BUILDING 55 RENOVATION
PROJECT NUMBER 060432

SPECIFICATIONS

06/12/12

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SECTION 01000 – GENERAL CONDITIONS

PART 1 - GENERAL

1.01 STATEMENT OF WORK

A. This statement is a summary intended to help the Contractor understand the general scope of work described in the specifications following this section and the drawings. The work herein is for renovations to the exterior of Building 55 at . It includes, without limitation, the following:

1. Replace existing wood windows with aluminum replacement windows and cement board trim.

2. Remove and abate hazardous materials including lead containing paint and miscellaneous asbestos containing materials.

3. Remove and replace existing roofing, insulation, flashing, and damaged roof sheathing.

4. Remove and replace lockable exterior personnel access doors.

5 Provide manufactured sunshades, door canopies and louvers. Manufactured sunshades shall be a bid option.

6. Provide stucco patching and an integral color acrylic stucco finish coat on the building exterior.

7. Remove obsolete electrical and communications conduits and wiring. Replace exterior light fixtures.

1.02 CONTRACTING OFFICER AND CONTRACTING OFFICER'S REPRESENTATIVE

A. Wherever in these specifications the abbreviation COR is referenced, it shall be the same as if the term Contracting Officer's Representative is referenced. See FAR clause 252.201-7000.

B. Where stated in contract documents, the Contractor shall deal with the Contracting Officer directly (not the COR). The contractor shall also deal directly with the Contracting Officer on all issues related to changes in time or cost.

C. The Contracting Office is . The Contracting Officer and contact information will be announced prior to the start of construction.

1.03 WORKING HOURS

A. The Contractor shall perform all work during the hours of 7:30 A.M. to 4:00 P.M., Monday through Friday (Federal holidays excepted). Work hours will be established and agreed to at the pre-construction conference. THE CONTRACTOR SHALL NOT PERFORM WORK ON THE INSTALLATION DURING OTHER HOURS WITHOUT APPROVAL OF THE CONTRACTING OFFICER.

B. If the contractor, for his convenience, desires to perform work during other than normal working hours or on other than normal work days, he shall reimburse the Government for any additional

expense thereby occasioned the Government such as, without limitation, overtime pay for Government inspectors, utilities, services, etc.

1.04 UTILITIES

A. All utility outages shall be of as short a duration as possible and shall be scheduled as far in advance as possible with the Contracting Officer's Representative, in no case less than 3 working days before the outage. The Contractor shall obtain in writing from the Contracting Officer a statement or schedule giving permissible times of outages for particular installations and the maximum time allowed for each outage. The Contractor shall strictly observe such schedules and will be held responsible for any violations. Standards hereinafter set forth.

B. The Contractor may connect to existing site utilities as needed. The Contractor shall submit drawings to the Contracting Officer's Representative, showing the location and method of connection. The Contractor shall then obtain approval from Public Works. For temporary connections, the contractor shall restore utilities to their original condition at the point of connection upon completion of work (at the direction of the Contracting Officer's Representative).

C. For permanent connections, the Contractor shall comply with requirements set forth by Public Works. The Contractor shall pay for all fees and permits associated with utilities. Once permanent connections are made, the Contractor shall pay the monthly bill for each utility until final acceptance of the work by the Contracting Officer or beneficial occupancy (which ever occurs first). Permanent connections shall be required to maintain the facility and for testing all building systems. Final connections will be required for all utilities including: gas, water, sewer, power (electrical), communication (data, fire, and telephone), and storm drain. Points of contact for utilities are as follows:

1. Basic Utilities (gas, water, sewer, power, and storm drain):

2. Communication (data, fire, and telephone):

1.05 UTILITIES NOT SHOWN

A. The Contractor shall call Public Works and or DOIM, as noted above, prior to proceeding with any excavation or below grade work. If the Contractor encounters within the construction limits of the entire project, utilities not shown on the plans and not visible as to the date of the contract, and such utilities interfere with construction operations, he shall immediately notify the Contracting Officer as to the necessity for removal or relocation. If such utilities are left in place, removed, or relocated as directed by the Contracting Officer, the Contractor shall be entitled to equitable adjustment for any additional pertinent work or delay in accordance with the Contract Changes Clause.

1.06 HIGHWAY FACILITIES.

A. Public convenience and safety: The Contractor shall conduct his operations so as to offer the least possible obstruction and inconvenience to public traffic. All traffic shall be permitted to pass through the work area with as little delay as possible. The Contractor shall conduct his grading operations in such a manner as to provide a seasonably smooth and even surface satisfactory for the use of public traffic at all times. Convenient and suitable crossings for access to side roads shall be provided and maintained by the Contractor. At any and all points

along the work where the nature of construction operations in progress, and the equipment and machinery in use are of such character as to endanger passing traffic, the Contractor shall provide such lights and signs, erect such fences or barriers, and station such guards as may be necessary to give adequate warning to avoid damage or injury to passing traffic. Signs, flags, lights, and other warning and safety devices shall conform to requirements.

1.07 GOVERNMENT INSPECTION

A. The contractor shall notify the COR:

1. At least 72 hours before work is to start.
2. When a work stoppage of more than 48 hours in duration is anticipated.
3. At least 24 hours in advance of returning to work after a work stoppage.
4. At least 72 hours in advance of desired time for final inspection.
5. At least 48 hours in advance for special inspections.

B. Failure to make the arrangements specified in paragraph A. (above) may result in non-acceptance of work.

1.08 OMISSIONS

A. Omissions from the drawings and specifications, or improper description of the work, which is manifestly necessary to carry out the intent of the drawings and specifications, or which is customarily performed, shall not relieve the Contractor from performing such omitted or improperly described details of the work as if fully and completely set forth and described in the drawings and specifications.

1.09 MISCELLANEOUS REPAIR

A. Where the drawings and specifications indicate that repairs are to be made, but do not show in detail the materials or methods to be used, the Contractor shall make the repairs in accordance with industry standards and common practices of the trades involved. The Contracting Officer (CO) reserves the right to review and approve any and all methods and procedures for repair prior to the Contractor making the repair. Submittals shall be provided in accordance with Division 1 Section 01330, “Submittal Procedures.”

1.10 CONTRACTOR STORAGE AREA AND PERSONNEL

A. The COR will designate an area that the contractor may use as a storage area. The contractor shall contact the COR for information regarding parking areas to be used for the contractor's equipment and personnel, and, any restrictions that will be placed on the contractor’s personnel while on the job site.

1.11 SITE SECURITY

A. Security of site, materials, and storage areas are the responsibility of the Contractor. The area shall be kept clean and free of debris.

1.12 PERMITS

A. The Contractor shall be responsible for obtaining and paying for any required permits. Submit evidence of application to the Contracting Officer within the first thirty days after commencement of work.

1.13 MATERIAL APPROVAL SUBMITTALS

A. Any Submittal approval requiring an excess of two Government reviews (original and one re-submission) will be charged at the rate of $150 per hour.

1.14 HAZARDOUS MATERIALS

A. IDENTIFICATION, DEMOLITION, REMOVAL, AND DISPOSAL OF HAZARDOUS MATERIALS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

1.15 BIDDERS INSTRUCTIONS

A. Insurance, bonding, bid schedule, liquidated damages, pay application, construction period and other similar requirements, may be found in the Bid Package with Instructions for Bidder's.

B. Refer to the USACE POCA for additional contractual requirements. Where conflicts occur, the POCA shall supersede and replace these specifications.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01000

SECTION 01027 - APPLICATION FOR PAYMENT

1.01 GENERAL

A. Coordinate the Schedule of Values and Applications for Payment with the Contractor's Construction Schedule, Submittal Schedule, and List of Subcontracts.

B. Schedule of Values: Coordinate preparation of the Schedule of Values with preparation of the Contractor's Progress Report.

1. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:

a. Contractor's Construction Schedule.
b. Application for Payment forms, including Continuation Sheets.
c. List of subcontractors.
d. List of products.
e. List of principal suppliers and fabricators.
f. Schedule of submittals.

2. Submit the proposed Schedule of Values to the Contracting Officer within 5 days after commencement of work, but not later than 7 days before the date scheduled for submittal of the initial Applications for Payment. The schedule of values shall include separate values for Division 1 Mobilization, Demobilization and the close out documents specified in 01700.

C. Format and Content: Use the Project Specifications table of contents as a guide to establish the format for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Include the following Project identification:

a. Project name and location.
b. Name of Architect.
c. Project number.
d. Contractor's name and address.
e. Date of submittal.

2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:

a. Related Specification Section or Division.
b. Description of Work.
c. Name of subcontractor.
d. Name of manufacturer or fabricator.
e. Name of supplier.
f. Change Orders (numbers) that affect value.
g. Dollar value.
h. Percentage of Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate evaluation of Applications for Payment. Break subcontract amounts down into several line items. Round amounts to nearest whole dollar; the total shall equal the Contract Sum.

4. Provide separate line items for initial cost of the materials, for each subsequent stage of completion, and for total installed value.

5. Show line items for indirect costs and margins on costs only when such items are listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete. Include the total cost and proportionate share of general overhead and profit margin for each item.

   a. Temporary facilities and items that are not direct cost of work-in-place may be shown as separate line items or distributed as general overhead expense.

6. Update and resubmit the Schedule of Values when Change Orders or Construction Change Directives change the Contract Sum.

7. Provide a Schedule of Cost for installed items that are required to be listed on Government Real Property Records (worksheet for DD Form 1354). The Government will provide to the Architect Engineer and the construction contractor a copy of the current requirements at the pre-construction meeting so that cost can be accumulated. At the end of the construction contract, the construction contractor will forward to the Government three copies of the completed worksheet (real property cost). This worksheet will be validated by the Architect Engineer, who will work with the Government's real property records person to complete the current record documents. Final validated real property installed cost documents shall be forwarded (two copies) to the Contracting Officer.

8. Payment will be made in accordance with applicable contract clauses. Contractor shall use USACE approved form for application for payment. Samples of invoices will be furnished upon contract award.

1.2 PRODUCTS (NOT APPLICABLE)

1.3 EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 01035 - MODIFICATION PROCEDURES

PART 1 - GENERAL

1.01 GENERAL:

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

B. Change Order Proposal Requests: Proposal requests that require adjustment to the Contract Sum or Time, if accepted, will be issued by the Contracting Officer, with a detailed description of the proposed change and supplemental or revised Drawings and Specifications. Proposal requests are for information only and shall not be considered as instruction to stop work in progress, or to execute the change.

1. Unless otherwise indicated, within 30-days of receipt, submit an estimate of cost to execute the Change.

a. Include a list of quantities of products to be purchased and unit costs. If requested, furnish data to substantiate quantities.
b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
c. Include a statement indicating the effect the proposed change in the Work will have on the Contract time.

C. Contractor Initiated Change Order Proposal Requests: When unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a request to the Contracting Officer's Technical Representative.

1. Include a statement outlining reasons for the change. Provide a complete description of the change. Indicate effect of the proposed change on the Contract Sum and Time.
2. Include a list of quantities of products to be purchased and unit costs. If requested, furnish data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

D. Prior to conditions being disturbed differing site conditions shall be handled in accordance with contract requirements and shall be brought to the Contracting Officer's attention immediately. Any damages to government property or construction in progress resulting from a differing site condition not brought to the attention of the Contracting Officer shall be the responsibility of the Contractor.

1.02 OVERHEAD AND PROFIT ON CHANGE ORDERS AND CONTRACT MODIFICATIONS

A. Overhead and Profit on Change Orders and Contract Modifications.

1. Contract Modification Documentation. (Applicable to contract changes costing less than $500,000.

a. When requested by the Contracting Officer, the Contractor shall submit proposals for changes in work to the contracting officer on a Proposed Change Order (PCO) Form, number sequentially by the contractor, with copy to the COR. Proposals, to be submitted as expeditiously as possible but within 30 calendar days after receipt of request, shall be in legible form, original and two copies, with an itemized breakdown that will include material, quantities, unit prices, labor costs (separated into trades), construction equipment, etc. (Labor costs are to be identified with specific material placed or operation performed.) The contractor must obtain and furnish with a proposal an itemized breakdown as described above, signed by each subcontractor participating in the change regardless of tier. When certified cost or pricing data are required under FAR Subpart 15.403, the cost or pricing data shall be submitted in accordance with FAR 15.403-5. No itemized breakdown will be required for proposals amounting to less than $1,000.

b. When the necessity to proceed with a change does not allow sufficient time to negotiate a modification or because of failure to reach an agreement, the contracting officer may issue a change order instructing the contractor to proceed on the basis of a tentative price based on the best estimate available at the time, with the firm price to be determined later. Furthermore, when the change order is issued, the contractor shall submit a proposal, which includes the information required by paragraph (a)(1), for cost of changes in work within 30 calendar days.

c. The contracting officer will consider issuing a settlement by determination to the contract if the contractor's proposal required by paragraphs (a) and (b) of this provision is not received within 30 calendar days or if agreement has not been reached.

d. Allowances not to exceed 10 percent each for overhead and profit for the party performing the work will be based on the value of labor, material, and use of construction equipment required to accomplish the change. As the value of the change increases, a declining scale will be used in negotiating the percentage of overhead and profit. Allowable percentages on changes will not exceed the following: 10 percent overhead and 10 percent profit on the first $20,000; 7-1/2 percent overhead and 7-1/2 percent profit on the next $30,000; 6percent overhead and 6 percent profit on balance over $50,000. Profit shall be computed by multiplying the profit percentage by the sum of the direct costs and computed overhead costs.

e. The prime contractor's or upper-tier subcontractor's fee on work performed by lower-tier subcontractors will be based on the net increased cost to the prime contractor or upper-tier subcontractor, as applicable. Allowable fee on changes will not exceed the following: 10 percent fee on the first $20,000; 7-1/2 percent fee on the next $30,000; and 6 percent fee on balance over $50,000.

f. Not more than four percentages, none of which exceed the percentages shown above, will be allowed regardless of the number of tiers of subcontractors.

g. Where the contractor's or subcontractor's portion of a change involves credit terms, such items must be deducted prior to adding overhead and profit for the party performing the work. The contractor's fee is limited to the net increase to contractor of subcontractors' portions cost computed in accordance herewith.

h. Where a change involves credit items only, a proper measure of the amount of downward adjustment in the contract price is the reasonable cost to the contractor if he/she had performed the deleted work. A reasonable allowance for overhead and profit are properly includable as part of the downward adjustment for a deductive change. The amount of such allowance is subject to negotiation.

i. Cost of Federal Old Age Benefit (Social Security) tax and of Worker's Compensation and Public Liability insurance appertaining to changes are allowable. While no percentage will be allowed thereon for overhead or profit, prime contractor's fee will be allowed on such items in subcontractor's proposals.

j. Overhead and contractor's fee percentages shall be considered to include insurance other than mentioned herein, field and office supervisors and assistants,

security police, use of small tools, incidental job burdens, and general home office expenses and no separate allowance will be made therefore. Assistants to office supervisors include all clerical, stenographic and general office help. Incidental job burdens include, but are not necessarily limited to, office equipment and supplies, temporary toilets, telephone and conformance to OSHA requirements. Items such as, but not necessarily limited to, review and coordination, estimating and expediting relative to contract changes are associated with field and office supervision and are considered to be included in the contractor's overhead and/or fee percentage.

END OF SECTION 01035

SECTION 01310 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes certain administrative provisions for managing and coordinating construction operations, including but not limited to the following:

1. General project coordination.
2. Coordination drawings.
3. Conservation.
4. Administrative and supervisory personnel.
5. Conferences and meetings.
6. Utility service interruptions.
7. Cleaning and protection.

