORM AND PROPOSAL

To: Governing Board of East Side Union High School District ("District" or "Owner")

From: _____
(Proper Name of Bidder)

The undersigned declares that Bidder has read and understands the Contract Documents, including, without limitation, the Notice to Bidders and the Instructions to Bidders, and agrees and proposes to furnish all necessary labor, materials, and equipment to perform and furnish all work in accordance with the terms and conditions of the Contract Documents, including, without limitation, the Drawings and Specifications of Bid No. **B-28-16-17**.

PROJECT: **PH New CR Building D1 & D2**

("Project" or "Contract") and will accept in full payment for that Work the following total lump sum amount, all taxes included:

ITEM	DESCRIPTION	UNIT	TOTAL
1.	All Work of Contract Documents other than Work separately provided for under other Bid items, including all overhead and profit	**Lump Sum**	$
2.	All labor and materials associated with the replacement of the main switch gear for the campus. Includes all associated overhead and profit.	**Lump Sum**	$
3.	All labor and materials associated with the demolition of the (E) portable classroom buildings. Includes all associated overhead and profit.	**Lump Sum**	$
4.	Labor and Material associated with deletion of FACP & Annunciator at Admin suite per Addendum 1	**Lump Sum**	$
5.	**Total Base Bid Amount** **(Sum of Items 1 – 4)**		$

_____ dollars $ _____

BASE BID

Bidder acknowledges and agrees that the Base Bid accounts for any and all Allowance(s), Total Cost for Unit Prices, and OCIP excluded costs.

1. The undersigned acknowledges receipt of Document 00 73 16.13 describing the OCIP Insurance Program the District is implementing in connection with the Project and the Work. The undersigned represents as follows:

   a. The insurance coverages to be provided by the OCIP have been understood by the undersigned.
   Initials_____

   b. As required by document 00 73 16.13, the cost of the insurance coverages to be provided by the OCIP has been excluded from the Base Bid.
   Initials_____

   c. The undersigned is able to substantiate, upon award of the contract, the insurance costs excluded from the Base Bid.
   Initials_____

2. The undersigned has reviewed the Work outlined in the Contract Documents and fully understands the scope of Work required in this Proposal, understands the construction and project management function(s) is described in the Contract Documents, and that each Bidder who is awarded a contract shall be in fact a prime contractor, not a subcontractor, to the District, and agrees that its Proposal, if accepted by the District, will be the basis for the Bidder to enter into a contract with the District in accordance with the intent of the Contract Documents.

3. The undersigned has notified the District in writing of any discrepancies or omissions or of any doubt, questions, or ambiguities about the meaning of any of the Contract Documents, and has contacted the Construction Manager before bid date to verify the issuance of any clarifying Addenda.

4. The undersigned agrees to commence work under this Contract on the date established in the Contract Documents and to complete all work within the time specified in the Contract Documents.

5. The liquidated damages clause of the General Conditions and Agreement is hereby acknowledged.

6. It is understood that the District reserves the right to reject this bid and that the bid shall remain open to acceptance and is irrevocable for a period of ninety (90) days.

7. The following documents are attached hereto:

   - Bid Bond on the District's form or other security
   - Designated Subcontractors List
   - Site Visit Certification
   - Non-Collusion Declaration

8. Receipt and acceptance of the following Addenda is hereby acknowledged:

No. _____, Dated _____	No. _____, Dated _____
No. _____, Dated _____	No. _____, Dated _____
No. _____, Dated _____	No. _____, Dated _____

9. Bidder acknowledges that the license required for performance of the Work is a _____ _____ license.

10. The undersigned hereby certifies that Bidder is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the Work.

11. Bidder specifically acknowledges and understands that if it is awarded the Contract, that it shall perform the Work of the Project while complying with all requirements of the Department of Industrial Relations [and with all requirements of the Project Labor Agreement].

12. Bidder specifically acknowledges and understands that if it is awarded the Contract, that it shall perform the Work of the Project while complying with the Davis Bacon Act, applicable reporting requirements, and any and all other applicable requirements for federal funding. If a conflict exists, the more stringent requirement shall control.

13. The Bidder represents that it is competent, knowledgeable, and has special skills with respect to the nature, extent, and inherent conditions of the Work to be performed. Bidder further acknowledges that there are certain peculiar and inherent conditions existent in the construction of the Work that may create, during the Work, unusual or peculiar unsafe conditions hazardous to persons and property.

14. Bidder expressly acknowledges that it is aware of such peculiar risks and that it has the skill and experience to foresee and to adopt protective measures to adequately and safely perform the Work with respect to such hazards.

15. Bidder expressly acknowledges that it is aware that if a false claim is knowingly submitted (as the terms "claim" and "knowingly" are defined in the California False Claims Act, Gov. Code, § 12650 et seq.), the District will be entitled to civil remedies set forth in the California False Claim Act. It may also be considered fraud and the Contractor may be subject to criminal prosecution.

16. The undersigned Bidder certifies that it is, at the time of bidding, and shall be throughout the period of the Contract, licensed by the State of California to do the type of work required under the terms of the Contract Documents and registered as a public works contractor with the Department of Industrial Relations. Bidder further certifies that it is regularly engaged in the general class and type of work called for in the Contract Documents.

Furthermore, Bidder hereby certifies to the District that all representations, certifications, and statements made by Bidder, as set forth in this bid form, are true and correct and are made under penalty of perjury.

Dated this _____ day of _____ 20 ____

Name of Bidder: _____

Type of Organization: _____

Signed by: _____

Title of Signer: _____

Address of Bidder: _____

Taxpayer Identification No. of Bidder: _____

Telephone Number: _____

Fax Number: _____

E-mail: _____ Web Page: _____

Contractor's License No(s): No.: _____ Class: _____ Expiration Date: _____

No.: _____ Class:_____ Expiration Date: _____

No.: _____ Class:_____ Expiration Date: _____

Public Works Contractor Registration No.: _____

END OF DOCUMENT

DOCUMENT 01 32 13

SCHEDULING OF WORK

PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions;

B. Special Conditions;

C. Summary of Work; and

D. Submittals.

1.02 SECTION INCLUDES

A. Scheduling of Work under this Contract shall be performed by Contractor in accordance with requirements of this Section.

(1) Development of schedule, cost and resource loading of the schedule, monthly payment requests, and project status reporting requirements of the Contract shall employ computerized Critical Path Method ("CPM") scheduling ("CPM Schedule").

(2) CPM Schedule shall be cost loaded based on Schedule of Values as approved by District.

(3) Submit schedules and reports as specified in the General Conditions.

B. Upon Award of Contract, Contractor shall immediately commence development of Initial and Original CPM Schedules to ensure compliance with CPM Schedule submittal requirements.

1.03 CONSTRUCTION SCHEDULE

A. Within ten (10) calendar days of the Notice to Proceed, and before request for first progress payment, the Contractor shall prepare and submit to the Project Manager a construction progress schedule conforming to the Milestone Schedule below.

B. The Construction Schedule shall be continuously updated, and an updated schedule shall be submitted with each application for progress payment. Each revised schedule shall indicate the work actually accomplished during the previous period and the schedule for completion of the remaining work.

C. Milestone Schedule:

ACTIVITY DESCRIPTION: Replacement of main switch gear as it relates to power shutdown and tie in to (N) switch gear.

REQUIRED COMPLETION of Switch gear only: Dec 23, 2017 – Jan 7, 2018

Substantial Completion: May 28th, 2018

Final Completion: June 29th, 2018

1.04 QUALIFICATIONS

A. Contractor shall employ experienced scheduling personnel qualified to use the latest version of [i.e., Primavera Project Planner]. Experience level required is set forth below. Contractor may employ such personnel directly or may employ a consultant for this purpose.

(1) The written statement shall identify the individual who will perform CPM scheduling.

(2) Capability and experience shall be verified by description of construction projects on which individual has successfully applied computerized CPM.

(3) Required level of experience shall include at least two (2) projects of similar nature and scope with value not less than three fourths (3/4) of the Total Bid Price of this Project. The written statement shall provide contact persons for referenced projects with current telephone and address information.

B. District reserves the right to approve or reject Contractor's scheduler or consultant at any time. District reserves the right to refuse replacing of Contractor's scheduler or consultant, if District believes replacement will negatively affect the scheduling of Work under this Contract.

1.05 GENERAL

A. Progress Schedule shall be based on and incorporate milestone and completion dates specified in Contract Documents.

B. Overall time of completion and time of completion for each milestone shown on Progress Schedule shall adhere to times in the Contract, unless an earlier (advanced) time of completion is requested by Contractor and agreed to by District. Any such agreement shall be formalized by a Change Order.

(1) District is not required to accept an early completion schedule, i.e., one that shows an earlier completion date than the Contract Time.

(2) Contractor shall not be entitled to extra compensation in event agreement is reached on an earlier completion schedule and Contractor completes its Work, for whatever reason, beyond completion date shown in its early completion schedule but within the Contract Time.

(3) A schedule showing the work completed in less than the Contract Time, and that has been accepted by District, shall be considered to have Project Float. The Project Float is the time between the scheduled completion of the work and the Completion Date. Project Float is a resource available to both District and the Contractor.

C. Ownership Project Float: Neither the District nor Contractor owns Project Float. The Project owns the Project Float. As such, liability for delay of the Completion Date rests with the party whose actions, last in time, actually cause delay to the Completion Date.

(1) For example, if Party A uses some, but not all of the Project Float and Party B later uses remainder of the Project Float as well as additional time beyond the Project Float, Party B shall be liable for the time that represents a delay to the Completion Date.

(2) Party A would not be responsible for the time since it did not consume the entire Project Float and additional Project Float remained; therefore, the Completion Date was unaffected by Party A.

D. Progress Schedule shall be the basis for evaluating job progress, payment requests, and time extension requests. Responsibility for developing Contract CPM Schedule and monitoring actual progress as compared to Progress Schedule rests with Contractor. Schedule to be submitted in large format paper and electronic .pdf and native files.

E. Failure of Progress Schedule to include any element of the Work, or any inaccuracy in Progress Schedule, will not relieve Contractor from responsibility for accomplishing the Work in accordance with the Contract. District's acceptance of schedule shall be for its use in monitoring and evaluating job progress, payment requests, and time extension requests and shall not, in any manner, impose a duty of care upon District, or act to relieve Contractor of its responsibility for means and methods of construction.

F. Software: Use MS Project, Suretrak, Primavera or approved equal. Such software shall be compatible with Windows operating system. Contractor shall transmit contract file to District on compact disk, jump drive or downloadable web file at times requested by District.

G. Transmit each item under the form approved by District.

(1) Identify Project with District Contract number and name of Contractor.

(2) Provide space for Contractor's approval stamp and District's review stamps.

(3) Submittals received from sources other than Contractor will be returned to the Contractor without District's review.

1.06 INITIAL CPM SCHEDULE

A. Initial CPM Schedule submitted for review at the pre-construction conference shall serve as Contractor's schedule for up to ninety (90) calendar days after the Notice to Proceed.

B. Indicate detailed plan for the Work to be completed in first ninety (90) days of the Contract; details of planned mobilization of plant and equipment; sequence of early operations; procurement of materials and equipment. Show Work beyond ninety (90) calendar days in summary form.

C. Initial CPM Schedule shall be time scaled.

D. Initial CPM Schedule shall be cost and resource loaded. Accepted cost and resource loaded schedule will be used as basis for monthly progress payments until acceptance of the Original CPM Schedule. Use of Initial CPM Schedule for progress payments shall not exceed ninety (90) calendar days.

E. District and Contractor shall meet to review and discuss the Initial CPM Schedule within seven (7) calendar days after it has been submitted to District.

(1) District's review and comment on the schedule shall be limited to Contract conformance (with sequencing, coordination, and milestone requirements).

(2) Contractor shall make corrections to schedule necessary to comply with Contract requirements and shall adjust schedule to incorporate any missing information requested by District. Contractor shall resubmit Initial CPM Schedule if requested by District.

F. If, during the first ninety (90) days after Notice to Proceed, the Contractor is of the opinion that any of the Work included on its Initial CPM Schedule has been impacted, the Contractor shall submit to District a written Time Impact Evaluation ("TIE") in accordance with Article 1.12 of this Section. The TIE shall be based on the most current update of the Initial CPM Schedule.

1.07 ORIGINAL CPM SCHEDULE

A. Submit a detailed proposed Original CPM Schedule presenting an orderly and realistic plan for completion of the Work in conformance with requirements as specified herein.

B. Progress Schedule shall include or comply with following requirements:

(1) Time scaled, cost and resource (labor and major equipment) loaded CPM schedule.

(2) No activity on schedule shall have duration longer than fifteen (15) work days, with exception of submittal, approval, fabrication and procurement activities, unless otherwise approved by District.

(a) Activity durations shall be total number of actual work days required to perform that activity.

(3) The start and completion dates of all items of Work, their major components, and milestone completion dates, if any.

(4) District furnished materials and equipment, if any, identified as separate activities.

(5) Activities for maintaining Project Record Documents.

(6) Dependencies (or relationships) between activities.

(7) Processing/approval of submittals and shop drawings for all material and equipment required per the Contract. Activities that are dependent on submittal acceptance or material delivery shall not be scheduled to start earlier than expected acceptance or delivery dates.

(a) Include time for submittals, re-submittals and reviews by District. Coordinate with accepted schedule for submission of Shop Drawings, samples, and other submittals.

(b) Contractor shall be responsible for all impacts resulting from re-submittal of Shop Drawings and submittals.

(8) Procurement of major equipment, through receipt and inspection at jobsite, identified as separate activity.

(a) Include time for fabrication and delivery of manufactured products for the Work.

(b) Show dependencies between procurement and construction.

(9) Activity description; what Work is to be accomplished and where.

(10) The total cost of performing each activity shall be total of labor, material, and equipment, excluding overhead and profit of Contractor. Overhead and profit of the General Contractor shall be shown as a separate activity in the schedule. Sum of cost for all activities shall equal total Contract value.

(11) Resources required (labor and major equipment) to perform each activity.

(12) Responsibility code for each activity corresponding to Contractor or Subcontractor responsible for performing the Work.

(13) Identify the activities which constitute the controlling operations or critical path. No more than one critical path from NTP to Final Completion (with exception to milestone delivery noted above) No more than twenty-five (25%) of the activities shall be critical or near critical. Near critical is defined as float in the range of one (1) to (10) days.

(14) Twenty (20) workdays for developing punch list(s), completion of punch-list items, and final clean up for the Work or any designated portion thereof. No other activities shall be scheduled during this period.

(15) Interface with the work of other contractors, District, and agencies such as, but not limited to, utility companies.

(16) Show detailed Subcontractor Work activities. In addition, furnish copies of Subcontractor schedules upon which CPM was built.

(a) Also furnish for each Subcontractor, as determined by District, submitted on Subcontractor letterhead, a statement certifying that Subcontractor concurs with Contractor's Original CPM Schedule and that Subcontractor's related schedules have been incorporated, including activity duration, cost and resource loading.

(b) Subcontractor schedules shall be independently derived and not a copy of Contractor's schedule.

(c) In addition to Contractor's schedule and resource loading, obtain from electrical, mechanical, and plumbing Subcontractors, and other Subcontractors as required by District, productivity calculations common to their trades, such as units per person day, feet of pipe per day per person, feet of wiring per day per person, and similar information.

(d) Furnish schedule for Contractor/Subcontractor CPM schedule meetings which shall be held prior to submission of Original CPM schedule to District. District shall be permitted to attend scheduled meetings as an observer.

(17) Activity durations shall be in Work days.

(18) Submit with the schedule a list of anticipated non-Work days, such as weekends and holidays. The Progress Schedule shall exclude in its Work day calendar all non-Work days on which Contractor anticipates critical Work will not be performed.

(19) Schedule shall incorporate the schools testing days when construction activities shall be restricted from loud operations of all types that would distract student during testing.

C. Original CPM Schedule Review Meeting: Contractor shall, within sixty (60) days from the Notice to Proceed date, meet with District to review the Original CPM Schedule submittal.

(1) Contractor shall have its Project Manager, Project Superintendent, Project Scheduler, and key Subcontractor representatives, as required by District, in attendance. The meeting will take place over a continuous one (1) day period. Written signature of subcontractor schedule acknowledgement and acceptance is required by any subcontractor who's work falls within the critical path.

(2) District's review will be limited to submittal's conformance to Contract requirements including, but not limited to, coordination requirements. However, review may also include:

(a) Clarifications of Contract Requirements.

(b) Directions to include activities and information missing from submittal.

(c) Requests to Contractor to clarify its schedule.

(3) Within five (5) days of the Schedule Review Meeting, Contractor shall respond in writing to all questions and comments expressed by District at the Meeting.

1.08 ADJUSTMENTS TO CPM SCHEDULE

A. Adjustments to Original CPM Schedule: Contractor shall have adjusted the Original CPM Schedule submittal to address all review comments from original CPM Schedule review meeting and resubmit network diagrams and reports for District's review.

(1) District, within ten (10) days from date that Contractor submitted the revised schedule, will either:

(a) Accept schedule and cost and resource loaded activities as submitted, or

(b) Advise Contractor in writing to review any part or parts of schedule which either do not meet Contract requirements or are unsatisfactory for District to monitor Project's progress, resources, and status or evaluate monthly payment request by Contractor.

(2) District may accept schedule with conditions that the first monthly CPM Schedule update be revised to correct deficiencies identified.

(3) When schedule is accepted, it shall be considered the "Original CPM Schedule" which will then be immediately updated to reflect the current status of the work.

(4) District reserves right to require Contractor to adjust, add to, or clarify any portion of schedule which may later be discovered to be insufficient for monitoring of Work or approval of partial payment requests. No additional compensation will be provided for such adjustments, additions, or clarifications.

B. Acceptance of Contractor's schedule by District will be based solely upon schedule's compliance with Contract requirements.

(1) By way of Contractor assigning activity durations and proposing sequence of Work, Contractor agrees to utilize sufficient and necessary management and other resources to perform work in accordance with the schedule.

(2) Upon submittal of schedule update, updated schedule shall be considered "current" CPM Schedule.

(3) Submission of Contractor's schedule to District shall not relieve Contractor of total responsibility for scheduling, sequencing, and pursuing Work to comply with requirements of Contract Documents, including adverse effects such as delays resulting from ill-timed Work.

C. Submittal of Original CPM Schedule, and subsequent schedule updates, shall be understood to be Contractor's representation that the Schedule meets requirements of Contract Documents and that Work shall be executed in sequence indicated on the schedule.

D. Contractor shall distribute Original CPM Schedule to Subcontractors for review and written acceptance, which shall be noted on Subcontractors' letterheads to Contractor and transmitted to District for the record.

1.09 MONTHLY CPM SCHEDULE UPDATE SUBMITTALS

A. Following acceptance of Contractor's Original CPM Schedule, Contractor shall monitor progress of Work and adjust schedule each month to reflect actual progress and any anticipated changes to planned activities.

(1) Each schedule update submitted shall be complete, including all information requested for the Original CPM Schedule submittal.

(2) Each update shall continue to show all Work activities including those already completed. These completed activities shall accurately reflect "as built" information by indicating when activities were actually started and completed.

B. A meeting will be held on approximately the twenty-fifth (25th) of each month to review the schedule update submittal and progress payment application.

(1) At this meeting, at a minimum, the following items will be reviewed: Percent (%) complete of each activity; Time Impact Evaluations for Change Orders and Time Extension Request; actual and anticipated

activity sequence changes; actual and anticipated duration changes; and actual and anticipated Contractor delays.

(2) These meetings are considered a critical component of overall monthly schedule update submittal and Contractor shall have appropriate personnel attend. At a minimum, these meetings shall be attended by Contractor's General Superintendent and Scheduler.

(3) Contractor shall plan on the meeting taking no less than four (4) hours.

C. Within five (5) working days after monthly schedule update meeting, Contractor shall submit the updated CPM Schedule update.

D. Within five (5) work days of receipt of above noted revised submittals, District will either accept or reject monthly schedule update submittal.

(1) If accepted, percent (%) complete shown in monthly update will be basis for Application for Payment by the Contractor. The schedule update shall be submitted as part of the Contractor's Application for Payment.

(2) If rejected, update shall be corrected and resubmitted by Contractor before the Application for Payment is submitted.

E. Neither updating, changing or revising of any report, curve, schedule, or narrative submitted to District by Contractor under this Contract, nor District's review or acceptance of any such report, curve, schedule or narrative shall have the effect of amending or modifying in any way the Completion Date or milestone dates or of modifying or limiting in any way Contractor's obligations under this Contract.

1.10 SCHEDULE REVISIONS

A. Updating the Schedule to reflect actual progress shall not be considered revisions to the Schedule. Since scheduling is a dynamic process, revisions to activity durations and sequences are expected on a monthly basis.

B. To reflect revisions to the Schedule, the Contractor shall provide District with a written narrative with a full description and reasons for each Work activity revised. For revisions affecting the sequence of work, the Contractor shall provide a schedule diagram which compares the original sequence to the revised sequence of work. The Contractor shall provide the written narrative and schedule diagram for revisions two (2) working days in advance of the monthly schedule update meeting.

C. Schedule revisions shall not be incorporated into any schedule update until the revisions have been reviewed by District. District may request further information and justification for schedule revisions and Contractor shall, within three (3) days, provide District with a complete written narrative response to District's request.

D. If the Contractor's revision is still not accepted by District, and the Contractor disagrees with District's position, the Contractor has seven (7) calendar days from receipt of District's letter rejecting the revision to provide a written narrative providing full justification and explanation for the revision. The Contractor's failure to respond in writing within seven (7) calendar days of District's written rejection of a schedule revision shall be contractually interpreted as acceptance of District's position, and the Contractor waives its rights to subsequently dispute or file a claim regarding District's position.

E. At District's discretion, the Contractor can be required to provide Subcontractor certifications of performance regarding proposed schedule revisions affecting said Subcontractors.

1.11 RECOVERY SCHEDULE

A. If the Schedule Update shows a completion date twenty-one (21) calendar days beyond the Contract Completion Date, or individual milestone completion dates, the Contractor shall submit to District the proposed revisions to recover the lost time within seven (7) calendar days. As part of this submittal, the Contractor shall provide a written narrative for each revision made to recapture the lost time. If the revisions include sequence changes, the Contractor shall provide a schedule diagram comparing the original sequence to the revised sequence of work.

B. The revisions shall not be incorporated into any schedule update until the revisions have been reviewed by District.

C. If the Contractor's revisions are not accepted by District, District and the Contractor shall follow the procedures in paragraph 1.09.C, 1.09.D and 1.09.E above.

D. At District's discretion, the Contractor can be required to provide Subcontractor certifications for revisions affecting said Subcontractors.

1.12 TIME IMPACT EVALUATION ("TIE") FOR CHANGE ORDERS, AND OTHER DELAYS

A. When Contractor is directed to proceed with changed Work, the Contractor shall prepare and submit within fourteen (14) calendar days from the Notice to Proceed a TIE which includes both a written narrative and a schedule diagram depicting how the changed Work affects other schedule activities. The schedule diagram shall show how the Contractor proposes to incorporate the changed Work in the schedule and how it impacts the current schedule-update critical path. The Contractor is also responsible for requesting time extensions based on the TIE's impact on the critical path. The diagram must be tied to the main sequence of schedule activities to enable District to evaluate the impact of changed Work to the scheduled critical path.

B. Contractor shall be required to comply with the requirements of Paragraph 1.09.A for all types of delays such as, but not limited to, Contractor/Subcontractor delays, adverse weather delays, strikes, procurement delays, fabrication delays, etc.

C. Contractor shall be responsible for all costs associated with the preparation of TIEs, and the process of incorporating them into the current schedule update. The Contractor shall provide District with four (4) copies of each TIE.

D. Once agreement has been reached on a TIE, the Contract Time will be adjusted accordingly. If agreement is not reached on a TIE, the Contract Time may be extended in an amount District allows, and the Contractor may submit a claim for additional time claimed by contractor.

1.13 TIME EXTENSIONS

A. The Contractor is responsible for requesting time extensions for time impacts that, in the opinion of the Contractor, impact the critical path of the current schedule update. Notice of time impacts shall be given in accord with the General Conditions.

B. Where an event for which District is responsible impacts the projected Completion Date, the Contractor shall provide a written mitigation plan, including a schedule diagram, which explains how (e.g., increase crew size, overtime, etc.) the impact can be mitigated. The Contractor shall also include a detailed cost breakdown of the labor, equipment, and material the Contractor would expend to mitigate District-caused time impact. The Contractor shall submit its mitigation plan to District within fourteen (14) calendar days from the date of discovery of the impact. The Contractor is responsible for the cost to prepare the mitigation plan.

C. Failure to request time, provide TIE, or provide the required mitigation plan will result in Contractor waiving its right to a time extension and cost to mitigate the delay.

D. No time will be granted under this Contract for cumulative effect of changes or concurrent delays.

E. District will not be obligated to consider any time extension request unless the Contractor complies with the requirements of Contract Documents.

F. Failure of the Contractor to perform in accordance with the current schedule update shall not be excused by submittal of time extension requests.

G. If the Contractor does not submit a TIE within the required fourteen (14) calendar days for any issue, it is mutually agreed that the Contractor does not require a time extension for said issue.

1.14 SCHEDULE REPORTS

A. Submit four (4) hard copies of the following reports with the Initial CPM Schedule, the Original CPM Schedule, and each monthly update.

B. Required Reports:

(1) Two activity listing reports: one sorted by activity number and one by total Project Float. These reports shall also include each activity's

early/late and actual start and finish dates, original and remaining duration, Project Float, responsibility code, and the logic relationship of activities.

(2) Cost report sorted by activity number including each activity's associated cost, percentage of Work accomplished, earned value- to date, previous payments, and amount earned for current update period.

(3) Schedule plots presenting time-scaled network diagram showing activities and their relationships with the controlling operations or critical path clearly highlighted.

(4) Cash flow report calculated by early start, late start, and indicating actual progress. Provide an exhibit depicting this information in graphic form.

(5) Planned versus actual resource (i.e., labor) histogram calculated by early start and late start.

C. Other Reports:

In addition to above reports, District may request, from month to month, any two of the following reports. Submit four (4) copies of all reports.

(1) Activities by early start.

(2) Activities by late start.

(3) Activities grouped by Subcontractors or selected trades.

(4) Activities with scheduled early start dates in a given time frame, such as fifteen (15) or thirty (30) day outlook.

D. Furnish District with report files on compact disks containing all schedule files for each report generated.

1.15 PROJECT STATUS REPORTING

A. In addition to submittal requirements for CPM scheduling identified in this Section, Contractor shall provide a monthly project status report (i.e., written narrative report) to be submitted in conjunction with each CPM Schedule as specified herein. Status reporting shall be in form specified below.

B. Contractor shall prepare monthly written narrative reports of status of Project for submission to District. Written status reports shall include:

(1) Status of major Project components (percent (%) complete, amount of time ahead or behind schedule) and an explanation of how Project will be brought back on schedule if delays have occurred.

(2) Progress made on critical activities indicated on CPM Schedule.

(3) Explanations for any lack of work on critical path activities planned to be performed during last month.

(4) Explanations for any schedule changes, including changes to logic or to activity durations.

(5) List of critical activities scheduled to be performed next month.

(6) Status of major material and equipment procurement.

(7) Any delays encountered during reporting period.

(8) Contractor shall provide printed report indicating actual versus planned resource loading for each trade and each activity. This report shall be provided on weekly and monthly basis.

(a) Actual resource shall be accumulated in field by Contractor, and shall be as noted on Contractor's daily reports. These reports will be basis for information provided in computer-generated monthly and weekly printed reports.

(b) Contractor shall explain all variances and mitigation measures.

(9) Contractor may include any other information pertinent to status of Project. Contractor shall include additional status information requested by District at no additional cost.

(10) Status reports, and the information contained therein, shall not be construed as claims, notice of claims, notice of delay, or requests for changes or compensation.

1.16 WEEKLY SCHEDULE REPORT

At the Weekly Progress Meeting, the Contractor shall provide and present a time-scaled three (3) week look-ahead schedule that is based and correlated by activity number to the current schedule (i.e., Initial, Original CPM, or Schedule Update).

1.17 DAILY CONSTRUCTION REPORTS

On a daily basis, Contractor shall submit a daily activity report to District for each workday, including weekends and holidays when worked. Contractor shall develop the daily construction reports on a computer-generated database capable of sorting daily Work, manpower, and man-hours by Contractor, Subcontractor, area, sub-area, and Change Order Work. Upon request of District, furnish computer disk of this data base. Obtain District's written approval of daily construction report data base format prior to implementation. Include in report:

A. Project name and Project number.

B. Contractor's name and address.

C. Weather, temperature, and any unusual site conditions.

D. Brief description and location of the day's scheduled activities and any special problems and accidents, including Work of Subcontractors. Descriptions shall be referenced to CPM scheduled activities.

E. Worker quantities for its own Work force and for Subcontractors of any tier.

F. Equipment, other than hand tools, utilized by Contractor and Subcontractors.

1.18 PERIODIC VERIFIED REPORTS

Contractor shall complete and verify construction reports on a form prescribed by the Division of the State Architect and file reports on the first day of February, May, August, and November during the preceding quarter year; at the completion of the Contract; at the completion of the Work; at the suspension of Work for a period of more than one (1) month; whenever the services of Contractor or any of Contractor's Subcontractors are terminated for any reason; and at any time a special verified report is required by the Division of the State Architect. Refer to section 4-336 and section 4-343 of Part 1, Title 24 of the California Code of Regulations.

PART 2 – PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

END OF DOCUMENT

DOCUMENT 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions;

B. Special Conditions;

C. Site Standards; and

D. Construction Waste Management and Disposal.

1.02 TEMPORARY UTILITIES:

A. Electric Power and Lighting:

(1) Contractor will pay for power during the course of the Work. To the extent power is available in the building(s) or on the Site, Contractor may use the District's existing utilities by making prearranged payments to the District for the utilities used by Contractor and all Subcontractors. Contractor shall be responsible for providing temporary facilities required to deliver that power service from its existing location in the building(s) or on the Site to point of intended use.

(2) Contractor shall verify characteristics of power available in building(s) or on the Site. Contractor shall take all actions required to make modifications where power of higher voltage or different phases of current are required. Contractor shall be fully responsible for providing that service and shall pay all costs required therefor.

(3) Contractor shall furnish, wire for, install, and maintain temporary electrical lights wherever it is necessary to provide illumination for the proper performance and/or observation of the Work and public pathways: a minimum of 20 foot-candles for rough work and 50 foot-candles for finish work.

(4) Contractor shall be responsible for maintaining existing lighting levels in the project vicinity should temporary outages or service interruptions occur.

B. Heat and Ventilation:

(1) Contractor shall provide temporary heat to maintain environmental conditions to facilitate progress of the Work, to meet specified

minimum conditions for the installation and curing of materials, and to protect materials and finishes from damage due to improper temperature and humidity conditions. Portable heaters shall be standard units complete with controls.

(2) Contractor shall provide forced ventilation and dehumidification, as required, of enclosed areas for proper installation and curing of materials, to disperse humidity, and to prevent hazardous accumulations of dust, fumes, vapors, and gases.

(3) Contractor shall pay the costs of installation, maintenance, operation, and removal of temporary heat and ventilation, including costs for fuel consumed, required for the performance of the Work.

C. Water:

(1) The contractor will furnish and pay for water during the course of the work to the extent water is then available in the building(s) or on the Site. The Contractor shall be responsible for providing temporary facilities required to deliver such utility service from its existing location in the building(s), on the Site, or other location approved by the local water agency, to point of intended use.

(2) Contractor shall use backflow preventers on water lines at point of connection to District's water supply. Backflow preventers shall comply with requirements of Uniform Plumbing Code.

(3) Contractor shall make potable water available for human consumption for the duration of the of construction to the Project Inspector and Construction Manager offices as well as construction personnel.

D. Sanitary Facilities:

(1) Contractor shall provide sanitary temporary facilities in no fewer numbers than required by law and such additional facilities as may be directed by the Inspector for the use of all workers. The facilities shall be maintained in a sanitary condition at all times and shall be left at the Site until removal is directed by the Inspector or Contractor completes all other work at the Site.

(2) Use of toilet facilities in the Work under construction shall not be permitted except by consent of the District or its representative.

E. Telephone and Internet Service:

(1) Contractor shall arrange with local telephone and internet service company for telephone and wireless internet service as required for the performance of the Work. Contractor shall, at a minimum, provide in its field office one line for telephone and one line for fax machine as well as independent internet service for District representative exclusive use.

(2) Contractor shall pay the costs for telephone, internet and fax lines installation, maintenance, service, and removal.

F. Fire Protection:

(1) Contractor shall provide and maintain fire extinguishers and other equipment for fire protection. Such equipment shall be designated for use for fire protection only and shall comply with all requirements of the California Fire, State Fire Marshall and/or its designee.

(2) Where on-site welding and burning of steel is unavoidable, Contractor shall provide protection for adjacent surfaces.

G. Trash Removal:

(1) Contractor shall provide trash removal on a timely basis**.** Under no circumstance shall Contractor use District trash service.

1.03 CONSTRUCTION AIDS:

A. Plant and Equipment:

(1) Contractor shall furnish, operate, and maintain a complete plant for fabricating, handling, conveying, installing, and erecting materials and equipment; and for conveyances for transporting workers. Include elevators, hoists, debris chutes, and other equipment, tools, and appliances necessary for performance of the Work.

(2) Contractor shall maintain plant and equipment in safe and efficient operating condition. Damages due to defective plant and equipment, and uses made thereof, shall be repaired by Contractor at no expense to the District.

B. None of the District's tools and equipment shall be used by Contractor for the performance of the Work.

1.04 BARRIERS AND ENCLOSURES:

A. Contractor shall obtain the District's written permission for locations and types of temporary barriers and enclosures, including fire-rated materials proposed for use, prior to their installation.

B. Contractor shall provide and maintain temporary enclosures to prevent public entry and to protect persons using other buildings and portions of the Site and/or Premises, the public, and workers. Contractor shall also protect the Work and existing facilities from the elements, and adjacent construction and improvements, persons, and trees and plants from damage and injury from demolition and construction operations.

C. Contractor shall provide site access to existing facilities for persons using other buildings and portions of the Site, the public, and for deliveries and other services and activities.

D. Tree and Plant Protection:

(1) Contractor shall preserve and protect existing trees and plants on the Premises that are not designated or required to be removed, and those adjacent to the Premises.

(2) Contractor shall provide barriers to a minimum height of 4'-0" around drip line of each tree and plant, around each group of trees and plants, as applicable, in the proximity of demolition and construction operations, or as denoted on the Plans.

(3) Contractor shall not park trucks, store materials, perform Work or cross over landscaped areas or within school campus grounds not within site project. Contractor shall not dispose of paint thinners, water from cleaning, plastering or concrete operations, or other

deleterious materials in landscaped areas, storm drain systems, or sewers. Plant materials damaged as a result of the performance of the Work shall, at the option of the District and at Contractor's expense, either be replaced with new plant materials equal in size to those damaged or by payment of an amount representing the value of the damaged materials as determined by the District.

(4) Contractor shall remove soil that has been contaminated during the performance of the Work by oil, solvents, and other materials which could be harmful to trees and plants, and replace with good soil, at Contractor's expense.

(5) Excavation around Trees:

(a) Excavation within drip lines of trees shall be done only where absolutely necessary and with written permission from the District.

(b) Where trenching for utilities is required within drip lines, tunneling under and around roots shall be by hand digging and shall be approved by the District. Main lateral roots and taproots shall not be cut. All roots 2 inches in diameter and larger shall be tunneled under and heavily wrapped with wet burlap so as to prevent scarring or excessive drying. Smaller roots that interfere with installation of new work may be cut with prior approval by the District. Roots must first be cut with a Vermeer, or equivalent, root cutter prior to any trenching.

(c) Where excavation for new construction is required within drip line of trees, hand excavation shall be employed to minimize damage to root system. Roots shall be relocated in backfill areas wherever possible. If encountered immediately adjacent to location of new construction, roots shall be cut approximately 6 inches back from new construction.

(d) Approved excavations shall be carefully backfilled with the excavated materials approved for backfilling. Backfill shall conform to adjacent grades without dips, sunken areas, humps, or other surface irregularities. Do not use mechanical equipment to compact backfill. Tamp carefully using hand tools, refilling and tamping until Final Acceptance as necessary to offset settlement.

(e) Exposed roots shall not be allowed to dry out before permanent backfill is placed. Temporary earth cover shall be provided, or roots shall be wrapped with four layers of wet, untreated burlap and temporarily supported and protected from damage until permanently relocated and covered with backfill.

(f) Accidentally broken roots should be sawed cleanly 3 inches behind ragged end.

1.05 SECURITY:

The Contractor shall be responsible for project security for materials, tools, equipment, supplies, and completed and partially completed Work.

1.06 TEMPORARY CONTROLS:

A. Noise Control:

(1) Contractor acknowledges that adjacent facilities may remain in operation during all or a portion of the Work period, and it shall take all reasonable precautions to minimize noise as required by applicable laws and the Contract Documents.

(2) Notice of proposed noisy operations, including without limitation, operation of pneumatic demolition tools, concrete saws, and other equipment, shall be submitted to the District a minimum of forty-eight (48) hours in advance of their performance.

B. Noise and Vibration:

(1) Equipment and impact tools shall have intake and exhaust mufflers.

(2) Contractor shall cooperate with District to minimize and/or cease the use of noisy and vibratory equipment if that equipment becomes objectionable by its longevity.

(3) Contractor shall observe noise constraints as defined by District testing calendars and schedule work accordingly as not to disrupt testing through construction noise. Scheduled testing days shall be obtained from CM.

C. Dust and Dirt:

(1) Contractor shall conduct demolition and construction operations to minimize the generation of dust and dirt, and prevent dust and dirt from interfering with the progress of the Work and from accumulating in the Work and adjacent areas including, without limitation, occupied facilities.

(2) Contractor shall periodically water exterior demolition and construction areas to minimize the generation of dust and dirt and as directed by Inspector, CM or District personnel.

(3) Contractor shall ensure that all hauling equipment and trucks carrying loads of soil and debris shall have their loads sprayed with water or covered with tarpaulins, and as otherwise required by local and state ordinance.

(4) Contractor shall prevent dust and dirt from accumulating on walks, roadways, parking areas, and planting, and from washing into sewer and storm drain lines and provide cleaning daily.

D. Water:

(1) Contractor shall not permit surface and subsurface water, and other liquids, to accumulate in or about the vicinity of the Premises. Should accumulation develop, Contractor shall control the water or other liquid, and suitably dispose of it by means of temporary pumps, piping, drainage lines, troughs, ditches, dams, or other methods.

E. Pollution:

(1) No burning of refuse, debris, or other materials shall be permitted on or in the vicinity of the Premises.

(2) Contractor shall comply with applicable regulatory requirements and anti-pollution ordinances during the conduct of the Work including, without limitation, demolition, construction, and disposal operations.

F. Lighting:

(1) If portable lights are used after dark, all light must be located so as not to direct light into neighboring property.

1.07 JOB SIGN(S):

A. General:

(1) Contractor shall provide and maintain a Project identification sign with the design, text, and colors designated by the District and/or the Design Professional; locate sign as approved by the District.

(2) Signs other than the specified Project sign and or signs required by law, for safety, or for egress, shall not be permitted, unless otherwise approved in advance by the District.

B. Materials:

(1) Structure and Framing: Structurally sound, new or used wood or metal; wood shall be nominal 3/4-inch exterior grade plywood.

(2) Sign Surface: Minimum 3/4-inch exterior grade plywood.

(3) Rough Hardware: Galvanized.

(4) Paint: Exterior quality, of type and colors selected by the District and/or the Design Professional.

C. Fabrication:

(1) Contractor shall fabricate to provide smooth, even surface for painting.

(2) Size: 4'-0" x 8'-0", unless otherwise indicated.

(3) Contractor shall paint exposed surfaces of supports, framing, and surface material with exterior grade paint: one coat of primer and one coat of finish paint.

(4) Text and Graphics: As indicated.

1.08 PUBLICITY RELEASES:

A. Contractor shall not release any information, story, photograph, plan, or drawing relating information about the Project to anyone, including press and other public communications medium, including, without limitation, on website(s) without the written permission of the District.

PART 2 – PRODUCTS Not used.

PART 3 – EXECUTION Not used.

END OF DOCUMENT

DOCUMENT 01 52 13

FIELD OFFICES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions;

B. Special Conditions; and

C. Temporary Facilities and Controls.

1.02 SECTION INCLUDES:

A. Requirements for Field Offices and Field Office Trailers.

1.03 SUMMARY:

A. General: Contractor shall provide District's Field Office Trailer and contents, for District's use exclusively, during the term of the Contract.

B. Property: Trailer, furniture, furnishings, equipment, and the like, supplied by the Contractor with the Office Trailer shall remain the property of the Contractor; District property items installed, delivered, and the like by District within the Office Trailer will remain District's property.

C. Modifications: District reserves the right to modify the trailer or contents, or both, as may be deemed proper by District.

D. Condition: Trailer and contents shall be clean, neat, substantially finished, in good, proper, and safe condition for use, operation, and the like; the trailer and contents shall not be required to be new.

E. Installation Timing: Provide safe, fully furnished, functional, proper, complete, and finished trailer properly ready for entire use, within fourteen (14) calendar days of District's notification of the issuance of Notice to Proceed.