1.02 GENERAL PROJECT COORDINATION

A. Coordination of Trades: Coordinate construction operations included in the various sections of the Specifications to provide an efficient and orderly installation of each part of the Work. Coordinate construction operations included under different sections of the Specifications that depend on each other for proper installation, connection or operation.

1. Schedule construction operations in the sequence required to obtain the best results where the installation of one part of the Work depends on installation of other components before or after that part.
2. Coordinate installation of different components to provide maximum accessibility for required maintenance, service, testing and repair.
3. Accommodate items scheduled for later installation.
4. Provide for coordinated incorporation of Art and Architecture elements, Contractor's accepted Value Engineering proposals and Change Orders.

B. Notification: Where necessary, prepare and distribute memoranda to each party involved, outlining special procedures required for coordination. When applicable, include notices, reports and meeting minutes as part of the memoranda.

C. Administrative Procedures: Coordinate scheduling and timing of administrative procedures with other construction activities to avoid conflicts and promote orderly progress of the Work. Administrative procedures include but are not limited to the following:

1. Preparation of schedules.
2. Installation and removal of temporary facilities.
3. Delivery and processing of submittals.
4. Progress meetings.
5. Project closeout activities.

1.03 COORDINATION DRAWINGS

A. Prepare coordination drawings where careful coordination is needed for installation of products and materials fabricated by separate entities, and prepare coordination drawings where limited space availability necessitates maximum utilization of the space for efficient installation of different components.

1. Show the relationship of components shown on separate shop drawings.
2. Indicate required installation sequences.
3. Provide vertical and horizontal dimensions necessary to locate each component and avoid conflicts within the space.
4. Comply with shop drawing requirements for sheet size and submittal methods specified in Division 1 Section 01330, "Submittal Procedures."

B. Refer to Division 15 Section 15050, "Basic Mechanical Materials and Methods" and Division 16 Section 16060, "Basic Electrical Materials and Methods" for specific coordination drawing requirements for mechanical and electrical installations.

C. Provide coordination drawings for equipment and system installations in mechanical and electrical rooms and spaces where two or more entities will provide the work and separate shop drawings are insufficient to show coordination.

1.04 CONFERENCES AND MEETINGS

A. Preconstruction Conference: The Contracting Officer (CO) shall schedule a preconstruction conference before starting construction at a time and place convenient to the Contractor. Conference shall review responsibilities and personnel assignments.

1. Attendees: Participants at the conference shall be familiar with the project, shall be authorized to conclude matters relating to the Work, and shall minimally include representatives of the following parties:

a. COR.
b. Contractor.
c. Major subcontractors.
d. Architect & Engineers

2. Agenda: Subjects for discussion shall include items of significance that could effect progress, including but not limited to the following:

a. Tentative construction schedule.
b. Critical work sequencing.
c. Designation of responsible personnel.
d. Procedures for processing field decisions and Change Orders.
e. Procedures for processing Applications for Payment.
f. Distribution of Contract Documents.
g. Submittal of Shop Drawings, Product Data, and Samples.
h. Preparation of Record Documents.
i. Use of the premises.
j. Parking availability.
k. Office, work, and storage areas.
l. Equipment deliveries and priorities.
m. Safety procedures.

n. First aid.
o. Security.
p. Housekeeping and progress cleaning.
q. Working hours.

3. Reporting: No later than 3 calendar days after the conference, the Contractor shall distribute minutes of the conference to each party present and to other concerned parties, including the COR.

B. Pre-installation Conferences: The Contractor shall conduct a pre-installation conference at the Project Site before each construction activity that requires coordination with other construction.

1. Attendees: In addition to the Contractor's representative, the installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend. Prior to conferences, advise the COR of scheduled conference dates.

2. Agenda: Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for the following.

a. Contract Documents.
b. Options.
c. Related Change Orders, including accepted Value Engineering proposals.
d. Purchases.
e. Deliveries.
f. Submittals.
g. Review of mockups.
h. Possible conflicts.
i. Compatibility problems.
j. Time schedules.
k. Weather limitations.
l. Manufacturer's recommendations.
m. Warranty requirements.
n. Compatibility of materials.
o. Acceptability of substrates.
p. Temporary facilities and controls.
q. Space and access limitations.
r. Governing regulations.
s. Safety.
t. Testing and inspecting requirements.
u. Required performance results.
v. Protection.

3. Reporting: Record significant discussions and agreements and disagreements of each conference. No later than 3 calendar days after each conference, the Contractor shall distribute minutes of the conference to each party present and to other concerned parties, including the CO.
4. Do not proceed with the installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to the performance of the work, and reconvene the conference at the earliest feasible date.

C. Progress Meetings: The A/E shall conduct monthly progress meetings at the Project Site. Dates of meetings shall be coordinated with preparation of the payment request.

1. Attendees: In addition to the Contracting Officer, the Contractors, and the COR representatives; each subcontractor, supplier, or other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the status of the Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to insure that current and subsequent activities will be completed within the Contract Time.
    b. Review the present and future needs of each entity present, including but not limited to the following:

        1.01 Interface requirements.
        1.02 Time.
        1.03 Sequences of operations.
        1.04 Status of submittals.
        1.05 Deliveries.
        1.06 Off-site fabrication.
        1.07 Access.
        1.08 Site utilization.
        1.09 Temporary facilities and controls.
        1.10 Hours of work.
        1.11 Hazards and risks.
        1.12 Housekeeping and progress cleaning.
        1.13 Quality and work standards.
        1.14 Change Orders.
        1.15 Documentation of information for payment requests.
        1.16 Updating of Record Documents.

3. Reporting: No later than 3 calendar days after each meeting, the A/E shall distribute minutes of the meeting to each party present and to other concerned parties, including the Contracting Officer. Include a brief summary, in narrative form, of progress since the previous meeting and report.
4. Schedule Updating: The Contractor shall revise the Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. The revised schedule shall be issued concurrently with the report of each meeting.

D. Coordination Meetings: The Contractor shall conduct project coordination meetings at regular intervals, to verify detailed coordination procedures for the upcoming construction operations in order to avoid potential problems and misunderstandings.

1. Frequency of Meetings: Bi-Weekly.

2. Attendees: The Contractor, COR, Architect & Engineer, each subcontractor, supplier, or other entity involved in coordination or planning construction activities shall be represented. All participants shall be authorized to conclude matters relating to the Work.
3. Agenda: Review the plans and requirements of each entity present, including but not limited to the subjects listed for Progress Meetings.
4. Reporting: No later than 3 calendar days after each meeting, the Contractor shall distribute minutes of meeting to each party present and to other concerned parties, including the COR.

1.05 UTILITY SERVICE INTERRUPTIONS

A. Utility Service Interruptions and coordination of interruptions shall be reflected in the schedule. See Section 0100 paragraph 1.4 for coordination requirements.

1.06 SUBMITTALS

A. Coordination Drawings: Comply with the shop drawing requirements specified in Division 1 Section 01330, "Submittal Procedures."

B. Energy Conservation: Within 15 calendar days after commencement of construction, submit an energy conservation plan, followed by monthly implementation reports.

C. Waste Management: Within 15 calendar days after commencement of construction, submit a waste management plan, followed by monthly implementation reports.

D. Staff Names: Within 15 calendar days after award of contract, submit a list of principal staff assignments, including the superintendent and other primary personnel at the Project site. Identify individuals by name, duties and responsibilities, home address, and business and home telephone numbers.

1. Post copies of this list in the project meeting room, temporary field office and at each temporary telephone location.

E. Conference and Meeting Minutes: Within times specified for reporting, distribute minutes to concerned parties.

F. Utility Service Interruptions: No later than 15 calendar days prior to the first planned interruption, submit a utility service interruption plan, followed by confirmed scheduled shut-down notices at least 3 calendar days prior to each interruption.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 GENERAL COORDINATION PROVISIONS

A. Inspection of Conditions: Prior to installations, require the installer of each major component to inspect both the substrate and conditions under which work is to be performed.

1. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
2. Coordinate temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction for that purpose.

B. Construction in Progress: Keep construction in progress, and adjoining materials in place, clean during handling and installation. Apply protective coverings where required for protection from damage or deterioration.

C. Completed Construction: Clean completed construction, and provide maintenance, as frequently as necessary to prevent damage or soiling or other deterioration through the remainder of the construction period. Adjust and lubricate operable components as necessary to assure operability without damage.

D. Limiting Exposures: Supervise construction operations to prevent exposure of any part of construction, completed or in progress, to harmful, dangerous, damaging or otherwise deleterious conditions during the construction period. Such conditions include but are not limited to the following:

1. Excessive static or dynamic loading.
2. Excessive internal or external pressures.
3. Excessively high or low temperatures.
4. Thermal shock.
5. Excessively high or low humidity.
6. Pollution and air contamination.
7. Water or ice.
8. Chemicals and solvents.
9. Light.
10. Radiation.
11. Puncture.
12. Abrasion.
13. Heavy traffic.
14. Soiling, staining, and corrosion.
15. Bacteria.
16. Rodent and inset infestation.
17. Combustion.
18. Electrical current.
19. High-speed operation.
20. Improper lubrication.
21. Unusual wear or other misuse.
22. Contact between incompatible materials.
23. Destructive testing.
24. Misalignment.
25. Excessive weathering.
26. Unprotected storage.
27. Improper shipping or handling.
28. Theft or vandalism.

END OF SECTION 01310

SECTION 01320 – PROJECT SCHEDULE

PART 1 - GENERAL

1.01 SCHEDULING REQUIREMENTS

A. The schedule will be reviewed by the CO and the A/E and will be subsequently approved by the CO (if the schedule meets contract requirements). Within 5 days after commencement of work, the Contractor will submit a Critical Path Method (CPM) Construction Schedule for the scope of work contained in the Contract. The purpose of the Construction Schedule shall be to:

1. Assure adequate planning, scheduling and reporting during execution of the construction and related activities so they may be prosecuted in an orderly and expeditious manner, within the Contract Time and the Milestones stipulated by the Contract.
2. Assure coordination of the work of the Contractor and the various subcontractors and suppliers at all tiers.
3. Assist in the preparation and evaluation of the Contractor's monthly progress payments.
4. Assist in monitoring the progress of the work and evaluating proposed changes to the Contract and the Construction Schedule.
5. Assist in detecting problems for the purpose of taking corrective action and to provide a mechanism or tool for determining and monitoring such corrective actions.

B. The Work shall be prosecuted at such rate as will insure meeting the specified milestone dates within the Contract Time. By execution of the Contract, the Contractor represents he has analyzed the work, the materials and methods involved, the systems of the building, availability of qualified labor, restrictions of the site, constraints imposed, their own workload and capacity to perform the work and agrees that the specified times are reasonable considering the existing conditions prevailing in the locality of the work, including weather conditions and other factors, with reasonable allowance for variations from average or ideal conditions.

C. The work under this Contract will be planned, scheduled, executed and reported using the Precedence Diagramming Technique of the Critical Path Method (hereinafter referred to as CPM).

D. The Contractor shall employ the services of at least one person fully qualified and with a minimum of 2 years experience in critical path scheduling on projects of similar size and scope for the duration of the Contract.

E. Any and all milestones listed in these specifications, or elsewhere in the Contract Documents, represent only the major items of construction work. The milestone completion dates indicated are considered essential to the satisfactory performance of this Contract and to the coordination of all work on the project. The Government reserves the right to require the Contractor to prosecute the work in accordance with the specified milestone dates.

F. The Contractor shall use Primavera/Suretrac for Windows scheduling software (latest version), or other approved software, on this project.

1.02 DETAILED CONSTRUCTION SCHEDULE

A. Within ten (10) calendar days following commencement of work, Contractor shall submit to the Government a detailed Construction Schedule in precedence format for the Contractor's construction work scope.

B. The Detailed Construction Schedule shall conform with the requirements outlined in the "Technical Requirements for Contractor-Submitted Schedules" in this specification section.

C. The Construction Schedule shall be reviewed in the following manner.

1. Within fourteen (14) calendar days after receipt by the Government of the Detailed Construction Schedule, the Government shall notify the Contractor of any concerns the Government may have in regard to the Detailed Construction Schedule.
2. If the Government questions the Contractor's proposed activities, logic, durations, manpower, or cost loading, the Contractor shall, within seven (7) calendar days after receipt of the Government's request, provide a satisfactory revision to, or adequate justification for, these activities, logic, durations, manpower, or cost loading to the satisfaction of the Government.
3. In the event the Contractor fails to define any element of work, activity or logic and the Government review does not detect this omission or error, such omission or error, when discovered by the Contractor or Government, shall be corrected by the Contractor at the next monthly Schedule Update (discussed hereinafter) and shall not affect the Contract Time.
4. Acceptance of Contractor's Construction Schedule

    a. Upon the acceptance of the changes to the Construction Schedule by the Government, the Contractor and Government shall sign on the face of the Construction Schedule CPM Network, which shall then indicate the acceptance of the Construction Schedule.

5. Upon acceptance, the construction schedule shall be utilized as a BASELINE SCHEDULE for evaluation of all work yet to be performed.
6. No accepted activity shall be deleted from the construction schedule. In the event that an activity is no longer appropriate to the plan, either by change order or otherwise, it shall be in a "zero duration status" as of the date such determination is made and offsetting cost adjustment made as required to balance within the activity's cost account. The schedule, once accepted, cannot be changed/altered unless a modification to the contract has been issued (by the Contracting Officer) extending contract completions. A "Look Ahead Schedule" shall be submitted and can be changed based upon actual conditions. The "Look Ahead Schedule" shall look one week behind and three weeks ahead and shall be updated each week for use in weekly coordination meetings.
7. Redistribution of costs between contract bid line items shall not be allowed.

    a. Acceptance by the Government of the Contractor's Construction Schedule will be required prior to making of any progress payments under the Contract after the first sixty (60) calendar days of the Contract.
    b. Upon acceptance of the Construction Schedule by the Government, the cost-loaded values of the Construction Schedule will be used as a basis for determining progress payments based on work completed to date. Monthly progress payments shall be based upon information developed at the monthly Schedule Update. The computer-produced Cost Report will be structured to directly roll up to the accepted billing summary and utilized by the Government for verification of the Application for Payment submitted by the Contractor. The COR and the Contractor shall visually inspect the work and material delivered on the site (and off site) each

month to determine progress on each task. The Contractor shall update the schedule based upon this monthly assessment. This information may be used for partial or progress payments at the discretion of the COR.

c. Acceptance by the Government of the Contractor's Construction Schedule does not relieve the Contractor of any of Contractor's responsibility whatsoever for the accuracy or feasibility of the Construction Schedule, or of the Contractor's ability to meet the Contract completion date or milestone dates, nor does such acceptance acknowledge or admit the reasonableness of the activities, logic, durations, man-power, or cost loading of the Contractor's Construction Schedule.

1.03 TECHNICAL REQUIREMENTS FOR CONTRACTOR – SUBMITTED SCHEDULES

A. The Contractor will consider the following guidelines in the development of the Construction schedule:

B. The Schedule shall be developed utilizing the Precedence Diagramming Method.

C. Milestone dates must be adhered to and shall be clearly identified on the Schedule.

1. Contract Milestone dates may not be changed without the written consent of the Government.
2. Contract Start Milestones shall be constrained by "Start No Earlier Than" constraints.
3. Contract Completion Milestones shall be constrained by "Finish No Later Than" constraints.
4. "Mandatory", "Start On", and "Finish On" constraints shall not be allowed.