1.04 SUBMITTALS:

A. General: Submit submittals to District in quantity, format, type, and the like, as specified herein.

B. Office Trailer Data: One (1) copy of manufacturer's descriptive data, technical descriptions, regulatory compliance, industry standards, installation, removal, and maintenance instructions.

C. Equipment Data: Two (2) copies of manufacturer data for each type of equipment, if directed by District.

D. Furniture and Furnishings Data: Two (2) copies of manufacturer data for each type of equipment, if directed by District.

E. Plans: One (1) reproducible copy of appropriately scaled plans of trailer layout. Plans shall include, but not be limited to: lighting; furniture; equipment; telephone and electrical outlets; and the like.

F. Product Samples: One (1) complete and entire unit of each type, if directed by District.

1.05 QUALITY ASSURANCE

A. Standards: In the event that provisions of codes, regulations, safety orders, Contract Documents, referenced manufacturer's specifications, manufacturer's instructions, industry standards, and the like, are in conflict, the more restrictive and higher quality shall govern.

B. Installer: Installer or Installers engaged by Contractor must have a minimum of five (5) years of documented and properly authenticated successful experience of specialization in the installation of the items or systems, or both, specified herein.

C. Manufacturer: Contractor shall obtain products from nationally and industry recognized Manufacturer with five (5) years minimum, of immediately recent, continuous, documented and properly authenticated successful experience of specialization in the manufacture of the product specified herein.

D. State Personnel Training: Provide proper training for maintenance and operations, including emergency procedures, and the like, as directed by District.

E. Units: Shall be sound and free of defects, and shall not include any damage or defect that will impair the safety, installation, performance, or the durability of the entire Office Trailer and appurtenant systems.

1.06 REGULATORY REQUIREMENTS

A. General: Work shall be executed in accordance with applicable Codes, Regulations, Statutes, Enactments, Rulings, Laws, each authority having jurisdiction, and including, but not limited to, Regulatory Requirements specified herein.

B. California Building Standards Code ("CBSC").

C. California Code of Regulations, Title 25, Chapter 3, Sub Chapter 2, Article 3 ("CCR").

D. Coach Insignia: Trailer shall display California Commercial Coach Insignia; such insignia shall be deemed to show that the trailer is in accordance with the Construction and Fire Safety requirements of CCR.

PART 2 – PRODUCTS

2.01 FIELD OFFICE TRAILER

A. General: Provide entire Field Office Trailer of type, function, operation, capacity, size, complete with controls, safety devices, accessories, and the like, for proper and durable installation. Partitions, walls, ceiling, and other interior and exterior surfaces shall be appropriately finished, including, but not limited to, trim, painting, wall base, floor covering, suspended or similar ceiling, and the like; provide systems, components, units, nuts, bolts, screws, anchoring devices, fastening devices, washers, accessories, adhesives, sealants, and other items of type, grade, and class required for the particular use, not identified but required for a complete, weather-tight, appropriately operating, and finished installation.

B. Manufacturers: General Electric Capital Modular Space; The Space Place, Inc.; or equal.

C. Program: Provide a wheel-mounted trailer with stairs, landings, platforms, ramps, and the like, in good, proper, safe, clean, and properly finished condition; with proper tamperproof locks, and other proper and tamperproof security at all doors, windows, and the like. Trailer shall be maintained in good, proper, safe, clean, and properly finished condition during the Contract.

(1) Nominal Trailer Size: Four hundred eighty (480) square feet, minimum.

(2) Stairs, Platform: Properly finished stairs, platforms, and ramps.

(3) Doors: Two (2), three (3) foot wide exterior doors with locksets; finished ramp, steps, and entry platform at each exterior door.

(4) Keys: Submit five (5) keys for each door, window, furniture unit, and the like. There shall be no other key copies or originals available; each key shall be identified for District; and shall be labeled, or tagged or both, as directed by District.

(5) HVAC: Heating and air conditioned space set by thermostat.

(6) Lighting: Sixty-five (65) foot-candles illumination minimum at any point, at thirty (30) inches above finished floor throughout from fluorescent light source, exclusively, or as directed by District.

(7) Electrical Outlets: One (1) duplex outlet evenly spaced every twelve (12) linear horizontal feet of wall face, and electrical service ready for use.

(8) Telephones/Internet and Telephone/Internet Outlets: Two (2) telephone & internet lines wired, connected to telephone & internet utility service, and ready for use, and two (2) telephone instruments, each with two (2)-line capability, speed dial and hands-free feature. Locate each outlet as directed by District.

(9) Voicemail Messaging System or Answering Machine: One (1) unit, two (2)-line; digital.

2.02 FIELD OFFICE TRAILER ITEMS

A. General: Provide the Field Office Trailer with the following arranged into two (2) workstations:

(1) Desks: Two (2) desks: thirty-six (36) inches by sixty (60) inches; steel, laminated plastic top; locking, one (1) or two (2) file drawers single pedestal; steel; provide five (5) keys to District.

(2) Tables: Two (2) tables; thirty-six (36) inches by sixty (60) inches; twenty-nine (29) inches high; steel, laminated plastic top tables; one (1) at each desk. Conference room table to accommodate ten (10) people.

(3) Chairs: Two (2) chairs: swivel; steel; with seat cushion and arms; one (1) at each desk. Ten(10) chairs for conference room table.

(4) Waste Baskets: Two (2) waste baskets, one at each desk.

B. Furniture and Equipment: Provide in the space located to effect efficient and logical use.

(1) File cabinet: One (1); four (4) drawer; lateral; steel locking.

(2) Plan Table: One (1) plan table: thirty-six (36) inches deep by seventy-two (72) inches wide by forty-two (42) inches high; adjustable; wood or steel; with lockable plan and pencil drawers.

(3) Drafting Stool: One (1) drafting stool; swiveling; steel; padded; adjustable; with footrest and casters.

(4) Bookshelf: One (1) bookshelf: thirty-six (36) inches deep by seventy-two (72) inches wide by forty-two (42) inches high; adjustable; wood or steel; with lockable plan and pencil drawer.

(5) Plan Rack: One (1) wheel mounted plan rack.

(6) Waste Baskets: One (1) large waste basket.

(7) Coat/Hat Hanger: Wall mounted with minimum capacity for four (4) garments and ten (10) hats.

(8) Document Management System: Shall include an integrated high-volume printer, copier, and facsimile machine, including stand, base, and storage cabinet; and shall include the following features:

(a) Type: Laser, dry electrostatic transfer, plain paper, digital, multi-function imaging system.

(b) Network: Ethernet or Token Ring network ready, Plug-and-Play.

(c) Print, send/receive facsimile from any connected workstation.

(d) Resolution: Six hundred (600) dots per inch by six hundred (600) dots per inch, minimum.

(e) Print Speed: Twenty (20) pages per minute, minimum.

(f) Copies: Twenty (20) copies per minute, minimum.

(g) Document Handler: Forty (40) sheet, minimum

(h) Collator: Forty (40) bin, minimum, with stapling.

(i) Duplexing: Capable.

(j) Paper Size: Capable of handling paper sizes to eleven (11) inches by seventeen (17) inches. Paper to be supplied by contractor for duration of project.

(k) Paper Cassettes: One (1) each for eight and one half (8.5) inches by eleven (11) inches, eight and one half (8.5) inches by fourteen (14) inches, and eleven (11) inches by seventeen (17) inches paper sizes; minimum two hundred fifty (250) sheets per cassette.

(l) Reduction/Enlargement: Capable of reduction to twenty-five percent (25%) and enlargement to two hundred percent (200%).

(m) Facsimile Electronic Storage: Capable of storing minimum of fifty (50) speed dial numbers, group faxing and broadcast faxing.

(n) Facsimile Scanning: Capable of scanning into memory a minimum of one hundred (100) pages with maximum scan time of three (3) seconds per page.

(o) Halftone: Sixty-four (64) levels.

(p) Redial: Automatic and Manual.

(9) Maintenance: Contractor shall purchase service agreements for each unit of equipment for the duration of the project plus two (2) months, and shall maintain all equipment in proper working condition. Service agreements shall include provision for replacement of toner cartridges and other items required to effect proper unit use. Service agreements shall also provide for:

(a) Unlimited Service Calls.

(b) Same Day Response.

(c) All parts, labor, preventative maintenance and mileage.

(d) All chemicals, such as toner, fixing agent, and the like for duration of construction.

(e) System training and setup.

(10) Portable Toilets: No less than Two (2) and as required by labor regulations; each shall include a urinal; each unit shall be a properly enclosed chemical unit conforming to ANSI Z4.3.

(a) Location: As directed by District.

(b) Maintenance: Maintain each unit and surrounding areas in a clean, hygienic and orderly manner, at all time. Empty, clean, and sanitize each unit each day at a location and time as directed by District.

(c) Removal: Relocate, or remove from the site, each Portable Toilet. Upon such directive by District, the Contractor shall forthwith relocate or remove each Portable Toilet and submit the affected areas to a condition which existed prior to the installation of each Portable Toilet, within three (3) calendar days, or as directed by District in writing, at no cost to District.

2.03 UTILITY AND SERVICES

A. Telephone and Internet Service: Contractor shall provide and interface the entire telephone and internet service, and shall properly and timely pay for telephone and internet service for District's use.

B. Electrical Service: Provide all proper connections and continuously pay for service for the duration of the Work.

2.04 FINISHES

A. General: Manufacturer standard finish system over surfaces properly cleaned, pretreated, and prepared to obtain proper bond; all visible surfaces shall be coated.

B. Finish: Color as selected by District from manufacturer standard palette.

PART 3 – EXECUTION

3.01 INSTALLATION

A. General: Properly prepare area and affected items to receive the Work. Set Work accurately in location, alignment, and elevation; rigidly, securely, and firmly anchor to appropriate structure; install plumb, straight, square, level, true, without racking, rigidly anchored to proper solid blocking, substrate, and the like; provide appropriate type and quantity of reinforcements, fasteners, adhesives, self-adhesive and other tapes; lubricants, coatings, accessories, and the like, as required for a complete, structurally rigid, stable, sound, and appropriately finished installation, in accordance with manufacturer's published instructions, and as indicated. The more restrictive and higher quality requirement shall govern. Moving parts shall be properly secured, without binding, looseness, noise, and the like.

B. Installation: Install in accordance with 25 CCR 3.2.3 and as directed by District; jack up trailer and level both ways; mount on proper concrete piers with all load off wheels; provide required tie down and accessories per Section 4368 of referenced CCR, and as directed by District. Utility survey shall be completed for any underground work by contractor.

C. Rejected Work: Work, materials, unit, items, systems, and the like, not accepted by District shall be deemed rejected, and shall forthwith be removed and replaced with proper and new Work, materials, unit, items, systems, and the like at no cost to District.

D. Standard: Comply with manufacturer's published instructions, or with instructions as shown or indicated; the more restrictive and higher quality requirement shall govern.

E. Location: As directed by District.

F. Fire Resistance: Construct and install in accordance with UL requirements.

G. Maintenance: Contractor shall maintain trailer and adjacent areas in a safe, clean and hygienic condition throughout the duration of the Work, and as directed by District. Properly repair or replace furniture or other items, as directed by District. Properly remove unsafe, damaged, or broken furniture, or similar items, and replace with safe and proper items. Contractor shall pay cost of all services, repair, and maintenance, or replacement of each item.

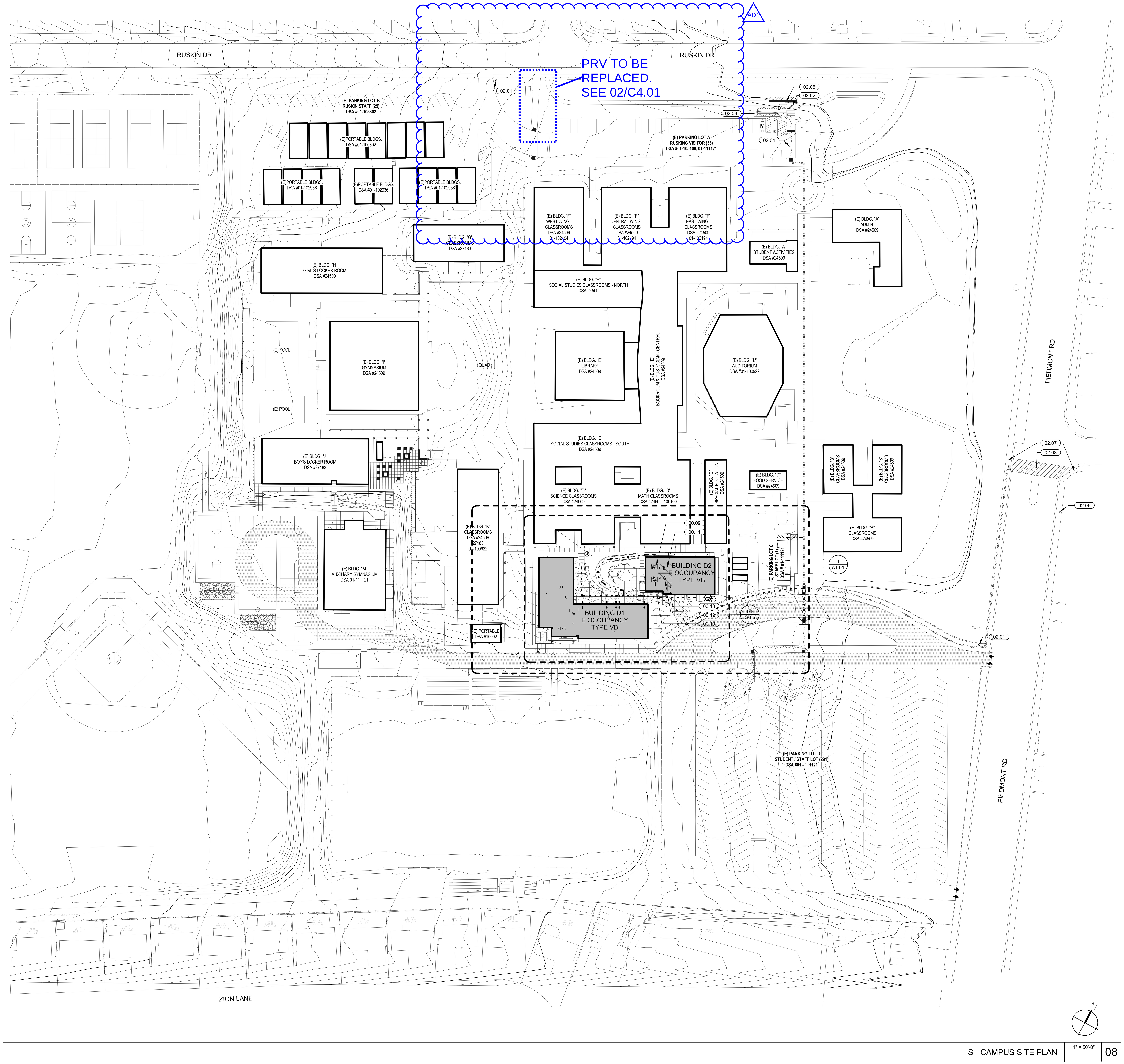
H. Janitorial Service: Provide professional janitorial services, including, but not limited to, trash, waste paper baskets, fill paper dispensers; clean and dust all furniture, files, and the like; sweep and mop resilient and similar flooring; and vacuum carpeting and similar flooring.

(1) Frequency: Two (2) times per week, minimum.

I. Removal: Properly remove the Office Trailer and contents from the Site upon completion of the Contract, or as directed by District in writing. Forthwith properly patch and repair affected areas; replace damaged items with new

items. Carefully and properly inventory, clean, pack, store, and protect District property; submit District property to District at a date, time and location as directed by District.

END OF DOCUMENT



S - CAMPUS SITE PLAN | 1" = 50'-0" | 08

KEYNOTES

00.09	MENS RESTROOM
00.10	WOMENS RESTROOM
00.11	BOYS RESTROOM
00.12	GIRLS RESTROOM
00.13	UNISEX RESTROOM
02.01	(E) TOW-AWAY SIGN
02.02	(E) GATE APPROX. 10 FT WIDE.
02.03	(E) RAMP. DSA # 01-106843
02.04	(E) SIDEWALK. DSA # 01-106843
02.05	(E) PASSENGER LOADING ZONE W/ TRUNCATED DOME AND STRIPING. DSA # 01-106843
02.06	(E) BUS STOP.
02.07	(E) CURB CUTS W/ TRUNCATED DOMES
02.08	(E) STRIPED CROSWALK

GENERAL NOTES

1. GATES IN PATH OF ACCESS & EGRESS MUST COMPLY WITH EXIT DOOR REQUIREMENTS, WITH PROPER LEVER HARDWARE AND KICK PLATE.
2. FOR ADDITIONAL NOTES SEE SITE PLAN A1.01
3. FOR ASSUMED PROPERTY LINES AND FIRE SEPARATION DISTANCES BETWEEN ADDED BUILDING'S AND ADJACENT (E) BUILDING'S, SEE G0.5

PATH OF TRAVEL NOTES

SITE DEVELOPMENT REQUIREMENTS

ACCESSIBLE PATH OF TRAVEL AS INDICATED ON PLAN IS A BARRIER FREE ACCESS ROUTE WITHOUT ANY ABRUPT LEVEL CHANGES EXCEEDING 1/2" BEVELED AT 1:2 MAX. SLOPE, OR VERTICAL LEVEL CHANGES NOT EXCEEDING 1/4" MAX. AND AT LEAST 48" WIDE. SURFACE IS SLIP RESISTANT, STABLE, FIRM, AND SMOOTH. CROSS SLOPE DOES NOT EXCEED 2% AND SLOPE IN THE DIRECTION OF TRAVEL IS LESS THAN 5% UNLESS OTHERWISE INDICATED.

ARCHITECT TO VERIFY THAT ALL BARRIERS IN THE PATH OF TRAVEL HAVE BEEN REMOVED OR WILL BE REMOVED UNDER THIS PROJECT, AND PATH OF TRAVEL COMPLIES WITH CBC SECTION 11B-206.

MAXIMUM DROP BETWEEN FINISHED GRADES AND THE TOP OF THE P.O.T. SHALL NOT EXCEED 4". PROVIDE "WARNING CURB" PER THE HAZARDS SECTION OF CBC SECTION 11B-303.5 IF IT EXCEEDS 4".

OVERHEAD OBSTRUCTIONS IN THE P.O.T. SHALL BE 80" MIN. CLEARANCE FROM FINISHED FLOOR TO THE BOTTOM SIDE OF ANY OBSTRUCTION PER CBC FIG. 11B-28.

PROTRUDING OBJECTS SHALL NOT IMPEDE THE P.O.T. PER CBC FIG. 11B-7A

PROVIDE SHOP DRAWING FOR ALL ORNAMENTAL FENCES AND GATES

CONTRACTOR TO REMOVE & REINSTALL ANY PLAY EQUIPMENT, BIKE RACK, ETC. NEEDED FOR CONSTRUCTION UNDER THIS CONTRACT.

AFTER HOURS SCHOOL ACTIVITIES P.O.T. SHALL BE OPEN AND ACC. THROUGH BLDGS.

DESIGN PROFESSIONAL IN GENERTAL RESPONSIBLE CHARGE STATEMENT: THE PATH OF TRAVEL IDENTIFIED IN THIS DOCUMENT IS COMPLIANT WITH THE CURRENT APPLICABLE CALIFORNIA BUILDING CODE ACCESSIBILITY PROVISIONS FOR PATH OF TRAVEL REQUIREMENTS FOR ALTERATIONS, ADDITIONS AND STRUCTURAL REPAIRS. AS PART OF THE DESIGN OF THIS PROJECT, THE POT WAS EXAMINED, AND ANY ELEMENTS, COMPONENTS OR PORTIONS OF THE POT THAT WERE DETERMINED TO BE NON-COMPLIANT 1) HAVE BEEN IDENTIFIED AND 2) THE CORRECTIVE WORK NECESSARY TO BRING THEM INTO COMPLIANCE HAS BEEN INCLUDED WITHIN THE SCOPE OF THIS PROJECT'S WORK THROUGH DETAILS, DRAWINGS AND SPECIFICATIONS INCORPORATED INTO THESE CONSTRUCTION DOCUMENTS. ANY NON-COMPLIANT ELEMENTS, COMPONENTS OR PORTIONS OF THE POT THAT WILL NOT BE CORRECTED BY THIS PROJECT BASED ON VALUATION THRESHOLD LIMITATIONS OR A FINDING OF UNREASONABLE HARDSHIP ARE SO INDICATED IN THE SE CONSTRUCTION DOCUMENTS.

DURING CONSTRUCTION, IF POT ITEMS WITHIN THE SCOPE OF THE PROJECT REPRESENTED AS CODE COMPLIANT ARE FOUND TO BE NON-CONFORMING BEYOND REASONABLE CONSTRUCTION TOLERANCES, THEY SHALL BE BROUGHT INTO COMPLIANCE WITH THE CBC AS A PART OF THIS PROJECT BY MEANS OF A CONSTRUCTION CHANGE DOCUMENT.

EXISTING ACCESSIBLE ROUTES AND ACCESSIBLE PARKING SERVING FACILITIES AND BUILDINGS THAT ARE OPERATIONAL DURING CONSTRUCTION SHALL REMAIN UNOBSTRUCTED, SAFE AND USABLE BY PEOPLE WITH DISABILITIES.

LEGEND

- RESTROOMS, RE: KEYNOTES
- PROPOSED BUILDINGS
- BUILDINGS NOT IN SCOPE, U.N.O.
- (E) FIRE ACCESS ROAD
- (E) PATH OF TRAVEL APPROVED UNDER DSA # 01-111121, 01-106843
- PROPOSED PATH OF TRAVEL

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LICENSED ARCHITECT DENISE FLATLEY No. 32467 12-31-2017 REN. STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
APPL. #: 01-116180
AC ______ FLS ______ SS ______
DATE ______
FILE NUMBER: 43-H10

BUILDING D SCIENCE AND CLASSROOM BUILDINGS, PIEDMONT HILLS HIGH SCHOOL

1377 PIEDMONT RD
SAN JOSE, CA 95132

Developed for
EAST SIDE UNION HIGH SCHOOL DISTRICT

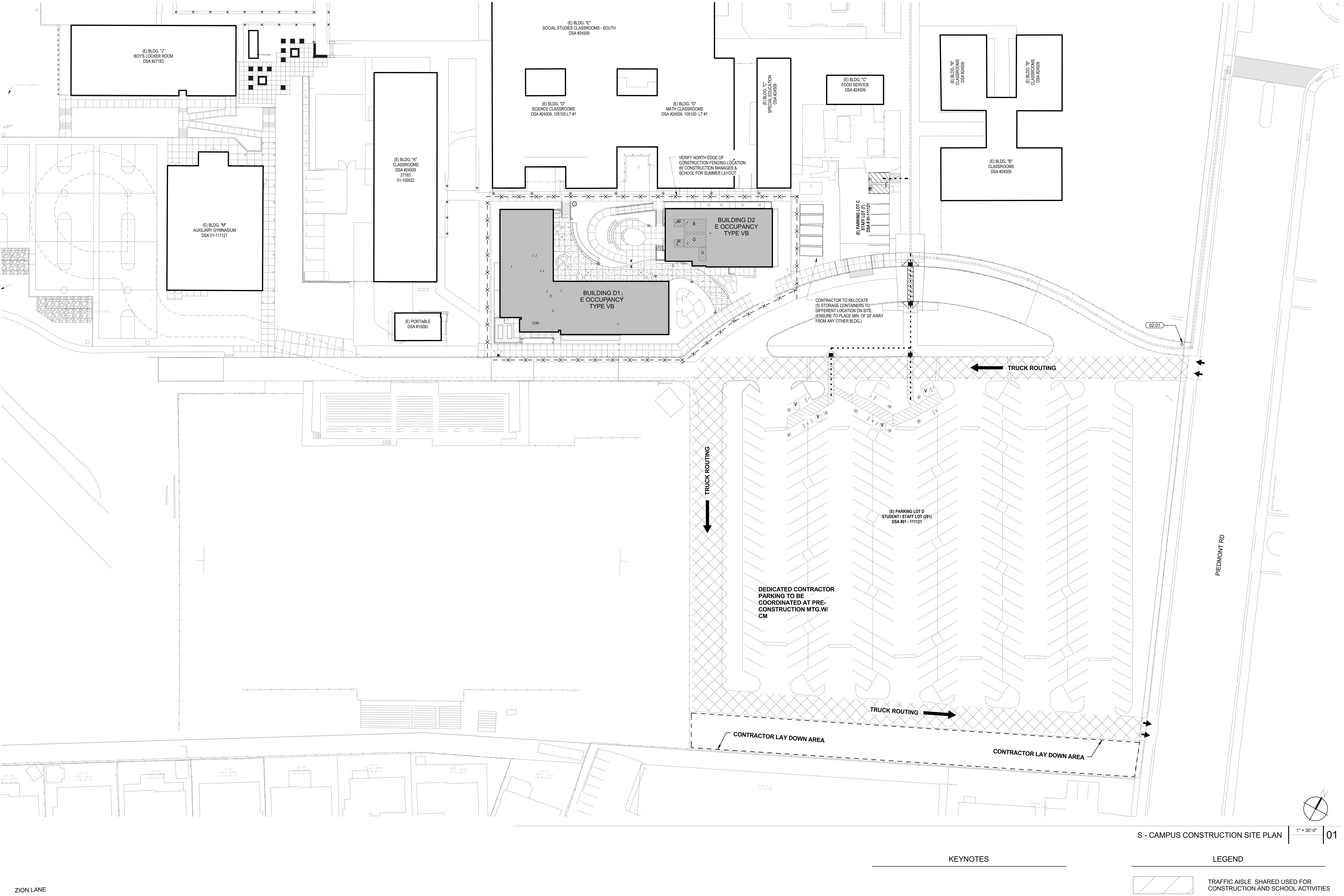
Revision	Date
1 ADDENDUM 1	4/18/2017

Submittal	Date
SCHEMATIC DESIGN	03/18/16
DESIGN DEVELOPMENT	05/10/16
50% CONSTRUCTION DOCUMENTS	06/15/16
85% CONSTRUCTION DOCUMENTS	07/27/16
DSA BACKCHECK	03/08/17
DSA APPROVAL	03/08/17

Job. No.	1602010
Date	03/08/2017
Checked by	Checker
Scale	As indicated

CAMPUS SITE PLAN

G0.3



S - CAMPUS CONSTRUCTION SITE PLAN 1" = 30'-0" 01

KEYNOTES

LEGEND

(hatched)	TRAFFIC AISLE SHARED USED FOR CONSTRUCTION AND SCHOOL ACTIVITIES
(grey)	PROPOSED BUILDINGS
(blank)	BUILDINGS NOT IN SCOPE, U.N.O.
(stippled)	(E) FIRE ACCESS ROAD. (MAINTAIN DURING CONSTRUCTION)
○○○○○○	(E) PATH OF TRAVEL APPROVED UNDER DSA # 01-111121, 01-106843
×— —×— —×—	PROPOSED LOCATION OF CHAINLINK FENCE CONSTRUCTION FENCING

GENERAL NOTES

1. GATES FOR SCHOOL USE TO REMAIN OPEN DURING SCHOOL HOURS. COORDINATE FIRE LANE ACCESS W/ CONSTRUCTION MANAGER.
2. AT ALL TIMES PROVIDE ACCESSIBLE PATH OF TRAVEL FROM PARKING LOT OR PUBLIC WAY TO SCHOOL, SEE G0.3.
3. ASSUME AREA ALONG SOUTH FENCE AS CONTRACTOR & PI SPACE.
4. ALL TRAFFIC FOR JOBSITE TO BE COORDINATED W/ CONSTRUCTION MANAGER.

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EAST SIDE UNION HIGH SCHOOL DISTRICT

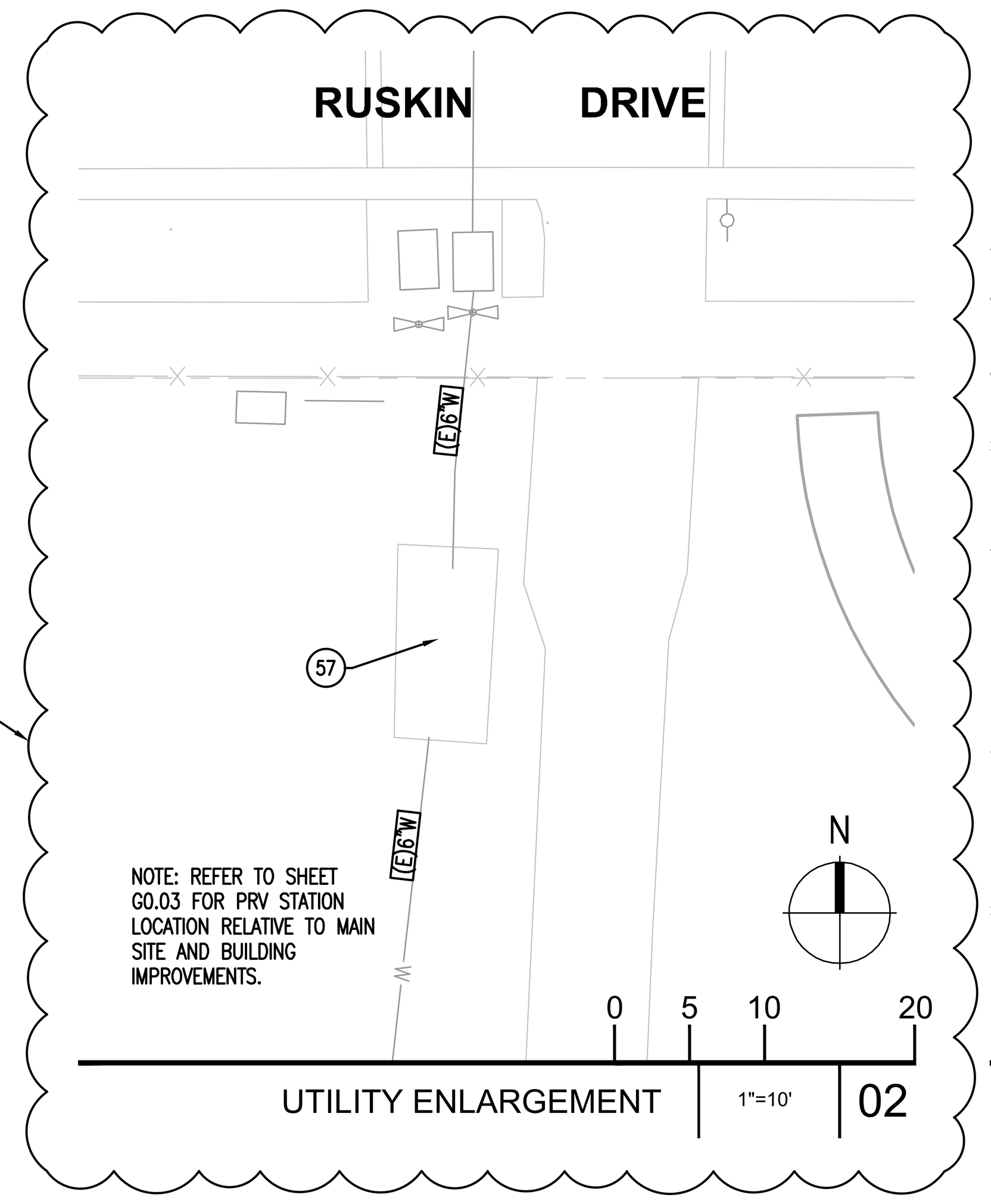
Revision		Date
AD1	ADDENDUM 1	4/18/2017

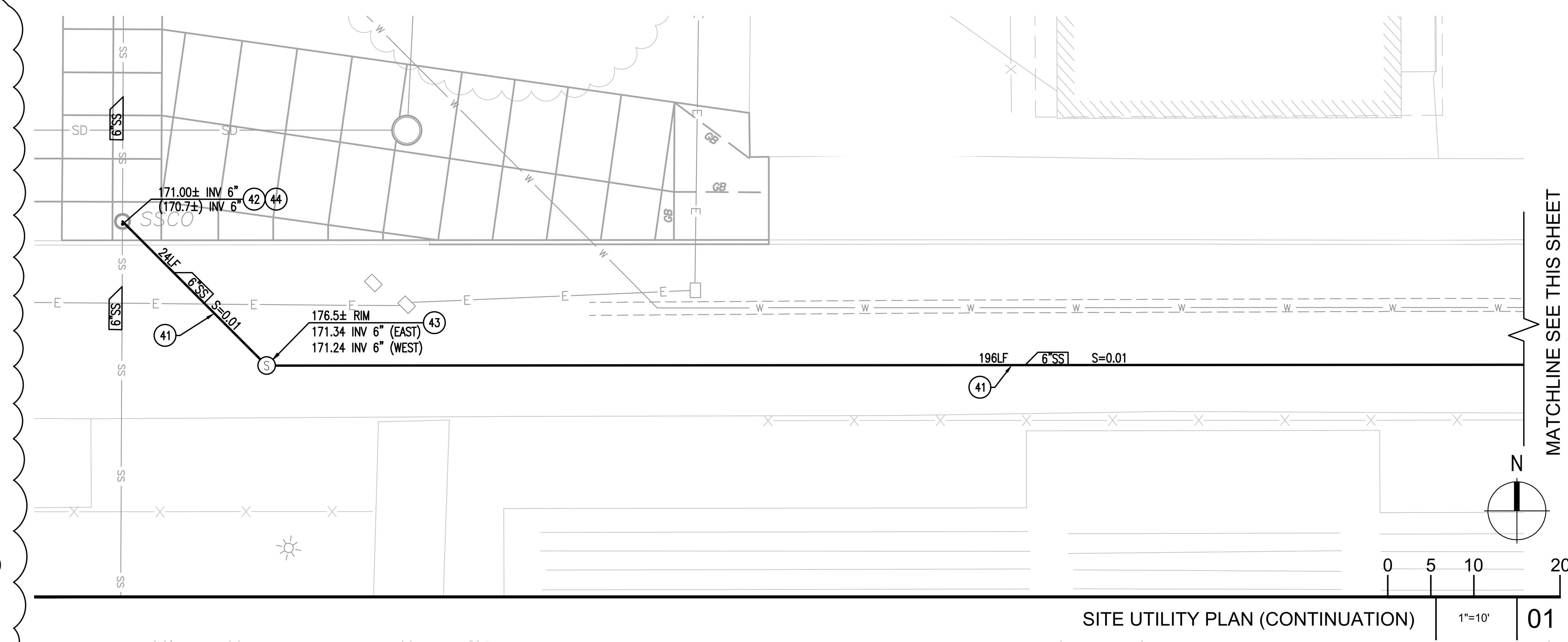
Submittal	Date

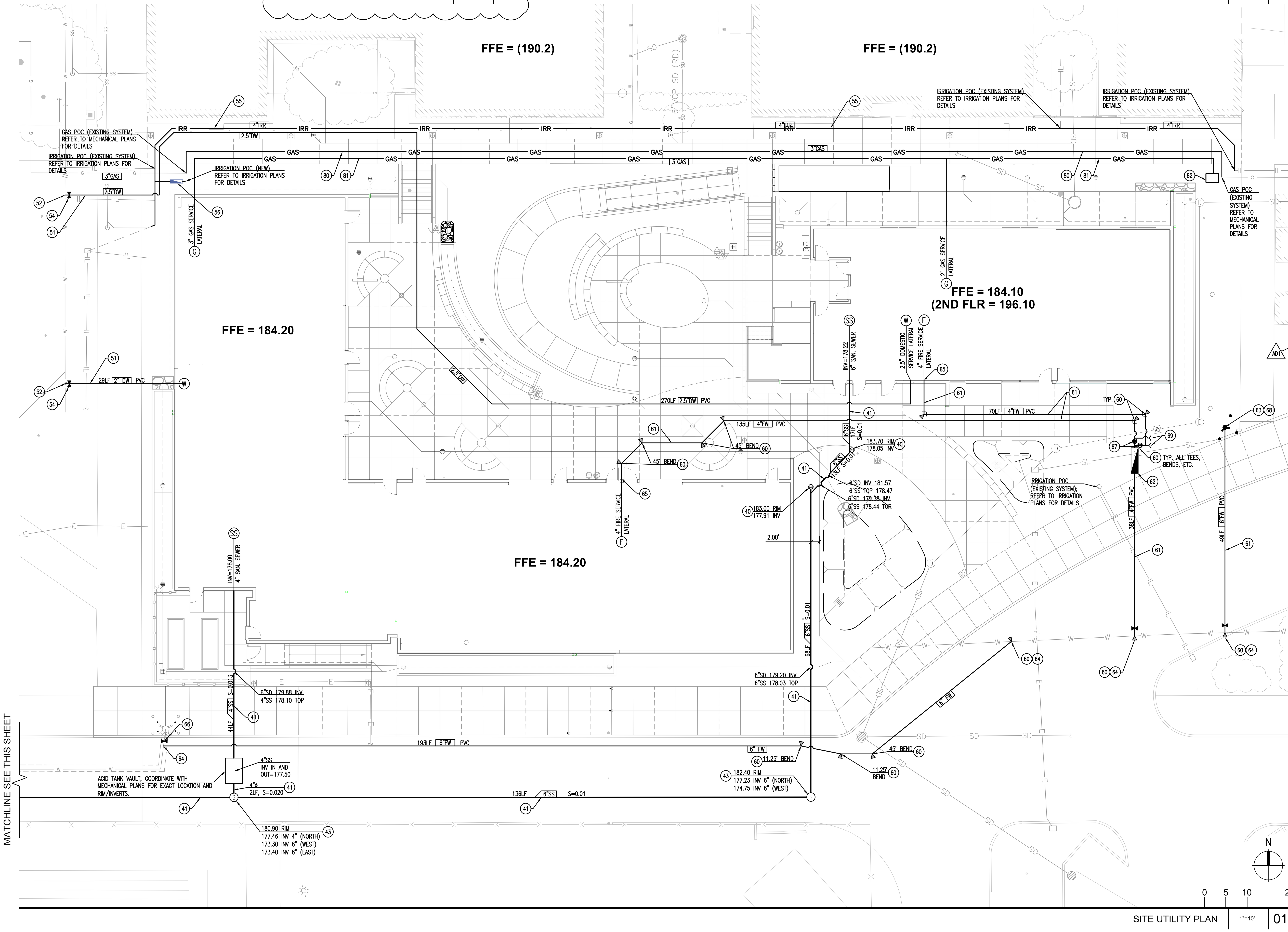
Job. No.	1602010
Date	03/08/2017
Checked by	Checker
Scale	1" = 30'-0"

CONSTRUCTION ACCESS PLAN

G0.6







CONSTRUCTION NOTES:

1) UTILITIES TO CROSS OVER OR UNDER OTHER UTILITIES TO MAINTAIN 12" MINIMUM CLEARANCE AT UTILITY CROSSINGS, UNLESS NOTED OTHERWISE. SANITARY SEWER TO CROSS UNDER POTABLE WATER.

2) CONTRACTOR SHALL VERIFY SIZE AND LOCATION (HORIZONTAL AND VERTICAL) OF EXISTING CROSSING AND JOINING UTILITIES PRIOR TO CONSTRUCTION AND IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONFLICT.

3) CONTRACTOR SHALL CONSTRUCT GRAVITY UTILITIES (SEWER AND STORM DRAIN) BEFORE OTHER UTILITIES. CONSTRUCTION OF THESE GRAVITY UTILITIES TO START FROM THE DOWNSTREAM ENDS.

4) EXISTING UTILITIES ARE COMPILED BASED ON PREVIOUS BASE FILES, FIELD SURVEY AND FIELD VERIFICATION. POTHOLING IS RECOMMENDED TO VERIFY ANY AND ALL UTILITIES KNOWN OR UNKNOWN WHICH MAY BE IN CONFLICT WITH PROPOSED CONSTRUCTION.

5) PRIOR TO THE REMOVAL OF ANY WET OR DRY UTILITY LINES, THE CONTRACTOR SHALL CONFIRM WITH OWNER REPRESENTATIVE WHETHER THESE UTILITY LINES ARE STILL ACTIVE OR NOT. IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONFLICT.

6) CONTRACTOR TO ADJUST TO FINISH GRADE ALL EXISTING UTILITY BOXES, SEWER CLEANOUT COVERS, PULL BOXES AND VALVE COVERS NOT SPECIFICALLY SHOWN WITHIN THE LIMITS OF WORK.

7) SAWCUT AND REMOVE EXISTING PAVEMENT AS REQUIRED FOR UTILITY INSTALLATION; REPLACE EXISTING PAVEMENT IN KIND AND MATCH EXISTING GRADES / STRUCTURAL SECTION.

8) SEE DETAIL 03 SHEET C5.01 FOR UTILITY TRENCHING AND BACKFILL.

9) SAWCUT, REMOVE AND REPLACE EXISTING CURB AS REQUIRED FOR TRENCHING. MATCH EXISTING CURB.