D. The Schedule shall clearly identify the activities illustrating accomplishment of the time(s) for completion of the Project set forth in the Contract. If the Schedule indicates earlier completion time(s) than that set forth in the Contract, the difference between the Schedule and the Contract dates shall be considered to be part of the total float available. This float is a resource available to both the Government and the Contractor. If the Contractor presents a schedule with an early completion date, the Government reserves the right to issue a contract change order revising the Contract Completion Date and associated milestones to those indicated in the Contractor's schedule.

E. In developing the Schedule, the Contractor shall be responsible for assuring that subcontractor work at all tiers, as well as Contractor's own work, is included in the Schedule.

F. The Schedule as developed shall show the sequence and interdependence of activities required for complete performance of the work. The Contractor shall be responsible for assuring all work sequences are logical and the Schedule shows a coordinated plan of the work.

G. Failure by the Contractor to include any element of work required for performance of the Contract or failure to properly sequence the work shall not excuse the Contractor from completing all work within the Contract Time.

H. The level of detail of the Contractor's Schedule shall be a function of the complexity of the work involved. The total number of activities shall be subject to approval by the Government. Construction activities shall represent the continuous work of a single crew in a defined work area or location and have duration of not longer than fifteen (15) work days, without prior acceptance of the Government. Non-construction activities (such as procurement, fabrication, etc.) may have durations in excess of 15 work days.

I. Normal weather conditions shall be considered and included in the planning and scheduling of all work influenced by high or low ambient temperatures and/or precipitation to ensure completion of all work within the Contract Time. Normal weather conditions may be determined by an assessment of average historical climatic conditions based upon the preceding ten (10) year records published for the locality by the National Ocean and Atmospheric Administration (NOAA). Critical path activities which are affected by wet or muddy ground following a rain storm shall also be addressed in the schedule. For bidding purposes the contractor shall use Table 1 below to plan "weather" days into the schedule. The COR shall make final determination about which days shall be counted as disrupting or preventing construction activities due to weather.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY
WORK DAYS BASED ON (5) DAY WORK WEEK

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
(03)	(03)	(03)	(01)	(01)	(00)	(00)	(00)	(01)	(01)	(01)	(02)

J. Schedule activities shall meet the following criteria:

1. Activity descriptions shall be clear and concise. All activity ends must be tied into the schedule by logical restraints.
2. Proposed durations assigned to each activity shall be the Contractor's best estimate of time required to complete the activity considering the scope and resources planned for the activity. Labor and Resources (man-hours) allocated to each activity shall be consistent with activity duration and supported by the Contractor's estimate and industry standard estimating/productivity guides such as "Means", "Blue Book", "Walker's", and/or "NECA".
3. Responsibility for each activity shall be identified with a single performing organization, typically the Subcontractor name. In addition to responsibility, each activity shall have as minimum, activity organizational codes identifying each task and sub task associated with the work. If a WBS structure is utilized by the contractor it shall be assigned through activity code assignments. An additional code field shall be established to differentiate between baseline and specific change order work.
4. Schedule activities shall be cost-loaded in whole dollars and the assigned dollar value (cost-loading) of each activity of the Network shall cumulatively equal the specified Bid Item Breakdown and Total Contract Amount. Mobilization, bond and insurance costs may be shown separately; however, other general condition's costs, overhead, profit, etc., shall be prorated throughout all activities. For any item that the Contractor intends to bill for stored materials, need to be shown as separate "material procurement" activities in the schedule and the material dollar only placed on these activities. Billing for stored materials on any other scheduled activity not broken down in this manner will not be allowed. The COR may refuse to pay for any off site materials which are not stored properly or if the storage area is not secure. "Front Loading" or attempting to shift cost to the initial activity will not be accepted. Cost loading must be realistic and defensible. The COR may challenge cost loading on any or all activities and request a breakdown/justification on each activity from the Contractor.
5. The Contractor shall assign manpower-loading for each activity of the Network. In addition, the Contractor shall prepare and submit a separate manpower summary analysis in graphic format depicting manpower by subcontractor and aggregate. The graph(s) shall show the number of man-days of effort, by month, over the duration of the Construction Schedule.

K. For all major equipment and materials fabricated or supplied for this project, the network shall show a sequence of activities including:

1. Preparation of shop drawings and sample submissions. Any accepted costs associated with submittal preparation shall be assigned to the approval of the particular submittal.
2. Review and approval of shop drawings and samples (allow 21 calendar days for review of submittals and 30 calendar days for review of samples)
3. Shop fabrication and delivery (including transit time). Advanced purchases such as mill orders or other major equipment purchases shall be carried as separate cost loaded activities.
4. Erection or installation.
5. Field Testing of equipment and materials. Testing and Inspection shall be cost and labor loaded to the extent of the effort necessary in the field.

L. The schedule shall include a detailed plan for preparation, submittal, review, re-submittal, if required, and acceptance for detailed MEPS/Structural/Architectural Coordination Documents prepared by the individual trade contractors utilizing CAD backgrounds supplied by the COR.

M. If requested by the Government, the Contractor shall furnish a written narrative of the Contractor's determination of durations for critical activities. Such explanation shall include the number of crews, crew composition, number of shifts per day, number of hours in a shift and the number of work days per week. The Contractor shall provide a list of the major items of construction equipment intended for use on this Contract's operations including types, number of units, unit capacities and the proposed time each piece of equipment will be on the job, keyed to the activities on which the equipment will be used.

N. For each Construction Schedule submittal, as well as for each Schedule Update, the Contractor shall submit a 3 1/2" MS-DOS formatted computer diskette of the Contractor's Schedule to the Government. In addition, the Contractor shall submit accompanying schedule reports and graphics as specified in the section on "Required Reports."

1.04 REQUIRED REPORTS

A. As a part of the Detailed Construction Schedule submittals, as well as for each Schedule Update, the Contractor shall submit the following reports and graphics as indicated (unless otherwise requested by the Government):

1. Graphics:

   a. Detailed CPM Network with critical path highlighted (Initial Submittal and Monthly Revisions)
   b. Summary bar chart (Initial Submittal and Monthly Updates)
   c. Short-interval bar chart showing 1 week of history and 3 weeks of future work (Weekly)
   d. Cost curve and histogram (Initial Submittal and Monthly Updates)
   e. Manpower curve and histogram (Initial Submittal and Monthly Updates)

2. Computerized schedule reports:

   a. Activity listing report showing all schedule activities, sorted by activity number (Initial Submittal).
   b. Milestone Summary Report listing both Contract Milestones and Interim Milestones.
   c. Precedence report showing activity predecessors and successors, sorted by activity number (Initial Submittal and Revisions).
   d. Total float report, sorted by total float (Initial Submittal and Monthly Updates).

e. Early start report, grouped and sorted by early start date.
f. Cost report showing activity dollar value, dollar value of work in place to-date, and dollar value for current period (Initial Submittal and Monthly Updates).
g. Resource report showing man-day allocations by specific trade on each activity (Initial Submittal and Revisions).
h. Variance report comparing current dates to target dates (Monthly Updates).
i. Cash flow report showing monthly projections of expenditures (Initial Submittal and Monthly Updates).

3. Narrative schedule report including:

a. Description of the actual work accomplished during the reporting period (Monthly Updates).
b. Description of any problem areas (Initial Submittal and Monthly Updates).
c. Description of current and anticipated delays with recommended corrective actions to mitigate such delays (Monthly Updates).
d. A list of major construction equipment used on the work during the reporting period and any construction equipment idle during the reporting period (Monthly Updates).
e. A total number of men by craft actually engaged on the work during the reporting period, with such total stated separately as to office, supervisory, and direct labor (Monthly Updates).
f. A list of Contractor-supplied permanent plant materials, long lead items and equipment indicating current availability and anticipated job site delivery date (Initial Submittal and Monthly Updates).
g. A list and explanation of proposed modifications, additions, deletions, and changes in logic to the approved construction schedule. If modifications are proposed, a revised schedule demonstrating the effects of such modifications is to be submitted (Monthly Updates).
h. Within calendar 10 days after commencement of construction the contractor shall submit form USACE 4025 (Contract Progress Schedule).