SEWER CONSTRUCTION NOTES:

- (SS) INSTALL SEWER SERVICE LATERAL TO 5' OUTSIDE FACE-OF-BUILDING. SIZE AS SHOWN. SLOPE = 0.02 (MIN.) PLUG AND MARK END. VERIFY SEWER SERVICE CONNECTION WITH PLUMBING PLANS.
- (40) CONSTRUCT SEWER CLEANOUT PER DETAIL 04 SHEET C5.01.
- (41) PLACE PVC SDR 35 (ASTM D 3034). SIZE AND SLOPE AS SHOWN.
- (42) ASSUMED LOCATION AND INVERT OF EXISTING SEWER LINE AND/OR CLEANOUT. VERIFY PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
- (43) CONSTRUCT STANDARD 48" SEWER MANHOLE WITH CHANNELIZATION AT BOTTOM PER 11 DETAIL SHEET C5.01.
- (44) CONNECT NEW LINE TO EXISTING SEWER CLEANOUT AT LOCATION SHOWN. FIELD-VERIFY INVERTS AND LOCATION PRIOR TO CONNECTION.

WATER CONSTRUCTION NOTES:

- (W) INSTALL WATER SERVICE LATERAL TO 5' OUTSIDE FACE-OF-BUILDING. SIZE AS SHOWN. PLUG AND MARK END. VERIFY WATER CONNECTION WITH PLUMBING PLANS.
- (50) INSTALL THRUST BLOCKING PER DETAIL 15 SHEET C5.01. TYPICAL FOR ALL BENDS, TEES AND CROSSES ON PIPE SIZES GREATER THAN 3".
- (51) PLACE PVC C900 DR-18 WITH 30" MIN. COVER AND 36" MIN COVER WHERE SURFACE LOADS ARE EXPECTED.
- (52) CONNECT TO EXISTING 6" DOMESTIC WATER SERVICE LINE WITH FLANGED COUPLING ADAPTER USING STAINLESS STEEL NUTS, BOLTS, AND WASHERS. CONTRACTOR TO VERIFY SIZE AND LOCATION OF EXISTING WATER LINE AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
- (53) SUPPLY AND INSTALL 2" DOMESTIC WATER SERVICE BACKFLOW ASSEMBLY PER DETAIL 13 SHEET C5.01 WITH LOCKABLE, POWDER COATED FOREST GREEN, ROUNDED CORNER BACKFLOW PREVENTER ENCLOSURE WITH CONCRETE PAD PER BACKFLOW PREVENTER ENCLOSURE MANUFACTURER'S RECOMMENDATIONS.
- (54) SUPPLY AND INSTALL GATE VALVE; SIZE TO MATCH NEW LATERAL.
- (55) INSTALL NEW 4" IRRIGATION MAIN LINE; REFER TO LANDSCAPING AND IRRIGATION PLANS FOR ADDITIONAL DETAILS AND LOCATION.
- (56) REINSTALL EXISTING 4-INCH IRRIGATION BACKFLOW PREVENTER IN LOCATION SHOWN; ~~REFER TO LANDSCAPING AND IRRIGATION PLANS FOR ADDITIONAL DETAILS.~~
- (57) (E) PRESSURE REDUCING VALVE STATION: REMOVE (E) VALVES AND PIPING. INSTALL (N) VALVES, PIPING, AND RELATED COMPONENTS PER DETAIL 01, SHEET C5.03. AD1

FIRE WATER CONSTRUCTION NOTES:

- (F) INSTALL FIRE WATER SERVICE LATERAL PER DETAIL 21 SHEET C5.01. SIZE AS SHOWN. PLUG AND MARK END. VERIFY WATER CONNECTION WITH PLUMBING PLANS.
- (60) INSTALL THRUST BLOCKING PER DETAIL 15 SHEET C5.01. TYPICAL FOR ALL BENDS, TEES AND CROSSES.
- (61) PLACE PVC C900 DR-14 WITH 30" MIN. COVER AND 36" MIN. COVER WHERE SURFACE LOADS ARE EXPECTED.
- (62) INSTALL AND TEST 4" DOUBLE CHECK BACKFLOW ASSEMBLY WITH CHECK VALVE PER DETAIL 20 SHEET C5.01. INTERCONNECT TAMPER SWITCH WITH FIRE ALARM SYSTEM PER NFPA 72 (2013 EDITION).
- (63) INSTALL FIRE HYDRANT PER DETAIL 19 SHEET C5.01.
- (64) HOT TAP PER DETAIL 09 SHEET C5.01. INSTALL VALVE (SIZE TO MATCH NEW LATERAL).
- (65) COORDINATE LOCATION OF ELECTRICAL SERVICE FOR THE ELECTRICAL SUPERVISORY SWITCH TO THE FIRE ALARM CONTROL PANEL WITH ELECTRICAL PLANS.
- (66) INSTALL NEW VALVE ON (E) FIRE HYDRANT LATERAL; VALVE PER DETAIL 19 SHEET C5.01.
- (67) INSTALL POST INDICATOR VALVE PER DETAIL 16 SHEET C5.01.
- (68) INSTALL FIRE HYDRANT PROTECTION (BOLLARDS) PER DETAIL 10 SHEET C5.02.
- (69) INSTALL FIRE DEPARTMENT CONNECTION PER DETAIL 18 SHEET C5.02.

GAS CONSTRUCTION NOTES:

- (G) INSTALL GAS SERVICE. SEE MECHANICAL PLANS FOR SIZE AND DETAILS.
- (80) RELOCATE (E) GAS LINE TO LOCATION AS SHOWN. SEE PLUMBING PLANS FOR ADDITIONAL DETAILS.
- (81) (N) GAS SERVICE LINE; REFER TO MECHANICAL PLANS FOR DETAILS.
- (82) (N) GAS SERVICE POC (METER); REFER TO MECHANICAL PLANS FOR DETAILS.

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REGISTERED PROFESSIONAL ENGINEER ALAN W. ROZIER R.C.E. 44927 EXP. 3-31-18 CIVIL STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APPL. #: 01-116180
AC_______ FLS_______ SS_______
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BUILDING D SCIENCE AND CLASSROOM BUILDINGS, PIEDMONT HIGH SCHOOL
1377 PIEDMONT ROAD
SAN JOSE, CA 95132
EAST SIDE UNION HIGH SCHOOL DISTRICT

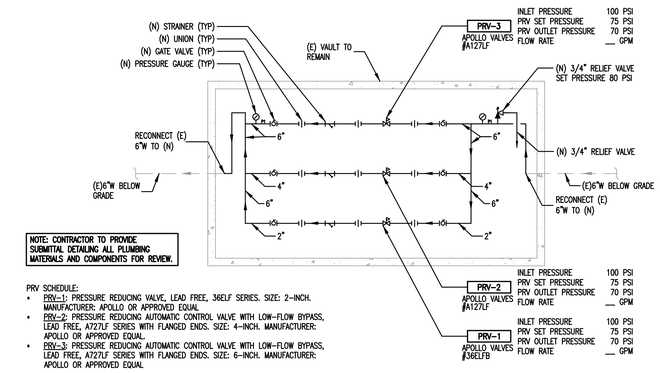
Revision	Date
1 ADDENDUM #1	04/18/2017

Submittal	Date
SCHEMATIC DESIGN	03/18/2016
DESIGN DEVELOPMENT	05/17/2016
50% CONSTRUCTION DOCUMENTS	06/15/2016
85% CONSTRUCTION DOCUMENTS	07/27/2016
DSA SUBMITTAL	08/12/2016
DSA APPROVAL	03/08/2017

Job. No.	16020.10
Date	04/18/2017
Checked by	A. ROZIER
Scale	1" = 10'

SITE UTILITY PLAN

C4.01



NOTE: CONTRACTOR TO PROVIDE SUBMITTAL DETAILING ALL PLUMBING MATERIALS AND COMPONENTS FOR REVIEW.

PRV SCHEDULE:
- PRV–1: PRESSURE REDUCING VALVE, LEAD FREE, 36ELF SERIES. SIZE: 2–INCH. MANUFACTURER: APOLLO OR APPROVED EQUAL
- PRV–2: PRESSURE REDUCING AUTOMATIC CONTROL VALVE WITH LOW–FLOW BYPASS, LEAD FREE, A727LF SERIES WITH FLANGED ENDS. SIZE: 4–INCH. MANUFACTURER: APOLLO OR APPROVED EQUAL.
- PRV–3: PRESSURE REDUCING AUTOMATIC CONTROL VALVE WITH LOW–FLOW BYPASS, LEAD FREE, A727LF SERIES WITH FLANGED ENDS. SIZE: 6–INCH. MANUFACTURER: APOLLO OR APPROVED EQUAL

PRESSURE REDUCING VALVE STATION IMPROVEMENTS

NTS

01

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ALAN W. ROZIER
R.C.E. 44927
EXP. 3-31-18

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BUILDING D SCIENCE AND CLASSROOM BUILDINGS, PIEDMONT HIGH SCHOOL

1377 PIEDMONT ROAD
SAN JOSE, CA 95132

EAST SIDE UNION HIGH SCHOOL DISTRICT

Revision	Date
AD1 ADDENDUM #1	04/18/2017

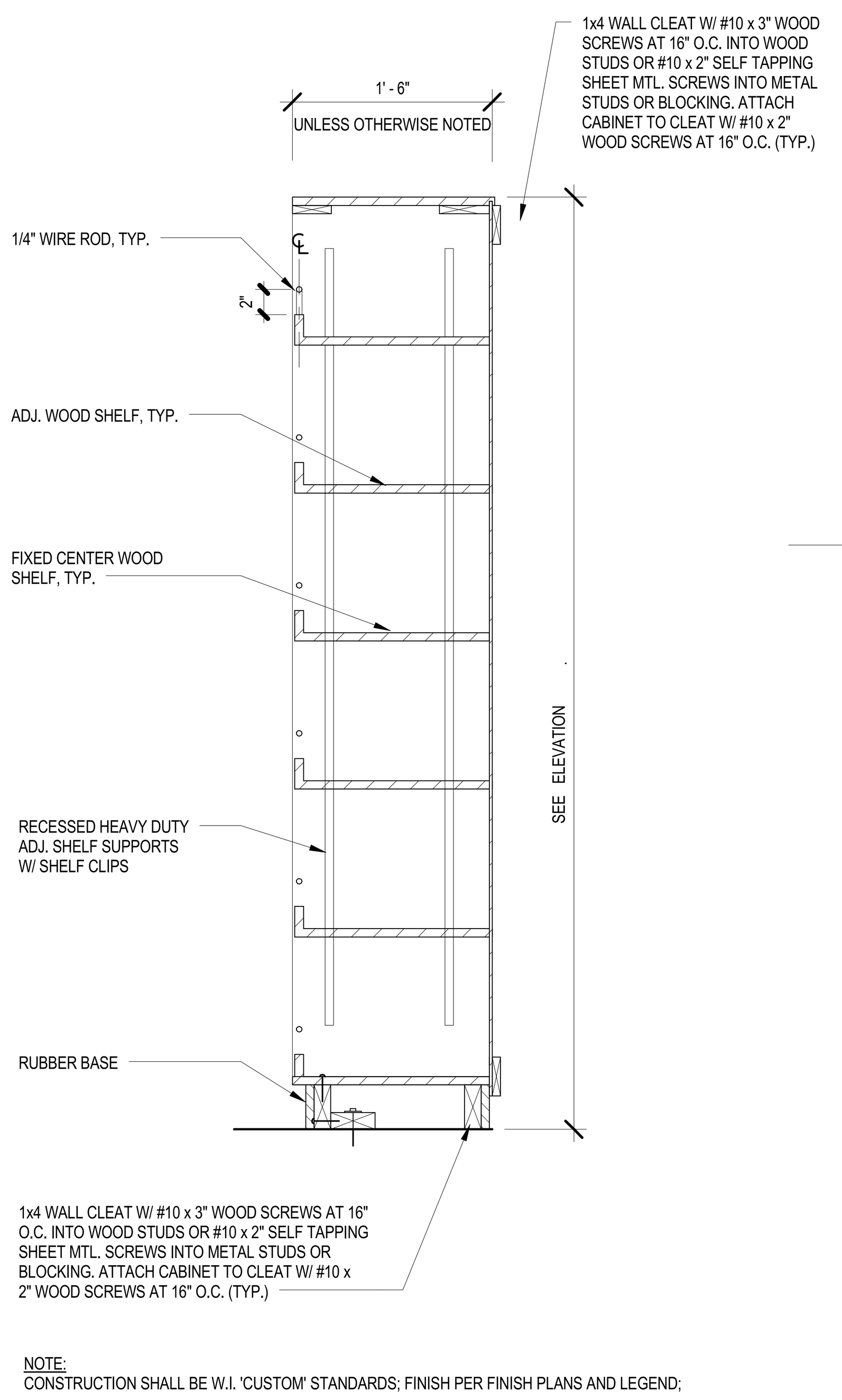
Submittal	Date
SCHEMATIC DESIGN	03/18/2016
DESIGN DEVELOPMENT	05/17/2016
50% CONSTRUCTION DOCUMENTS	06/15/2016
85% CONSTRUCTION DOCUMENTS	07/27/2016
DSA SUBMITTAL	08/12/2016
DSA APPROVAL	03/08/2017

Job. No.	16020.10
Date	04/18/2017
Checked by	A. ROZIER
Scale	AS SHOWN

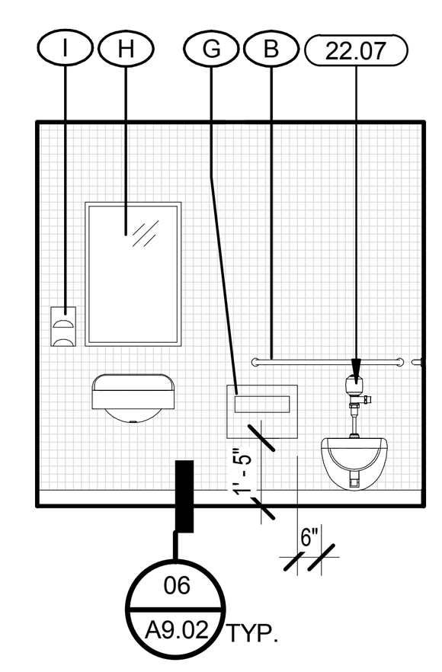
AD1

SITE CONSTRUCTION DETAILS

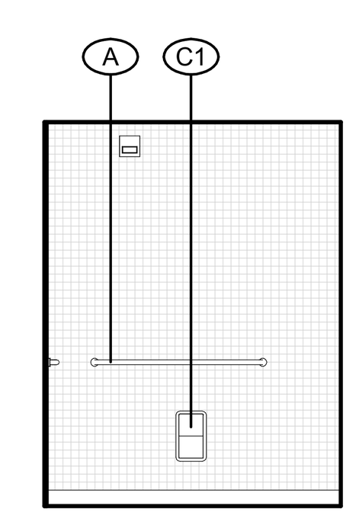
C5.03



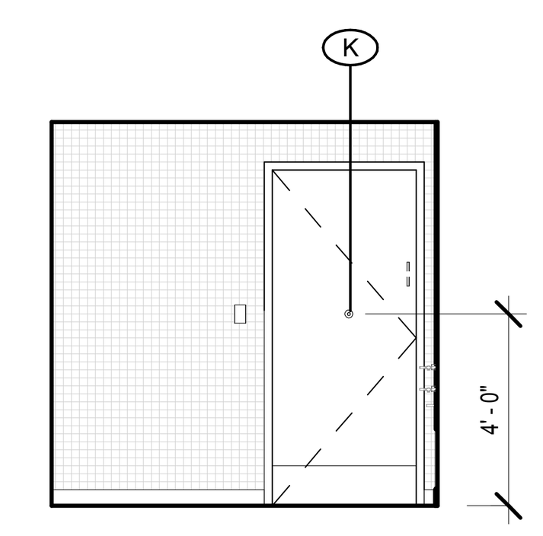
SCIENCE GLASSWARE CABINET — 1" = 1'-0" — 2



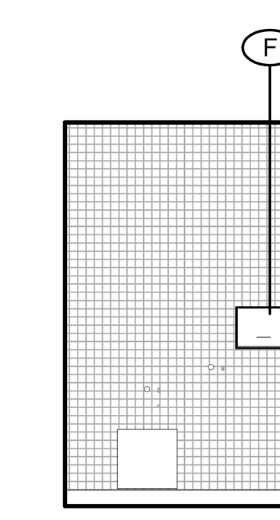
INTERIOR ELEVATION — 1/4" = 1'-0" — A



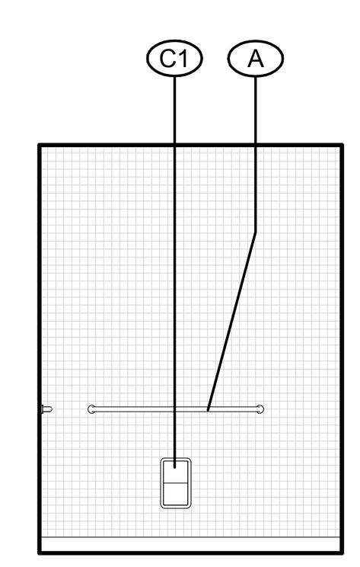
INTERIOR ELEVATION — 1/4" = 1'-0" — B



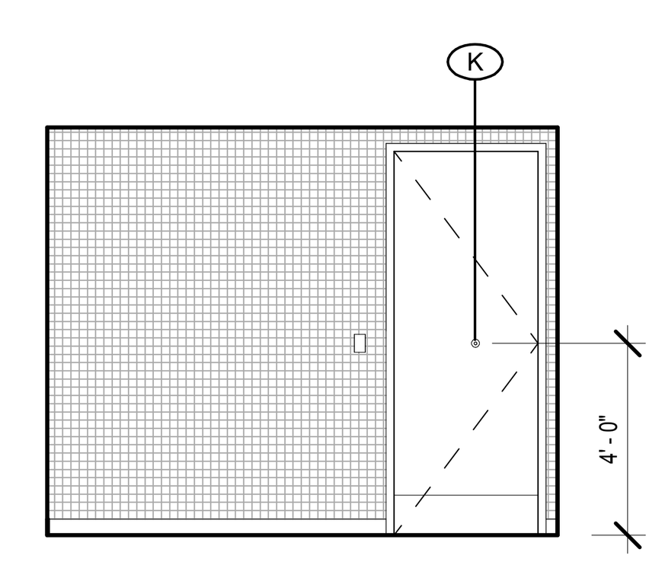
INTERIOR ELEVATION — 1/4" = 1'-0" — C



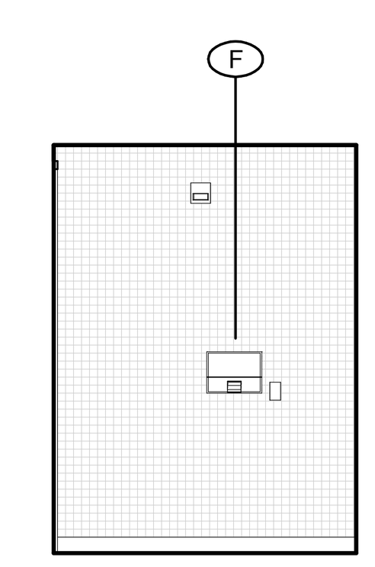
INTERIOR ELEVATION — 1/4" = 1'-0" — D



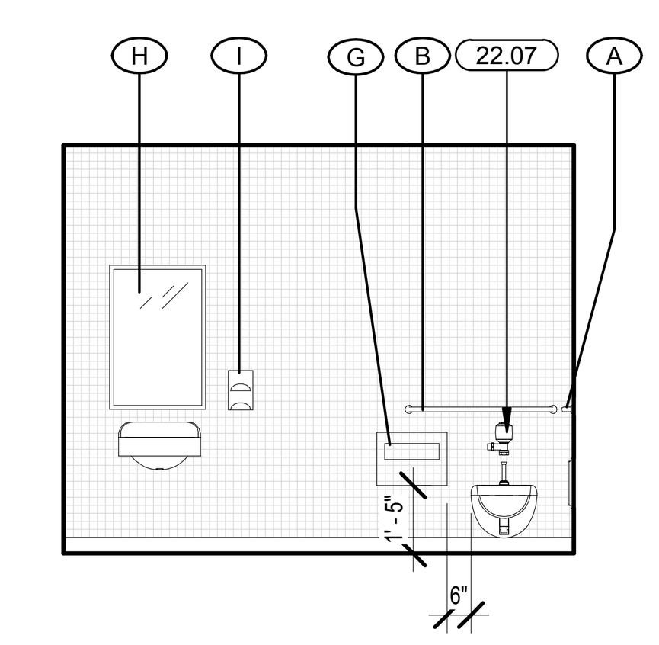
INTERIOR ELEVATION — 1/4" = 1'-0" — E



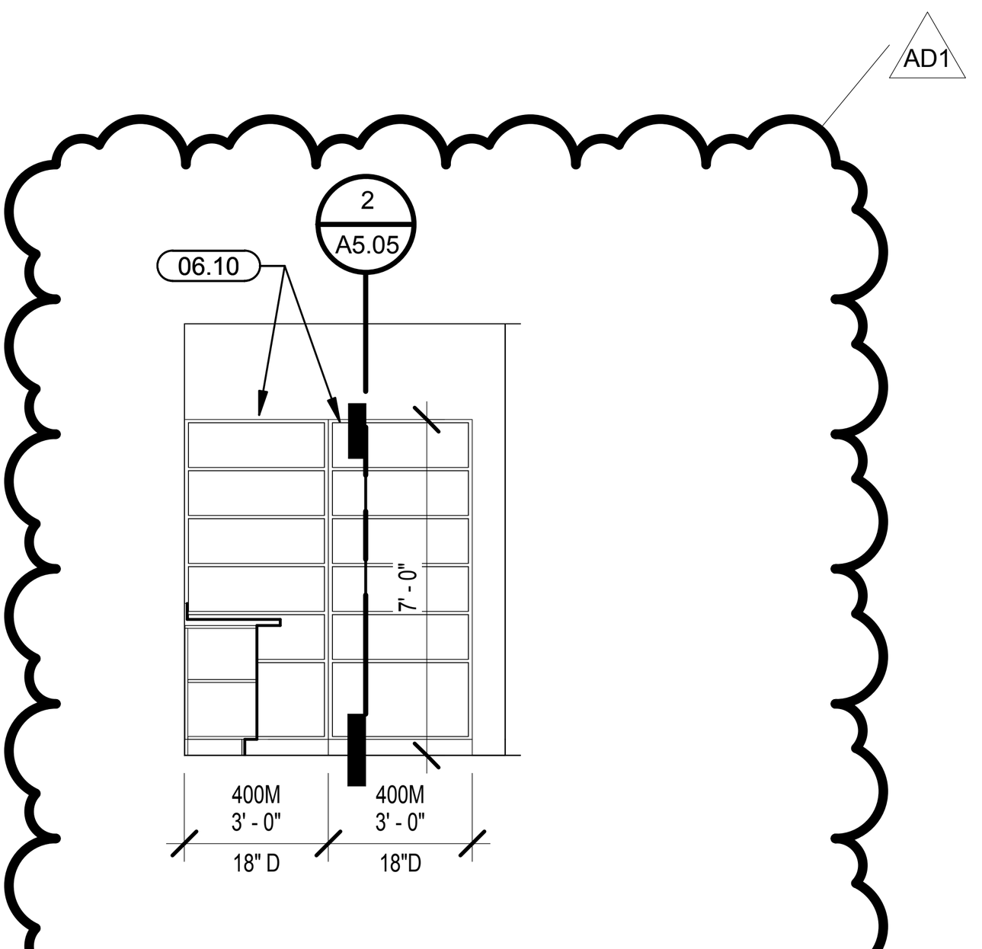
INTERIOR ELEVATION — 1/4" = 1'-0" — F



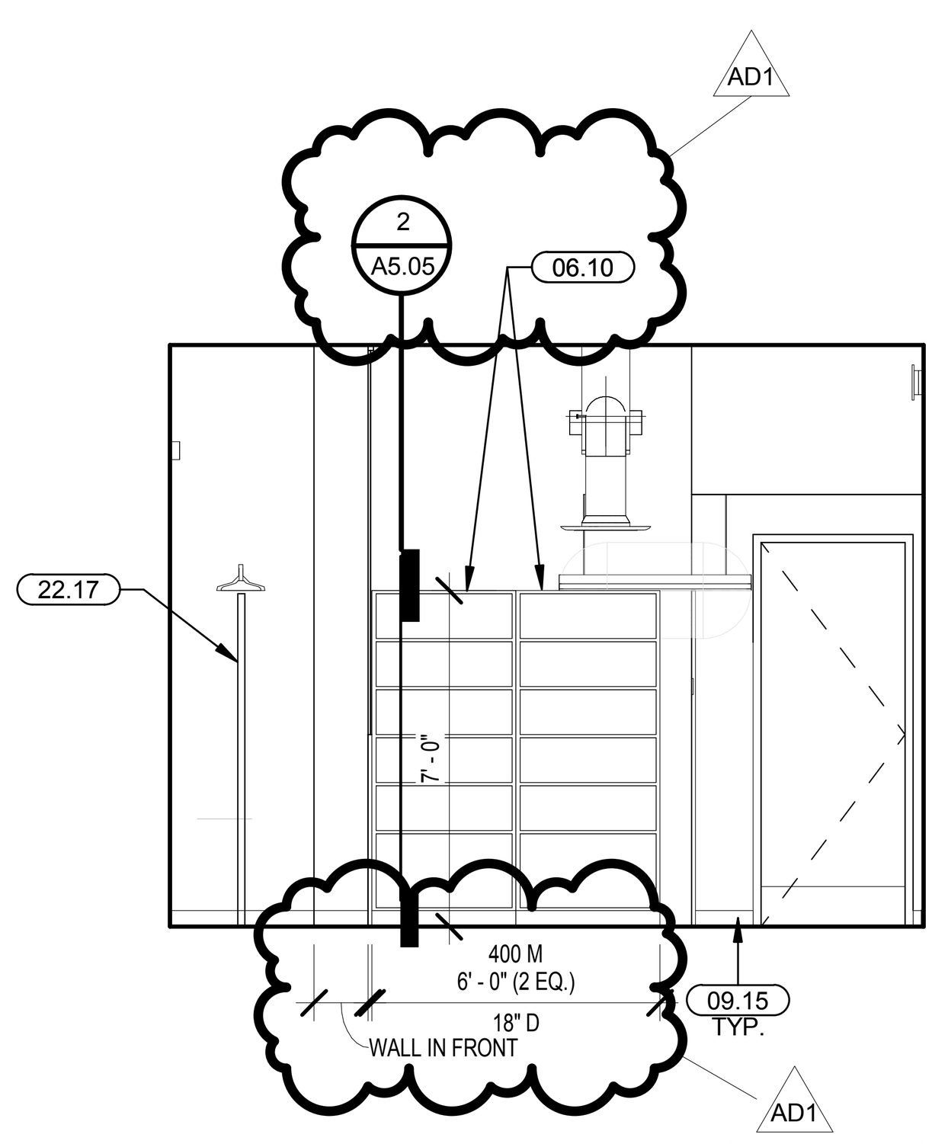
INTERIOR ELEVATION — 1/4" = 1'-0" — G



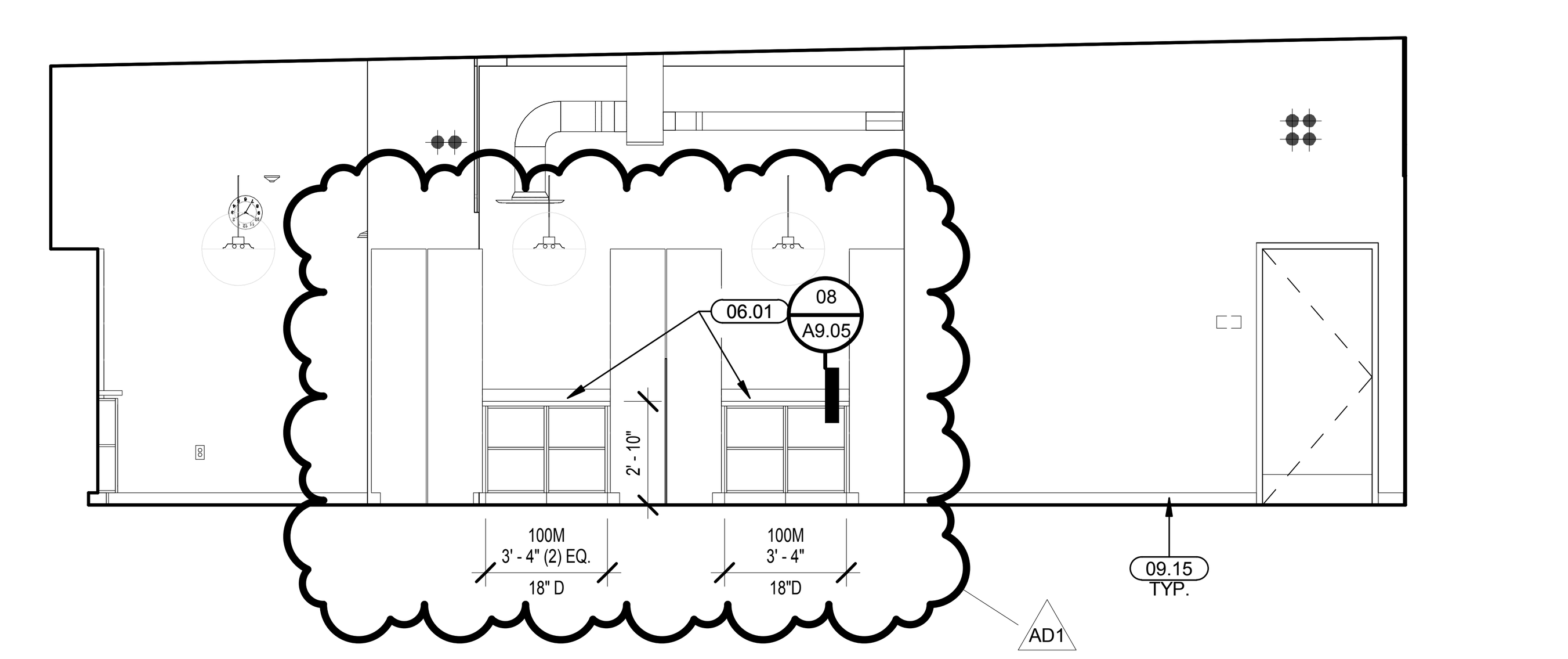
INTERIOR ELEVATION — 1/4" = 1'-0" — H



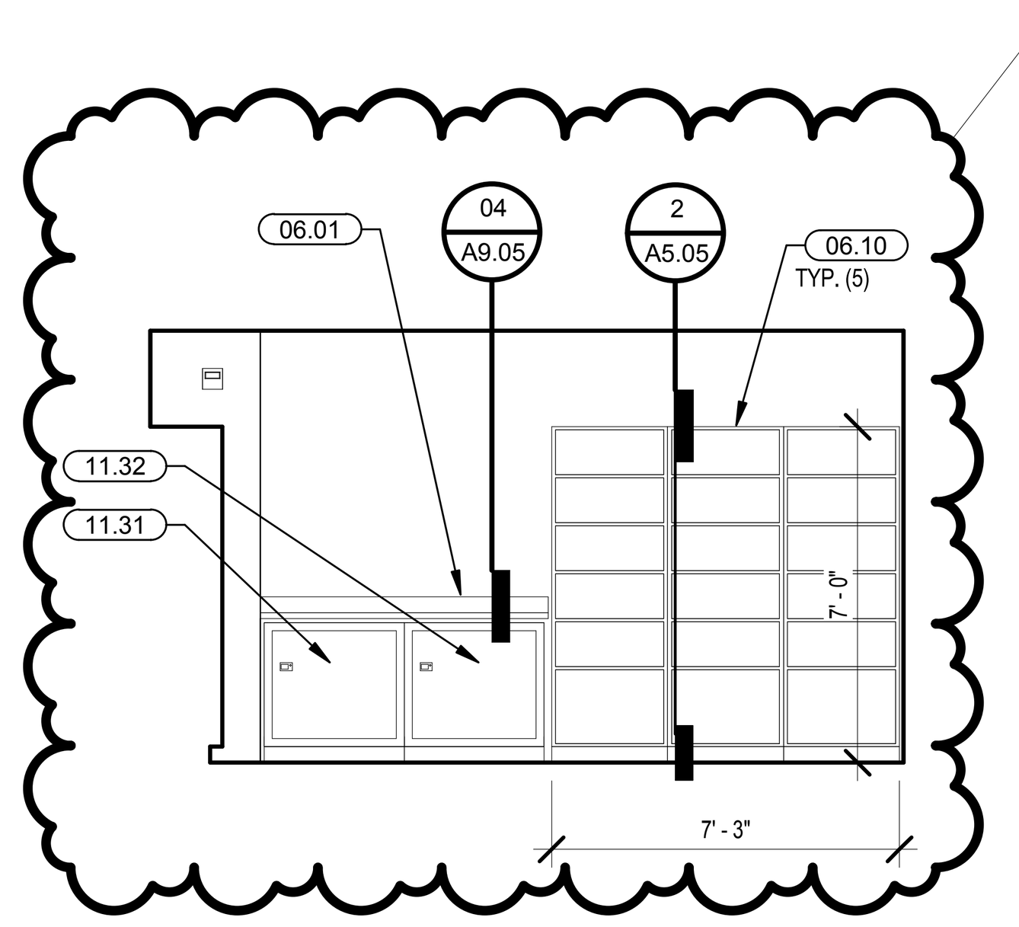
D104 CHEM STORAGE TYP. AISLE — 1/4" = 1'-0" — N



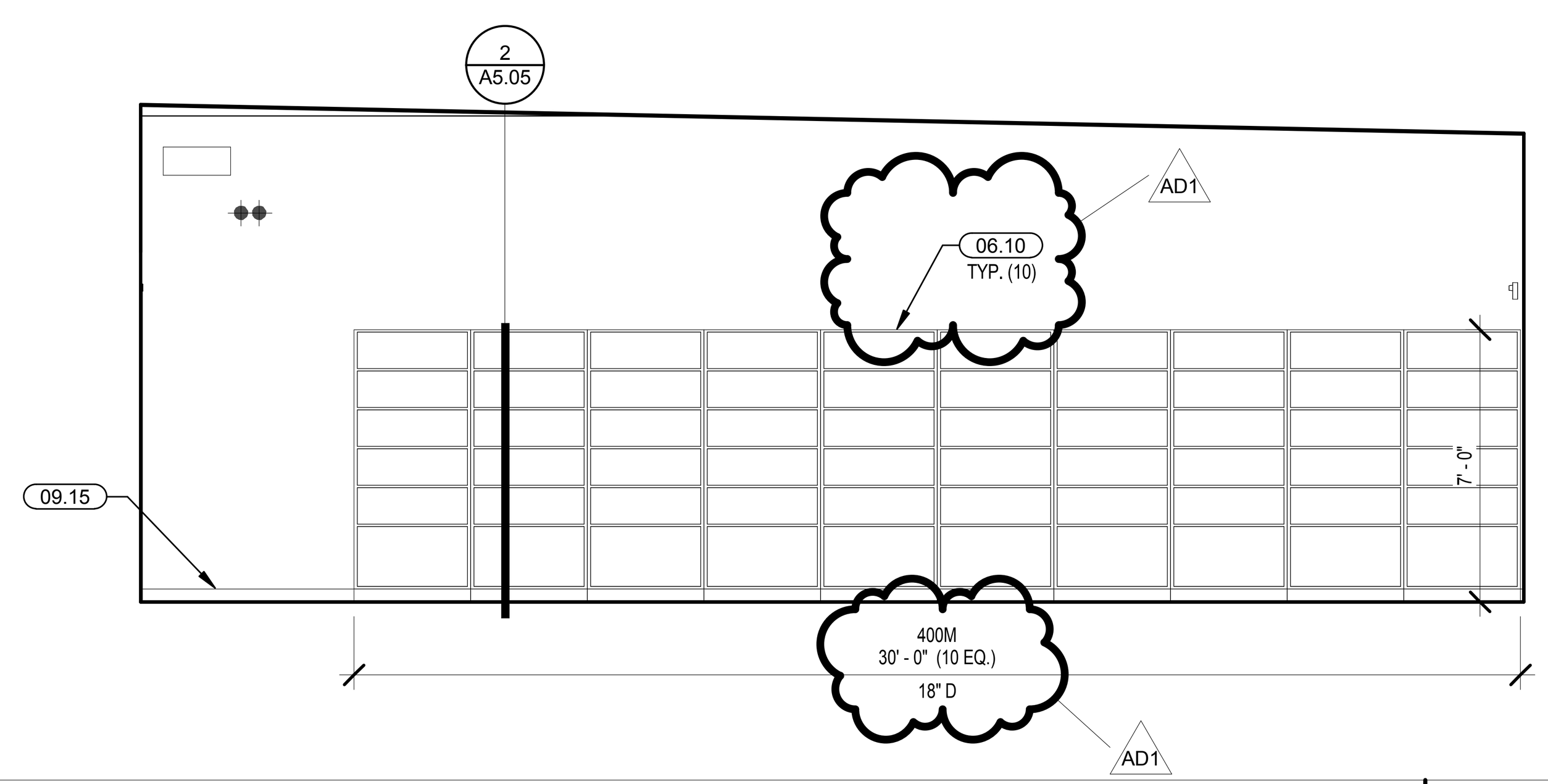
D104 CHEM STORAGE - NORTH — 1/4" = 1'-0" — J



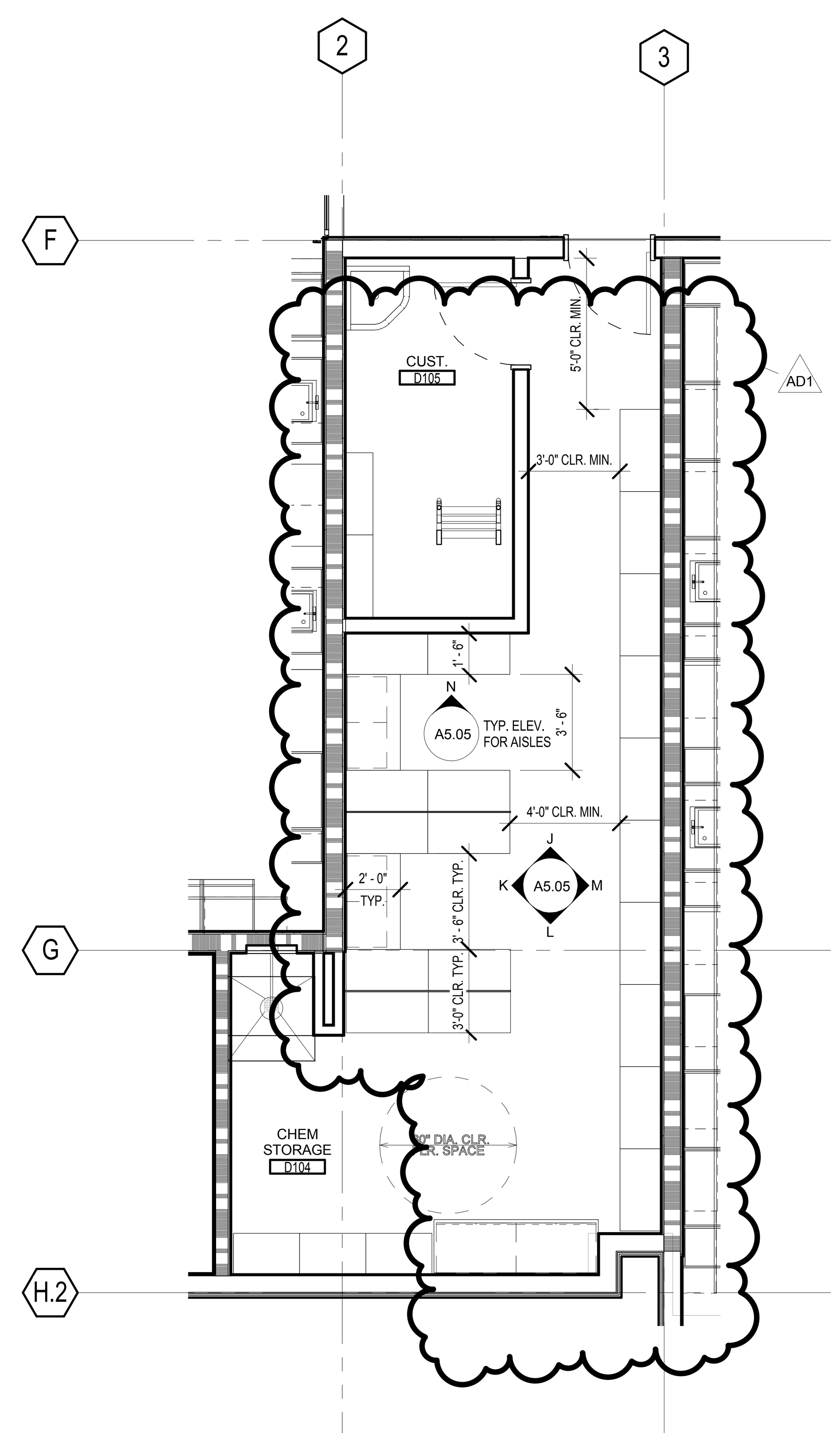
D104 CHEM STORAGE - WEST — 1/4" = 1'-0" — K



D104 CHEM STORAGE - SOUTH — 1/4" = 1'-0" — L



D104 CHEM STORAGE - EAST — 1/4" = 1'-0" — M



ENLARGED PLAN - D104 CHEM STORAGE — 1/4" = 1'-0" — 1

06.01	LAB CASEWORK: EPOXY RESIN COUNTER W/ INTEGRATED BACKSPLASH, REFER TO INTERIOR FINISH PLANS.
06.02	LAB CASEWORK: UPPER & LOWER CABINETS, REFER TO INTERIOR FINISH PLANS
06.08	CASEWORK: FULL HEIGHT CABINET CLOSET, REFER TO INTERIOR FINISH PLANS
06.10	CASEWORK: FULL HEIGHT OPEN SHELVING.
09.15	4" RUBBER BASE
10.01	PEGBOARD AND DRYING RACK
11.05	ADA RESIDENTIAL SIDE-BY-SIDE REFRIGERATOR (N.I.C.)
11.09	ADA DISHWASHER (N.I.C)
11.12	ADA MICROWAVE (N.I.C.)
11.29	LABORATORY FUME HOOD, KEWAUNEE H09-5448B00, OR EQ. , SEE ENGINEER DWGS FOR PLUM., MECH & ELEC. CONNECTIONS.
11.31	CHEMICAL STORAGE CABINET, FLAMMABLES, W/ UL # LISTING 1275. O.F.C.I.
11.32	CHEMICAL STORAGE CABINET, CORROSIVES, W/ UL # LISTING 1275, O.F.C.I.
22.05	SINK - REFER TO PLUMBING FIXTURE SCHEDULE
22.06	ACCESSIBLE SINK - REFER TO PLUMBING FIXTURE SCHEDULE
22.07	ACCESSIBLE TOILET - REFER TO PLUMBING FIXTURE SCHEDULE
22.17	EMERGENCY EYEWASH AND SHOWER STATION, RE: 03/A9.06

AD1

KEYNOTES

SYM.	DESCRIPTION	MANUFACTUER/ITEM NUMBER	REMARKS
A	GRAB BAR, 48"	BOBRICK B-5806 X 48	BACKING RE: **03/A9.02**
B	GRAB BAR, 36"	BOBRICK B-5806 X 36	BACKING RE: **03/A9.02**
C1	TOILET TISSUE DISPENSER	BOBRICK B-3888	SEMI-RECESSED
C2	TOILET TISSUE DISPENSER	O.F.C.I.	SURFACE MTD., FOR NON-ACCESSIBLE STALLS ONLY
C3	DOUBLE SIDED TOILET TISSUE DISPENSER	BOBRICK B-386	SURFACE MTD., FOR SEMI-AMBULATORY & ADJACENT NON-ACCESSIBLE STALLS ONLY
D	TOILET PARTITION COLOR: SC02 DESERT BEIGE	BOBRICK 1090 "SIERRA SERIES"	OVERHEAD BRACED CONT. HINGES, RE: **15/A9.02**
E	URINAL PARTITION COLOR: SC02 DESERT BEIGE	BOBRICK 1090 "SIERRA SERIES"	WALL MTD., CONT. HINGES, RE: **15/A9.02**
F	ELECTRIC HAND DRYER	DYSON AIR BLADE 'V'	SURFACE MTD.
G	SEAT COVER DISPENSER	BOBRICK B-221	SURFACE MTD.
H	MIRROR 24" X 36"	BOBRICK B-165 TYPE 430	SURFACE MTD., FOR STAFF RESTROOMS ONLY
I	LIQUID SOAP DISPENSER	BOBRICK B-2112	SURFACE MTD.
J1	SANITARY NAPKIN DISPOSAL	BOBRICK B-35303	RECESSED
J2	SANITARY NAPKIN DISPOSAL	BOBRICK B-270	SURFACE MTD., FOR NON-ACCESSIBLE STALLS ONLY
K	WALL MOUNTED CLOTHES HOOK	BOBRICK B-2116	SURFACE MTD. AT 48" A.F.F MAX.