1.05 MILESTONES

A. The Contractor shall adhere to the following milestone dates in accomplishing the work unless such dates are modified in writing by the Government:

EVENT	MILESTONE DATE
Complete Detailed Schedule Submittal	Commencement of construction + 10 calendar days**
Buildings Completed and Ready for Occupancy	Commence of construction + 260 calendar days*

*Failure to meet these Milestone dates will subject the Contractor to liquidated damages (LD). Amounts and consequences associated with LD'S are further discussed in the documents provided with the instructions to bidders.
** Failure to provide will result in with holding of monthly payments

B. Additional milestones shall be included in the contractor's schedule which is not specifically tied to consequential damages. Contractor shall determine the timing of these milestones subject to approval by the COR.

1. Completion of below grade work.

2. Completion of rough grading.
3. Completion of hazardous materials demolition.
4. Completion of other demolition.
5. Completion of interior renovation.
6. Completion of exterior renovation.
7. Completion of hardscape/landscape.

1.06 FLOAT TIME

A. Float is not for the exclusive use or benefit of either the Contractor or the Government. Float time will be apportioned according to the needs of the project.

B. Pursuant to the float sharing requirements as set forth in paragraph 6.1, use of float suppression techniques such as preferential sequencing, special lead/lag logic restraints, extended activity durations, or constrained dates shall be cause for rejection of the Construction Schedule and any revisions or updates.

1.07 SCHEDULE MEETINGS

A. Schedule meetings may be held to coincide with meetings described in Section 01310 at the discretion of the Contracting Officer. Preconstruction Conference:

1. The Government will schedule and conduct a preconstruction conference. Contractor shall be prepared to review and discuss the schedule and sequence of operations plus cost and manpower loading methodology. The conference shall be attended by:

   a. Contractor's Project Manager, Superintendent, and Scheduler.
   b. Any other Contractor's key personnel, Subcontractor's representatives, and major supplier's representatives that the Contractor deems advisable to attend.
   c. Representatives from the Government and other agencies will also be invited to attend.

2. Procedures will be reviewed for the following:

   a. Development of the Detailed Construction Schedule by the Contractor.
   b. Periodic updating of schedule activities and method of determining schedule percent complete.
   c. Organizational / WBS / Account Code Structures required for the project.
   d. Cost loading of activities.
   e. Manpower loading of activities.
   f. Procedures for making modifications to the schedule.
   g. Procedures for assessing schedule impacts, schedule delays and time extensions.
   h. Development of recovery schedules.
   i. Data exchange and communications.

B. Weekly Scheduled Meetings:

1. Once each week, on a day mutually agreed to by the Government and the Contractor, a meeting will be held to assess the progress achieved by the Contractor during previous work week. The Contractor shall submit a progress schedule listing the activities completed and in progress for the previous week and the activities scheduled for the succeeding 3 weeks. A bar chart directly derived from the Detailed Construction Schedule

shall be used to generate the three week window. All activities shown in this short interval schedule will be identified by the same activity numbers and descriptions as shown in the Construction Schedule. The Contractor may add further details to monitor this Short Interval Schedule.

1.08 SCHEDULE UPDATING AND PROGRESS PAYMENTS

A. Schedule Updating:

1. On a monthly basis, the Contractor shall meet with the Government for the purpose of updating the Schedule. This updating process will be performed by the Government and Contractor making an assessment of schedule activity progress during a joint job-site walk through. Use of a Schedule Update Report to log this activity progress is recommended. Information to be recorded consists of activity actual start and finish dates, activity percents complete and (if applicable) dollar amounts earned for each activity.
2. Once this information has been recorded, this data shall be processed by computer by the Contractor, and shall be used as the basis for the Contractor's monthly Application for Payment. Allowable billing amounts for each activity will be the activity's budgeted cost amount times the updated percent complete.
3. Upon finalization of the computerized schedule update, the Contractor shall submit the required schedule reports as detailed in the "Required Reports" section of this specification. Processing of the Contractor's payment application will commence when this package is received.
4. In addition to these monthly updates, interim updates may be performed on the Construction Schedule at the discretion of the Government. While these interim updates will not be for Payment Application purposes, all Contractors will be expected to contribute update data to the Government as required to complete these updates.

B. Progress Payments:

1. The submission and acceptance of progress updates and the cost reports calculating the value of work done for any given pay period for each activity, based on the percentage complete for that activity, shall be the basis for monthly progress payments. The Contractor shall be entitled to progress payments only as determined from the current updated and approved Schedule Cost Report generated as a result of the monthly progress update.
2. The monthly updating of the Construction Schedule shall be an integral part and basic element of the estimate upon which progress payments will be made. If, in the judgment of the Government, the Contractor fails or refuses to provide information required to accomplish a complete Construction Schedule Update or revision as specified hereinafter, the Contractor shall be deemed to have not provided the required estimate upon which progress payments may be made, and shall not be entitled to progress payments until it has furnished the information necessary for a complete Schedule Update to the satisfaction of the Government.

1.09 SCHEDULE MODIFICATIONS

A. If as a result of the monthly Schedule Update, it appears the Construction Schedule no longer represents the actual prosecution and progress of the work, the Government may require the Contractor to submit a revision to the Construction Schedule. Such revisions to the Schedule shall not alter any of the Contract Milestone constraints.

B. The Contractor may also request revisions to the Construction Schedule in the event the Contractor's planning for the work is revised. If revisions to the Construction Schedule are contemplated, the Contractor shall notify the Government in writing at least fourteen (14) calendar days prior to the next Schedule Update meeting. The Contractor shall submit fragments of the proposed changes along with a written narrative of the proposed changes. Such revisions to the Schedule shall not alter any of the Project Milestone dates. If accepted by the Government, these fragments will be incorporated into the Construction Schedule.

C. Updating the Construction Schedule to reflect actual progress shall not be considered a revision to the Construction Schedule.

D. Schedule revisions shall be submitted utilizing a copy of the updated construction schedule as modified with proposed changes; a narrative explanation of the change(s); and a copy of a detailed "Claim Digger" comparison with the current updated schedule detailing all changes.

E. Upon acceptance of a revision, the revised current Construction Schedule shall be the basis for evaluating future status, impacts, and/or changes.

1.10 SCHEDULE IMPACTS, SCHEDULE DELAYS AND TIME EXTENSIONS

A. During the course of the Project, it may be appropriate to revise the Schedule to incorporate impacts or delay issues into the Project Schedule. If the Contractor feels he has encountered schedule impacts that he feels may warrant a time extension, he shall present an Impacted Schedule to the Government supporting his claim.

1. The procedure for incorporating impacts into the schedule is as follows: Create a schedule activity (or activities) that represents the scope of the change or delay.
2. Assign durations and cost/manpower resources to these new activities.
3. Determine appropriate logic ties for these new activities. Assign predecessors and successors so that these activities can tie into the existing schedule activities. Every effort to mitigate the potential delay by either isolating the impact of the delay or planning "work-around" approaches to the work shall be considered and incorporated where deemed effective.
4. These impact activities should be loaded into a copy of the updated schedule that immediately preceded the impact issue's time frame. For instance, if an impact issue occurs during mid-April, the new activities should be input into the March 31 (status date) update.
5. After the Schedule is recalculated with these impact activities in place, the affect they have on the Project Milestones will determine if any time extension is merited.