TOILET ACCESSORIES SCHEDULE

F.O.F. — FACE OF FINISH
F.O.STD. — FACE OF STUD
F.O.SHTH'G — FACE OF SHEATHING
FLOOR DRAIN
CERAMIC TILE, REFER TO FINISH PLAN .
101 — DENOTES DOOR NUMBER - REFER TO DOOR SCHEDULE, SHEET A6.01

LEGEND

1. FOR INTERIOR FINISHES SEE FINISH FLOOR PLANS, FINISH LEGEND & INTERIOR ELEVATIONS.
2. ALL WALL FINISHES TO BE P-1 AND B-1, U.N.O.
3. ALL GYPSUM BOARD CEILINGS AND SOFFITS TO BE P-1, U.N.O.
4. REFER TO FLOOR PLANS FOR WALL TYPES AND ADDITIONAL INFORMATION.
5. ALL EXPOSED STRUCTURAL STEEL TO BE PAINTED P-1, U.N.O.
6. ALL ACCENT WALL PAINT TO BE TERMINATED AT EITHER INSIDE CORNERS AND/OR REVEALS (SEE ELEVATIONS AS NOTED).
7. ALIGN TILE JOINTS AT PERPENDICULAR WALLS, TYP.
8. ALL WALL BASES IN RESTROOMS TO BE EPOXY COVED, U.N.O.
8. REFER TO SHEET **A4.01** FOR FINISH AND RESTROOM ACCESSORIES SCHEDULE.
9. FOR ACCESSIBLE TOILET FIXTURES AND ACCESSORY MOUNTING HEIGHTS; SEE **01/A9.02**
10. PROVIDE GRAB BAR SUPPORT PER **03/A9.02**
11. FOR TYPICAL DETAILS AT TILE WALL/FLOOR, SEE **16/A9.02**
12. FOR TYPICAL SWITCH & DEVICE ALIGNMENTS AT DOORS, SEE **24/A9.02**
13. ALL CABINETS TO HAVE LOCKS, KEYED PER ROOM.
14. ALL DIMENSIONS OF FIXTURES ARE FROM FACE OF FINISH (F.O.F.) TO CENTER OF FIXTURE U.N.O.
15. "CL" SYMBOL AT WALLS REFERS TO THE CENTERLINE OF THE WALL STUD.
16. ALL WALLS IN SINGLE AND MULTISTALL TOILETS TO RECEIVE FULL HEIGHT CERAMIC TILE SYSTEM.
17. CONTRACTOR TO PROVIDE RECESSED/ SEMI-RECESSED CONDITIONS (WHERE OCCURS) AND COORDINATE MOUNTING LOCATION FOR BACKING PLATES, RE: A9.02
18. SLOPE FINISH FLOOR TO DRAIN 1/8" PER FT. MIN. & 1/4" PER FT. MAX. WHERE INDICATED, SEE SLAB PLANS & RE: **11/A9.11** FOR FLOOR DRAIN DETAILS.
19. REFER TO MANUFACTURER'S TOILET ACCESSORY INSTALLATION AND OTHER MOUNTING INSTRUCTIONS AND PROVIDE WALL BACKING AND OTHER REQUIRED SUPPORT AS INDICATED THEREIN.
20. REFER TO **14/A9.11** FOR ACCESSIBLE STALL AND **15/A9.11** FOR SEMI-AMBULATORY STALL INFORMATION. ALL ACCESSIBLE STALLS: TOILET PARTITION DOOR WIDTHS TO BE 36" (34" MIN. CLEAR) PARTITION STILE WIDTH SHALL NOT EXCEED 4". FLUSH VALVE TO BE LOCATED AT WIDE SIDE OF SPACE.
21. INSTALL ONE COAT HOOK CENTERED ON THE BACK OF EVERY STALL DOOR @ 48" A.F.F.
22. FOR SIGNAGE DETAILS AND MOUNTING HEIGHTS, RE: **A10.11**
23. FOR PARTITION DETAILS, RE: **A9.02**
24. PROVIDE CEMENTIOUS TILE BACKER BOARD AT ALL TILED WALLS.
25. PROVIDE 5/8" MOLD RESISTANT GYP. BD. AT RESTROOM WALLS NOT RECEIVING TILE. PAINT P-1.

GENERAL NOTES

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LICENSED ARCHITECT — DENISE FLATLEY — No. 32467 — 12-31-2017 — REN. — STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
APPL. #: 01-116180
AC / FLS / SS
DATE
FILE NUMBER: 43-H10

BUILDING D SCIENCE AND CLASSROOM BUILDINGS, PIEDMONT HILLS HIGH SCHOOL
1377 PIEDMONT RD
SAN JOSE, CA 95132

Developed for
EAST SIDE UNION HIGH SCHOOL DISTRICT

Revision		Date
AD1	Addendum #1	04.18.17

Submittal	Date
DSA APPROVAL	03/08/17

Job No.	1602010
Date	03/08/2017
Checked by	Checker
Scale	As indicated

INTERIOR ELEVATIONS

A5.05

GENERAL NOTES - LIGHTING FIXTURE/SCHEDULE:

1. ALL LIGHTING FIXTURES SHALL BE LABELED WITH THE APPROPRIATE UL LABEL (DAMP, WET, ETC) AS REQUIRED BY CODES AND LOCAL ORDINANCES.

2. SHOP DRAWING SUBMITTALS SHALL INCLUDE ALL FIXTURES, LAMPS, AND BALLAST INFORMATION. ANY SHOP DRAWINGS WHICH ARE SUBMITTED WITHOUT ANY ONE OF THESE ITEMS WILL BE REJECTED AS INCOMPLETE AND WILL BE REQUIRED TO BE RESUBMITTED WITH THE REQUIRED INFORMATION.

3. ALL LIGHTING FIXTURE SPECIFIC INFORMATION (TYPE, LAMPING, BALLAST, COLOR, MOUNTING, ETC.) HAS BEEN SPECIFIED WITH THE CONSIDERATION OF SPECIFIC PERFORMANCE AND AESTHETIC REQUIREMENTS. ANY SUBSTITUTION OF THE SPECIFIED FIXTURES IS SUBJECT TO THE ARCHITECT AND ENGINEER OF RECORD'S FINAL APPROVAL AND ARE SUBJECT TO THE FOLLOWING CRITERIA:

   a. SUBMIT AN OPERABLE SAMPLE WITH THE SPECIFIED LAMP/BALLAST COMBINATION AND A 120V CORD AND PLUG.

   b. SITE LIGHTING FIXTURES - PROVIDE A COMPLETE PHOTOMETRIC REPORT WHICH INCLUDES THE FOLLOWING INFORMATION ON THE SITE PLAN WHICH CLEARLY IDENTIFIES FOOT-CANDLE LEVELS. PLAN IS TO INCLUDE ALL INPUT DATA UTILIZED IN THE CALCULATION (LAMP/BALLAST TYPE, LAMP LUMENS, LIGHT LOSS FACTOR, ETC.). IN SITUATIONS WHERE SUBSTITUTIONS AFFECT FIXTURES EQUIPPED WITH EMERGENCY BATTERY PACKS, OR OTHER EMERGENCY SOURCES OF POWER, PROVIDE ADDITIONAL PHOTOMETRIC REPORT(S) WHICH CLEARLY IDENTIFY A MINIMUM 1.0 FOOT-CANDLES ALONG THE PATH(S) OF EGRESS - THIS REPORT SHALL ALSO INCLUDE ALL INPUT DATA UTILIZED IN THE CALCULATIONS (FOR FIXTURES UTILIZING AN EMERGENCY BATTERY PACK INCLUDE THE LUMEN RATING AND QUANTITY OF LAMPS FOR THE EMERGENCY BATTERY PACK). SEE BELOW FOR PHOTOMETRIC PLAN GUIDELINES:

      1) POINT BY POINT SPACING IS NOT TO EXCEED 10'-0" IN ANY DIRECTION.
      2) PHOTOMETRIC STUDY IS TO BE BASED ON A MAINTAINED FOOT-CANDLE LEVEL USING MEAN LAMP LUMENS AND THE SAME LIGHT LOSS FACTORS USED IN THE ORIGINAL DESIGN CALCULATIONS PERFORMED BY THE ENGINEER OF RECORD.
      3) ASSOCIATED REPORT TO INCLUDE AN ENERGY COST MODEL WHICH IDENTIFIES ADDITIONAL ENERGY OR ENERGY COSTS FOR A 10-YEAR PERIOD AS COMPARED TO THE SPECIFIED ITEM. ALL ADDITIONAL EXPENSES WILL BE SUBTRACTED FROM THE CONTRACT COST.

   c. INTERIOR LIGHTING FIXTURES - SPECIFIC INTERIOR FIXTURES AS DETERMINED BY THE ENGINEER OF RECORD WILL REQUIRE SUPPLEMENTAL PHOTOMETRIC REPORTS CONFIRMING SUBSTITUTE FIXTURE LIGHT LEVELS EQUAL OR EXCEED DESIGNED LIGHT LEVELS IN SPACES IDENTIFIED. IF THE SUBSTITUTED FIXTURE IS AN EMERGENCY FIXTURE A PHOTOMETRIC REPORT SHALL BE SUBMITTED FOR ALL PATHS OF EGRESS WHICH CLEARLY IDENTIFIES 1.0 MINIMUM FOOT-CANDLES ALONG THE PATH. IN ADDITION, TEST SWITCH MOUNTING (INTEGRAL OR REMOTE) SHALL MATCH THE MOUNTING AS SPECIFIED ON THE DESIGN DOCUMENTS - CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL REQUIRED COVER PLATES, TRIMS, REFLECTORS, ETC NECESSARY FOR THE SPECIFIC TEST SWITCH MOUNTING. ALL REPORTS SHALL INCLUDE INPUT DATA UTILIZED IN THE CALCULATIONS (FOR FIXTURES UTILIZING AN EMERGENCY BATTERY PACK INCLUDE THE LUMEN RATING AND QUANTITY OF LAMPS FOR THE EMERGENCY BATTERY PACK).

      1) PHOTOMETRIC STUDY IS TO BE BASED ON A MAINTAINED FOOT-CANDLE LEVEL USING MEAN LAMP LUMENS AND THE SAME LIGHT LOSS FACTORS USED IN THE ORIGINAL DESIGN CALCULATIONS PERFORMED BY THE ENGINEER OF RECORD.

   d. MANUFACTURER'S CATALOG CUT SHEET WHICH INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING INFORMATION: 1) LAMP TYPES AND QUANTITIES; 2) BALLAST OPTIONS; 3) VOLTAGES; 4) EPA RATING (WHERE APPLICABLE); 5) FIXTURE DIMENSIONS; 5) EMERGENCY BATTERY PACK AND TEST SWITCH OPTIONS (WHERE APPLICABLE); AND 6) FIXTURE FINISHES.

   e. FOR ALL SITE LIGHTING FIXTURES PROVIDE POLE SPECIFICATIONS WITH SUPPLEMENTAL DOCUMENTATION IDENTIFYING POLE SIZE IS RATED ACCORDINGLY BASED ON FIXTURE(S) EPA AND A WIND RATING FOR THE PROJECT ZONE.

   f. A SIGNED COPY OF THE "SUBSTITUTION COMPLIANCE FORM" LOCATED IN THE DIVISION 1 SPECIFICATION WHICH STATES THAT IF THE PROPOSED SUBSTITUTION IS ACCEPTED, THEN THE PROJECT SCHEDULE WILL NOT BE NEGATIVELY AFFECTED. IF THE COMPLETION OF THE PROJECT IS DELAYED DUE TO THE PROPOSED SUBSTITUTION THEN THE ELECTRICAL CONTRACTOR WILL BE RESPONSIBLE FOR ANY AND ALL ESTABLISHED LIQUIDATED DAMAGES.

   g. CONTRACTOR TO PROVIDE ARCHITECT AND ENGINEER OF RECORD WITH ALL SUBSTITUTE INFORMATION REFERENCED ABOVE NO LATER THAN TWO WORKING WEEKS PRIOR TO THE BID DEADLINE.

4. CATALOG NUMBERS AS REFERENCED ON THE FIXTURE SCHEDULE PROVIDE GENERAL FIXTURE INFORMATION. CONTRACTOR SHALL REVIEW LIGHTING PLANS AND SPECIFICATIONS TO VERIFY ALL FIXTURE ASSOCIATED DESIGN INFORMATION. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY PARTS AND PIECES REQUIRED FOR A COMPLETE AND OPERATIONAL INSTALLATION. ANY DISCREPANCIES BETWEEN DESCRIPTIONS, SPECIFICATIONS, AND CATALOG NUMBERS ARE TO BE PRESENTED TO THE ENGINEER OF RECORD PRIOR TO COMPLETION OF THE BID PROCESS FOR CLARIFICATION.

5. ALL COLOR SPECIFIC INFORMATION WHICH RELATES TO LIGHTING FIXTURES AND/OR THEIR RELATED PARTS ARE TO BE REVIEWED AND COMMENTED ON BY THE ARCHITECT. FIXTURES WHICH REQUIRE A CUSTOM COLOR WILL HAVE A CUSTOM COLOR PAINT WHICH WILL BE INCLUDED IN THE ARCHITECT'S SHOP DRAWING REVIEW COMMENTS.

6. ALL LIGHTING EQUIPMENT LOCATIONS ARE TO BE COORDINATED WITH THE ARCHITECTURAL REFLECTED CEILING PLAN PRIOR TO ORDERING AND INSTALLING.

7. ALL FIXTURES TO BE MOUNTED IN FIRE RATED CEILINGS ARE TO BE PROVIDED AND INSTALLED WITH AN APPROVED FIRE RATED ENCLOSURE.

8. ALL FLUORESCENT LIGHTING FIXTURES ARE TO BE SEASONED IN ORDER TO MAXIMIZE LAMP LIFE. CONTINUOUSLY ILLUMINATE LAMPS FOR A NO LESS THAN 30-HOURS UNLESS OTHERWISE SPECIFIED OR REFERENCED BY MANUFACTURER DATA. CONTRACTOR TO RE-LAMP AND REPLACE ALL MALFUNCTIONING LAMPS AND BALLASTS.

9. ENSURE COMPATIBILITY OF ALL DIMMING SYSTEM AND INDIVIDUAL LIGHTING CONTROLS WITH LAMPS, BALLASTS, AND FIXTURES. ALL COMPONENTS ARE TO BE FACTORY CERTIFIED COMPATIBLE FOR A FULL RANGE OF DIMMING.

10. LIGHTING FIXTURE CLEARANCES FROM COMBUSTIBLE MATERIALS ARE TO BE A MINIMUM OF 1/2" (OTHER THAN AT POINTS OF SUPPORT) AND 3" FROM INSULATION FOR NON-IC RATED RECESSED LIGHTING FIXTURES.

11. ALL FLUORESCENT LIGHTING FIXTURES TO BE MOUNTED IN A SUSPENDED CEILING ARE TO BE SUPPORTED BY T-BAR CLIPS AND (2)#12 SUPPORT WIRES ATTACHED TO THE BUILDING FRAME. IN ADDITION, LIGHTING FIXTURES ARE TO BE SECURED TO THE CEILING GRID WITH (4) SHEET METAL SCREWS ((1) AT EACH CORNER OF THE FIXTURE) - SCREWS SHALL BE NEITHER VISIBLE NOR IMPEDE THE INSTALLATION OF CEILING TILES.

12. ALL LIGHTING FIXTURES WHICH ARE TO BE MOUNTED IN FOOD SERVICE AREAS SHALL BE PROVIDED WITH THE FOLLOWING CHARACTERISTICS: DOOR TO FRAME GASKETS; LENS TO FRAME GASKETS; INVERTED LENS; AND A FOOD SERVICE RATING.

13. APPROVED LAMP MANUFACTURERS ARE AS FOLLOWS: OSRAM-SYLVANIA; GE; PHILIPS; AND VENTURE (MH ONLY). BELOW ARE FLUORESCENT LAMP COLOR TEMPERATURE GUIDELINES TO BE USED UNLESS OTHERWISE NOTED OR SPECIFIED:

   - 3500° FOR ALL OPEN AND PRIVATE OFFICE ENVIRONMENTS
   - 3500° FOR ALL SUPPORT AREAS (ELEC/MECH ROOMS, JANITORS CLOSETS, ETC.)
   - 3000° FOR ALL LOBBIES, CORRIDORS, AND FRONT OF HOUSE AREAS

14. ALL FLUORESCENT FIXTURES MUST BE SUPPLIED WITH "QUICK DISCONNECT" SAFETY BALLASTS WHICH ARE UL AND CSA CERTIFIED IN ACCORDANCE WITH NEC 410.73(G) AND CEC 30-308(4).

15. ALL BALLASTS FOR FLUORESCENT AND HID FIXTURES ARE TO BE ELECTRONIC WHEN AVAILABLE. PROVIDE END OF LIFE SHUT DOWN FOR ALL COMPACT FLUORESCENT LAMPS. ADDITIONALLY, ALL BALLASTS ARE TO BE PROVIDED WITH THE REQUIRED UL AND CBM LABELS AND MUST CONFORM TO T-24 STANDARDS AND REQUIREMENTS FOR PERFORMANCE AND EFFICIENCY.

16. ALL FIXTURES, TRIMS, AND LAMPS SHALL BE CLEANED AND FREE FROM DIRT, DUST, LABEL/ADHESIVE, AND FINGER PRINTS.

17. FIXTURES REFERENCED ON THE PLANS TO BE WIRED IN TANDEM (MASTER/SATTELITE) ARE TO BE INSTALLED FOLLOWING THE GUIDELINES REFERENCED BELOW:

   a. FIXTURES ARE TO BE PROVIDED WITH MULTIPLE BALLASTS AS REQUIRED. FIXTURES TO BE PROVIDED WITH FACTORY SPECIFIED AND INSTALLED WIRING HARNESS OF LENGTHS SPECIFIED ON THE PLANS. ALL AREAS WITH TANDEM FIXTURES ARE TO BE PROVIDED WITH THE REQUIRED QUANTITY AND TYPE OF CONTROL DEVICES AS INDICATED ON PLANS.

   b. 3-LAMP FIXTURES TO BE TANDEM WIRED WITH ELECTRONIC BALLAST CONFIGURATIONS AS FOLLOWS:

      1) "M" REFERENCES A MASTER FIXTURE WHICH IS TO PROVIDED WITH (1) 4-LAMP BALLAST WHICH CONTROLS THE OUTBOARD LAMPS; AND (1) 2-LAMP BALLAST WHICH CONTROLS THE INBOARD LAMPS - OF BOTH THE MASTER ("M") AND THE SATELLITE ("S") FIXTURES.

      2) "S" REFERENCES A SATELLITE FIXTURE WHICH IS CONNECTED TO THE MASTER ("M") FIXTURE VIA FACTORY PROVIDED WIRING HARNESS OR WHIP.

      3) "O" REFERENCES AN ODD FIXTURE WHICH IS TO BE PROVIDED WITH (1) 2-LAMP BALLAST WHICH CONTROLS THE OUTBOARD LAMPS; AND (1) 1-LAMP BALLAST WHICH CONTROLS THE INBOARD LAMP.

      4) FIXTURES DESIGNATED AS "EMERGENCY" ARE TO BE PROVIDED WITH THE APPROPRIATE EMERGENCY BATTERY PACK (SEE EMERGENCY BATTERY PACK SPECS BELOW) AND ARE TO BE FED WITH SPECIFIED SWITCH LEGS, AS WELL AS A CONSTANT HOT CIRCUIT. EM BATTERY PACK IS TO BE MOUNTED IN THE MASTER FIXTURE.

      5) CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE APPROPRIATE LAMP AND BALLAST TYPE AND QUANTITY BASED ON THE FIXTURE SPECIFICATION AND SWITCHING CONFIGURATIONS.

18. EMERGENCY LIGHTING FIXTURES AND BATTERY PACKS ARE TO BE PROVIDED BASED ON FOLLOWING THE CRITERIA:

   a. FIXTURES SPECIFIED WITH INTEGRAL EMERGENCY BATTERY PACKS ARE TO BE FED USING THE FOLLOWING GUIDELINES:

      1a,1* - FOR EMERGENCY FIXTURES SPECIFIED WITH AN EMERGENCY BATTERY PACK REPRESENTS A FIXTURE WITH A NORMAL BALLAST TO BE CONNECTED TO SWITCH LEG "a" AND AN EMERGENCY BALLAST TO BE CONNECTED TO A CONSTANT HOT LEG "1" (CONSTANT HOT CIRCUITS ARE TO BE TAPPED AHEAD OF ANY TIME-CLOCK/PHOTO-CELL CONTROLLED DEVICES).

      1* - REPRESENTS ONE OF THE FOLLOWING FIXTURE TYPES WHICH ARE TO BE CONNECTED TO A CONSTANT HOT CIRCUIT "1": a) NORMAL FIXTURE DESIGNATED AS A NIGHT LIGHT (NL); b) EXIT SIGN(S); AND/OR c) AN EMERGENCY FIXTURE EQUIPPED WITH AN EMERGENCY BATTERY PACK WHICH ALSO SPECIFIED TO BE A NIGHT LIGHT. (ALL CONSTANT HOT CIRCUITS ARE TO BE TAPPED AHEAD OF ANY TIME-CLOCK/PHOTO-CELL CONTROLLED DEVICES)

   b. EMERGENCY BATTERY PACKS SHALL BE PROVIDED AND INSTALLED AS FOLLOWS:

FLUORESCENT LINEAR T8 LAMPS: (STANDARD OUTPUT)

8'-0" T8	1-LAMP	1400 LUMENS	BODINE #B50 OR EQUAL
4'-0" T8	1-LAMP	1350 LUMENS	BODINE #B50 OR EQUAL
4'-0" T8	2-LAMP	1350 LUMENS	BODINE #B50 OR EQUAL
3'-0" T8	1-LAMP	1250 LUMENS	BODINE #B50 OR EQUAL
3'-0" T8	2-LAMP	1100 LUMENS	BODINE #B50 OR EQUAL
2'-0" T8	1-LAMP	1050 LUMENS	BODINE #B50 OR EQUAL
2'-0" T8	2-LAMP	950 LUMENS	BODINE #B50 OR EQUAL

FLUORESCENT LINEAR T8 LAMPS: (SUPER SAVER)

4'-0" T8	1-LAMP	1250 LUMENS	BODINE #B50 OR EQUAL
4'-0" T8	2-LAMP	1100 LUMENS	BODINE #B50 OR EQUAL

FLUORESCENT LINEAR T5/T5HO LAMPS:

4'-0" T5HO	1-LAMP	1250 LUMENS	BODINE #LP600 OR EQUAL
3'-0" T5HO	1-LAMP	1125 LUMENS	BODINE #LP600 OR EQUAL
2'-0" T5HO	1-LAMP	725 LUMENS	BODINE #LP600 OR EQUAL
4'-0" T5	1-LAMP	1325 LUMENS	BODINE #LP600 OR EQUAL
3'-0" T5	1-LAMP	1025 LUMENS	BODINE #LP600 OR IEQUAL
2'-0" T5	1-LAMP	750 LUMENS	BODINE #LP600 OR EQUAL

COMPACT FLUORESCENT LAMPS:

13W CFL	1-LAMP	700 LUMENS	BODINE #B84CG OR EQUAL
18W CFL	1-LAMP	900 LUMENS	BODINE #B84CG OR EQUAL
26W CFL	1-LAMP	700 LUMENS	BODINE #B84CG OR EQUAL
32W CFL	1-LAMP	1250 LUMENS	BODINE #B84CG OR EQUAL
42W CFL	1-LAMP	1250 LUMENS	BODINE #B84CG OR EQUAL
57W CFL	1-LAMP	1150 LUMENS	BODINE #B75C OR EQUAL
70W CFL	1-LAMP	1300 LUMENS	BODINE #B75C OR EQUAL

GENERAL NOTES - LIGHTING FIXTURE/SCHEDULE (CONT.):

LED LAMPS:

BODINE #BSL23 OR #BSL722 OR EQUAL IF AVAILABLE

NOTE: ALL LED FIXTURES EQUIPPED WITH EMERGENCY BATTERY PACKS SHALL HAVE THE BATTERY PACKS FACTORY INSTALLED AND TESTED AT THE FIXTURE MANUFACTURER'S FACILITY TO ENSURE UL LISTING OF THE FIXTURE IS MAINTAINED. FIELD INSTALLATION OF LED EMERGENCY BATTERY PACKS IS STRICTLY PROHIBITED. NOTIFY ENGINEER OF RECORD SHOULD SPECIFIED FIXTURE NOT HAVE ADEQUATE SPACE TO ACCOMMODATE THE EMERGENCY BATTERY PACK. CONTRACTOR TO MODIFY BASE BID TO INCLUDE ALL NECESSARY EQUIPMENT FOR A COMPLETE AND OPERATIONAL, ADEQUATELY SIZED MINIATURE INVERTER SYSTEM TO BE MOUNTED IN NEAREST ELECTRICAL ROOM IN THE EVENT THE BATTERY PACK CAN NOT BE INSTALLED IN THE FIXTURE.

NOTE: ALL BATTERY PACKS ARE TO BE FACTORY INSTALLED IN FIXTURE ASSEMBLIES WHEN APPLICABLE. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR CONTACTING FIXTURE MANUFACTURERS TO VERIFY SPECIFIED (OR APPROVED SUBSTITUTE) FIXTURE HAS ADEQUATE SPACE WITHIN THE FIXTURE TO MOUNT THE EMERGENCY BATTERY PACK. IF IT IS DETERMINED THE BATTERY PACK CANNOT BE MOUNTED IN THE FIXTURE THEN CONTRACTOR SHALL INCLUDE ALL COSTS REQUIRED FOR REMOTE MOUNTING THE EMERGENCY BATTERY PACK ABOVE NEAREST ACCESSIBLE CEILING. ENSURE DISTANCE FROM FIXTURE TO REMOTE BATTERY PACK LOCATION DOES NOT EXCEED THE MANUFACTURER'S RECOMMENDED DISTANCES. COORDINATE ALL ACCESS PANELS WITH ARCHITECT OF \ RECORD PRIOR TO INSTALL.

   c. ALL LIGHTING FIXTURES WITH EMERGENCY BATTERY PACKS ARE TO BE PROVIDED WITH INTEGRAL TEST SWITCHES AND CHARGE LIGHTS UNLESS OTHERWISE NOTED OR REQUIRED BY THE AUTHORITY HAVING JURISDICTION (AHJ). IN THE EVENT INTEGRAL TEST SWITCHES ARE NOT ALLOWED NOTIFY ENGINEER OF RECORD PRIOR TO INSTALLATION OF REMOTE TEST SWITCHES. TEST SWITCHES TO BE INSTALLED IN FIXTURES WITH A MINIMUM OF 18" OF ADDITIONAL WIRING TO ALLOW FOR GENERAL FIXTURE MAINTENANCE.

19. INSTALL ALL EXIT SIGNS IN ACCORDANCE WITH THE LOCAL AHJ AND FIRE AUTHORITY. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL REQUIRED PARTS, PIECES, AND MOUNTING HARDWARE FOR EXIT SIGNS, AS WELL AS, ENSURING THE EXIT SIGNS ARE MOUNTED IN AN APPROVED VISIBLE LOCATION. VERIFY ALL REQUIRED CHEVRONS, MIRRORS, AND FACES AS REFERENCED ON THE ARCHITECTURAL REFLECTED CEILING PLAN. NOTIFY ARCHITECT AND ENGINEER OF RECORD OF ANY DISCREPANCIES BETWEEN ARCHITECTURAL AND ELECTRICAL DRAWINGS PRIOR TO ORDERING OF EQUIPMENT.

20. TRACK LIGHTING FIXTURE SPECIFICATIONS ARE TO BE COORDINATED, VERIFIED AND CONFIRMED WITH EQUIPMENT MANUFACTURER AND/OR DISTRIBUTOR PRIOR TO ORDERING AND INSTALLING CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY PARTS AND PIECES FOR A COMPLETE, FUNCTIONAL AND OPERATIONAL INSTALLATION. TRACK LENGTHS ARE AS SPECIFIED ON THE FIXTURE SCHEDULE.

GENERAL NOTES - LIGHTING FIXTURE/SCHEDULE (CONT.):

21. CONTRACTOR SHALL INSTALL ALL LIGHTING FIXTURES PER LOCAL AND NATIONAL BUILDING, ELECTRICAL AND SEISMIC CODES. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL REQUIRED MOUNTING HARDWARE AND BRACING MATERIALS FOR COMPLETE AND CODE COMPLIANT INSTALLATION. COORDINATE REQUIREMENTS WITH AUTHORITY HAVING JURISDICTION PRIOR TO INSTALLATION.

22. CONTRACTOR SHALL COORDINATE ALL LIGHTING FIXTURE LOCATIONS AND QUANTITIES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. IN ADDITION, CONTRACTOR SHALL ALSO COORDINATE ANY FIXTURE SPECIFIC DIMENSIONS WITH ARCHITECTURAL RCP. NOTIFY ARCHITECT AND ENGINEER OF RECORD OF ANY DISCREPANCIES PRIOR TO FINALIZING FIXTURE ORDER WITH THE DISTRIBUTOR.

23. CONTRACTOR TO INCLUDE IN BASE BID A MINIMUM OF 2-HOURS FOR A ONE TIME AIMING AND ADJUSTMENT TIME OF ALL MULTI-HEAD AND DIRECTIONAL FIXTURE ASSEMBLIES. AIMING AND ADJUSTMENT TO BE SCHEDULED FOR AT NIGHT AND AFTER HOURS WITH THE ARCHITECT, ENGINEER, AND OWNER PRESENT. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING AN APPROPRIATE TIME PRIOR TO ORDERING THE FINAL PUNCH WALK FOR THE PROJECT.

24. HIGH INTENSITY DISCHARGE (HID) BALLAST REQUIREMENTS ARE TO FOLLOW THE GUIDELINES REFERENCED BELOW:

   a. ALL HID BALLASTS ARE TO BE HIGH POWER FACTOR ENCAPSULATED CORE & COIL, CORE & COIL, OR F-CAN TYPE. FOR FIXTURES 175W AND LOWER BALLASTS ARE TO BE PROVIDED WITH A CLASS "A" OR BETTER SOUND RATING; FOR FIXTURES WITH 175W TO 400W BALLASTS ARE TO HAVE A CLASS "B" SOUND RATING. ALL HID BALLASTS ARE TO HAVE A ZERO DEGREE MINIMUM START TEMPERATURE. ALL FIXTURES WITH METAL HALIDE LAMPS RATED AT 150W OR LESS SHALL BE PROVIDED WITH ELECTRONIC HID BALLASTS. ALL FIXTURES WITH LAMPS RATED FROM 175W TO 500W ARE TO BE PROVIDED WITH PULSE START METAL HALIDE BALLASTS PER SECTION 1602, CCR TITLE 20 EFFICIENCY STANDARD.

   b. IGNITER SELECTION FOR REMOTE HID BALLASTS ARE TO BE COORDINATED WITH THE FIXTURE MANUFACTURER'S ON A PER FIXTURE BASIS AND ARE TO BE DETERMINED USING THE DISTANCE REQUIREMENTS FOR EACH FIXTURE. IN INSTANCES WHERE DISTANCE LIMITATIONS FOR ELECTRONIC HID BALLASTS EXCEED OPERATING REQUIREMENTS THE USE OF MAGNETIC BALLASTS IS PERMITTED FOR FIXTURE WATTAGES OF 150W OR LESS.

25. SUPPLEMENTARY OVERCURRENT PROTECTION PANEL FOR TRACK LIGHTING SYSTEMS TO BE PROMINENTLY LABELED AS FOLLOWS:

NOTICE: THIS PANEL FOR TRACK LIGHTING ENERGY CODE COMPLIANCE ONLY. THE OVERCURRENT PROTECTION DEVICES IN THIS PANEL SHALL ONLY BE REPLACED WITH THE SAME OR LOWER AMPERAGE. NO OTHER OVERCURRENT PROTECTIVE DEVICE SHALL BE ADDED TO THIS PANEL. ADDING TO, OR REPLACEMENT OF EXISTING OVERCURRENT PROTECTIVE DEVICE(S) WITH HIGHER CONTINUOUS AMPERE RATING, WILL VOID THE PANEL LISTING AND REQUIRE RESUBMITTAL AND RE-CERTIFICATION OF CALIFORNIA TITLE 24, PART 6 COMPLIANCE DOCUMENTATION.

LIGHTING FIXTURE SCHEDULE

			Electrical			Source					Manufacturer					
Type	Name	Description	Apparent Load	Voltage	Driver	Type	Lumens	CCT	CRI	Condition	Name	Model Number	Equal 1	Equal 2	Finish	Location
LC1-2	2' Concealed Undercabinet Light	"AlumLEDs ALS50T" series with mounting channel, 2'-0" in length, frosted lens, 4w/lf, 0-10V dimming, indoor condition.	8 VA	277 V	Remote 0-10V dimming driver	LED	540lm/lf	3500K	90	Interior	CALI LIGHTING	#ALS50T-F-[Finish]-LED-3.5K-6W-10V-SO-DRY-277-2'; MOUNTING CHANNEL: ALS50T-MC-1	Optic Arts "Flex DC44" + "CHS-S-1715-CF"	Feelux "FLX Stix NDPro"		Science Labs Undercabinets
LC1-3	3' Concealed Undercabinet Light	"AlumLEDs ALS50T" series with mounting channel, 3'-0" in length, frosted lens, 4w/lf, 0-10V dimming, indoor condition.	12 VA	277 V	Remote 0-10V dimming driver	LED	540lm/lf	3500K	90	Interior	CALI LIGHTING	#ALS50T-F-[Finish]-LED-3.5K-6W-10V-SO-DRY-277-3'; MOUNTING CHANNEL: ALS50T-MC-1	Optic Arts "Flex DC44" + "CHS-S-1715-CF"	Feelux "FLX Stix NDPro"		Science Labs Undercabinets
LC1-4	4' Concealed Undercabinet Light	"AlumLEDs ALS50T" series with mounting channel, 4'-0" in length, frosted lens, 4w/lf, 0-10V dimming, indoor condition.	16 VA	277 V	Remote 0-10V dimming driver	LED	540lm/lf	3500K	90	Interior	CALI LIGHTING	#ALS50T-F-[Finish]-LED-3.5K-6W-10V-SO-DRY-277-4'; MOUNTING CHANNEL: ALS50T-MC-1	Optic Arts "Flex DC44" + "CHS-S-1715-CF"	Feelux "FLX Stix NDPro"		Science Labs Undercabinets
LC1-5	5' Concealed Undercabinet Light	"AlumLEDs ALS50T" series with mounting channel, 5'-0" in length, frosted lens, 4w/lf, 0-10V dimming, indoor condition.	20 VA	277 V	Remote 0-10V dimming driver	LED	540lm/lf	3500K	90	Interior	CALI LIGHTING	#ALS50T-F-[Finish]-LED-3.5K-6W-10V-SO-DRY-277-5'; MOUNTING CHANNEL: ALS50T-MC-1	Optic Arts "Flex DC44" + "CHS-S-1715-CF"	Feelux "FLX Stix NDPro"		Science Labs Undercabinets
LC1-7	7' Concealed Undercabinet Light	"AlumLEDs ALS50T" series with mounting channel, 7'-0" in length, frosted lens, 4w/lf, 0-10V dimming, indoor condition.	28 VA	277 V	Remote 0-10V dimming driver	LED	540lm/lf	3500K	90	Interior	CALI LIGHTING	#ALS50T-F-[Finish]-LED-3.5K-6W-10V-SO-DRY-277-7'; MOUNTING CHANNEL: ALS50T-MC-1	Optic Arts "Flex DC44" + "CHS-S-1715-CF"	Feelux "FLX Stix NDPro"		Science Labs Undercabinets
LC1-8	8' Concealed Undercabinet Light	"AlumLEDs ALS50T" series with mounting channel, 8'-0" in length, frosted lens, 4w/lf, 0-10V dimming, indoor condition.	32 VA	277 V	Remote 0-10V dimming driver	LED	540lm/lf	3500K	90	Interior	CALI LIGHTING	#ALS50T-F-[Finish]-LED-3.5K-6W-10V-SO-DRY-277-8'; MOUNTING CHANNEL: ALS50T-MC-1	Optic Arts "Flex DC44" + "CHS-S-1715-CF"	Feelux "FLX Stix NDPro"		Science Labs Undercabinets
LC1-10	10' Concealed Undercabinet Light	"AlumLEDs ALS50T" series with mounting channel, 10'-0" in length, frosted lens, 4w/lf, 0-10V dimming, indoor condition.	40 VA	277 V	Remote 0-10V dimming driver	LED	540lm/lf	3500K	90	Interior	CALI LIGHTING	#ALS50T-F-[Finish]-LED-3.5K-6W-10V-SO-DRY-277-10'; MOUNTING CHANNEL: ALS50T-MC-1	Optic Arts "Flex DC44" + "CHS-S-1715-CF"	Feelux "FLX Stix NDPro"		Science Labs Undercabinets
LC1-15	15' Concealed Undercabinet Light	"AlumLEDs ALS50T" series with mounting channel, 15'-0" in length, frosted lens, 4w/lf, 0-10V dimming, indoor condition.	56 VA	277 V	Remote 0-10V dimming driver	LED	540lm/lf	3500K	90	Interior	CALI LIGHTING	#ALS50T-F-[Finish]-LED-3.5K-6W-10V-SO-DRY-277-14'; MOUNTING CHANNEL: ALS50T-MC-1	Optic Arts "Flex DC44" + "CHS-S-1715-CF"	Feelux "FLX Stix NDPro"		Science Labs Undercabinets
LC1-18	18' Concealed Undercabinet Light	"AlumLEDs ALS50T" series with mounting channel, 18'-0" in length, frosted lens, 4w/lf, 0-10V dimming, indoor condition.	68 VA	277 V	Remote 0-10V dimming driver	LED	540lm/lf	3500K	90	Interior	CALI LIGHTING	#ALS50T-F-[Finish]-LED-3.5K-6W-10V-SO-DRY-277-17'; MOUNTING CHANNEL: ALS50T-MC-1	Optic Arts "Flex DC44" + "CHS-S-1715-CF"	Feelux "FLX Stix NDPro"		Science Labs Undercabinets
LC1-20	20' Concealed Undercabinet Light	"AlumLEDs ALS50T" series with mounting channel, 20'-0" in length, frosted lens, 4w/lf, 0-10V dimming, indoor condition.	80 VA	277 V	Remote 0-10V dimming driver	LED	540lm/lf	3500K	90	Interior	CALI LIGHTING	#ALS50T-F-[Finish]-LED-3.5K-6W-10V-SO-DRY-277-20'; MOUNTING CHANNEL: ALS50T-MC-1	Optic Arts "Flex DC44" + "CHS-S-1715-CF"	Feelux "FLX Stix NDPro"		Science Labs Undercabinets
LC1-24	24' Concealed Undercabinet Light	"AlumLEDs ALS50T" series with mounting channel, 24'-0" in length, frosted lens, 4w/lf, 0-10V dimming, indoor condition.	96 VA	277 V	Remote 0-10V dimming driver	LED	540lm/lf	3500K	90	Interior	CALI LIGHTING	#ALS50T-F-[Finish]-LED-3.5K-6W-10V-SO-DRY-277-24'; MOUNTING CHANNEL: ALS50T-MC-1	Optic Arts "Flex DC44" + "CHS-S-1715-CF"	Feelux "FLX Stix NDPro"		Science Labs Undercabinets
LC1-25	25' Concealed Undercabinet Light	"AlumLEDs ALS50T" series with mounting channel, 25'-0" in length, frosted lens, 4w/lf, 0-10V dimming, indoor condition.	100 VA	277 V	Remote 0-10V dimming driver	LED	540lm/lf	3500K	90	Interior	CALI LIGHTING	#ALS50T-F-[Finish]-LED-3.5K-6W-10V-SO-DRY-277-25'; MOUNTING CHANNEL: ALS50T-MC-1	Optic Arts "Flex DC44" + "CHS-S-1715-CF"	Feelux "FLX Stix NDPro"		Science Labs Undercabinets
LC1-30	30' Concealed Undercabinet Light	"AlumLEDs ALS50T" series with mounting channel, 30'-0" in length, frosted lens, 4w/lf, 0-10V dimming, indoor condition.	116 VA	277 V	Remote 0-10V dimming driver	LED	540lm/lf	3500K	90	Interior	CALI LIGHTING	#ALS50T-F-[Finish]-LED-3.5K-6W-10V-SO-DRY-277-29'; MOUNTING CHANNEL: ALS50T-MC-1	Optic Arts "Flex DC44" + "CHS-S-1715-CF"	Feelux "FLX Stix NDPro"		Science Labs Undercabinets
LC1-32	32' Concealed Undercabinet Light	"AlumLEDs ALS50T" series with mounting channel, 32'-0" in length, frosted lens, 4w/lf, 0-10V dimming, indoor condition.	128 VA	277 V	Remote 0-10V dimming driver	LED	540lm/lf	3500K	90	Interior	CALI LIGHTING	#ALS50T-F-[Finish]-LED-3.5K-6W-10V-SO-DRY-277-32'; MOUNTING CHANNEL: ALS50T-MC-1	Optic Arts "Flex DC44" + "CHS-S-1715-CF"	Feelux "FLX Stix NDPro"		Science Labs Undercabinets
LC1-36	36' Concealed Undercabinet Light	"AlumLEDs ALS50T" series with mounting channel, 36'-0" in length, frosted lens, 4w/lf, 0-10V dimming, indoor condition.	140 VA	277 V	Remote 0-10V dimming driver	LED	540lm/lf	3500K	90	Interior	CALI LIGHTING	#ALS50T-F-[Finish]-LED-3.5K-6W-10V-SO-DRY-277-35'; MOUNTING CHANNEL: ALS50T-MC-1	Optic Arts "Flex DC44" + "CHS-S-1715-CF"	Feelux "FLX Stix NDPro"		Science Labs Undercabinets
LC1-37	37' Concealed Undercabinet Light	"AlumLEDs ALS50T" series with mounting channel, 37'-0" in length, frosted lens, 4w/lf, 0-10V dimming, indoor condition.	148 VA	277 V	Remote 0-10V dimming driver	LED	540lm/lf	3500K	90	Interior	CALI LIGHTING	#ALS50T-F-[Finish]-LED-3.5K-6W-10V-SO-DRY-277-37'; MOUNTING CHANNEL: ALS50T-MC-1	Optic Arts "Flex DC44" + "CHS-S-1715-CF"	Feelux "FLX Stix NDPro"		Science Labs Undercabinets
LC3-58	58' Concealed Tapelight (Up)	"AlumLEDs ALS50T" series with mounting channel, length per plan, semi-frosted lens, 8w/lf, 0-10V dimming, indoor condition.	116 VA	277 V	Remote 0-10V dimming driver	LED	720lm/lf	3500K	90	Interior	CALI LIGHTING	#ALS50T-SF-WH-LED-3.5K-8W-10V-MO-DRY-277V-[See Plans For Lengths]; MOUNTING CHANNEL: ALS50T-MC-1	Optic Arts "Flex DC88" + "CHS-S-1715-CF"	Luminii "LineLED + Extrustion"		Life Skills Classroom
LC3-85	85' Concealed Tapelight (Up)	"AlumLEDs ALS50T" series with mounting channel, length per plan, semi-frosted lens, 8w/lf, 0-10V dimming, indoor condition.	172 VA	277 V	Remote 0-10V dimming driver	LED	720lm/lf	3500K	90	Interior	CALI LIGHTING	#ALS50T-SF-WH-LED-3.5K-8W-10V-MO-DRY-277V-[See Plans For Lengths]; MOUNTING CHANNEL: ALS50T-MC-1	Optic Arts "Flex DC88" + "CHS-S-1715-CF"	Luminii "LineLED + Extrustion"		Life Skills Classroom
LN1-2	25' Multi-Head Event Pole (2 Heads)	"Olivio Grande LED Sistema Arm Mount", 44 degree medium flood optics, 2 mounting arms, 58w nominal light engine/head, silver finish, 0-10V dimming option; plus 26' 7" to 4" diameter tapered aluminum pole, silver finish, 2 rivnut pairs, BC10 die cast base cover.	116 VA	277 V	Integral 0-10V driver	LED	4430lm	3000K	80+	Exterior	SELUX	#OLGL-F40-SS2-L58-30-SV-277-DM + #O-AT74-156-29-SV-RN2-BC10	None Known	None Known	Silver	Site (Courtyard)
LN1-3	25' Multi-Head Event Pole (3 Heads)	"Olivio Grande LED Sistema Arm Mount", 44 degree medium flood optics, 3 mounting arms, 58w nominal light engine/head, silver finish, 0-10V dimming option; plus 26' 7" to 4" diameter tapered aluminum pole, silver finish, 3 rivnut pairs, BC10 die cast base cover.	174 VA	277 V	Integral 0-10V driver	LED	4430lm	3000K	80+	Exterior	SELUX	#OLGL-F40-SS3-L58-30-SV-277-DM + #O-AT74-156-29-SV-RN3-BC10	None Known	None Known	Silver	Site (Courtyard)
LN1-5	25' Multi-Head Event Pole (5 Heads)	"Olivio Grande LED Sistema Arm Mount", 44 degree medium flood optics, 5 mounting arms, 58w nominal light engine/head, silver finish, 0-10V dimming option; plus 26' 7" to 4" diameter tapered aluminum pole, silver finish, 3 rivnut pairs, BC10 die cast base cover.	290 VA	277 V	Integral 0-10V driver	LED	4430lm	3000K	80+	Exterior	SELUX	#OLGL-F40-SS5-L58-30-SV-277-DM + #O-AT74-156-29-SV-RN5-BC10	None Known	None Known	Silver	Site (Courtyard)
LN2	16' Pedestrian Pole	"Astro 1" series, Type III distribution, single head, 500mA/50W light engine, 18' power cord length, silver finish, 0-10V dimming option; plus 16' 5" to 4" diameter tapered aluminum pole, silver finish, BC3 die cast base cover.	50 VA	277 V	Integral 0-10V driver	LED	8365lm	3000K	80+	Exterior	SELUX	#AST1-R3-1-LG4500-30-18'-SV-277-DM; POLE: #AT54-16-SV-BC3	None Known	None Known	Silver	Site (Pathways)
LP1	4' Pendant Mounted Strip Light	"ZL2N" series with medium diffuser and 36" hanger chain	41 VA	277 V	Integral 0-10V driver	LED	3000lm	3500K	80+	Interior	LITHONIA	#ZL2N-L48 3000LM-MDD-MVOLT-35K-80CRI-WH + #HC36	Metalux "SNLED"	Columbia "SLC"	White	BOH
LP2-24	24' Pendant Mounted Linear Direct/Indirect	"Seem 4 LED Direct/Indirect" with satin flush lens, single circuit, 0-10V - 10% dimming, 43w/4ft (dn); 29w/4ft (up)	432 VA	277 V	Integral 0-10V dimming driver to 10%	LED	875lm/4ft (dn); 625lm/4ft (up)	3500K	80+	Interior	FOCAL POINT	#FSM4BS-FL-875DN-625UP-35K-1C-UNV-LD1-[Mounting]-[Finish]-24'	Mark Lighting "Slot 4 LED PSW"	Alight "Accolade D3"		Classrooms/Science Labs
LP3-20	20' Pendant Mounted Linear Direct	"Seem 4 LED Direct" with flush satin lens, single circuit, 0-10V - 10% dimming, 43w/4ft	215 VA	277 V	Integral 0-10V dimming driver to 10%	LED	875lm/4ft	3500K	80+	Interior	FOCAL POINT	#FSM4LS-FL-875DN-35K-1C-UNV-LD1-[Mounting]-[Finish]-20'	Mark Lighting "Slot 4 LED PSW"	Alight "Accolade D3"		Classrooms
LR1	2'x4' Recessed Direct/Indirect	"Whisper LED" 2x4 with normal output, soft white acrylic center and side shields, 0-10V - 10% dimming	63 VA	277 V	Integral 0-10V dimming driver to 10%	LED	7500lm	3500K	80+	Interior	MARK LIGHTING	#WHSL-24-N-35-MIN10-277-SWC-SWO	Focal Point "Equation 2"	Finelite "HPR"	White	Science Lab Prep Rooms
LR2	24' Recessed Linear Wallwasher	"Seem 4 Asymmetric LED" with flushed satin lens, single circuit, 0-10V - 1% dimming, 29w/4ft	174 VA	277 V	Integral 0-10V dimming driver to 1%	LED	625lm/4ft	3500K	80+	Interior	FOCAL POINT	#FSM4AL-FL-625LF-35K-1C-UNV-L11-[Ceiling Configuration]-WH-24'	Mark Lighting "Slot LED 4 Wallwasher"	Selux "M36 Wallwasher"	White	Classrooms (Teaching Wall)
LR3-28	28' Recessed Linear	"Seem 4 LED" with flush satin lens, single circuit, 0-10V - 10% dimming, 43w/4ft. Provide emergency circuit for 4' sections. Refer to plan for locations.	301 VA	277 V	Integral 0-10V dimming driver to 10%	LED	875lm/4ft	3500K	80+	Interior	FOCAL POINT	#FSM4L-FL-875LF-35K-1C-UNV-LD1-[Ceiling Configuration]-WH-28'	Mark Lighting "Slot LED 4"	Alight "Accolade D5"	White	Classroom D119
LR4	6" Recessed Downlight	"Evo" with medium wide distribution, 0-10V - 10% dimming	19 VA	277 V	Integral 0-10V dimming driver to 10%	LED	1500lm	3000K	80+	Exterior	GOTHAM	#EVO-35-15-6AR-MWD-LSS-MVOLT-EZ10	Portfolio Lighting "LD6B"	Lightolier "Calculite LED 6"	Clear Aperture Trim/Semi-Specular Reflector	General Throughout
LR5	6" Recessed Downlight (Wet)	"Evo" with medium wide distribution, 0-10V - 10% dimming	19 VA	277 V	Integral 0-10V dimming driver to 10%	LED	1500lm	3000K	80+	Exterior	GOTHAM	#EVO-35-15-6AR-MWD-LSS-MVOLT-EZ10	Portfolio Lighting "LD6B"	Lightolier "Calculite LED 6"		Exterior Canopies/Interior gyp. soffits
LS1	6" Surface Mounted Downlight	"Evo Cylinder" with medium wide distribution, 0-10V - 10% dimming	19 VA	277 V	Integral 0-10V dimming driver to 10%	LED	1500lm	3000K	80+	Exterior	GOTHAM	#EVO-CYL-35-15-6AR-MWD-LSS-MVOLT-EZ10-FCM	Portfolio Lighting	None Known	Housing finish TBD/Clear Aperture Trim/Semi-Specular Reflector	Stair Landing
LS2-20	20' Surface Mounted Linear	"Seem 4 LED" with flush satin lens, single circuit, 0-10V - 10% dimming, 43w/4ft, surfcace mount, matte white finish, 20' length.	215 VA		Integral 0-10V dimming driver to 10%	LED	875lm/4ft	3500K	80+	Interior	FOCAL POINT	#FSM4LS-FL-875LF-35K-1C-UNV-LD1-SM-WH-20'	Mark Lighting "Slot 4 LED PSW"	Alight "Accolade D3"	White	Classroom D201
XR1	Recessed Exit Sign	"ES Series" housing/trim panel for AC version, single face, recessed ceiling mounting, [color] LED to be confirmed	5 VA	277 V	n/a	LED	n/a	n/a	n/a	Interior	SURE-LITES	#ESH6-1-ES76-1-WH-[LETTERS/BACKGROUND TBD]-C	Lithonia "LRP"	PHILIPS "45VX"	Trim finish - White; Letters/ Background finish TBD	Classroom Exit Signs - Ceiling Mounted

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JAMES MONTROSS
No. 12272
09/30/2018

IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICE
APPL. #: 01-116180
AC ________ FLS ________ SS ________
DATE ________
FILE NUMBER: 43-H10

BUILDING D SCIENCE AND CLASSROOM BUILDINGS, PIEDMONT HILLS HIGH SCHOOL

1377 PIEDMONT RD
SAN JOSE, CA 95132

Developed for
EAST SIDE UNION HIGH SCHOOL DISTRICT

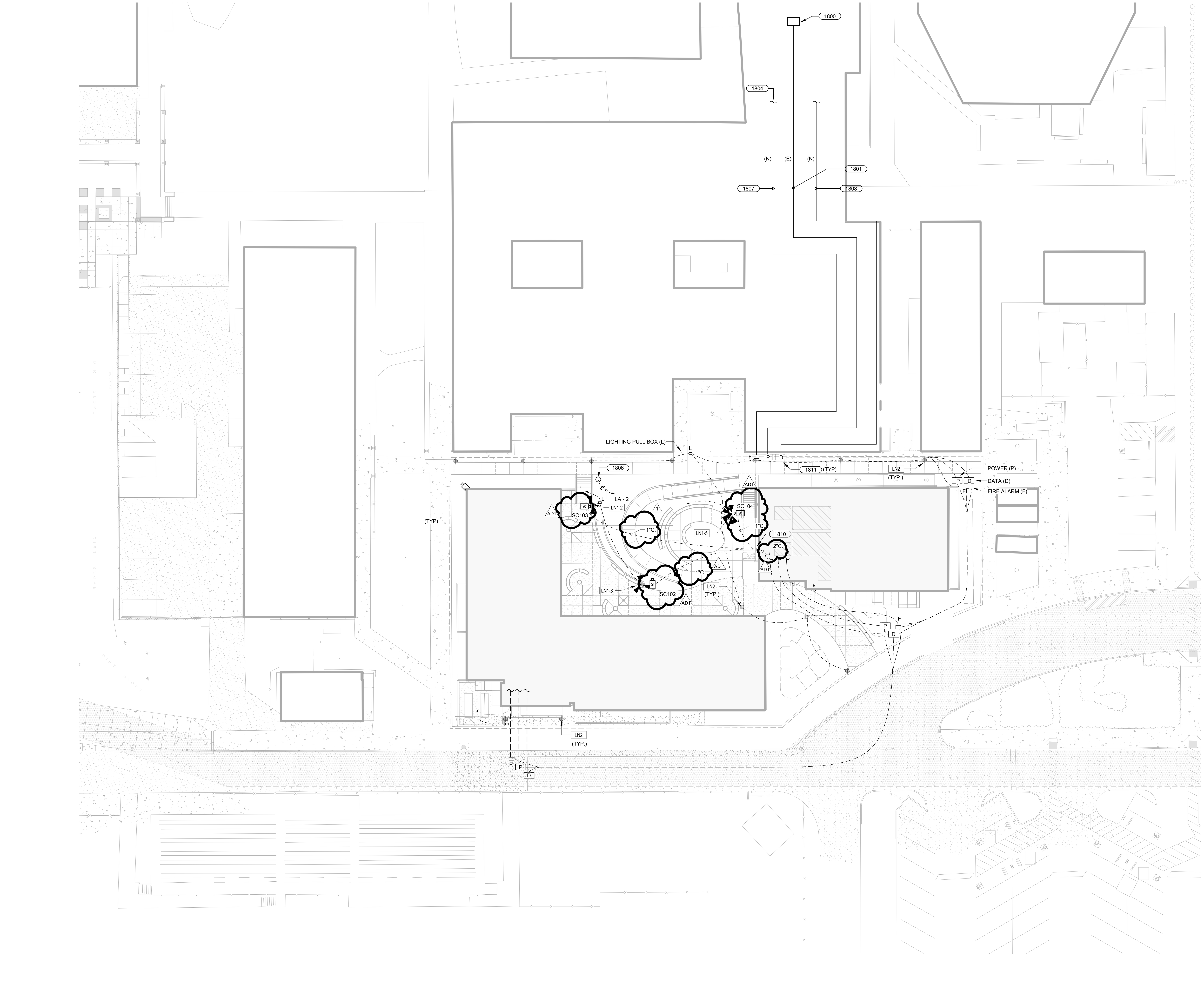
Revision		Date
AD1	Addendum 1	04/18/17

Submittal	Date
SCHEMATIC DESIGN	03/18/16
DESIGN DEVELOPMENT	05/10/16
50% CONSTRUCTION DOCUMENTS	06/15/16
85% CONSTRUCTION DOCUMENTS	07/27/16
DSA SUBMITTAL	08/12/16
DSA APPROVAL	03/08/17

Job. No.	1602010
Date	03/08/2017
Checked by	Checker
Scale	

LIGHTING FIXTURE SCHEDULE

E0.20



ELECTRICAL SITE PLAN 1" = 20'-0" 1

KEYNOTES

1800 APPROXIMATE LOCATION OF EXISTING LOAD CENTER NO. 4 IN THE LIBRARY BUILDING E MECHANICAL ROOM E5.

1801 EXISTING (2)4" CONDUITS ON ON ROOF. USE EXISTING (2)4" CONDUITS WHERE POSSIBLE TO ROUTE NEW FEEDERS FROM LOAD CENTER NO. 4 TO NEW DISTRIBUTION BOARDS DB1 AND DB2. EXTEND CONDUITS AS NEEDED TO REACH DISTRIBUTION BOARDS WITHIN THE NEW BUILDINGS. SEE SINGLE LINE DIAGRAM ON E5.00 FOR FEEDER AND BREAKER SIZES.

1802 FEEDER CONDUIT ROUTE UNDERGROUND

1804 NEW FEEDER TO EXISTING MAIN FACP IN ADMIN BUILDING.

1806 POWER CONNECTION FOR IRRIGATION CONTROLLER. COORDINATE EXACT LOCATION AND DETAILS WITH LANDSCAPE DRAWINGS.

1807 NEW (1)4" CONDUIT FOR FIRE ALARM TO ELECTRICAL ROOM IN NEW BUILDINGS. ROUTE ALONG EXISTING CONDUITS FOR POWER.

1808 NEW (1)4" CONDUIT FOR LOW VOLTAGE CABLING TO MDF ROOM IN NEW BUILDINGS. ROUTE ALONG EXISTING CONDUITS FOR POWER. SEE LOW VOLTAGE DRAWINGS FOR MORE DETAILS.

1810 10"X17"X12" HANDHOLE PULL BOX. NON-TRAFFIC RATED LID. LABEL: COMMUNICATIONS.

1811 ROUTE CONDUITS FROM ROOF DOWN TO PULL BOX ON THE FLOOR. FIRE ALARM, POWER AND DATA.

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BUILDING D SCIENCE AND CLASSROOM BUILDINGS, PIEDMONT HILLS HIGH SCHOOL

1377 PIEDMONT RD
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Developed for
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50% CONSTRUCTION DOCUMENTS	06/15/16
95% CONSTRUCTION DOCUMENTS	07/27/16
DSA SUBMITTAL	08/12/16
DSA APPROVAL	03/08/17

Job. No.	1602010
Date	03/08/2017
Checked by	Checker
Scale	1" = 20'-0"

ELECTRICAL SITE PLAN

E1.11

KEYNOTES

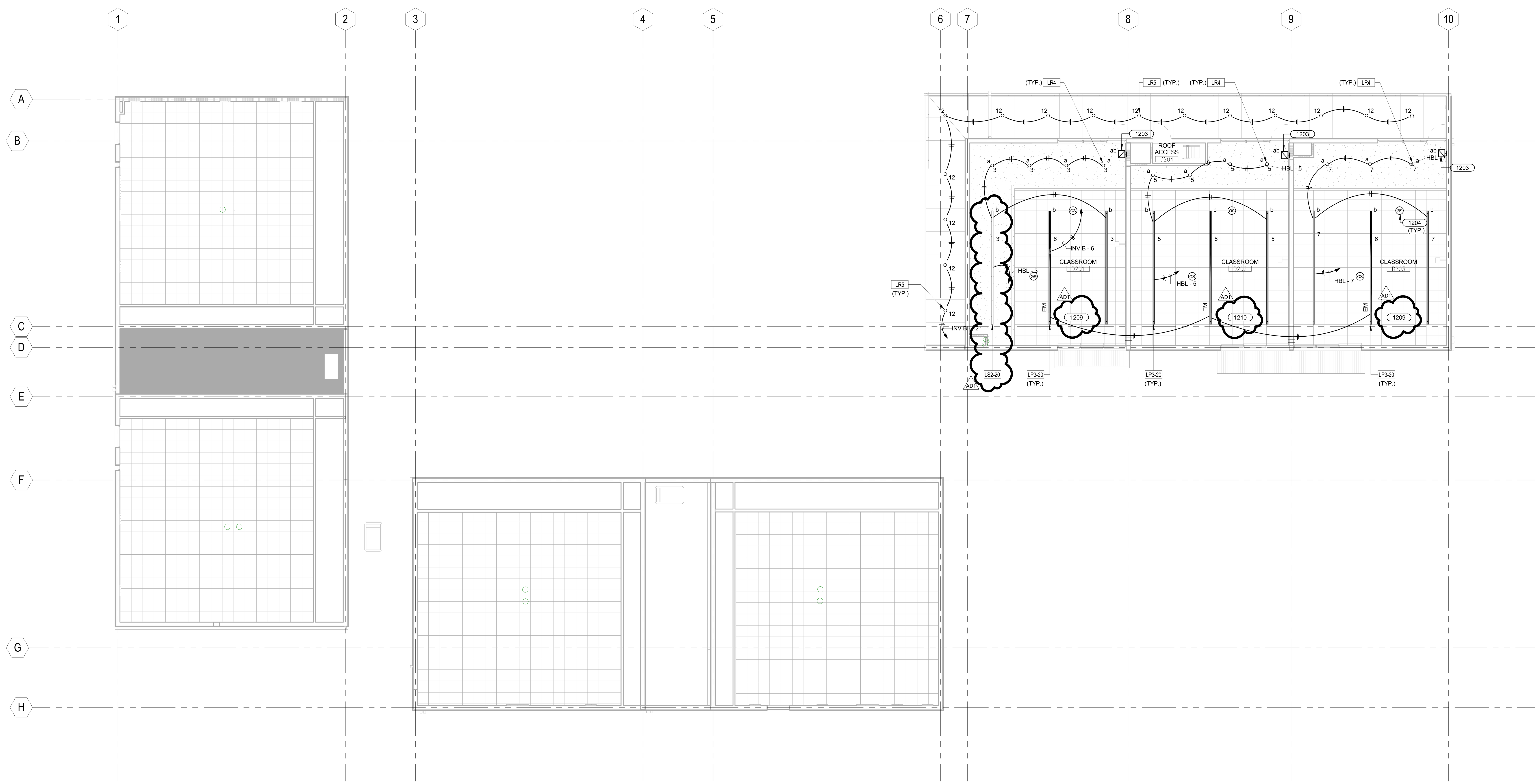
1203 LOW VOLTAGE WALL SWITCH AT ROOM ENTRY. SEE DETAIL 1/E0.31 FOR TYPICAL CLASSROOM LIGHTING CONTROL WIRING DIAGRAM.

1204 OCCUPANCY SENSOR SHALL CONTROL ALL LIGHTS IN THIS ROOM.

1209 SUSPEND PENDANT MOUNTED LP3-20 FIXTURES AT 8'-8" A.F.F. TO BOTTOM OF FIXTURE.

1210 SUSPEND PENDANT MOUNTED LP3-20 FIXTURES AT 8'-0" A.F.F. TO BOTTOM OF FIXTURE.

AD1



2 - SECOND FLOOR LIGHTING PLAN 1/8" = 1'-0" 1

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DSA APPROVAL	03/08/17

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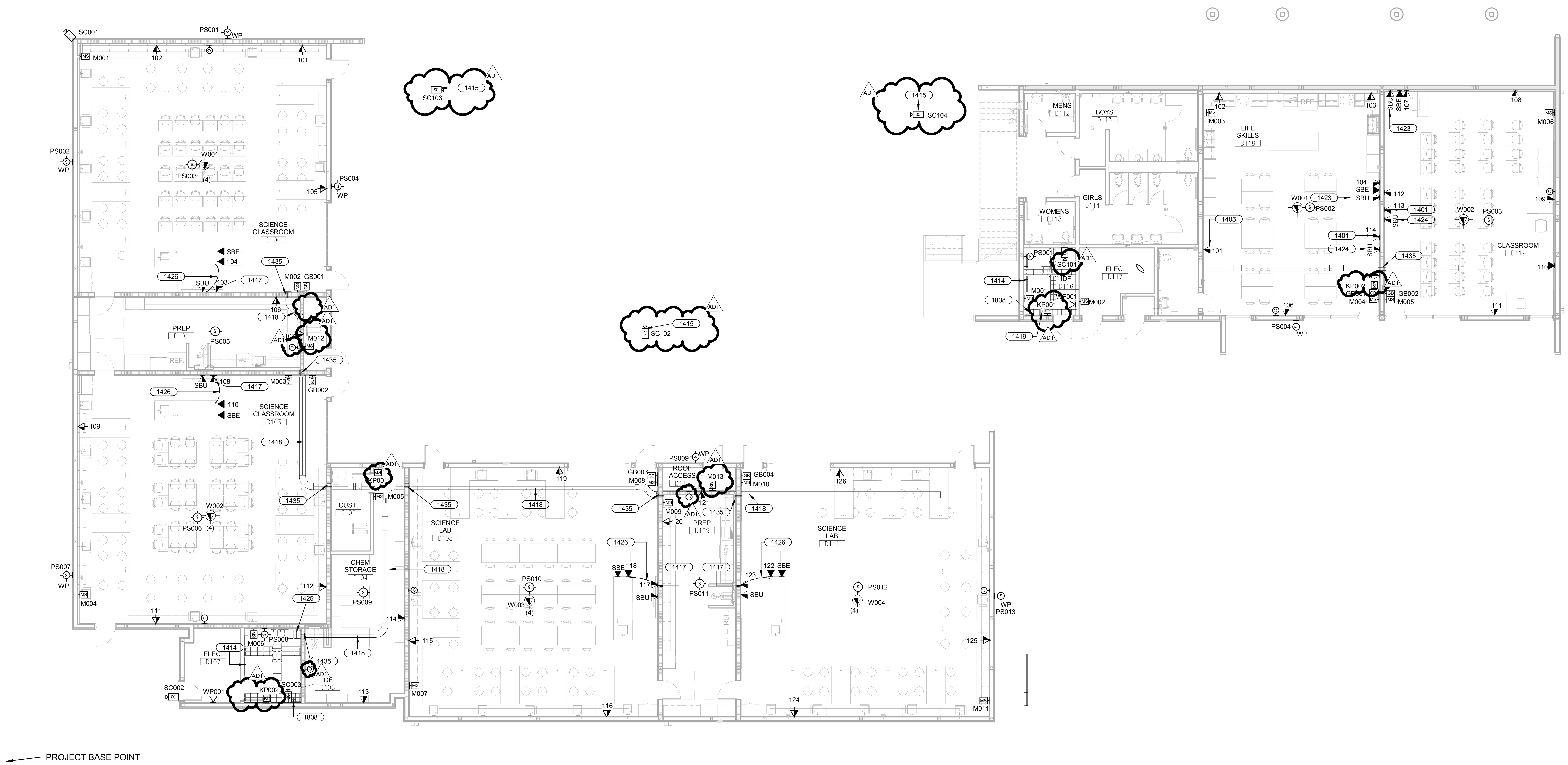
SECOND FLOOR LIGHTING PLAN

E2.12

KEYNOTES

1401	PROVIDE DATA CONNECTION FOR SHORT THROW PROJECTOR. COORDINATE ELEVATION WITH ARCHITECTURAL DRAWINGS.
1405	TYPE "A" CONNECTION. MOUNT ABOVE FINISHED COUNTER. COORDINATE HEIGHT WITH ELECTRICAL OUTLETS.
1414	INTRUSION DETECTION PANELS AND POWER SUPPLY.
1415	SECURITY CAMERAS MOUNTED TO OUTDOOR LIGHT POLES. SEE SITE PLANS FOR DETAILS.
1417	PROVIDE DATA CONNECTION FOR WALL MOUNTED LCD TV. MOUNT 54" A.F.F.
1418	4" X 12" WIRE BASKET CABLE TRAY. BOND ALL SECTIONS AND GROUND PER TIA STANDARDS.
1419	PROVIDE (2) 4" CONDUITS, ONE(1) 2" CONDUIT FROM FIRST FLOOR IDF TO SECOND FLOOR CABLE TRAY.
1423	PROVIDE 2-GANG J-BOX W/ MUD RING MOUNTED AT +18" A.F.F. FOR PROJECTOR AUXILIARY CONNECTIONS. CONNECT TO PROJECTOR J-BOX VIA 1-1/4" C.
1424	PROVIDE 2-GANG J-BOX W/ MUD RING MOUNTED BEHIND SHORT THROW PROJECTOR FOR PROJECTOR AUXILIARY CONNECTIONS. CONNECT TO J-BOX VIA 1-1/4" C. SEE KEYNOTE 1423 THIS PAGE. COORDINATE HEIGHT WITH ARCHITECTURAL DRAWINGS.
1425	LADDER RACK TRANSITION TO WIRE BASKET CABLE TRAY ABOVE.
1426	PROVIDE (2) 1 1/2" CONDUITS FROM AV BOX IN CASEWORK. (1) SHALL BE STUBBED 6" ABOVE WALL AND (1) SHALL BE CONNECTED TO AV BOX BEHIND TV.
1435	PROVIDE (2) 4" SLEEVES THROUGH SHEAR WALL. REFER TO DETAIL 10/T4.00
1808	NEW (1)4" CONDUIT FOR LOW VOLTAGE CABLING TO MDF ROOM IN NEW BUILDINGS. ROUTE ALONG EXISTING CONDUITS FOR POWER. SEE LOW VOLTAGE DRAWINGS FOR MORE DETAILS.



LOW VOLTAGE FIRST LEVEL 1/8" = 1'-0" 1

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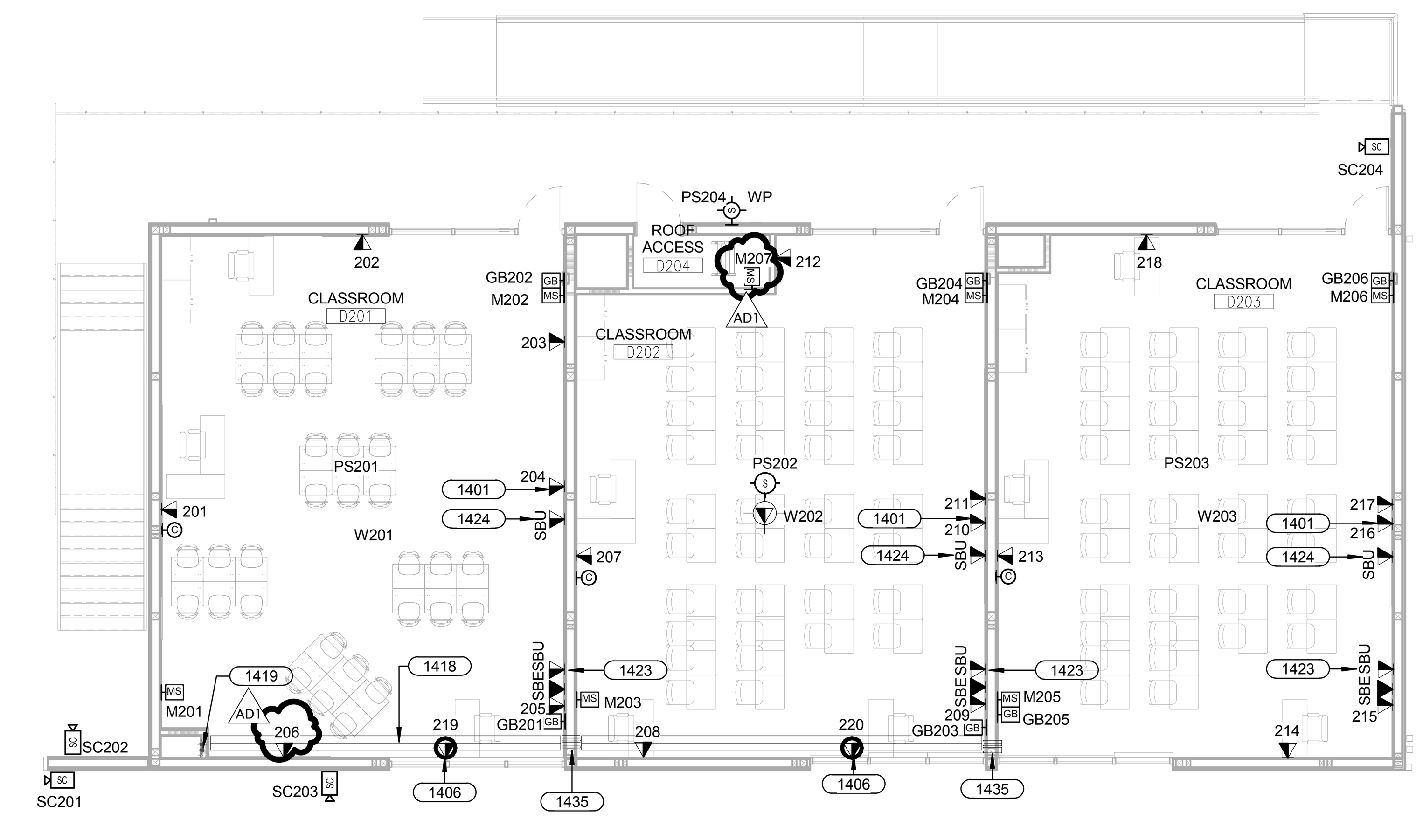
TECHNOLOGY FLOOR PLAN - 1ST LEVEL

T2.11

KEYNOTES

1401	PROVIDE DATA CONNECTION FOR SHORT THROW PROJECTOR. COORDINATE ELEVATION WITH ARCHITECTURAL DRAWINGS.
1406	PROVIDE DATA OUTLETS IN FLOOR BOX
1418	4" X 12" WIRE BASKET CABLE TRAY. BOND ALL SECTIONS AND GROUND PER TIA STANDARDS.
1419	PROVIDE (2) 4" CONDUITS. ONE(1) 2" CONDUIT FROM FIRST FLOOR IDF TO SECOND FLOOR CABLE TRAY.
1423	PROVIDE 2-GANG J-BOX W/ MUD RING MOUNTED AT +18" A.F.F. FOR PROJECTOR AUXILIARY CONNECTIONS. CONNECT TO PROJECTOR J-BOX VIA 1-1/4" C.
1424	PROVIDE 2-GANG J-BOX W/ MUD RING MOUNTED BEHIND SHORT THROW PROJECTOR FOR PROJECTOR AUXILIARY CONNECTIONS. CONNECT TO J-BOX VIA 1-1/4" C. SEE KEYNOTE 1423 THIS PAGE. COORDINATE HEIGHT WITH ARCHITECTURAL DRAWINGS.
1435	PROVIDE (2) 4" SLEEVES THROUGH SHEAR WALL. REFER TO DETAIL 10/T4.00



LOW VOLTAGE SECOND LEVEL 1/8" = 1'-0" 1

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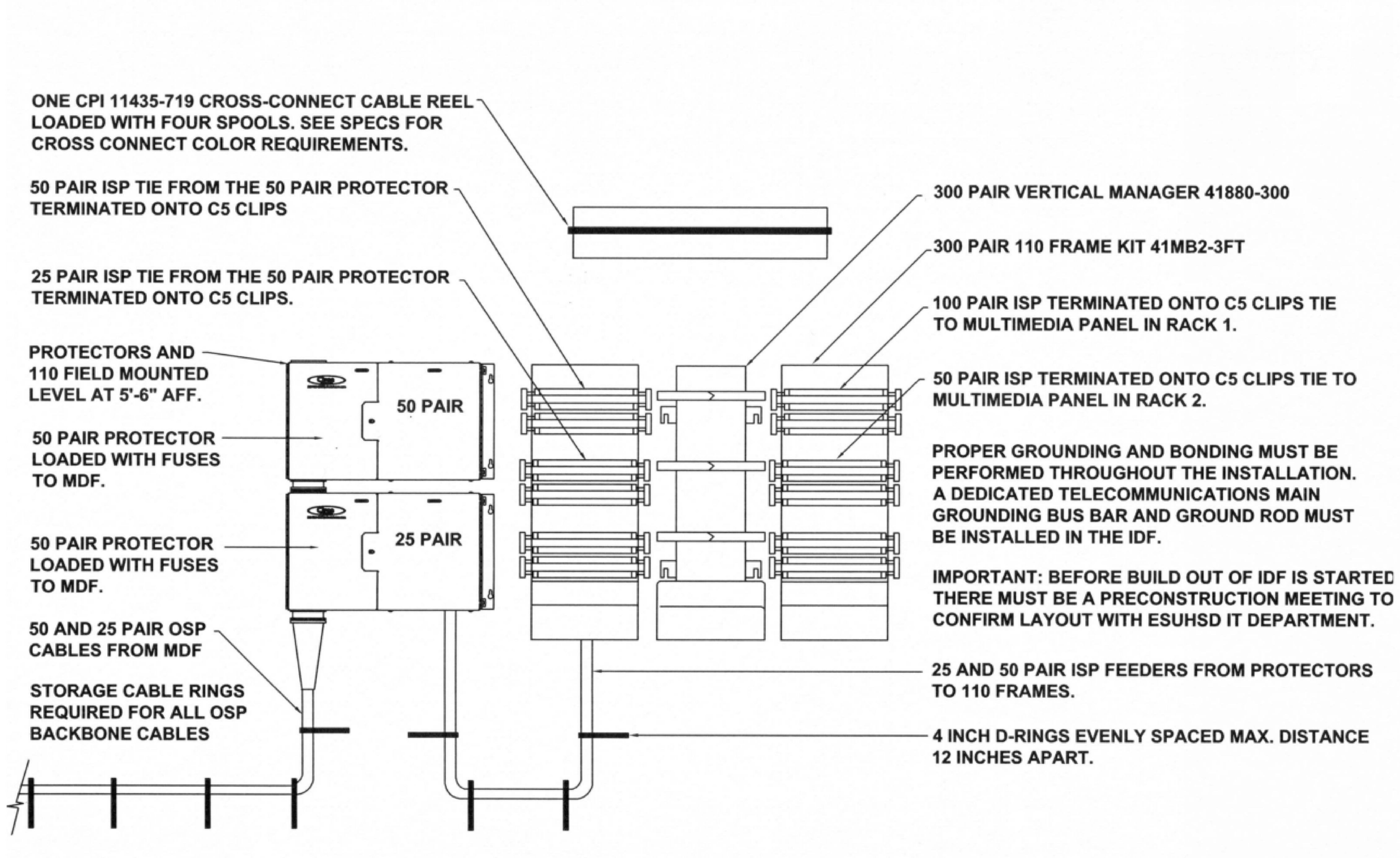
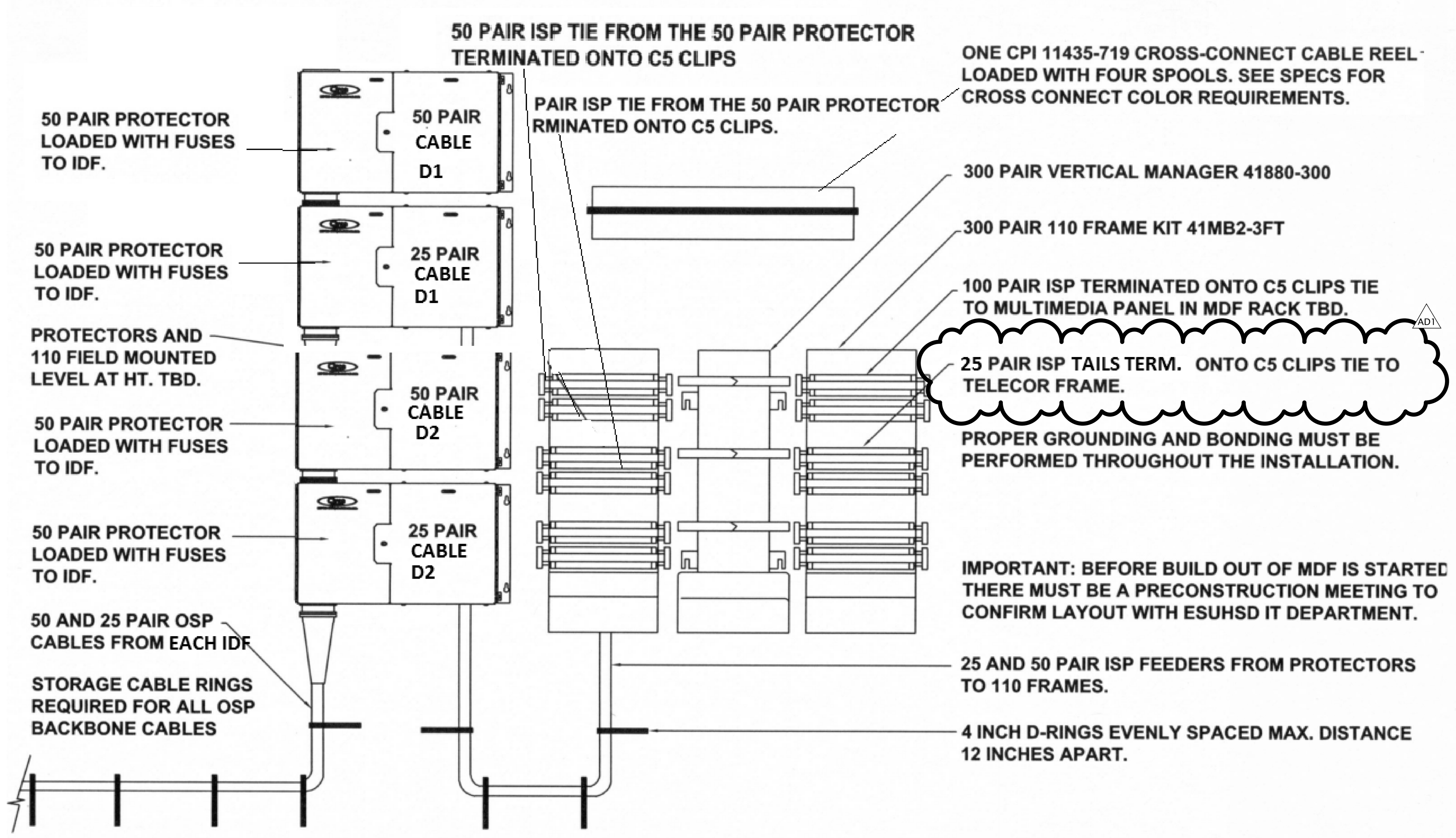
TECHNOLOGY FLOOR PLAN - 2ND LEVEL

T2.21



IDF COPPER BACKBONE ELEVATION STANDARD

ESUHSD IT GUIDELINES 12-1-11



MDF COPPER BACKBONE ELEVATION STANDARD

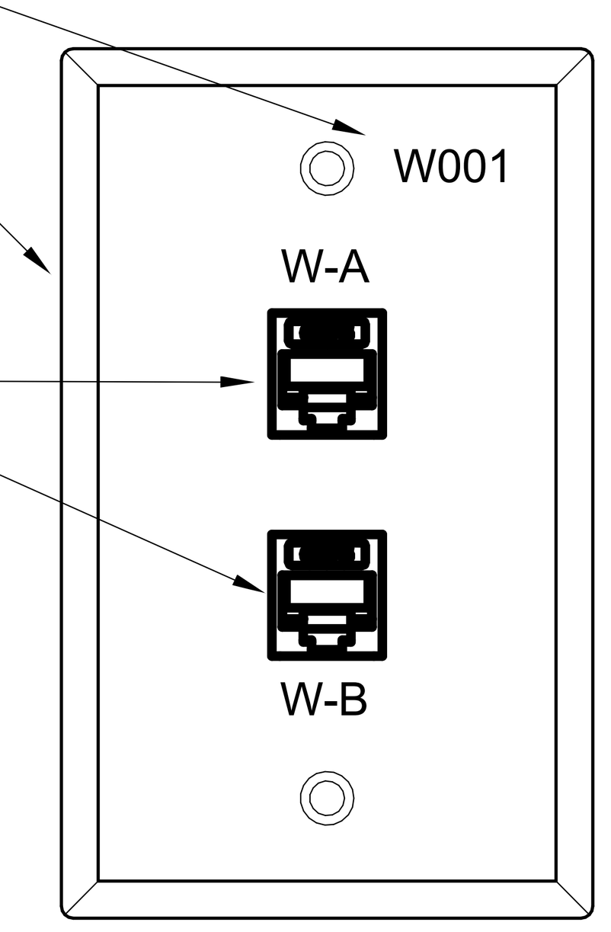
ESUHSD IT GUIDELINES 12-1-11

LABEL FONT SIZE 4MM BOLD, BLACK ON WHITE $\frac{3}{8}$" LABELING TAPE.