B. The Impacted Schedule, along with the backup data describing the new schedule activities and logic ties, which comprise the impact/delay issues, will be submitted to the Government for review and approval. If approved, these impact/delay issues will become a permanent part of the Project Schedule. The Contractor shall not unilaterally make changes to the Project Schedule to justify schedule impacts without the approval of the Government.

C. Activity delays shall not automatically mean that an extension of the Contract Time is warranted or due the Contractor. It is possible that an impact or delay will not affect existing critical activities or cause non-critical activities to become critical. An impact or delay may result in only absorbing a part of the available total float that may exist within an activity chain of the Network, thereby not causing any effect on the Contract Completion Date or other Contract Milestone dates.

D. Float is not for the exclusive use or benefit of either the Government or the Contractor. Contract time extensions will be granted only to the extent that equitable time adjustments to the activity or activities affected by the impact or delay exceeds the total float along the critical path of activities at the time of the delay.

E. Legitimate impacts which could be the basis for a time extension are limited to the following:

1. Labor disputes and strikes (including strikes affecting transportation), that do, in fact, directly and critically affect the progress of the work; however, an extension of Contract Time on account of an individual labor strike shall not exceed the number of calendar days of said strike.
2. Acts of God, tornado, fire, hurricane, blizzard, earthquake, typhoon, or flood that damage properly protected completed work or stored materials.
3. Abnormal inclement weather; however, the Contract Time will not be extended due to normal inclement weather. The Contractor shall incorporate an allowance for normal inclement weather in his Detailed Construction Network. If the Contractor believes that the progress of the work has been adversely affected by abnormal inclement weather, he shall submit a written request for extension of time to the Government
4. Acts of another Contractor in the performance of a Contract with the Government relating to the Project.
5. Design changes by the Government or COR that can be shown to have an impact on the completion of the Project or an individual Contract Milestone.
6. Delays by the Government that impact work performed by a Contractor, such as delays of Government-furnished equipment.
7. Delays by the COR, such as submittal approval or RFI response periods in excess of those herein specified.

F. The Government shall not have any obligation to consider any time extension request unless the requirements of this specification section are complied with. The Government shall not be responsible or liable to Contractor for any constructive acceleration due to failure of the Government to grant time extensions under the Contract Documents should Contractor fail to substantially comply with the submission requirements and the justification requirements of this Contract for time extension requests.

G. In the event the contractor fails to submit a time impact analysis prior to the completion of impacted work, the impact of delays shall be limited to that portion of actual delay attributable to those legitimate impacts enumerated herein.

H. Compensability for delay shall be limited as follows:

I. Delays due to Force Majeure or Acts of God shall be non-compensable.

J. Delays concurrent with delays by the Contractor shall be non-compensable.

1.11 RECOVERY SCHEDULE

A. Contractor shall furnish such manpower, materials, facilities and equipment and shall work such hours, including shift work and overtime, as may be necessary to insure the progress and completion of the work in accordance with the approved and currently updated Construction Schedule. If work falls behind schedule due to Contractor actions to the extent that any of the milestone dates or completion dates will not be met, the Contractor agrees that he will, as necessary, and within 48 hours of written notice, take some or all of the following actions at no additional cost to the Government, as required to substantially eliminate, in the judgment of the Government, the backlog of work:

1. Increase manpower in quantities and crafts necessary.
2. Increase the number of working hours per shift, shifts per working day, working days per week, the amount of equipment, or any combination of the foregoing, and/or reschedule activities to achieve maximum practical concurrency of accomplishment.

B. The Contractor shall also submit to the Government a Supplementary Recovery Schedule in the form of a fragment , which displays how the Contractor intends to reschedule activities to regain compliance with the Construction Schedule's Milestone dates.

C. Failure of the Contractor to substantially comply with these requirements may be considered grounds for a determination by the Government that the Contractor is failing to prosecute the work with sufficient diligence to ensure its completion within the Contract Time. Upon making this determination, the Government may:

1. Take over those aspects of the work which are behind schedule, or portions thereof, as the Government may, at its sole discretion, deem appropriate and deduct by Change Order all costs of performing such work from the Contract Sum.
2. Withhold payment in accordance with the provisions of the General Conditions.
3. Terminate the Contract in accordance with the provisions of the General Conditions.

1.12 FAILURE TO PERFORM SCHEDULING TASKS

A. Contractor fails to substantially comply with the scheduling requirements of the Contract Documents, the Contractor hereby agrees, in such instance, to comply with such schedules as the Government develops, or directs, and activity sequences and durations as the Government may reasonably require, without additional cost to the Government (subject only to cost adjustments for such changes in the work as the Government may direct), to ensure completion within the Contract Time. The Contractor shall cooperate with the Government in supplying data and requested information necessary for all stages of schedule development, modifications, and updating.

B. The Government shall have the right, at their option, to retain the services of scheduling consultants or experts (including attorneys if necessary in their opinion) to prepare a schedule in accordance with the Contract Documents. This schedule will be used to allow the Government to evaluate the work by the Contractor, and to determine whether the Contractor is substantially complying with the Contract Documents. All costs incurred by the Government in preparing this schedule shall be charged to the Contractor's account.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 01320

SECTION 01322 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes administrative and procedural requirements for the following:

1. Preconstruction photographs.
2. Periodic construction photographs.

1.02 SUBMITTALS

A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same label information as corresponding set of photographs.

B. Construction Photographs: Submit six prints of each photographic view within seven days of taking photographs.

1. Format: 8-by-10-inch smooth-surface matte prints on single-weight commercial-grade photographic paper mounted on card stock to allow a 1-inch wide margin punched for standard 3-ring binder.
2. Identification: On back of each print, provide an applied label or rubber-stamped impression with the following information:

a. Name of Project.
b. Name and address of photographer.
c. Name of Architect.
d. Name of Contractor.
e. Date photograph was taken if not date stamped by camera.
f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
g. Unique sequential identifier.

3. Digital Images: Submit a complete set of digital image electronic files as Project Record Document on CD-ROM. Identify electronic media with date photographs were taken. Submit images that have same aspect ratio as the sensor, uncropped.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 CONSTRUCTION PHOTOGRAPHS

A. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.

1. Maintain key plan with each set of construction photographs that identifies each photographic location.

B. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

1. Date and Time: Include date and time in filename for each image.
2. Field Office Images: Maintain one set of images on CD-ROM in the field office at Project site, available at all times for reference. Identify images same as for those submitted to Architect.

C. Preconstruction Photographs: Before starting construction, take color, digital photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect.

1. Flag construction limits before taking construction photographs.
2. Take eight photographs to show existing conditions adjacent to property before starting the Work.
3. Take eight photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.

D. Periodic Construction Photographs: Take 12 color digital photographs weekly. Select vantage points to show status of construction and progress since last photographs were taken. Submit photographs with Application For Payment.

E. Additional Photographs: Architect may issue requests for additional photographs, in addition to periodic photographs specified. Additional photographs will be paid for by Change Order and are not included in the Contract Sum.

1. Three days' notice will be given, where feasible.
2. In emergency situations, take additional photographs within 24 hours of request.
3. Circumstances that could require additional photographs include, but are not limited to, the following:

a. Special events planned at Project site.
b. Immediate follow-up when on-site events result in construction damage or losses.
c. Photographs to be taken at fabrication locations away from Project site. These photographs are not subject to unit prices or unit-cost allowances.
d. Substantial Completion of a major phase or component of the Work.
e. Extra record photographs at time of final acceptance.
f. Owner's request for special publicity photographs.

END OF SECTION 01322

SECTION 01330 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

A. The contractor shall develop and maintain a submittal log showing all submittals required by the specifications and drawings. This shall be used for coordination at weekly meetings. Format to be approved by the Contracting Officer.

B. This Section includes certain administrative and procedural requirements for shop drawings, coordination drawings, schedules, samples and certain other quality assurance submittals.