LEVITON QUICK PORT 2 PORT FACE PLATE 41080-2IP.

TWO GREEN LEVITON JACKS 61110-RV6.

TWO GREEN BERK-TEK CAT 6E CABLES INSTALLED TO EACH TYPE "D" LOCATION. EACH CABLE IS TO BE LABELED ON BOTH ENDS WITH IT'S STATION ID APPROX. 2 INCH BEFORE TERMINATION POINTS.



NOTE: THE FACE PLATE IS TO BE SECURED TO A SINGLE GANG LEVITON BACK BOX 42777-1IA. THEN COILED AND SUPPORTED NEATLY ABOVE THE CEILING WITH A 10 FOOT SERVICE LOOP 1 FOOT IN DIAMETER. A GREEN AVERY LABEL #5463 AND A STATION LABEL UTILIZING THE SAME FONT SIZE AS ON THE FACE PLATE MUST BE PLACED ON THE CEILING GRID DIRECTLY BELOW THE LOCATION.

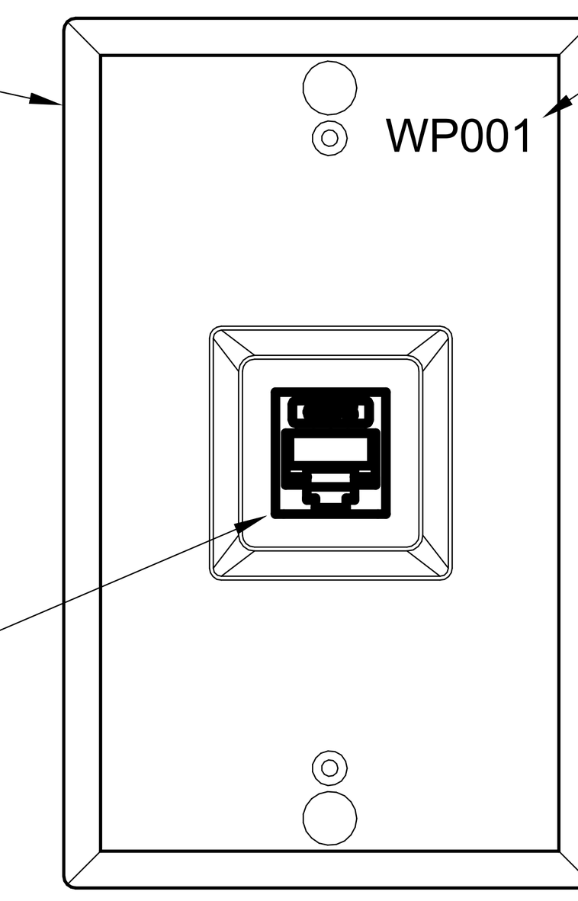
TYPE "D" WIRELESS LOCATION DETAIL

TYPE "D" DETAIL 12" = 1'-0" 4

QUICK PORT STAINLESS STEEL WALLPHONE WALLPLATE RECESSED, 1 PORT 4108W-0SP

MUST MEET ADA REQUIREMENTS FOR MOUNTING HEIGHT AND MUST HAVE 8" CLEARANCE ON EITHER SIDE FROM CENTER OF JACK.

ONE BLUE LEVITON JACK 61110-RL6



LABEL FONT SIZE 4MM BOLD, BLACK ON WHITE $\frac{3}{8}$" LABELING TAPE.

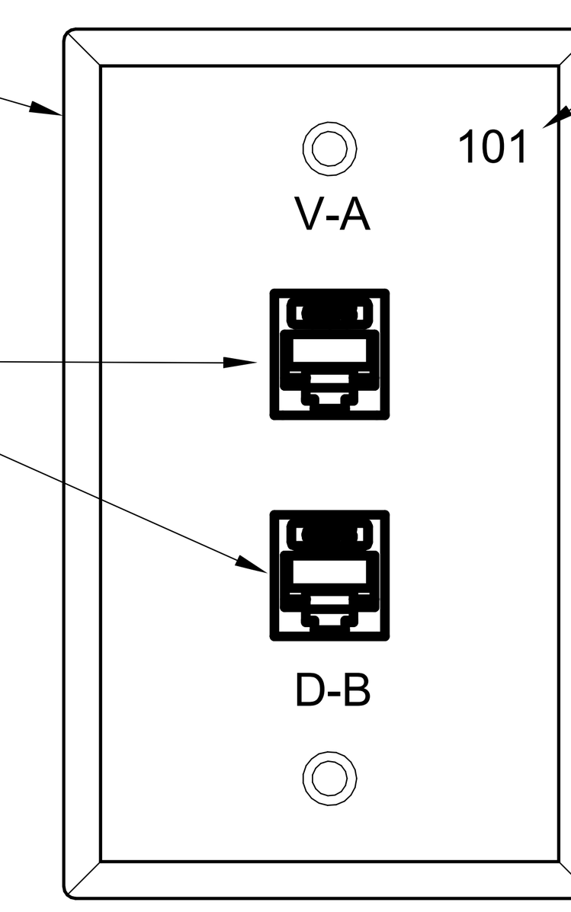
ONE BLUE BERK-TEK CAT 6E CABLES INSTALLED TO EACH TYPE "C" STATION. EACH CABLE IS TO BE LABELED ON BOTH ENDS WITH IT'S STATION ID APPROX. 2 INCH BEFORE TERMINATION POINTS.

TYPE "C" WALL PHONE LOCATION DETAIL

TYPE "C" DETAIL 12" = 1'-0" 3

QUICK PORT 2 PORT FACE PLATE 43080-1S2

TWO BLUE LEVITON JACKS 61110-RL6



LABEL FONT SIZE 4MM BOLD, BLACK ON WHITE $\frac{3}{8}$" LABELING TAPE.

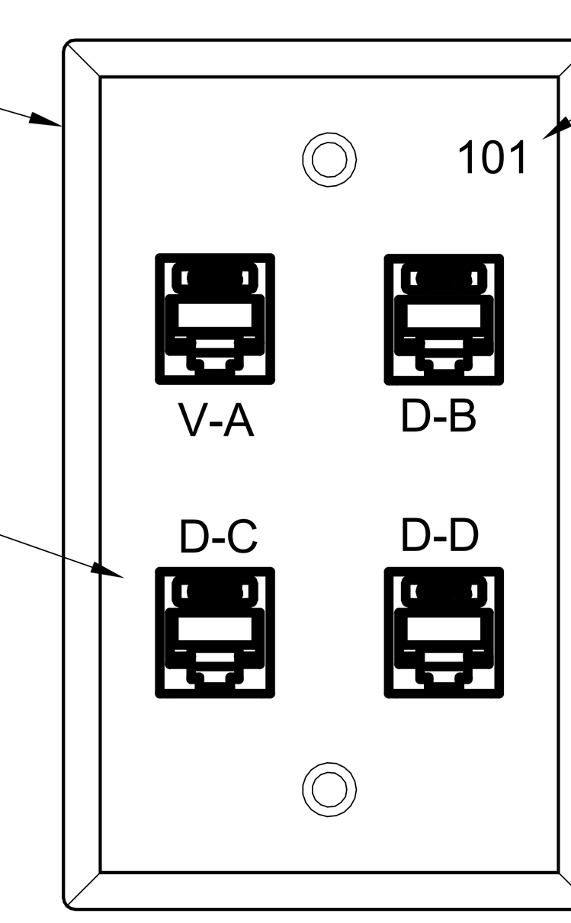
TWO BLUE BERK-TEK CAT 6E CABLES INSTALLED TO EACH TYPE "B" LOCATION. EACH CABLE IS TO BE LABELED ON BOTH ENDS WITH IT'S STATION ID APPROX. 2 INCH BEFORE TERMINATION POINTS.

TYPE "B" WORK STATION DETAIL

TYPE "B" DETAIL 12" = 1'-0" 2

QUICK PORT 4 PORT FACE PLATE 43080-1S4

FOUR BLUE LEVITON CAT 6 JACKS 61110-RL6



LABEL FONT SIZE 4MM BOLD, BLACK ON WHITE $\frac{3}{8}$" LABELING TAPE.

FOUR BLUE BERK-TEK CAT 6E CABLES INSTALLED TO EACH TYPE "A" LOCATION. EACH CABLE IS TO BE LABELED ON BOTH ENDS WITH IT'S STATION ID APPROX. 2 INCH BEFORE TERMINATION POINTS.

TYPE "A" WORK STATION DETAIL

TYPE "A" DETAIL 12" = 1'-0" 1

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TECHNOLOGY TYPICAL DETAILS

T4.01

1. SEE FLOOR PLAN FOR EXACT LOCATION AND QUANTITY OF DEVICES
2. PROVIDE CROSS CONNECT SPOOL HOLDER. CPI 11435-719 OR EQUIV. PROVIDE 110-FT KIT FOR COPPER TERMINATION AS REQUIRED.
3. COPPER OSP CABLE PRIMARY PROTECTION (CIRCA 1880 EGA-50). TERMINATE (N) 25 PAIRS SPEAKER CABLE AND 50 PAIRS TELEPHONE CABLE TO THIS UNIT. PROVIDE #6 AWG GREEN INSULATED CONDUCTOR TO THE (N) TGB FROM THE PRIMARY PROTECTOR.
4. PRIMEX WIRELESS TRADIONAL SERIES CLOCK 14306 (12.5") BLACK. PROVIDE RECEPTACLE BEHIND CLOCK. CLOCK SHALL BE SYNCHRONIZED TO EXISTING CAMPUS CLOCK SYSTEM.
5. 110 FRAMING KIT.
6. WIRELESS ACCESS POINT DEVICE IS OWNER PROVIDED, CONTRACTOR INSTALLED. COORDINATE WITH THE DISTRICT.

TYPE	DATA / VOICE CABLE SCHEDULE DESCRIPTION
A	4 PAIR CAT 6
B	12 MM 62.5 / 12 SM FIBER OPTIC CABLE

TYPE	DATA / VOICE CABLE SCHEDULE DESCRIPTION
C1	(1) 25 PAIRS #22 & (1) 50 PAIRS #24 AWG ARMOR COPPER CABLE, OSP (PER DISTRICT STANDARD)
C2	4 PAIR CAT 6
C3	(1) 50 PAIRS #24 TELEPHONE CABLE, ISP (PER DISTRICT STANDARD)
C4	(1) 25 PAIRS #22 SPEAKER CABLE, ISP (PER DISTRICT STANDARD)

TYPE	SECURITY MATERIAL LIST DESCRIPTION
MOTION DETECTOR	BOSCH ISC-BPR2 BLUE LINE GEN 2 PIR
EXPANDER	BOSCH B208
KEY PAD	BOSCH D1255
CONTROL PANEL	BOSCH B9512G WITH B430 MODULE
ENCLOSURE	BOSCH D8103
LOCK & KEYSET	BOSCH D101
BREAK GLASS	BOSCH DS103i
HORN	AMSECO ABB-1014
POWER SUPPLY	ALARMSAF PS5-M003-UL
PHONE MODULE	BOSCH B430

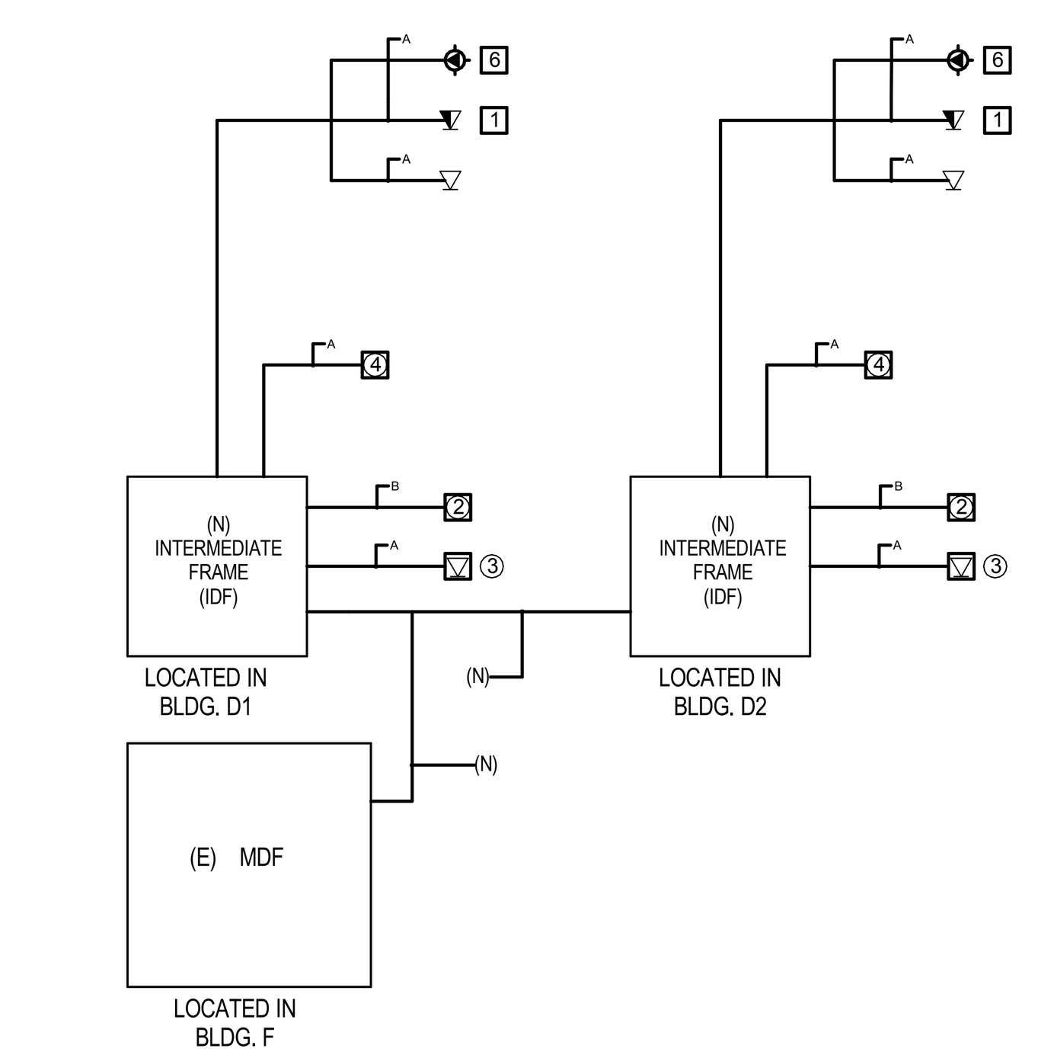
TYPE	INTRUSION ALARM SECURITY CABLE SCHEDULE DESCRIPTION
E	(4) #18 (UNSHEILDED)

GENERAL NOTES:

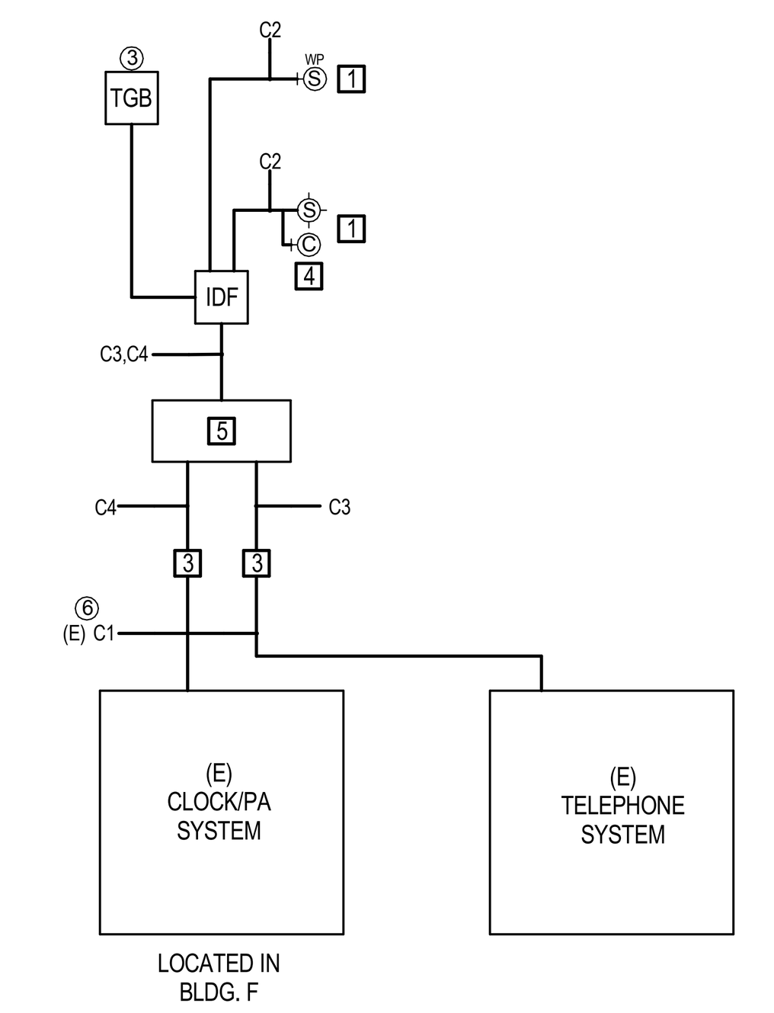
1. ELECTRICAL CONTRACTOR SHALL PROVIDE TEST LOG FOR FIBER OPTIC AND COPPER CABLE AFTER A COMPLETE INSTALLATION OF DATA SYSTEM AND SUBMIT TO THE DISTRICT. SEE SPECIFICATION, DIVISION 27 FOR TESTING INFORMATION.

SHEET NOTES:

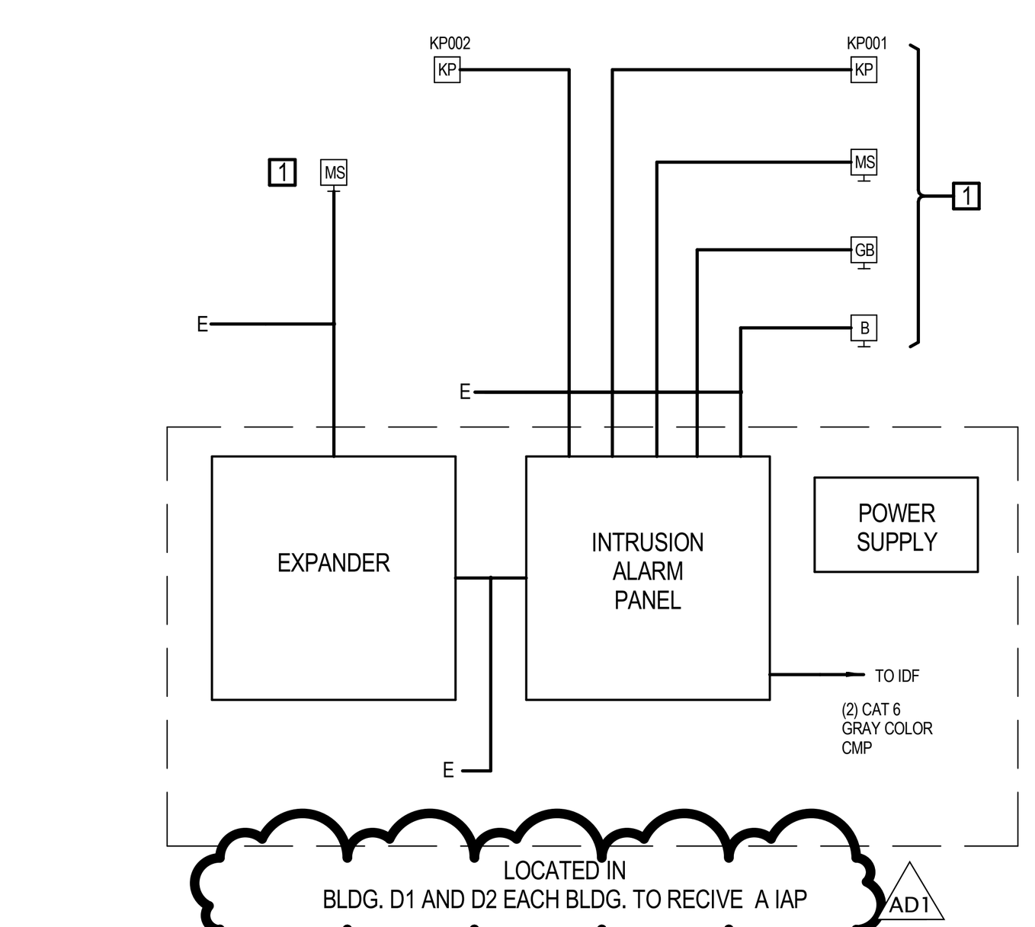
1. FOR ADDITIONAL INFORMATION ON DEVICE LABELING AND NUMBERING, FACEPLATES, DEVICE COLOR AND OTHER DATA, VOICE SPEAKERS, INTRUSION STANDARDS SEE IT GUIDELINE STANDARDS. COORDINATE WITH THE DISTRICT.
2. FIRE ALARM PANEL. COORDINATE WITH THE FIRE ALARM CONTRACTOR FOR CABLE CONNECTION.
3. PROVIDE CAT6 - BLUE CABLE WITH A BLUE CAT6 JACK ON EITHER END FOR BMS. COORDINATE WITH MECHANICAL FOR EXACT LOCATION.
4. SECURITY INTRUSION ALARM PANEL. COORDINATE WITH SECURITY INTRUSION SYSTEM CONTRACTOR FOR CABLE CONNECTION.
5. COORDINATE WITH THE DISTRICT FOR EXACT FIBER AND COPPER TERMINATION LOCATIONS IN EXISTING MDF. AD1



BUILDING D1,D2 - DATA/VOICE SYSTEM RISER DIAGRAM NTS 2



BUILDING D1,D2 - CLOCK, TELEPHONE & INTERCOM RISER DIAGRAM NTS 3



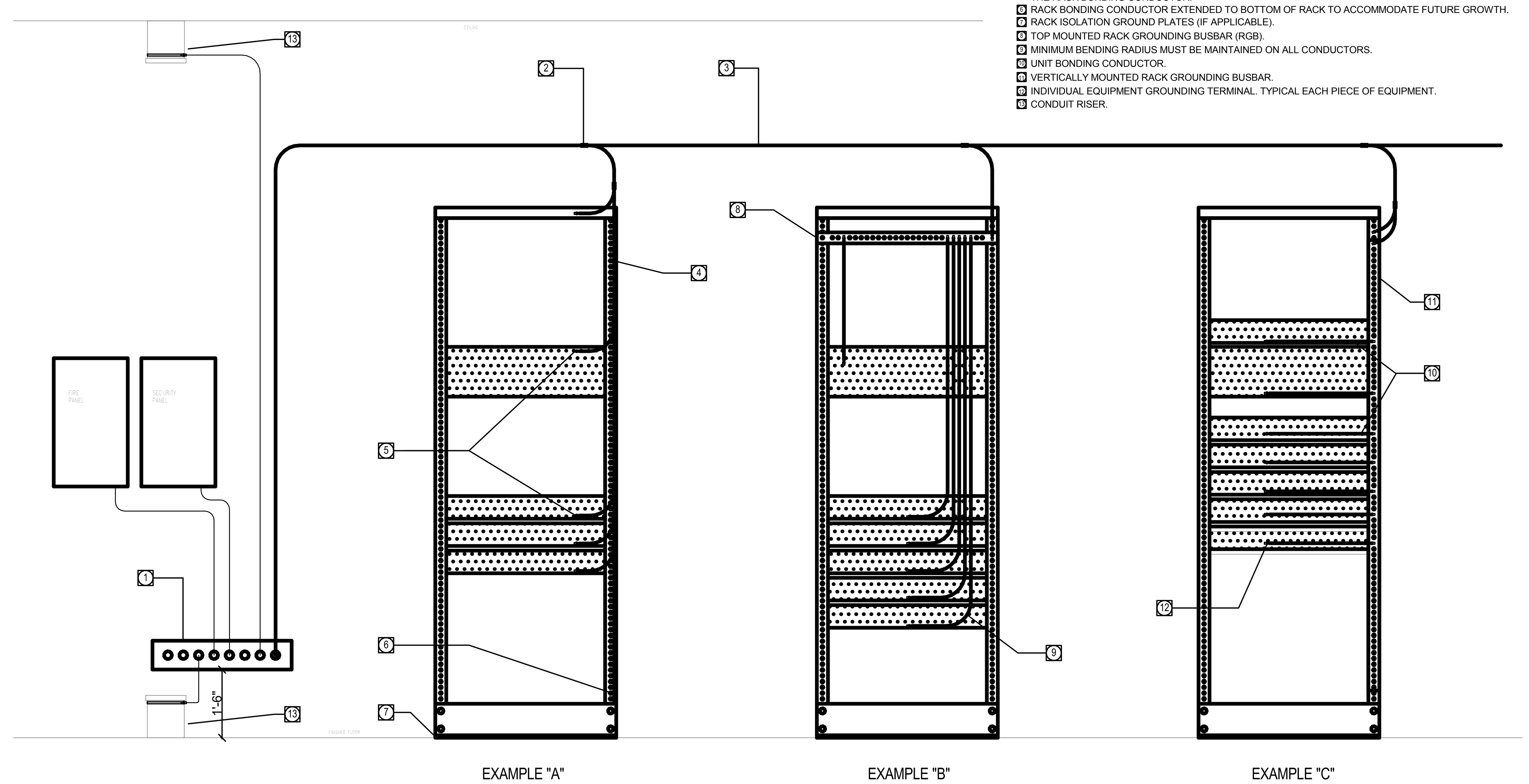
BUILDING D1 AND D2 - INTRUSION ALARM SECURITY SYSTEM RISER DIAGRAM NTS 4

GENERAL NOTES

1. GENERAL DETAIL ONLY. SCS CONTRACTOR SHALL COORDINATE WITH PLANS AND PROVIDE A COMPLETE SYSTEM. SCS CONTRACTOR SHALL COMPLY WITH ALL ANSI, EIA AND TIA STANDARDS.
2. ALL ITEMS SHALL BE PROVIDED BY SCS CONTRACTOR UNLESS OTHERWISE NOTED.
3. PROVIDE THREAD-FORMING BONDING SCREWS TO ATTACH ALL PATCH PANELS, HORIZONTAL CABLE MANAGERS, FIBER ENCLOSURES, ETC.
4. PROVIDE THREAD FORMING GROUNDING SCREWS TO ATTACH EQUIPMENT GROUND CONDUCTOR TO RACK BUSBARS.
5. ALL CONNECTIONS TO GROUND BUSBARS SHALL BE 2-HOLE COMPRESSION LUGS, UNLESS OTHERWISE NOTED.

KEYNOTES

1. ANSI COMPLIANT TELECOMMUNICATIONS MAIN GROUND BUSBAR (TMGB) / TELECOMMUNICATION GROUNDING BUSBAR (TGB) PER SPECIFICATIONS. SEE GENERAL TELECOMMUNICATIONS GROUNDING NOTES. PROVIDED AND INSTALLED BY E.C.
2. IRREVERSIBLE COMPRESSION CONNECTOR
3. TELECOMMUNICATION EQUIPMENT BONDING CONDUCTOR (TEBC). #6 AWG GREEN INSULATED GROUND CONDUCTOR. TYPICAL U.O.N.
4. RACK BONDING CONDUCTOR. ALL CONDUCTORS ROUTED TO TMGB/TGB.
5. INDIVIDUAL EQUIPMENT BONDING CONDUCTORS FROM EACH PIECE OF EQUIPMENT AND RACK TO THE RACK BONDING CONDUCTOR.
6. RACK BONDING CONDUCTOR EXTENDED TO BOTTOM OF RACK TO ACCOMMODATE FUTURE GROWTH.
7. RACK ISOLATION GROUND PLATES (IF APPLICABLE).
8. TOP MOUNTED RACK GROUNDING BUSBAR (RGB).
9. MINIMUM BENDING RADIUS MUST BE MAINTAINED ON ALL CONDUCTORS.
10. UNIT BONDING CONDUCTOR.
11. VERTICALLY MOUNTED RACK GROUNDING BUSBAR.
12. INDIVIDUAL EQUIPMENT GROUNDING TERMINAL. TYPICAL EACH PIECE OF EQUIPMENT.
13. CONDUIT RISER.



EQUIPMENT RACK GROUNDING DETAIL 1 1/2" = 1'-0" 1

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TECHNOLOGY TYPICAL DETAILS

T4.02

SECTION 27 1000
STRUCTURED CABLE

PART 1 GENERAL

1.01 DESCRIPTION

A. This section describes the scope of work, standards, products and execution to provide new and complete Voice and Data Backbone Cabling and routing on Piedmont Hills High School campus of the East Side Union High School District. This project includes the following types of cabling: single and multi-mode fiber (data backbones), Category 6 copper, and Category 3 copper (voice and speaker backbones).
   1. Installation of Outside Plant single and multimode Fiber Optic Backbone cabling from the new Building IDF to the Main Distribution Frame (MDF) of the campus.
   2. Installation of Outside Plant Category 3 voice backbone cable from the new Building IDF to the Main Distribution Frame (MDF) of the campus.
   3. Installation of Inside Plant Category 6 horizontal distribution cable from the new Building IDF to wall and ceiling mounted outlets.
   4. Sealing of OSP entrance conduits and all penetrations after cabling is installed.

B. Furnish, install, and test a complete and functional communications infrastructure system to provide voice, and data communications.

C. J-hooks, boxes, and supporting hardware needed for pathway systems.

D. Furnish and install station cabling, faceplates, and jacks for connectivity of voice and data systems.

E. Furnish and install all racks, equipment grounding to bus bars, and other hardware needed to fully configure the Intermediate Cross connect (IR), and Telecommunications Cross connects (TR), Computer Labs, Instructional areas and Office's for operation of the voice, and data systems described in this Section and shown on the Drawings.

F. Completely label and test all telecommunication cables and provide test documentation, and as-built drawings.

G. Furnish and install new fiber from the campus MDF to the new IDF rooms shown on drawings, and provide as-built drawings.

H. Furnish and install new copper from the campus Voice MC to new Telecom rooms shown on drawings, and provide as-built drawings.

I. Related Sections:
   1. Division 26, General Provisions
   2. Division 26, Basic Materials and Methods
   3. Division 26, Conduit and Fittings
   4. Division 26, Outlet Boxes
   5. Division 27, Cable Tray
   6. Division 27, Cable Runway
   7. Division 27, Audio Visual System
   8. Division 28, Digital Video Surveillence System

1.02 SUBMITTAL

A. Prior to ordering any material, provide six (6) copies of complete brochure information on all products for installation on this project. All brochures and specification sheets shall be bound within a three-ring loose leaf binder and organized in the same manner as the products portion of the specifications. If more than one product is listed on the same page of the brochure or specification sheet submitted, the intended product or part number shall be clearly indicated or highlighted by the Contractor.

B. Contractor shall submit along with the materials submittal all proposed test procedures and a sample of the printout or test result form as well as a list of all Test Equipment to be used for cable testing. Within two (2) weeks of completion of testing all cabling systems, Contractor

shall submit two (2) copies of the test results as directed in the Testing portion of the Specifications.

1.03 QUALITY ASSURANCE

A. Standards: The contractor will furnish without extra charge any additional material and labor which may be required for compliance with these laws, rules, and regulations, even though the work is not mentioned in these particular specifications.
   1. The cable system shall meet the standards set forth in the American National Standards Institute / Electric Industries Association / Telecommunications Industry Association recommended standards EIA/TIA-568-B, -569, -607, and EIA/TIA-TSB 67, 72; EIA/TIA Technical Specification Bulletin 40 for Category 6 wire specifications.
   2. All cable installed under this specification shall be Underwriters' Laboratories (UL) listed and certified to pass the appropriate UL test for cable designated for installation in plenum and riser spaces.

B. The telecommunication cable system shall conform to all applicable local codes and applicable sections of the California Electric Code, NFPA-70-2007.

C. Fire stopping shall be in accordance with ASTM E 814, ASTM E 136, and UL 1479 as well as Section 300-21 of the National Electric Code.

D. Other applicable standards. ANSI C2-2004 National Electric Safety Code. UL 497 Electrical Grounding and Bonding Equipment.
   1. IEEE 802.3 Carrier Sense Multiple Access With Collision Detection.
   2. FCC Rules and Regulations, Part 68.
   3. Basic, Uniform, and Standard Building Codes (BOCA, ICBO, SSBC).
   4. REA Cable Designations - PE Series Specifications
   5. NFPA 101 - Life Safety Code

E. Conditions: Materials and equipment provided must be new products of manufacturers regularly engaged in the production of such products.

F. UL Listing: Products must be UL listed where a UL test procedure is applicable.

G. Telephone system materials and equipment shall be FCC Type-accepted and certified as such by supplier.

H. Qualifications: The category 6 and fiber cable system required for this project is a Leviton structured wiring system. The contractor must be a Leviton Certified Cable System Contractor (CCS) 45 days prior to bid date and from the Sacramento, Ca. region as specified by Leviton Corporation. The company must have a minimum of three (3) years experience in low voltage installations for voice, and data cabling systems. All personnel performing work on this project must have gone through the Leviton CCS training program as required by Leviton prior to performance of work.

I. Warranty: Contractor shall provide a Lifetime Manufacturers warranty covering workmanship and compliance with manufacturers specifications for category 6, cable systems. All repair, including labor and material, shall be made at no cost to the owner during the warranty period. All warranties shall be provided in writing to District prior to acceptance of the cabling system.

J. Contractor shall have the manufacturers representative provide periodic inspections of the cable system during the installation phase. Inspections will occur:
   1. After termination of jacks and before wall plates are installed.
   2. After termination of Patch Panels.
   3. After termination of fiber cable.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver all materials in manufacturer's standard protective packaging.

B. Do not remove protective packaging until ready for installation.

C. Follow manufacturer's instructions for storage & handling.

1.05 CONTRACT DRAWINGS AND SPECIFICATIONS

A. The intent of the drawings and specifications is to establish the type of system and functions, but not to set forth each item essential to the functioning of the system. The drawings are generally diagrammatic and show approximate location and extent of work. In case of doubt of work intended, it is the responsibility of the Contractor to request instructions from the Engineer or Owner prior to bid. The Contractor shall be responsible for installing a complete functioning system.

B. Contractor shall review all drawings and specifications before starting the work. Where discrepancies occur, Contractor shall immediately notify Engineer for clarification.

1.06 RECORD DRAWINGS

A. All drawings shall be submitted in hard copy with all field changes and contractor labeling indicated in red line updates. Upon completion of the project, Contractor shall deliver to Owner documentation of the project to include:
   1. As-built telecommunications floor plans of the facility with cable and outlet placement and full labels clearly depicted.
   2. As-built elevations of all termination fields describing cable and outlet location labeling scheme. Also any changes to the wall elevations and conduit placements in the Telcom rooms will be recorded on as-built drawings.
   3. As-built logical OSP and riser diagram describing connectivity and cable sizes (including copper and fiber) for both telecommunications and grounding cabling systems, and including as-built labeling of all OSP and Riser cables.

B. Cable test results shall be submitted in hard copy and magnetic format along with viewing software from the tester manufacturer. Hard copy to be bound within loose leaf binder and organized by serving MC or TR, room number of outlet location, and station identifier.

PART 2 PRODUCTS

2.01 GENERAL

A. The Vvoice and dData cCabling sSystem is defined as all required equipment and cabling, including hardware, termination blocks, cross-connects, patch panels, patch cords, copper and fiber cabling.

B. The Contractor shall supply the products as detailed in this specification. If not specified, the Contractor can select products of suitable quality and workmanship. For any products selected by the Contractor, the Contractor is required to submit product documentation including manufacturer’s original literature, product specifications and testing reports as previously described.

C. Equal Product may be considered for substitution for those products specified;, however, any equivalent product(s) must be approved by the District IT Low Voltage Systems Representative and must show demonstrated and documented equivalence to the product(s) specified.

D. All material furnished shall be new and unused. All materials used shall bear the Underwriter’s Laboratory, Inc. label -, provided that a standard has been established for the material in question. All products and materials are to be clean, free of defects, and free of damage and corrosion.

E. The Contractor must provide a 25 year Leviton / Superior EssexLeviton / Berk-Tek limited lifetime product and performance need to revise with Leviton/Bertek warranty upon completion of this project.

2.02 OUTSIDE PLANT COPPER BACKBONE CABLE

A. All voice grade cable placed in the outside environment shall be solid, unshielded twisted pair, PE-89, and 24 AWG Outside Plant Cable (OSP). Twenty five pair cable shall be Superior Essex 09-097-9Superior Essex 09-097-922 for speakers. Fifty pair cable shall be Superior Essex 09-100-92Superior Essex 09-100-92 for analog lines and cameras.

B. The copper twisted pair shall have a mutual capacitance at 1kHz of 83 nF/mile and meet ANSI/ICEA S-84-608 2007.

C. The cable shall be resistant to mechanical damage, lightning, or and damage from wildlife. The cable shall have a dual shield design with fully flooded shield interfaces.

2.03 BUILDING ENTRANCE PROTECTORS

A. All OSP balanced twisted pair cable pairs shall be provided with protection at each building with an entrance cable protector panel. Circa Telecom 1880ECA1-50G regardless of the number of pairs required.

B. The protector panel shall be equipped with a ground lug that will accept a 6 AWG copper bonding conductor.

C. Each protector panel shall be fully loaded with 5-pin plug-in protector modules 4b1fs-240.

2.04 110-TYPE WIRING BLOCK KIT

A. The wiring block kit shall support Category 3 applications and facilitate cross connection and interconnection using cross connect wire. Leviton 41MB2-3FT. Each kit shall be provided with a vertical cord manager, Leviton 41880-300Leviton 41880-300..

B. The wiring block shall be fire retardant, molded plastic consisting of horizontal index strips for terminating 25 pairs of conductors each. The index strips shall be marked with five colors on the high teeth, separating the tip and ring of each pair, to establish pair location. The wiring block shall accommodate 22 through 26-AWG conductors.

C. The wiring block kit shall include multiple 100 pair blocks, mounting frame, horizontal cord manager and label holder.

D. Provide C5 clips for ISP feeder terminations only. No station cabling is to be terminated directly onto 110 frames unless otherwise specified by District IT Low Voltage Systems Representative.

E. Every 110 frame is to be fully loaded with C5 Clips

2.05 RISER RATED BACKBONE CABLE

A. ISP copper backbone cable shall be solid, twisted pair Category 3, CMRCMP, 24 AWG.Berk-Tek 10032112 50 pair. This cable is to tie the 110 field to the equipment racks.

B. The copper twisted pairs shall have a mutual capacitance at 1 kHz of 15.7 nF/1000 ft.

2.06 HYBRID FIBER OPTIC BACKBONE CABLE

A. The fiber optic backbone cable shall be a 12 SM/12MM 62.5 micron outside plant rated composite cable in a loose tube construction with inner and outer jackets and corrugated steel armor. Berk-Tek OPAD12B024-012CB3510/25012AB0403.

B. The 62.5/125 micron multimode fiber shall have a maximum attenuation of 3.4 dB/km at 850 nm, and 1.0 dB/km at 1300 nm. This fiber shall be ISO/IEC 11801 OM1.

C. Provide Leviton 36” 12 strand break out kits 49887-12L.

2.07 FIBER OPTIC PANELS AND MODULES

A. Low Profile 2U combination panel shelfs, Leviton OPT-X-5R2UH-S06 with 4 metal blank plates at each end Leviton 5F100-BLK. The panel shelf shall be available in a 2U height fully enclosed shelf, with integrated front cable management trough included. The shelf shall be equipped with hinged front doors for easy access, front cable management trough, top cover panel, standard water-tight cable entry conduit connectors for OSP cable, and blank labels for identifying fiber terminations.

B. Fiber modules shall be loaded with fiber optic adapter panels. Leviton 5F100-12P for multimode, and 5F100-12Z for Singlemode. Modules must be from the same manufacturer as the fiber shelf.

C. LC Fiber Optic connectors shall utilize a pre-radiused zirconia ferrule and anaerobic adhesive for fiber alignment. Leviton 49990-MDL for multimode, and 49990-SDL for Singlemode.

D. All the fiber strands must be installed in the panels straight through.

2.08 UTP STATION CABLE

A. UTP Station cable shall consist of 4-pair Category 6, 23 AWG thermoplastic insulated conductors. All station cabling in plenum rated areas must have a minimum cable sheath rating of CMP. (All systems consist of CAT6 cabling)

B. Type “A” stationss receive 4 cables per outlet, type “B” stations receive 2 cables per outlet, type “C” receive 1 cable for a wall phone location and type “D” receive two cables per wireless outlet location.
   1. This cable must meet parameters of the Cat 6 Cable TIA/EIA-568B and CAT 6 Permanent Link TIA/EIA-568B Commercial Building Telecommunications Wiring Standard.
   2. Input Impedance - 100 Ohms +/- 15% at 1-100 MHz
   3. ACR at 250 MHz shall be a minimum of 8.7 dB/100m.
   4. PS NEXT at 250 MHz shall be a minimum of 39.3 dB/100m.
   5. Insertion loss at 250 MHz shall be a maximum 32.6 dB/100m.
   6. Data station cable jacket shall be blue, Superior Essex 66-240-2Bbertek part numberBerk-Tek 11074694.
   7. Wireless cable jacket shall be green, Superior Essex 66-240-5Bbertek part numberBerk-Tek 11074895.

2.09 COMMUNICATIONS OUTLET TERMINATIONS

A. T568B eight position, 8-conductor RJ45 jacks with 110 style rear termination. These terminations shall meet or exceed the requirements of the Cat 6 Cable TIA/EIA-568B and CAT 6 Permanent Link TIA/EIA-568B Commercial Building Telecommunications Wiring Standard.
   1. Four Pair data station cables in surface wall boxes shall be terminated on blue jacks, Leviton 61110-RL6. Provide a minimum of four type “B” and one type “C” outlet in each class room.
   2. Four pair cables for wireless outlets in ceiling mounted boxes shall be terminated on green jacks, Leviton 61110-RV6. Provide a minimum of one type “D” outlet in each class room.
   3. Four pair cables for camera outlets shall be terminated on yellow jacks, Leviton 61110-RY6. (refer to surveillance camera section)
   4. Four pair cables for intrusion panel IP connectivity shall be terminated on gray jacks, Leviton 61110-RG6. (refer to intrusion section)
   5. Four pair cables for speakers shall be terminated on purple jacks, Leviton 61110-RP6. (refer to paging section)

B. Universal faceplates that will accept the jack of the connectivity solutions shall be used throughout this project. Material shall be stainless steel. Leviton 43080-1S2 2 ports and 1S4 4 ports.

C. Wall phone faceplates to be provided under this scope shall accept the jacks used on this project . Leviton 4108W-1SP. The wall plate must have 8” clearance from center to all sides in order to correctly support the wall phone. Wall phone plate must be installed at ADD ADA height adjacent to classroom entryway.

D. Wireless face plates shall be Leviton Quick Port 2 Port Face Plate 41080-2IP. Refer to Type “D” Wireless location detail.

2.10 COPPER PATCH PANELS

A. High density unshielded twisted pair termination panels with space for 48 8P8C modules. Panels shall mount in a standard 19 inch equipment rack with universal hole spacing and allow for independent installation and removal of jack modules. Rear cable management bar shall be included with each patch panel. Cable termination modules shall be included as needed to complete the installation. All unused ports shall be covered with black blank modules. Provide 20% additional patch panels for future growth for all systems.
   1. Modular jack panels shall be 48 ports in a 2RU space. Leviton 49255-H48 for CAT6 cabling.

2. 2RU space 48 port patch panel Leviton 69586-U48 with 110 termination on the rear of panel shall be used for ISP rack to 110 frame backbone ties.

B. Patch Cords: The Contractor shall provide Leviton Leviton bootless / snagless patch cords for both station and IDF equipment end. Counts Patch cord counts to support cable total drop counts build out of all low voltage systems terminated on patch panels. Lengths and colors are as follows:
   1. 8’ Blue patch cord Cat 6 bootless / snagless
   2. 7’ Blue patch cord Cat 6 bootless / snagless
   3. 6’ Green patch cord Cat 6 bootless / snagless
   4. 6’ Yellow patch cord Cat 6 bootless / snagless
   5. 6’ Grey patch cord Cat 6 bootless / snagless
   6. 6’ Purple patch cord Cat 6 bootless / snagless
   7. 6’ Orange patch cord Cat 6 bootless/snagless

C. Fiber Patch Cords : The contractor shall provide and install (4) duplex each SM & MM fiber patch cords, not to exceed 15 meters each and will not introduce a loss greater than 1.0 dB, including connectors. The contractor shall confirm actual length and connector types with the District IT Low Voltage Systems representativeRepresentative.

D. Cross-connects: Each IDF and MDF receives one CPI 11435-719 Cable Reel with four reels of Superior Essex cross-connect wire. One 1k roll of white/blue 02-001-13 for voiceanalog, one 1k roll of yellow/blue 02-002-13 for speakers, one 1k roll of red/blue 02-053-13 for stationary cameras and one two pair red/blue, red/orange 02-221-13.

2.11 WIRE MANAGEMENT

A. Horizontal and Vertical cable managers shall be capable of managing cables on the front and rear of a standard 19 inch equipment rack. Horizontal managers shall have pass through holes that incorporate integral bend radius control and fingers with rounded edges. Hinged covers shall allow access to the cable pathway without having to remove the cover from the wire manager. Install horizontal wire managers above and below each patch panel.
   1. Horizontal cable manager 2U high, Chatsworth 30530-719.
   2. Vertical cable managers shall be Chatsworth 30095-703.

2.12 LABELS

A. The contractor shall provide tags, straps, and adhesive labels. These tags, straps, and adhesive labels must be of high quality that will endure heat, water, and time.

B. Shall meet the legibility, defacement, exposure, and adhesion requirements of UL 969.

C. Shall be pre-printed using a mechanical means of printing.

D. Where used for cable marking, provide vinyl substrate with a white printing area and a clear “tail” that self- laminates the printed area when wrapped around the cable. The cable marking should be immediately visible and be within two inches from the termination point.

E. Where insert type labels are used, provide clear plastic cover over label.

F. Copper patch panel labeling shall be completed with adhesive labeling kit specifically designed for the panel, Leviton 49257-QHD.

G. Labeling P-touch font size 4MM bold, black on White, 3/8” labeling tape on all work stations, panels and devices. Contractor must provide labeling samples for approval before labeling of the systems is performed.

H. A round Avery label green in color Product Number: 5463 and a station label utilizing the same font size as on work station face plate must be installed on ceiling grid below each wireless cable location for identification. See type “D” Wireless Location Detail.

I. Devices shall be numbered consecutively and separate for each type of workstation/system. Refer to Work Station Details and Floor Plan Device Numbering Example for additional information.

2.13 CABLE SUPPORT HARDWARE AND MISCELLANEOUS MOUNTING EQUIPMENT

A. Miscellaneous Equipment shall be provided and installed by the Contractor as described below and on the drawings. Mounting hardware and accessories typically required to provide a complete and working installation but not listed in these specifications shall be provided and installed by the Contractor.

B. Plywood Backboard: The Contractor shall provide fire-rated, A/C grade, void free, ¾"x4'x8' plywood. To reduce warping, fire rated plywood should be kiln dried to a maximum moisture content of 15%. Plywood shall be securely fastened to the wall. Plywood shall be painted with two coats of white paint. The Contractor shall not paint over the fire rating stamp. The plywood is to be mounted vertically and is to cover all walls of the IDF.

C. Service loop mounts: The Contractor shall provide service loop mounts for management of the fiber and copper service loops at both ends. Leviton Storage Rings for OSP riser backbone cabling shall be provided. The Contractor shall provide a service loop equal to the maximum length allowable so as to not exceed a total of 50 feet of exposed cable from building entrance to termination. One Leviton Storage Rings 48900-OFR must be provided for each OSP cable and 48900-1FR.

D. Fabric Innerduct: The Ccontractor shall install 3 cell fabric innerduct in all sections of conduit, Maxcell or equal. Installation must follow manufacturer's installation requirements, using recommended installation tools. Fabric Innerduct size shall match manufacturer recommended maximum size per conduit ID.

E. Backboard Cable Management shall be provided and placed by Contractor on all telecommunications backboards to provide effective routing of all telecommunications cabling. Contractor shall utilize D-rings, wire distribution spools, and cable clamps as required for a neat and organized installation.

F. Equipment racks and any other telecommunications equipment requiring grounding shall be bonded to the nearest ground bar using industry standard grounding connectors or lugs as recommended by the respective equipment manufacturer.

G. Rack mounted power distribution unit shall be a 19 inch wide 20 amp 125V horizontal unit with eight 5-20R receptacles and a standard 10 foot power cord with 5-20P straight blade plug, Geist RCURN082-102D20ST5-OD to be installed in the MDF/IDF.

H. Add two dedicated 20 Amp 5-20R each, four-plex power receptacles per rack. The receptacles are to be supported 6" above the ladder rack where as not to impede with the vertical manager pathways.

I. Add one dedicated 20 Amp 5-20R each, four-plex power receptacle for the intrusion panel and one convienienceconvenience outlet at standard height location to be determined. All electrical work in the IDF must be approved by the District's Low Voltage Systems Representative prior to installation.

J. An electrical sub-panel is to be installed in the IDF that houses only the circuits for that room. Location of this sub-panel is to be confirmed with the District's Low Voltage System Representative before installation.

K. J-hook Assemblies: Contractor is responsible for maintaining the maximum fill guidelines and spacing requirements as shown on the accompanying project plans. Contractor shall provide and install additional J-hook assemblies as required to meet these requirements.

L. J-hook horizontal cable supporting hardware shall be UL listed. The J-hook(s) shall provide a broad base for proper cable support, thereby reducing stress and bending of cabling.
   1. Contractor shall attach appropriate J-hook fasteners for wall, stud, beam, or flange mounting to the supporting structure. Fasteners shall be spaced a maximum of 5' apart, and no more than 4' from the final outlet destination or turn point as shown on the accompanying project drawings.
   2. Acceptable Product: Caddy CableCat Clips and Caddy supporting hardware, or approved equivalent.

PART 3 EXECUTION

3.01 INSTALLATION REQUIREMENTS

A. Contractor shall give notice to all agencies requiring advance notification and comply with all regulations specified by all governing agencies having jurisdiction over the performance of the work.

B. Contractor shall coordinate with and abide by the construction schedule and sequencing as dictated by the General Contractor on the project. Storage and staging areas within the job site shall be as dictated by the General Contractor.

C. The contractor shall provide all labor, materials, equipment, tools, utilities and services necessary for the proper execution and completion of the telecommunications cabling system.

3.02 INSTALLATION METHODS

A. Contractor is required to adhere to the following parameters whether or not Contractor and/or others have placed existing equipment. Contractor will notify the owner of any of the following requirements that cannot be met prior to bid or ordering of materials.

B. General: Install an infrastructure cabling system as detailed by the contract drawings, details, and specifications.

C. The maximum length of horizontal cabling from nearest closet to an outlet shall not exceed 295 feet as per EIA/TIA 568. Contractor will notify The owner prior to commencement of any installation not meeting the 295-foot maximum distance limitation.

D. Contractor will place all station cables in the ceiling area on Contractor supplied and installed wire hangers or in floor spaces and raceways. Contractor also will assess whether or not the ceiling space is a plenum air return, which shall dictate the use of the listed plenum type, or PVC type cable required in the materials specification section. The cables will be routed to the TC located on the first floor, utilizing cable tray. Station cables must be strapped every 5 feet with tie straps in J-Hooks provided by the Contractor; strapping to any other wires (e.g., lighting, ceiling grid, etc.) is not permitted. Cable splicing at any point of a station cable is unacceptable. When cables are routed in non-ceiling spaces, such as below raised flooring, the Contractor will still assess whether or not the space is a plenum air return and pull the appropriate cable type.

E. In hard wall (wallboard) or V wall type construction where accessible, Contractor will install a wall board adapter or equivalent, which will support mounting of the faceplate necessary for the jacks. This will eliminate the need for an electrical box (in-wall junction box) to accommodate the communications outlet.

F. Cables will be run vertically in 1.25” (inch) dedicated EMT conduit inside the wall and into the ceiling space. Once in the ceiling space, the cable will be routed to the closest cable tray. Cables shall be routed to their closest TR utilizing the shortest path possible, while still following EIA/TIA standard guidelines. Station cables outside of cable tray must be strapped to tie wires with J-Hooks every 5 feet provided by Contractor; strapping to any other wires (e.g., lighting, ceiling grid, etc.) is not permitted.

G. UTP cabling must conform to a 6-foot separation requirement from main power panels, switch gear and/or starter motors.

H. All power feeds crossing the path of the UTP cables at right angles must be a minimum of 6 inches in distance from the UTP cables.

I. Cables shall be run cable tray in corridors wherever possible in order to avoid furniture and work areas so that access to the cables is unencumbered.

J. The cables shall be placed at a minimum of 6 inches above the ceiling.

K. The cables are to be run so as to maximize accessibility. Contractor will notify the owner in the event this requirement cannot be met.

L. Debris, boxes, leftover cables, and trash must be removed from construction sites upon completion of work. No debris or work material may be left in areas that have student access unless the affected area is marked with cones, tape, or temporary fencing.

M. Contractor shall pull conductors together where more than one is being installed in a raceway. Cable bundles in raceways, in suspension systems, or on wallboards must be tie wrapped every 5 feet. There must be an independent system supporting the cable system. Cable bundles tied to the lighting-ceiling grid will not be permitted. Station wire cannot be attached to electrical conduit, gas or sprinkler piping, or other code-restricted items.

N. No cabling is allowed to rest on any ceiling tile or suspension system. Cable shall be kept 30 inches away from any heat source; i.e., steam valves, etc.

O. Cables shall be pulled free of sharp bends or kinks, twists, or impact damage to the sheath.

P. Cables shall not be pulled across sharp edges. Cables shall not be forced or jammed between metal parts, assemblies, etc.

Q. Cables shall not be pulled across access doors and pull box covers. Access to all equipment and systems must be maintained.

R. Insulation shall be removed to expose shielding and conductors to the exact length required by manufacturer for proper termination of plugs and pins. Plugs and pins, upon termination, shall not be damaged in any way.

S. All communications racks must be properly anchored to walls and floors and grounded to building ground grid (not to water pipes, etc.).

T. Cable splicing will not be permitted in any horizontal cable run.

U. Contractor shall install system using tools and equipment specifically designed for the installation tasks. Use installation practices that ensure the highest quality installation. Perform all cutting, splicing, pulling and termination of cables using equipment specifically designed for each purpose.

V. Install tie wraps using a tension controlling cutting device. Tension shall not exceed that which is specified by the manufacturer of the cable. Tie wraps and other securing hardware shall be rated as required for the installation environment.

W. Where multiple conduits are being used, fill one conduit to its maximum fill ratio before going onto the next conduit. Wherever possible, leave as many spare conduits available as possible.

X. All cables requiring lubrication for installation in conduits shall be continuously lubricated during the pulling-in process. Maximum pulling tensions specified by the cable manufacturer shall not be exceeded. Monitor cable-pulling tension with a mechanical tension-indicator.

Y. All new conduit will not exceed a 40% fill rate. All spare conduits or conduits filled with less than the maximum allowed fill ratio shall have a pull string installed and left for future installation of cable. Clearly label as "pulling line" indicating To/From.

Z. Support cables running overhead that are not installed in raceways by bridle rings or J-Hooks spaced every 5 feet.

AA. Install the telecommunication cabling system as detailed in the contract drawings in the exact location and layout shown in the details.

AB. Openings around electrical raceway penetrations shall maintain the fire resistance rating required. See NEC 300-21.

AC. Label all cables at both ends. The label shall be permanent. Labels shall be typed (not handwritten) and individual number strips are unacceptable. An acceptable labeling product is a self-laminating cable marker, such as Brady Design-BuilderT-9-292-series. All cable labeling shall include numeric designation, source, destination, cable type, and conform to the District-wide labeling standards and labeling scheme.

AD. All outlet plates shall be installed neatly and square with floor and walls.

AE. Category 6 installations shall conform strictly with EIA/TIA 568B and TSB-40B to insure a quality system that meets the transmission rate criteria.

3.03 LABELING

A. Outside Plant

1. The Contractor is required to provide labels for all cables at any vaults, pull box, or access panel crossing. The Contractor shall provide cable labels twelve inches from the end of the cable as it enters the building, on service loop mounts, and twelve three inches from the end of the cable at the point of termination. Fiber optic and Copper cable orange laminate tag (3.5" x 2") HellermannTyton # CT2003X2. Telephone Copper cable yellow laminate tag (3.5" x 2") HellermannTyton # CT2012X2. Cable Orange Laminate Write-On Tag (4" x 1.5") HellermannTyton # WC1503X2. The Contractor shall provide adhesive labels on all termination hardware such as fiber distribution shelf, protector, and 110 blocks.
2. All cables will be labeled according to the guidelines shown below as adapted from the EIA/TIA 606-A standard.
3. Fiber and copper backbone cable labeling shall follow the convention to include:
   a. Campus
   b. The origination point (Building Room ID)
   c. The destination point (Building Room ID)
   d. The type of cable
   e. The strand or pair count.

B. Horizontal Distribution
1. The Contractor is required to provide labels at all termination hardware such as patch panels, patch cords, faceplate outlets and devices.
2. Provide station location number and Rroom nNumber label at all patch panels. Coordinate with District IT Low Voltage Systems Representative prior to final labeling systems. The Contracto shall provide 1/8 inch thick engraved plastic labels for new cabinets or racks installed. The engraving shall be white on black background.

3.04 FIBER OPTIC CABLE SYSTEM

A. The fiber optic raceway system must be continuous between pull boxes and junction boxes. The raceway system must enter and be secured to enclosures.

B. All fiber supplied to the campus, must be tested with an OTDR, Microtest Certifiber, or equal prior to installation, while still on the shipping reel, using an optical time domain reflectometer (OTDR) or a 850/1300/1510 nm power meter and stabilized light source. The test results must be compared to the manufacturer's test results. A discrepancy of more than 1 dB on any fiber in either window indicates possible shipping damage and the fiber must be returned to the supplier.

C. All fiber must be tested after installation according to the procedures and acceptability criteria described in EIA/TIA 455A (Aug 1991) and all applicable addenda after installation and termination using an OTDR in one direction and an 850/1300 nm power meter and stabilized light source in both directions and in both optical windows. The results of these tests (printed OTDR results and tabular loss results) must be provided by the installer as documentation of the quality of installation and as a baseline for future troubleshooting. The results must be compared to the pre-installation test results for significant changes.

D. All optical test equipment must have current, traceable calibration certification.

E. All spare optical ports and connectors should have a dust cap in place to protect the cable from the environment.

F. Manufacturer's specification for pulling stress and minimum bend radius must not be exceeded on any fiber cable.

G. Installation contractor must develop and review conduit installation plan with the owner before beginning installation.

H. Installation contractor must verify all device locations with the owner before installation.

I. Installation contractor must review cable numbering and labeling scheme with the owner prior to installation.

J. Installation contractor must review drawing notes and drawing back-annotations (red line) on site plans with the owner prior to installation.

K. Fiber Optics Cable Labeling: Fiber termination locations must be labeled to corresponding fiber strands pairs at the Main Cross-connect (MC), Intermediate Cross-connect Room (IR), and the Telecommunications Room (TR). Use embossed labels. The Contractor is expected to provide tags, straps, and adhesive labels. These tags, straps, and adhesive labels must be of high quality that will endure over time. Hand written labels are not acceptable. All fiber cable numbering and labeling will conform to the District-wide labeling standards and labeling scheme.

L. All outside fiber cable will be installed through 1.25” innerduct from point of origin and destination.

M. Securely fasten the fiber optics raceway to the cable tray, or walls when routed inside buildings, using clamps and clips designed for this purpose.

N. Provide a nylon or polyethylene pulling line in all fiber optics raceways. Clearly label as "pulling line", indicating source and destination.

O. Openings around fiber optics raceway penetrations shall maintain the fire resistance rating required. See NEC 300-21.

P. All fiber optics cables are to be run as efficiently as possible, minimizing the amount of cable required.

Q. All fiber optics cables shall be continuously lubricated during the pulling-in process. The maximum pulling tensions specified by the cable manufacturers shall not be exceeded. Monitor cable pulling tension with a mechanical tension meter.

R. The fiber optics cables passing through pullboxes and manholes shall be neatly arranged and secured to cable jacks on the interior walls. Cables will not be accepted when diving through the manhole or pullbox.

S. As fiber optics cables emerge from intermediate-point pull boxes, coil the cable in a figure eight pattern with loops not less than two feet in diameter.

T. Label all fiber optic cables at both ends. The label shall be permanent. Labels shall be typed (not handwritten) and individual number strips are unacceptable. All cable labeling shall include numeric designation, source, destination, and cable type. All fiber cable numbering and labeling will conform to the District-wide labeling standards and labeling scheme.

U. Fiber optics raceways shall be clearly marked at each pull box indicating type and number of cables within.

V. If connectors have been factory installed on fiber optic cables, protect the connector during the pulling-in by wrapping with a thin layer of foam and insert in a stiff plastic sleeve for protection.

3.05 OUTSIDE PLANT INSTALLATION

A. The following specifications will be adhered to when splicing copper cable runs. These specifications and standards apply for all splicing situations, including:
   1. Manhole Splices and Splice Cases
   2. NEMA Enclosure Splices and Splice Cases
   3. MC/IC Splices and Splice Cases
   4. MC/IC Electrical Protection Splices

B. The Contractor will splice all the cable pairs within each cable sheath using AT&T 710-SC1-25 Splice Modules, including cable pairs that will not be connected at this time. All splices shall be secured in a splice case using a preformed splice case. All splices and the installation of the splice case shall be in accordance with the manufacturer's specifications and GTE Practice, Section 632, ensuring a watertight seal. The Contractor will bond the cable's metallic sheath/shield to the metallic splice case with the bonding bar assembly provided with the splice case. No filling compound is to be used in the splice enclosures; therefore the Contractor must take special care while assembling the case.

C. All copper cables passing through a manhole or pullbox will be dressed neatly to the inside walls with “L” brackets designed for securing cable in manholes and pullbox’s. Cable that is not secured and routed properly will be removed and redone at no expense to the owner.

D. Use pulling compound when necessary. Pulling compounds must be water-base lubricant that will not deteriorate cable or conduit.

E. All cable/cabling shall be kept 30 inches away from any heat source; i.e. steam valves, etc.

F. Cables shall be pulled free of sharp bends, kinks, twists, or impact damage to the sheath. Cables shall not be pulled across sharp edges. All conduits and sleeve with rough edges will be provided with bushings on both ends. Cables shall not be forced or jammed between metal parts, assemblies, etc.

G. All outside plant cables will be terminated within 50 feet of the building entrance point. This is a maximum cable measurement and includes lengths for service loops, routing, backboard and patch panel mounting. If the cables cannot be terminated within the 50 foot length, the cables shall be extended in rigid conduit to within a 50 foot distance from the point of termination.

H. Cable mountings and service loops on backboards will be installed efficiently to minimize the backboard space consumed. All cables will be routed at right angles, in accordance with the bend radius specifications for the type of cable being routed. Copper cables will be tie wrapped every 4 feet. Fiber cables shall use Velcro wraps.

I. No splices of any type are permitted on any OSP or ISP Low Voltage System cabling.

3.06 GROUNDING

A. Grounding shall be accomplished by common single-point termination of all ground conductors.

B. All metallic components of the infrastructure system shall be solidly grounded by the shortest possible route.

C. Manhole Splices and Splice Cases - the Contractor will connect the splice case to the manhole ground as per GTE practice 605-100-201 using a #6 AWG solid copper wire.

D. NEMA Enclosure splices and Splice Cases - the splice case must be grounded to the provided ground lug in the existing NEMA box with a minimum #6 AWG wire.

E. MC/IC Splices and Splice Cases - the splice case must be grounded to the provided ground bar in the Voice/Data Equipment Room with a minimum #6 AWG wire.

F. MC/IC Electrical Protection Splices - the Contractor must bond the cable's metallic sheath/shield to the metallic splice case with the bonding bar assembly provided with the splice case.

G. Labeling: The splice case and all cables must be labeled using a stamped metal plate or indelible plastic plate, that The owner has approved, which details exact pair counts and destinations. Each 25-pair binder group, of each cable entering the splice case, must be labeled with a Panduit PAN-TY PLF1M-0 Flag with appropriate cable pair counts. All copper and fiber cable numbering and labeling will conform to the District-wide labeling standards and labeling scheme.

H. Conduit Sealing: The Contractor will supply and install all necessary components to effectively seal all conduits. The Contractor will use Semco part #PR-851 conduit sealing kit. The PR-851 compound is a two part polyurethane foam, which, when mixed for fifteen seconds, expands approximately fifteen times in volume. It forms a dense, tough foam with a density of three to four pounds per cubic foot. The expanding nature of the compound allows it to fill cracks and voids in conduit walls, and imperfections in the cable sheath. This effectively seals the conduit against the passages of gases and water. For additional information, refer to GTE Practice 628-020-203.

3.07 FIRE STOPPING

A. Clean surfaces to be in contact with fire stopping materials of dirt, grease, oil, loose materials, rust, or other substances that may affect proper fitting or the required fire resistance.

B. Install fire stopping materials as indicated, in accordance with manufacturers instructions.

C. Seal all holes or voids made by penetrations to ensure an effective smoke barrier.

D. Unless protected from possible loading or traffic, install fire stopping materials in floors having void openings of 4 square inches or more to support the same floor load requirements.

E. A small amount of hydrogen gas is released as foam cures. Use forced air ventilation when installing if areas of installation have less than 2 cubic feet of free air for each pound of liquid mixture being foamed.

F. Examine fire stopped areas to ensure proper installation prior to concealing or enclosing fire stopped areas.

G. Areas of work shall remain accessible until inspection (and approval) by the applicable code authorities.

3.08 CABLE AND RACEWAY MARKING

A. Provide legible and indelible marking on all cables as indicated in the Drawings. Contractor shall insure labeling of the cables during installation.

B. Raceways shall be clearly marked at each pull box indicating type and number of cables within.

3.09 SYSTEM TESTING

A. The Contractor shall be responsible for separately testing and documenting the cables and termination throughout the entire cabling system. Ensure that the cable and equipment being installed in the system is without flaw and that no potential damage to the cable or equipment occurred in shipment, handling, or installation. The owner representative shall observe the testing of the installed cabling and terminations at any time during the testing process

B. Testing of all installed unshielded twisted pair telecommunications cabling shall be performed by the Contractor. Interim testing of the cabling system during and after installation is encouraged to ensure that the testing and acceptance criteria are met.

C. Acceptance of the Telecommunications Cabling System shall be based on the quality of Contractor performance by analysis/inspection of the testing program documentation and the conformance of the system operation with the criteria described herein. Contractor shall make available all drawings and documentation prior to acceptance testing.

D. Contractor shall provide all necessary testing equipment for performing the required acceptance test. Contractor shall verify the authenticity and display appropriate calibration data to include the expiration date of the correct calibration.

E. Testing methods are provided herein as reference for the Contractor. Test equipment, methods, and criteria shall comply with the guidelines set forth in EIA/TIA TSB - 67 - Transmission Performance Specifications for Field Testing of Unshielded Twisted Pair Cabling Systems where applicable.

F. Copper Cable Testing:
   1. Contractor shall perform final testing on the copper cable system to demonstrate the acceptability of the project as installed. Contractor shall perform and furnish documentation of the following tests:
      a. Continuity of all conductors.
      b. Shorted conductors or pairs.
      c. Crossed pairs.
      d. Grounded conductors.
      e. Open conductors.
      f. Reversed pairs.
      g. Split pairs.
      h. NEXT performance.
      i. Length.
      j. Attenuation.
      k. AC voltage presence.
      l. Pin-assignment confirmation
   2. Results of the testing shall be furnished in printed format. All test documents shall be dated and signed by the personnel performing the testing. Hand-written test results are not acceptable. Test gear used for general testing shall be Tektronix TPS 100 Twisted Pair Cable Analyzer or approved similar device.

3. All Category 6 wiring shall be tested to indicate a minimum of 350 Mbps transmission capability. Test results shall document each installed cable pair for measured attenuation and Near End Cross Talk (NEXT). Category 6 testing shall utilize a Fluke 4000 Category 6 Scanner or approved similar device for performance validation. Category 6 End to End Link Performance shall be in accordance with the specification set forth in ANSI/TIA/EIA-568-A as well as meeting the documents' requirements for cabling length and topology, component performance and reliability, and installation practices.
4. Contractor shall be responsible for recording all test results. Copies of these test results shall be submitted to The owner for review prior to final acceptance of the copper cabling system.
5. The contractor shall perform all tests and adjustments, and shall furnish all test equipment necessary and perform all work required to determine or modify performance of the system in accordance with these specifications. The contractor will submit to the owner a complete test plan for Station Wiring/Information outlet (Voice, Data and Network), and Riser Cable to be used for this contract. At a minimum, the plan should show test configurations, calibration procedures, impedances, and measurement equipment. This plan must be approved by the owner prior to the start of testing. The test plan is a one-time requirement and will remain in effect for the duration of this contract unless specifications change requiring a re-submittal. The scope of this work includes, but is not limited to, the following:
    a. Testing of Category 6 cable shall meet EIA/TIA 568A Requirements.
    b. The vendor must utilize a check-off list for reference by the owner during tests.
    c. The vendor must utilize a check-off list for reference by the owner during tests.
    d. The result of the measurements outlined shall be recorded and submitted to the owner as final proof of system performance. Electronic results will be supplied in Fluke or equivalent format. If the owner requires specific software to view the results, the contractor will supply a copy of software to the owner.
    e. All systems must pass Category 6 specifications and be accepted by the owner before the work will be considered complete.
    f. Inter- and Intra-building tie cables: all tie cables will be tested for pass-fail connectivity ground continuity.

3.10 FIBER CABLE TESTING

A. Test all fiber with an OTDR, Microtest Certifiber or equal, prior to installation while fiber is still on the shipping reel, using an optical time domain reflectometer (OTDR) or a 850/1300/1510 nm power meter and stabilized light source. Compare test results to the manufacturer's tests. A discrepancy of more than 1 db on any fiber in either window indicates possible shipping damage and the fiber must be returned to the supplier. Contractor shall keep test results on file for future reference.

B. Test all fiber after installation according to procedures and criteria described in EIA/TIA 455A and all applicable addenda after installation and termination using an OTDR in one direction and an 850/1300/1510nm power meter and stabilized light source in both directions and in both optical windows.

C. All optical test equipment must have current, traceable calibration certification.

3.11 TEST DELIVERABLES

A. Contractor shall submit a complete test plan for station and riser wiring. At a minimum, the plan should show test configurations, calibration procedures, and measurement equipment. The plan must be approved by the owner prior to the start of testing.

B. Printed ODTR results and tabular loss results must be submitted by the Contractor as documentation of the quality of the installation and as a baseline for future troubleshooting. Compare results to pre-installation tests and document significant changes.

C. Four (4) copies of the general Copper, Category 6, and Fiber ODTR results shall be submitted in a tabular, typewritten format at the completion of system testing. The test results must also be provided in a electronic file for future reference.

END OF SECTION 27 1000

SECTION 27 1116

CABINETS, ENCLOSURES AND RACKS

- GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specifications, apply to this Section.

1.02 SUMMARY

A. Section Includes:
   1. Free-standing Equipment Cabinets, Enclosures or Racks.

1.03 REFERENCES

A. ANSI/EIA RS-310-C - Rack mounting standards.

B. NEMA 250 - Enclosures for Electrical Equipment 1000 V Max.

C. Strictly adhere to all Building Industry Consulting Service International (BICSI), Electronic Industries Alliance (EIA) and Telecommunications Industry Association (TIA) recommended installation practices when installing communications/data cabling.

D. Material and work specified herein shall comply with the applicable requirements of:
   1. ANSI/TIA/EIA – 568-B Commercial Building Telecommunications Cabling Standard, 2000-2004
   2. TIA – 569-B Commercial Building Standard for Telecommunications Pathways and Spaces, 2004
   3. ANSI/TIA/EIA – 606-A Administration Standard for the Telecommunications Infrastructure of Commercial Buildings, 2002
   4. ANSI-J-STD – 607-A Joint Standard for Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications, 2002

E. CEC - California Electrical Code - application, and installation of electrical cabinets and enclosures.

F. UL 50 - Cabinets and Boxes.

1.04 SUBMITTALS

A. Conform to the requirements of section 280500, General Requirements.

B. Product Data: Submit manufacturer's technical data for all items to be used including specifications, installation instructions and general recommendations.

1.05 SITE CONDITIONS

A. Cabinets shown on the Drawings are in approximate locations, actual location within the same room may depend on site conditions and Facility approval.

- PRODUCTS

2.01 EQUIPMENT RACKS

A. Racks shall be rectangular in shape, manufactured from steel, welded construction with two pairs of removable (bolt-on) equipment mounting rails.

B. The top of the rack shall be pre-punched with attachment holes for cable runway and a top-mount cable management jumper tray. The sides of the rack shall be pre-punched with attachment points for power strips, snap-on cable guides and vertical cable managers. The bottom of the rack shall be pre-punched with attachment points for a junction box and attachment to the floor.

C. Equipment mounting rails shall be L-shaped, set 6” (150 mm) or 3” (80 mm) apart and punched on the front flange with the EIA-310-D Universal hole pattern to provide 44 rack-mount spaces for equipment. Each mounting space shall be marked and numbered on the mounting rails. Mounting rails shall be removable and reversible so that RMU numbering can start at the bottom or top of the rack.

D. Equipment-mounting rails shall be horizontally spaced to allow attachment of 19” EIA rack-mount equipment. Attachment points shall be threaded with 12-24 threads.

E. The rack shall have two masked ground connection points located near the top and bottom of the frame and will include a ground terminal lug to attach ground conductors from the Telecommunications Grounding Busbar. Equipment mounting rails will bond to the rack through assembly hardware.

F. The rack shall measure 7’ (2.1 m) high, 24” (610 mm) wide and 15” (380 mm) deep at the base. The sides of the rack frame shall be 9.6” (294 mm) deep.

G. The rack shall be rated for 1,000 lb (453.6 kg) of equipment in seismic areas and meet Telecordia Technologies GR-63-CORE Network Equipment Building Systems (NEBS) Zone 4 requirements.

H. Finish shall be epoxy-polyester hybrid powder coat in the color as specified below. Mounting rails will be painted to match or zinc-plated.

I. 4-post racks shall be designated for equipment only.

2.02 DESIGN MAKE:

A. Chatsworth Products, Inc. (CPI),

B. Standard Two-Post Rack
   1. Part Number 55053-703, Standard Rack, 7'H (2.1 m) x 20.3"W (515.9 mm) x 15"D (381.0 mm), 45U x 19" EIA, Black, UL Listed.
   2. Part Number 40605-001, Equipment Mounting Screws, #12-24, 50 pack, Zinc
   3. Part Number 40605-005, Equipment Mounting Screws, #12-24, 50 pack, Black
   4. Part Number 12637-001, Cage Nuts and Mounting Screws, M6, 25 pack, Gold
   5. Part Number 12638-001, Cage Nuts and Mounting Screws, #10-32, 25 pack, Zinc
   6. Part Number 12639-001, Cage Nuts and Mounting Screws, #12-24, 25 pack, Black

C. QuadraRack™ 4-Post Frame
   1. Part Number 55053-703, QuadraRack™ 4-Post Frame, 19” x 7’, Black.

D.

2.03 CABLE MANAGEMENT

A. Each rack shall have a minimum of one double-sided vertical cable manager attached to the side of the rack. The cable manager will have separate front-facing and rear-facing C-shaped troughs to hold cables. The troughs will attach to the rack with slotted brackets that allow the troughs to be adjusted in depth and positioned to align with the front and rear of the rack. When positioned to align with the front and rear of the rack, there will be a space between the troughs along the side of the rack. Each trough will have large, plastic edge-protected openings along the sides to allow cables to enter/exit the trough and connect to equipment on the front/rear of the rack. Plastic spin-open latches at the front of each trough will secure cables in the trough. Large, edge-protected, rectangular openings at the rear of the trough will allow cables to exit the rear of the trough. The rear of the troughs will also be punched with keyhole slots to support power strips in the space in between the front and rear trough. Each cable management trough shall measure 7’ (2.1 m) high, 6” (150 mm) wide and 6.3” (162 mm) deep at the base. Two troughs are included with each vertical cable manager.

B. Snap-on plastic cable guides with T-shaped dividers and openings that align with each RMU space on the rack shall be attached to the front side of each rack next to the vertical cable managers to provide by-RMU cable management for cables entering/exiting the rack.

C. Materials: Provide cabinets and enclosures as follows:
   1. Provide electrical cabinets and enclosures which are UL listed and labeled, and constructed in conformance with UL 50 "Cabinets and Boxes."
   2. In normally dry interior locations, provide sheet steel with corrosion resistant fasteners.
   3. Outdoors and in damp interior locations, provide galvanized sheet steel with stainless steel fasteners.

4. At constantly wet locations or corrosive atmospheres, provide stainless sheet steel with stainless steel fasteners

D. Rail Mounts: Full enclosure length rack angles shall be installed and have ANSI/EIA RS-310-C mounting standards with 10-32 tapped mounting holes in each enclosure

E. Shelf: Provide a shelf or other suitable mounting plate for all non rack mountable equipment

F. Painting: In addition to galvanizing or priming coat, all inside and outside surfaces of trim and doors shall be given a factory finish coat of paint.

G. Grounding:
1. Comply with Section 280526.
2. Provide cabinets and enclosures with provision for cabinet grounding without penetrating exterior wall of the enclosure.

2.04 SLIDE OUT RACKS

A. Provide slide out 19” racks to provide rear access to wiring and components. Custom build unistrut support to accommodate slide out rack. Provide the following or approved equal from other manufacturers.
1. Provide two single sided equipment shelves for each rack installed, Chatsworth P.N. 40074-700.

B. Provide key-locking latches for doors.

- EXECUTION

3.01 INSTALLATION

A. Mounting: Mount cabinets at a uniform height, nominally 6 feet to the top of the enclosure above finished floor, except as otherwise noted or physically not practical. Mount cabinets with fronts straight and plumb.

B. Bracing: Brace or anchor all free-standing/wall-mounted cabinets using Uni-strut or other approved method to building structure.

C. Flush Cabinets: Set flush cabinets in finished spaces flush with adjacent walls. Mount cabinets with fronts straight and plumb.

D. Painting: Touch up all welds, scrapes and other mars in the enclosure finish with a rust inhibiting paint.

E. Front Access: Locate with minimum of 36 inches clear space in front of each cabinet or rack.

F. Other Access: Provide minimum 36 inches clear space to each side of enclosure which requires access for inspection or service.

END OF SECTION 27 1116

SECTION 27 1123
CABLE RUNWAY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. The work covered under this section consists of the furnishing of all necessary labor, supervision, materials, equipment, tests and services to install a complete cable ladder system as shown on the drawings. Cable ladder will be used for cable management inside the TC closets.

B. Cable ladder systems are defined to include, but are not limited to straight sections of Ladder, type cable ladders, bends, tees, elbows, drop-outs, supports and accessories.

C. Cable Runway will only be placed in Telecom and Server rooms below the ceiling. Cable Runway will not be placed above ceilings to convey cables throughout the building.

1.02 RELATED SECTIONS

A. Section 27 05 28 – Cable Tray

B. Section 27 10 00 – Structured Cabling

C. Section 27 41 18 - Audio Visual Systems

1.03 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code.

B. ASTM B633 - Specification for Electro-deposited Coatings of Zinc on Iron and Steel

C. NEMA VE 1 - Metallic Cable ladder Systems.

1.04 DRAWINGS

A. The drawings which constitute a part of these specifications indicate the general route of the cable ladder systems. Data presented on these drawings are as accurate as preliminary surveys and planning can determine until final equipment selection is made. Accuracy is not guaranteed and field verification, of all dimensions, routing, etc., is directed.

B. Specifications and drawings are for assistance and guidance, but exact routing, locations, distances and levels will be governed by actual field conditions. Contractor is directed to make field surveys as part of his work prior to submitting system layout drawings.

1.05 SUBMITTALS

A. Submittal Drawings: Submit drawings of cable ladder and accessories including clamps, brackets, hanger rods, splice plate connectors, expansion joint assemblies, and fittings, showing accurately scaled components.

B. Product Data: Submit manufacturer's data on cable ladder including, but not limited to, types, materials, finishes, rung spacing, inside depths and fitting radii. For side rails and rungs, submit cross sectional properties including Section Modulus (Sx) and Moment of Inertia (Ix).

1.06 QUALITY ASSURANCE

A. Manufacturers: Firms regularly engaged in manufacture of cable ladders and fittings of types and capacities required, whose products have been in satisfactory use in similar service for not less than 5 years.

B. NEMA Compliance: Comply with NEMA Standards Publication Number VE1, "Cable ladder Systems".

C. NEC Compliance: Comply with NEC, as applicable to construction and installation of cable ladder and cable channel systems (Article 318, NEC).

D. UL Compliance: Provide products which are UL-classified and labeled.

E. NFPA Compliance: Comply with NFPA 70B, "Recommended Practice for Electrical Equipment Maintenance" pertaining to installation of cable ladder systems.

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver cable ladder systems and components carefully to avoid breakage, denting and scoring finishes. Do not install damaged equipment.

B. Store cable ladders and accessories in original cartons and in clean dry space; protect from weather and construction traffic.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Manufacturer: Subject to compliance with these specifications, cable ladder and cable channel systems to be installed shall be as manufactured by Chatsworth, Inc. or engineer approved equal.

2.02 CABLE LADDER SECTIONS AND COMPONENTS

A. General: Except as otherwise indicated, provide metal cable ladders, of types, classes and sizes indicated; with splice plates, bolts, nuts and washers for connecting units. Construct units with rounded edges and smooth surfaces; in compliance with applicable standards; and with the following additional construction features.
   1. Materials and Finish: Material and finish specifications for each cable ladder type are as follows:
   2. 1.5” Tubular Steel: Straight section and fitting side rails and rungs shall be extruded from ASTM A513 steel tube. All fabricated parts shall be finished with a black powder coat.
   3. Ladder rack to wall support, Chatsworth Wall Angle Support Kit, P.N. 11421-712
   4. Rack to runway support Chatsworth mounting plate P.N. 10595-712
   5. Ladder rack support system, Chatsworth Universal Cable Runway P.N. 10250-712
   6. Straight through ladder rack splice, Chatsworth Butt-Splice Kit P.N. 11301-701
   7. Ladder rack junction splice, Chatsworth Junction Splice Kit P.N. 11302-702
   8. Ladder rack protective end caps, Chatsworth Protective Rubber End Caps P.N. 10642-001
   9. Wall support for cable runway Chatsworth Triangular Support Bracket P.N. 11312-712

2.03 TYPE OF CABLE LADDER SYSTEM

A. Ladder type cable ladders shall consist of two longitudinal members (stringers) with transverse members (rungs) welded to the stringers. Rungs shall be spaced 9" inches on center. Rung spacing in radius fittings shall be 9 inches and measured at the center of the cable ladder's width. Rungs shall have a minimum cable bearing surface of 1” with radius edges. No portion of the rungs shall protrude below the bottom plane of the side rails.

B. Straight cable ladder sections shall have side rails fabricated as tubular steel channels. All straight sections shall be supplied in standard 10' foot lengths, except where shorter lengths are permitted to facilitate cable ladder assembly lengths as shown on drawings.

C. Cable ladder widths shall be 12”, 18" or 24” inches as indicated on drawings.

D. Splice plates shall be the bolted type made as indicated below for each cable ladder type. The resistance of fixed splice connections between an adjacent section of cable ladder shall not exceed .00033 ohm. Splice plate construction shall be such that a splice may be located anywhere within the support span without diminishing the cable ladder rated loading capacity.

E. All splice materials shall be made of ASTM A570 structural steel using carriage bolts and serrated flange locknuts. Hardware shall be Yellow Zinc Dichromate. Chatsworth # 16299-001 or approved equal.

F. Cable ladder Supports: Shall be placed so that the support spans do not exceed a maximum span of 5’ feet. Supports shall be constructed from formed shape channel members 1 5/8" x 1 5/8" with necessary hardware such as trapeze support kits, ceiling support kits, triangular support brackets, or wall angle support kits as manufactured by Chatsworth Products or engineer approved equal.

G. Trapeze hangers shall be supported by 3/8" (minimum) diameter all thread rods.

H. Accessories - special accessories shall be furnished as required to protect, support, and install a cable ladder system. Accessories shall consist of but are not limited to; section splice plates, expansion plates, blind-end plates, specially-designed ladder drop-outs, barriers, etc.

2.04 LOADING CAPACITIES

A. Cable ladders shall meet NEMA class designations: 8A.

PART 3 EXECUTION

3.01 INSTALLATION

A. All cable ladder will be installed in the IC and/or TC spaces only. Cable ladder is not acceptable in the space above the ceiling for distribution of horizontal cable runs. Refer to Cable Tray section 270528.

B. Install cable ladders as indicated; in accordance with equipment manufacturer's instructions, and with recognized industry practices, to ensure that cable ladder equipment comply with requirements of NEC, and applicable portions of NFPA 70b and NECA's "Standards of Installation" pertaining to general electrical installation practices.

C. Coordinate cable ladder with other electrical work as necessary to properly interface installation of cable ladder work with other work.

D. Provide sufficient space encompassing cable ladders to permit access for installing and maintaining cables.

E. Ground all cable ladder to the communications room bus bar. Use ground straps between each section of runway installed or where splice plates are used to join sections. Scrape paint away from cable runway at points of connection to each section of runway by the ground strap.

3.02 TESTING

A. Test cable ladders to ensure electrical continuity of bonding and grounding connections, and to demonstrate compliance with specified maximum grounding resistance. Refer to NFPA70B, Chapter 18, for testing and test methods.

END OF SECTION 27 1123

SECTION 27 5116

PUBLIC ADDRESS & MASS NOTIFICATION SYSTEM

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Division 00 General Conditions and Division 01 General Requirements apply to the work of this Section.

1.02 WORK INCLUDED

A. This Section specifies the requirements necessary to furnish and install:
   1. Indoor speakers
   2. Exterior speakers
   3. Connection to new or existing Telecor equipment
   4. Wireless clocks

1.03 RELATED WORK

A. This Section shall be used in conjunction with the following other specifications and related Contract Documents to establish the total requirements for basic communications materials and methods:
   1. Sections of Division 26 00 00, Electrical General Requirements
   2. Sections of Division 27 00 00 Communications

B. In the event of conflict regarding requirements for communications materials and methods between this Section and any other section, the provisions of this Section shall govern.

1.04 SUBMITTALS

A. Manufacturer's literature describing the product

B. Wiring diagrams clearly showing the interconnections of all major components

C. Maintenance manuals and parts lists. Manuals shall include schematic drawings and service instructions.

D. Floor plan drawings showing device locations, conduit routings, and number of conductors

1.05 EXISTING SYSTEM FUNCTIONAL DESCRIPTION

A. The existing campus public address system shall be extended to the new / modernized building.

1.06 PRE-INSTALLATION CONFERENCE

A. Convene a pre-installation conference at least seven calendar days prior to installing any equipment, devices or systems in the IDF Room. For projects with underground and/or roof mounted conduits, convene a separate pre-installation meeting

B. Attendance: Architect, Construction Manager, Contractor, Electrical Subcontractor, Low Voltage Subcontractor/s, District Low Voltage Systems Representative and Project Inspector.

C. Agenda: Review all low voltage systems related to the project. Subcontractors shall come prepared to discuss how the low voltage systems are being installed and run throughout the building/s.

PART 2 – PRODUCTS

2.01 INTERIOR SPEAKERS

A. Interior speakers shall be eighth inch diameter paper cone type with T25 25V line matching transformer. Frequency range to be 30 to 15,000 Hz. Telecor STB-11 or equal. Drop ceiling support shall be Telecor CC1, or equal. Interior wall mounted speakers shall be mounted in Atlas Sound VP-161A-APF backbox/baffle assembly. Atlas Sound SE161-R6 where surface mounted.

2.02 EXTERIOR SPEAKERS

A. Exterior speaker assembly shall be Atlas APF-15TUC series loudspeaker with T-11 transformer in an Atlas SE161-R6 backbox and VP161-APF cover, or equal. Housing shall include a baffle and be painted to match surrounding surfaces.

2.03 CABLING

A. Cable serving interior speakers shall be home run 23 AWG Category 6 CMP, Berk-Tek LANmark 1000 Cat6 white in color 11074738

B. Cables are to be terminated at the IDF onto purple Leviton Cat 6 jacks

C. 61110-RP6 and secured to a 48 port Leviton Multimedia panel 49255-H48 with a 49257-QHD. Ports utilized will depend on speaker counts.

D. A 50 pair ISP cable is to terminate from a 48 port Leviton 69586-U48 patch panel to the 110 frame in the same IDF. Ports utilized will depend on speaker counts.

2.04 TELECOR EQUIPMENT

A. Provide and install a Telecor XL system and Tel-250 amplifier with supporting heavy duty CPI rack shelves. The headend is to include enough points on the system to support a 1:1 speaker to points ratio for the campus. An additional 25 inputs and 100 outputs will also be required for growth.

B. Provide and install from the Telecor XL unit 25 pair tails to C5PPLs located in the designated equipment rack TBD in the MDF. The 25 pair tail counts are to support the build out in 2.4A.

C. Provide and install a custom length CAT 6 purple in color patch cord for each speaker from the terminated purple jacks to the C5PPLs.

D. Each patch cord must be labeled at each end with a wraparound Brady type label approximately 2” from the male plug. Each label is to match the speaker location label. Each label must be clearly visible when plugged into equipment / patch panels.

E. Neatly route all patch cords through existing vertical and horizontal management. All patch cords installed must have sufficient slack as to not exceed its bend radius minimum and not too long as to take up unnecessary space in the cable management spaces.

F. Provide all programming, bell schedules, Primex syncing module and syncing of clock system for the entire campus Telecor system.

G. Provide and install 2 MCC300 consoles including associated cabling to 2 workstations TBD.

H. The contractor will be responsible for connecting and programming the XL system to the ESUHSD network for remote accessibility at the Ed Center.

I. When adding to an existing system the Contractor shall program all new speakers to Telecor Equipment as directed by the district representative.

J. When adding to an existing system install TELECOR IOP-4 CARD. 25 pair CAT 3 Tail terminated into 110 frame. Contractor shall program one port of the new card(s) for each speaker installed. Provide separate card for each building. The bell schedule will be provided by the district IT Representative.

2.05 CLOCKS

A. Install new wired Primex Traditional Series Clocks 14306 12.5” (31.75cm) Black in color. Clocks shall be synchronized to existing campus clock system. Electrical outlet must be installed to support the 120VAC clock.

B. Transmitters:
   1. Primex XR Series 1-watt Transmitter
      a. For single building deployments

C. Accessories
   1. Primex Dual Clock Kit
   2. Wire Clock Guard

3. Surge Protector
4. 1-Watt Transmitter Rack

2.06 LABELS

A. The Contractor shall provide tags, straps, and adhesive labels. These tags, straps, and adhesive labels must be of high quality that will endure heat, water, and time.

B. Shall meet the legibility, defacement, exposure, and adhesion requirements of UL 969.

C. Shall be pre-printed using a mechanical means of printing.

D. Where used for cable marking, provide vinyl substrate with a white printing area and a clear "tail" that self laminates the printed area when wrapped around the cable. The cable marking should be immediately visible and be within two inches from the termination point.

E. Where insert type labels are used, provide clear plastic cover over label.

F. Copper patch panel labeling shall be completed with adhesive labeling kit specifically designed for the panel, Leviton 49257-QHD.

G. Labeling P-touch font size 4MM bold, black on White, 3/8" labeling tape on all work stations, panels and devices. Contractor must provide labeling samples for approval by the District's Low Voltage Systems Representative before labeling of the systems is performed.

H. Labels shall be numbered consecutively and separate for each type of use. Refer to Work Station Details and Floor Plan Device Numbering Example for additional information

PART 3 – EXECUTION

3.01 GENERAL COMMUNICATION CABLING METHODS

A. Install cable after interior of building has been physically protected from the weather and work likely to damage conductors has been completed. .

B. Before installing cabling, ensure cable pathways are thoroughly cleaned. Inspect conduit and wireway installed by others.

C. Cabling systems shall be separated by color and segregated along the paths.

D. Pull tape with preprinted foot markers is usually provided when conduit and innerduct are installed; if not, provide pull tape in each empty communications conduit containing a bend or over 10 feet in length.

E. All wiring shall be installed in conduit in concealed areas and in surface nonmetallic raceway in exposed locations.

F. Provide pigtails of adequate length for neat, trained, and bundled connections.

G. Provide protection for exposed cables where subject to damage.

H. Provide abrasion protection for cable or wire bundles that pass through holes or across edges of sheet metal.

I. All equipment except portable equipment shall be secured firmly in place. This shall include loudspeakers, amplifiers, cables, etc. Fastening and supports shall be adequate to support their loads with a safety factor of at least three (3). All switches, connectors, outlets, etc., shall be clearly, logically and permanently marked during installation.

3.02 TESTING

A. The Contractor shall perform an operational check to assure that the system complies with all requirements of these specifications. Operation tests shall be made in the presence of the Engineer and Owner's representative who shall be notified of the test date a minimum of ten (10) days prior to that date.

B. The Contractor, if requested to do so by the Owner, shall be prepared to show by "proof of performance" test that the equipment furnished is equal or superior to the equipment specifications. This proof shall be shown by actual tests and not be printed sales literature. To this end, the Contractor shall provide qualified audio technicians and such test equipment as required to perform this function. The following test equipment shall be considered minimum for

the above stated purpose. Sound level meter, 1/3 and 1/10 octave-band wave analyzer, sine and square-wave generator, impedance (CRL) bridge, audio oscilloscope, distortion analyzer, graphic level recorder, calibrated microphone, real-time spectrum analyzer, beat-frequency oscillator, random-noise generator, etc. Instruments, as manufactured by General Radio, Tektronix, Hewlett-Packard and Bruel & Kjaer, are considered acceptable for measurements. Non-professional test equipment or “home-built kit” type gear shall not be acceptable under these specifications.

3.03 AS BUILT DOCUMENTATION

A. The Contractor will be provided drawings in electronic format (DWG, AutoCAD release 14 or later) on which as-built construction information can be added.

B. Upon completion of the project, the Contractor is to prepare as-built documentation showing actual site conditions and installation as constructed.

C. The Contractor shall annotate the base drawings and return a hard copy and electronic form (AutoCAD release 14 or later).

D. The Contractor shall provide and install a C-size framed floor plan with outlet and device locations for all low voltage systems. The floor plan shall be framed and installed in the new MDF/IDF Room. The drawing should be a plan of the building with a symbols legend showing where all the devices are and the labeling for each device only. Remove all general notes and details not applicable to the low voltage systems.

END OF SECTION 27 5116

SECTION 28 1600
INTRUSION DETECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Intrusion detection system requirements.

B. Alarm control unit.

C. Keypads.

D. Initiating devices.

E. Alarm notification appliances.

F. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 07 8400 - Firestopping.

B. Section 08 7100 - Door Hardware: Electrically operated locks and door holder devices to be monitored and controlled by intrusion detection system.

C. Section 26 0526 - Grounding and Bonding for Electrical Systems - .

D. Section 26 0534 - Conduit.

E. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

F. Section 28 2300 - Video Surveillance: For interface with intrusion detection system.

G. Section 28 3100 - Fire Detection and Alarm.

1.03 REFERENCE STANDARDS

A. 47 CFR 15 - Radio Frequency Devices; current edition.

B. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2010.

C. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

D. UL 365 - Police Station Connected Burglar Alarm Units and Systems; Current Edition, Including All Revisions.

E. UL 609 - Local Burglar Alarm Units and Systems; Current Edition, Including All Revisions.

F. UL 634 - Connectors and Switches for Use with Burglar-Alarm Systems; Current Edition, Including All Revisions.

G. UL 636 - Holdup Alarm Units and Systems; Current Edition, Including All Revisions.

H. UL 639 - Intrusion-Detection Units; Current Edition, Including All Revisions.

I. UL 864 - Control Units and Accessories for Fire Alarm Systems; Current Edition, Including All Revisions.

J. UL 1037 - Antitheft Alarms and Devices; Current Edition, Including All Revisions.

K. UL 1076 - Proprietary Burglar Alarm Units and Systems; Current Edition, Including All Revisions.

L. UL 1610 - Central-Station Burglar-Alarm Units; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate compatibility of devices for the installed locations with work provided under other sections or by others.
2. Coordinate the placement of sensors and keypads with millwork, furniture, equipment, etc. installed under other sections or by others.

3. Coordinate the work with other installers to provide communication lines required for alarm control unit connection to central station.
4. Notify Architect of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.

B. Preinstallation Meeting: Conduct meeting with facility representative and other related equipment manufacturers to discuss intrusion detection system interface requirements.

C. Sequencing:
1. Do not install sensors and keypads until final surface finishes and painting are complete.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for each system component. Include ratings, configurations, standard wiring diagrams, dimensions, finishes, service condition requirements, and installed features.
1. Motion Detectors: Include detailed motion detection coverage range diagrams.

C. Shop Drawings: Include plan views indicating locations of system components and proposed size, type, and routing of conduits and/or cables. Include system interconnection schematic diagrams. Include requirements for interface with other systems.

D. Design Data: Include standby battery calculations.

E. Certify that proposed system design and components meet or exceed specified requirements.

F. Evidence of qualifications for installer.

G. Evidence of qualifications for maintenance contractor (if different entity from installer).

H. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and operation of product.

I. Manufacturer’s detailed field testing procedures.

J. Field quality control test reports.

K. Operation and Maintenance Data: Include detailed information on system operation, equipment programming and setup, replacement parts, and recommended maintenance procedures and intervals.
1. Include contact information for entity that will be providing contract maintenance and trouble call-back service.

L. Warranty: Submit sample of manufacturer's warranty and documentation of final executed warranty completed in Owner's name and registered with manufacturer.

M. Project Record Documents: Record actual locations of system components and installed wiring arrangements and routing.

N. Software: One copy of software not resident in read-only memory.

1.06 QUALITY ASSURANCE

A. Conform to requirements of NFPA 70.

B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.

C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

D. Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience with intrusion detection systems of similar size, type, and complexity and providing contract maintenance service as a regular part of their business; authorized representative of control unit manufacturer.
1. Contract maintenance office located within 50 miles (80 km) of project site.

E. Maintenance Contractor Qualifications: Same entity as installer.

F. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

B. Store products in manufacturer's unopened packaging, keep dry and protect from damage until ready for installation.

1.08 FIELD CONDITIONS

A. Maintain field conditions within manufacturer's required service conditions during and after installation.

1.09 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Provide minimum two year manufacturer warranty covering repair or replacement due to defective materials or workmanship.

PART 2 PRODUCTS

2.01 INTRUSION DETECTION SYSTEM REQUIREMENTS

A. Provide new intrusion detection devices consisting of all required equipment, conduit, boxes, wiring, connectors, hardware, supports, accessories, software, system programming, etc. as necessary for a complete operating system that provides the functional intent indicated.

B. Alarm Control Unit: New addressable alarm control panel located as shown on drawings.

C. Combination fire/intrusion systems are not permitted.

D. Keypads: Located as shown on drawings.

E. Initiating Device Requirements:
   1. Protected Premises: Entire building shown on drawings.
   2. Provide motion detectors to detect intruder in designated areas.
      a. Model number #ISC-BPR2 Blue Line Gen2 PIR.
   3. Provide glass break detectors to monitor:
      a. Designated perimeter windows.
      b. Model number #DS1103i.

F. Alarm Notification and Reporting Requirements:
   1. Activate alarm notification at alarm control unit and associated keypads/annunciators with appropriate zone information displayed.
   2. Activate local notification appliances.
      a. Interior: Provide siren located as indicated on drawings.
      b. Exterior: Provide siren and strobe located as indicated on drawings.
   3. Transmit alarm report to listed remote central station under contract with facility.
      a. Primary Communication Means: Telephone line (digital alarm communicator).
      b. Secondary Communication Means: Internet/intranet (IP addressing).

G. Interface with Other Systems:
   1. Provide products compatible with other systems requiring interface with intrusion detection system.
   2. Interface with access control system as specified in Section 28 1300.
      a. Capable of affecting access for designated doors for selected intrusion detection system events.
      b. Capable of affecting intrusion detection system status for selected access control system events.
   3. Interface with video surveillance system as specified in Section 28 2300.
      a. Capable of activating video surveillance system and controlling camera inputs/video outputs for selected intrusion detection system events.

4. Interface with electrically operated door hardware as specified in Section 08 7100.
    a. Capable of locking/unlocking/releasing designated doors for selected intrusion detection system events.

H. Provide products listed, classified, and labeled as suitable for the purpose intended.
1. Local Alarm Units and Systems: Listed and labeled as complying with UL 609.
2. Central Station Alarm Units: Listed and labeled as complying with UL 1610.
3. Proprietary Alarm Units and Systems: Listed and labeled as complying with UL 1076.
4. Police Station Connected Alarm Units and Systems: Listed and labeled as complying with UL 365.

I. Electromagnetic Interference/Radio Frequency Interference (EMI/RFI) Limits: Comply with FCC requirements of 47 CFR 15, for Class B, consumer application.

2.02 ALARM CONTROL UNIT

A. Manufacturers:
1. Addressable Alarm Control Panel - Basis of Design: Bosch security.
2. Substitutions: See Section 01 6000 - Product Requirements.
3. Products other than basis of design are subject to compliance with specified requirements and prior approval of Engineer.

B. Alarm Control Panel: Modular construction.
1. Enclosure: Lockable; provide tamper protection.
    a. Bosch D8103 grey steel enclosure 16in. x16in. x 3.5in
    b. Bosch D101 lock and key set
2. Control Panels: Model number #B9512G
3. Power Supply:
    a. Primary Power: 120 VAC; provide suitable transformer/power supply; supervised for loss of AC power.
    b. Secondary Power: Standby battery; provide suitable capacity for minimum standby time required by listing requirements, applicable codes, and authority having jurisdiction, but not less than four hours; provide suitable battery charger; supervised for low battery condition; protected from accidental reversal of battery leads.
    c. AlarmSAF PS5-M003-UL
        1) 12 VDC, 5 amp uninterrruptible power supply in vented locking 11"H x 15"W x 4"D cabinet

C. Alarm Initiating Circuits: Supervised.
1. Hardwired Zones: Supports both normally closed and normally open conventional (non-addressable) initiating devices.
2. Addressable Zones: Supports addressable initiating devices and modules using multiplexed polling loops.

D. Alarm Notification Circuits: Supervised.

E. Communications Interfaces: Supervised.
1. Supports system reporting to central station receivers via integral interface or accessory interface modules using:
    a. Telephone lines.
    b. Internet/intranet (IP addressing).

F. Keypads: Supervised.

G. Peripheral Devices: Supervised; provide tamper protection.

H. Output Relays:
1. Relay Modules: Form C relays (normally open and normally closed); provide tamper protection.
2. Programmable to respond to system events, according to defined scheduling, or by manual activation from keypad.

I. User Codes:

1. Each user code to be individually assignable to any defined authority level for configurable access to system features and functions.

J. Partitions:
1. Each partition to operate independently with individually programmable annunciation, control, and reporting functions.
2. Each zone to be individually assignable to any partition.
3. Each keypad to be individually assignable to any partition.
4. Each output relay to be individually assignable to any partition.
5. Each user code to be individually assignable to any partition.

K. Scheduling:
1. Provide time/calendar-based scheduling capability for automated system control.
2. Supports open/close schedules for control of arming/disarming and reporting.
3. Supports timed events including, but not limited to:
   a. Point bypass/unbypass.
   b. Relay activate/deactivate.

L. Event Log:
1. Stores system events including time, date, partition, zone, and user code where applicable.
2. Supports viewing of event log on keypads.
3. Supports viewing of event log on remote PC.
4. Supports printing of event logs on local printer.

M. Features:
1. Capable of being programmed locally or remotely.
2. Capable of being armed via key switch.
3. Supports panic/duress codes.
4. Supports force arming.
5. Supports cross zoning.
6. Supports swinger bypass.
7. Supports walk test mode.

2.03 KEYPADS

A. Manufacturer: Same as manufacturer of alarm control unit.

B. Provides interface to alarm control unit for system control and remote annunciation.

C. Provides visual notification of system status and zone information.

D. Provides audible notification to indicate system status, entry/exit delay, and alarm situations; provide separate distinguishable sounds for alarm and trouble conditions.

E. Keypad Type: Only LCD or graphic touch screen keypads are acceptable. Do not use LED keypads.

F. Graphic Touch Screen Keypads: Displays system status and zone information using plain English on graphic display; touch screen interface.

G. LCD Keypads: Displays system status and zone information using plain English on alphanumeric display; illuminated keys.

H. Basis of Design Products:
1. Bosch. D1255 with an off-white case, wall mounted with illuminated 16 character vacuum flourescent display and sounder

2.04 INITIATING DEVICES

A. Manufacturers: Same as manufacturer of alarm control units where possible.
1. Substitutions: See Section 01 6000 - Product Requirements.

B. General Requirements:
1. Provide devices suitable for intended application and location to be installed.
2. Outdoor Units: Weather resistant, suitable for outdoor use.

3. Addressable Systems:
    a. Addressable Devices: Individually identifiable by control unit.
    b. Provide suitable addressable modules for connection to conventional (non-addressable) devices and other components that provide a dry closure output.

C. Motion Detectors:
1. Listed and labeled as complying with UL 639.
2. Passive Infrared (PIR) Motion Detectors: Designed to detect intruder by sensing movement of thermal energy between zones.
3. Dual Technology PIR/Microwave Motion Detectors: Designed to detect intruder using combination of passive infrared technology (by sensing movement of thermal energy between zones) and microwave technology (by sensing frequency shifts in emitted and reflected high frequency microwave signals).
4. Basis of Design Products:
    a. Bosch ISC-BPR2 Blue Line Gen2 PIR Motion Detector
        1) Wall to wall coverage
        2) Dynamic Temperature Controll
        3) Flexible mounting height
    b. Bosch B335-3 Swiveling low profile gimble mount EOL

D. Glass Break Detectors:
1. Listed and labeled as complying with UL 639.
2. Suitable for the glass type to be monitored.
3. Accurately discriminates false alarms from true glass break events.
4. Furnished with selectable sensitivity.
5. Acoustic Glass Break Detectors: Designed to analyze ambient sound and activate upon detection of specific audio patterns representative of the sound of breaking glass.
6. Shock Glass Break Detectors: Piezoelectric sensing element; designed to detect vibrations representative of breaking glass.
7. Acoustic/Shock Dual Technology Glass Break Detectors: Designed to detect breaking glass using a combination of ambient sound and vibration analysis.
8. Basis of Design Products:
    a. Bosch DS1103i Flush mount Glassbreak detector
        1) Microprocessor based sound analysis technology
        2) Automatic environmental test circuitry
        3) Sound check
        4) Flush mounting

E. Exterior Bell
1. Amesco ABB-1014 outdoor slimline steel bell box
    a. Microprocessor based sound analysis technology
    b. Automatic enviromental test circuitry
    c. Sound check
    d. 18 gauge cold rolled steel
    e. UL listed motor driven low current bell
    f. dual wired, UL listed reed tamper switches
    g. Salt spray and rust resisitance
    h. 12V DC operating voltage
    i. Durable, weather resistant powder coat pain
    j. Overall size 14' x 14" x 4"
    k. Exterior color, Almond

2.05 CABLE, BARRIER STRIPS AND CONNECTORS

A. West Penn 25241
1. #22/4 stranded bare copper conductors, unshielded with an overall jacket

B. West Penn 25244

1. #18/4 stranded bare copper conductors, unshielded with an overall jacket

C. Ideal 89-610
1. Barrier strip for consolidation of power wires at the panel
2. UL recognized for 30A, 600V
3. CSA certified for 20A, 400V
4. Torque Rating of 4.4 in-lbs
5. Recessed screws and tubular contacts
6. UL Listed and CSA certified
7. Connect stripped un-terminated solid or stranded wire
8. Modular 12 circuits can be cut into smaller sections
9. Plastic housing is UL flame rated to 94V-2
10. Rated termperature to 105 degrees C

D. Berk-Tek 11074739
1. LANmark-1000
2. CAT 6
3. Plenum rated
4. Unshielded twisted pair data cable
5. 23 AWG
6. 4 pair
7. Solid bare copper conductors
8. FEP insulation
9. Flame tetardant PVC jacket
10. Gray

E. Leviton 61110-RG6 eXtreme CAT 6 Quickport connector, grey.

F. No splicing allowed. All cabling shall be homerun to each device.

2.06 LABELS

A. Provide tags, straps, and adhesive labels must be of high quality that will enduire heat, water, and time
1. Meet the legibility, defacement, exposure, and adhesion requirements of UL 969
2. Pre-printed using a mechanical means of printing. Ideal 89-610

B. Where used for cable marking, provide vinyl substrate with a white printing area and a clear "tail" that self laminates the printed area when wrapped around the cable. The cable marking should be immediately visible and be within two inches from the termination point.

C. Where insert type labels are used, provide clear plastice cober over label.

D. Labeling P-touch font size 4MM bold, black on White, 3/8" labeling tape on all patch cords, cable ends, and panels and devices.

E. Labels shall be numbered consecutively and separate for each type of use.

2.07 ALARM NOTIFICATION APPLIANCES

A. Manufacturers: Same as manufacturer of alarm control units where possible.

B. Provide alarm notification appliances suitable for connection to control unit outputs.

C. Outdoor Units: Weather resistant, suitable for outdoor use.

D. Sirens: Speaker with self-contained siren driver.
1. Provide tamper switches for outdoor units.

E. Strobes:
1. Color: Clear.
2. Provide tamper switches for outdoor units.

2.08 ACCESSORIES

A. Provide components as indicated or as required for connection of alarm control unit to devices and other systems indicated.

B. Provide cables as indicated or as required for connections between system components.

C. Provide end-of-line resistors (EOLR) as required for supervision of hardwired zones.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as shown on the drawings.

B. Verify that ratings and configurations of system components are consistent with the indicated requirements.

C. Verify that mounting surfaces are ready to receive system components.

D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to system.

E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Perform work in a neat and workmanlike manner in accordance with NECA 1.

B. Install products in accordance with manufacturer's instructions.

C. Wiring Method: Unless otherwise indicated, use cables (not in conduit).
   1. Use listed plenum rated cables in spaces used for environmental air.
   2. Install wiring in conduit where required for rough-in, where required by authority having jurisdiction, and where exposed to damage.
   3. Conduit: Comply with Section 26 0534.
   4. Conceal all cables unless specifically indicated to be exposed.
   5. Cables in the following areas may be exposed, unless otherwise indicated:
      a. Equipment closets.
   6. Route exposed cables parallel or perpendicular to building structural members and surfaces.

D. Provide grounding and bonding in accordance with Section 26 0526.

E. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 8400.

F. Identify system wiring and components in accordance with Section 26 0553.

3.03 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Provide services of a manufacturer's authorized representative to observe installation and assist in inspection and testing. Include manufacturer's detailed testing procedures and field reports with submittals.

C. Prepare and start system in accordance with manufacturer's instructions.

D. Inspection and testing to include, at a minimum:
   1. Test each initiating device for proper response by alarm control unit.
      a. Test glass break detectors using only manufacturer's recommended glass break simulation test units.
   2. Test for proper operation of alarm notification appliances.
   3. Test for proper operation of output relays.
   4. Test for proper operation of communication interfaces and central station reporting.
   5. Test for proper interface with other systems.

E. Correct defective work, adjust for proper operation, and retest until entire system complies with contract documents.

F. Submit detailed reports indicating inspection and testing results and corrective actions taken.

3.04 ADJUSTING

A. Program system parameters according to requirements of Owner.

3.05 CLEANING

A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

3.06 CLOSEOUT ACTIVITIES

A. See Section 01 7800 - Closeout Submittals, for closeout submittals.

B. See Section 01 7900 - Demonstration and Training, for additional requirements.

C. Demonstration: Demonstrate proper operation of system to Owner, and correct deficiencies or make adjustments as directed.

D. Training: Train Owner's personnel on operation, adjustment, and maintenance of system.
   1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
   2. Provide minimum of four hours of training.
   3. Instructor: Manufacturer's authorized representative.
   4. Location: At project site.

3.07 PROTECTION

A. Protect installed system components from subsequent construction operations.

3.08 MAINTENANCE

A. See Section 01 7000 - Execution and Closeout Requirements, for additional requirements relating to maintenance service.

B. Conduct site visit at least once every three months to perform inspection, testing, and preventive maintenance. Submit report to Owner indicating maintenance performed along with evaluations and recommendations.

C. Provide trouble call-back service upon notification by Owner:
   1. Include allowance for call-back service during normal working hours at no extra cost to Owner.
   2. Owner will pay for call-back service outside of normal working hours on an hourly basis, based on actual time spent at site and not including travel time; include hourly rate and definition of normal working hours in maintenance contract.

END OF SECTION 28 1600

SECTION 28 2300
VIDEO SURVEILLANCE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Video surveillance system requirements.

B. Cameras.

C. Accessories.

1.02 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate the placement of cameras with structural members, ductwork, piping, equipment, luminaires, diffusers, fire suppression system components, and other potential conflicts installed under other sections or by others.
   2. Coordinate the work with other installers to provide power for cameras and equipment at required locations.
   3. Notify Architect of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.

B. Preinstallation Meetings:
   1. Conduct meeting with facility representative to review camera and equipment locations and camera field of view objectives.
   2. Conduct meeting with facility representative and other related equipment manufacturers to discuss video surveillance system interface requirements.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Include plan views indicating locations of system components and proposed size, type, and routing of conduits and/or cables. Include elevations and details of proposed equipment arrangements. Include system interconnection schematic diagrams. Include requirements for interface with other systems.

C. Product Data: Provide manufacturer's standard catalog pages and data sheets for each system component. Include ratings, configurations, standard wiring diagrams, dimensions, finishes, service condition requirements, and installed features.

1.04 QUALITY ASSURANCE

A. Comply with the following:
   1. NFPA 70
   2. Applicable TIA/EIA standards.

B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.

C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

D. Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience with video surveillance systems of similar size, type, and complexity and providing contract maintenance service as a regular part of their business; authorized manufacturer's representative.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions and NECA 303.

B. Store products in manufacturer's unopened packaging, keep dry and protect from damage until ready for installation.

1.06 FIELD CONDITIONS

A. Maintain field conditions within manufacturer's required service conditions during and after installation.

1.07 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Provide minimum one year manufacturer warranty covering repair or replacement due to defective materials or workmanship.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Video Recording and Viewing Equipment - Basis of Design: OnSSI.
   1. Security Camera License: OnSSI OVcularis CS 1C
   2. Security Camera License SUP: OnSSI Ocularis CS 1C Sup 3yr.

B. Cameras - Basis of Design: OnSSI.
   1. 90 degree Panasonic indoor/outdoor cameras WV-SFV631
   2. Adjustment of final camera focusing and coverage must be done in the presence of the school district low voltage system representative.

C. Substitutions: See Section 01 6000 - Product Requirements.

D. Products other than basis of design are subject to compliance with specified requirements and prior approval of Engineer. By using products other than basis of design, Contractor accepts responsibility for costs associated with any necessary modifications to related work, including any design fees.

E. Source Limitations: Where possible, furnish system components and accessories produced by a single manufacturer and obtained from a single supplier.

2.02 VIDEO SURVEILLANCE SYSTEM

A. Provide modifications and extensions to existing video surveillance system consisting of all required equipment, conduit, boxes, wiring, connectors, hardware, supports, accessories, software, system programming, etc. as necessary for a complete operating system that provides the functional intent indicated.

B. System Description: IP system with connection to network (IP) cameras.
   1. OnSSI Ocularis OC-ENT-1C Camera License - 1 License per camera
   2. OnSSI Ocularis SC-OC-ENT-1C-3Y Camera License (SC) - Stay current Software Upgrade Package for each camera.

C. Provide products listed, classified, and labeled as suitable for the purpose intended.

D. Electromagnetic Interference/Radio Frequency Interference (EMI/RFI) Limits: Comply with FCC requirements of CFR, Title 47, Part 15, for Class B, consumer application.

2.03 ACCESSORIES

A. Provide components as indicated or as required for connection of video surveillance system to devices and other systems indicated.

B. Provide network switches as required for network connections to system components.

C. Provide cables as indicated or as required for connections between system components.

D. Provide accessory racks/cabinets as indicated or as required for equipment mounting.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as shown on the drawings.

B. Verify that ratings and configurations of system components are consistent with the indicated requirements.

C. Verify that mounting surfaces are ready to receive system components.

D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to system.

E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install video surveillance system in accordance with NECA 1 (general workmanship) and NECA 303.

B. The servers must view and store data for each camera for a minimum of 30 days of storage based upon 35% motion

C. Program Cameras as follows:
   1. True Day Night with Automatic light detection
   2. 15 FPS, H.264
   3. For 360 degree cameras, Panasonic WV-SFV481, 6 Megapixels Day, 4 Megapixels Night

D. Program the video system for home positions, scheduled tours, detection windows, recording times, rates, and resolution by others.

E. Program the software with Map views and full integration to each camera and location.

F. Label cameras accoding to specification in OnSSI software

G. Multi-Level access as designated.
   1. Administrator - Full use and ability to move cameras and focus
   2. Viewing users - View ability only, no access to settings.

H. Provide required support and attachment in accordance with Section 26 0529.

I. Provide grounding and bonding in accordance with Section 26 0526.

J. Identify system wiring and components in accordance with Section 26 0553.

3.03 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Prepare and start system in accordance with manufacturer's instructions.

C. Adjust cameras to provide desired field of view and produce suitable images under all service lighting conditions.

D. Program system parameters according to requirements of Owner.

E. Test for proper interface with other systems.

F. Correct defective work, adjust for proper operation, and retest until entire system complies with contract documents.

3.04 CLEANING

A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

END OF SECTION 28 2300