C. This section does not include requirements for the following submittals:

1. Inspection and test reports specified in Division 1 Section 01400, "Quality Requirements”.
2. Warranties, closeout submittals, record documents, operation, maintenance and instruction manuals specified in Division 1 Section 01780, "Closeout Submittals”.
3. Reports, schedules and other submittals specified in Division 1 Section 01320, "Project Schedule".

D. For clarity purposes, shop drawings, coordination drawings and schedules are further categorized as follows:

1. Shop drawings include drawings and schedules specifically prepared for the project, except for coordination drawings.
2. Coordination drawings are specified in Division 1 Section 01310, "Project Management and Coordination."
3. Product data includes manufacturer's standard catalogs, pamphlets and other printed materials, and includes but is not limited to the following:

    a. Product specifications.
    b. Installation instructions.
    c. Color charts.
    d. Catalog cuts.
    e. Rough-in diagrams and templates.
    f. Wiring diagrams.
    g. Performance curves.
    h. Operational range diagrams.
    i. Mill reports.

E. Samples may include samples of such scale to allow delivery for review, as well as field samples or mock-ups of full-size physical examples erected on-site or elsewhere, or establish a true-scale standard by which the corresponding work will be judged or a standard for compliance testing.

F. Other quality assurance submittals include materials specifically prepared for the project, except drawings and schedules, and include but are not limited to the following:

1. Design data and calculations.
2. Certifications of compliance or conformance.
3. Manufacturer's instructions and field reports.

1.02 GENERAL SUBMITTAL REQUIREMENTS

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities and with the Submittal Schedule specified in Division 1 Section 01320, "Project Schedule". Submittals shall be transmitted to the Architect & Engineer within 30 calendar days after receipt of notice to proceed, unless the approved Submittal Schedule specifically provides for a later or earlier submission. Transmit each submittal sufficiently in advance of the scheduled performance of related construction activities to avoid delaying the Work, allowing for the review times specified for submittals in Division 1 Section 01320, "Project Schedule" and elsewhere in the Contract documents.

1. Coordinate each submittal with other submittals and related activities that require sequential scheduling, to allow for testing, purchase, fabrication and product delivery in a timely manner.
2. Schedule transmittal of different categories of submittals for the same element of Work and for different elements of related parts of the Work at the same time.
3. Allow sufficient time for submittal review, corrections following the initial review and resubmittal review before activities scheduled after the submittal approval.
4. Any resubmission required after Government review shall be made within 10 calendar days after return of the submittal, unless specifically authorized otherwise by the COR.
5. Submittals which are determined to be incomplete or otherwise substandard will be returned to the Contractor with no further review. Delays due to incomplete or rejected submittals will not be excused.
6. Construction will not be allowed to proceed if submittals are not received in a timely manner. Failure by the Contractor to provide the required submittals in a timely manner will not result in an extension to the Contractor's Construction Schedule.
7. Failure by the Contractor to provide the required submittals in a timely manner may result in progress payment requests being returned to the Contractor until submittals are up-to-date.

B. Submittal Preparation: Identify and prepare drawings and samples as specified in the Construction Contract Clauses. Minimally include the following on a permanent label for other submittals:

1. Project name and number.
2. Date.
3. Name, address and telephone number of firm or entity that prepared the submittal.
4. Name and address of the Contractor.
5. Name of the manufacturer.
6. Number and title of appropriate specification section.
7. Drawing number and detail references, as appropriate.
8. Space to record Contractor's review and approval markings, and for Contracting Officer's or Contraction Officer's Representative's action; approximately 5 by 5 inches (250 by 250 mm).

C. Submittal Transmittal: Package each submittal for transmission and handling. Transmit each submittal from the Contractor to the Contracting Officer or Contracting Officer's representative by use of a transmittal form. Minimally include the following information on the transmittal form.

1. Project name and number.
2. Date.
3. Destination (To:).
4. Source (From:).
5. Names of subcontractor, manufacturer and supplier, as applicable.
6. Category of submittal.
7. Description of submittal
8. Number and title of appropriate specification section.
9. Submittal number, including means to separately identify initial submittal and each re-submittal.
10. Certification by Contractor stating that submittal complies with the Contract Documents, or statement of deviations from the requirements of the Contract Documents including minor variations and limitations. Deviations may be listed on an attached sheet referenced on the transmittal form.
11. Signature of transmitter.

1.03 SHOP DRAWINGS AND COORDINATION DRAWINGS

A. Submit originally prepared information, drawn accurately to scale. Do not reproduce Contract Documents or copy standard printed materials as the basis for Shop Drawings and Coordination Drawings.

B. Minimally include the following information on Shop Drawings and Coordination Drawings:

1. Dimensions.
2. Identification of products and materials.
3. Compliance with specified standards.
4. Notation of coordination requirements.
5. Notation of dimensions established by field measurements, if any.
6. Highlighted or encircled deviations from the Contract Documents, if any.

C. Sheet size: Except for templates, patterns and similar full-size drawings, submit Shop Drawings and Coordination Drawings on sheets of at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).

D. Submittals: Unless otherwise indicated, submit six (6) blue-line or black-line prints of each drawing submittal.

E. Distribution: When submittal is approved, Contractor shall prepare final blue-line or black-line print copies from the approved reproducible print, for the following purposes.

1. One print shall be marked and retained as a "Record Document."
2. Unless otherwise requested, two prints shall be provided to the Contracting Officer’s Representative.
3. Additional prints shall be provided to the entities involved in the effected construction.

1.04 PRODUCT DATA

A. Collect Product Data into a single submittal for each system or element of construction. Mark each copy to show specific product choices and options applicable to the project. Product Data shall include the following information, where applicable:

1. Manufacturer's printed recommendations.
2. Compliance with recognized trade association standards.
3. Compliance with recognized testing standards.
4. Applicability of testing agency labels and seals.
5. Notation of dimensions verified for fit by field measurements.
6. Notation of coordination requirements.

B. Preliminary Submittal: Prior to submittal of complete Product Data, submit a preliminary single copy of that part of Product Data when selection of options is required, such as for color charts. Preliminary submittal will be returned, with selection noted, for the Contractor's use in subsequent submittals.

C. Submittals: Unless otherwise indicated, submit not less than six (6) copies of each Product Data submittal. Three (3) copies will be retained, and the remaining copies will be marked with action taken and returned.

D. Distribution: When submittal is approved, Contractor shall distribute approved copies for the following purposes:

1. One copy shall be marked and retained as a "Record Document."
2. Additional copies shall be provided to the manufacturers, subcontractors, suppliers, installers, governing authorities and others as required for performance of the applicable construction activities.

1.05 SAMPLES

A. Submit full-size, fully fabricated samples, cured and finished in the manner specified. Samples shall be physically identical to the material or product proposed for use.

B. Mount, display, or package samples to facilitate review of kind, color, pattern, texture and other qualities indicated, as a final check of these characteristics with other elements and for comparison of these characteristics with those of the actual component delivered and installed.

C. Where variation in color, pattern, texture or other characteristic is inherent in the material or product, submit at least 3 multiple units that show approximate limits of the variations.

D. Refer to other specification sections for requirements for samples that illustrate workmanship, fabrication techniques, and details of assembly, connections, operations and similar construction characteristics.

E. Refer to other specification sections for samples to be returned to the Contractor for incorporation in the Work. Such samples must be in undamaged condition at time of use.

F. Preliminary Submittal: Where color, pattern, texture or similar characteristics are specified to be selected from a manufacturer's range of standard choices, submit a preliminary single set sample of available choices prior to submittal of the complete sample. Preliminary submittal will be returned, with selection noted, for the Contractor's use in subsequent submittals.

G. Submittals: Unless otherwise indicated and except for field samples or mock-ups of full-size physical examples erected on-site or elsewhere, submit not less than six (6) sets of each sample submittal. Three (3) copies will be marked with action taken and returned. Comply with requirements in the individual specification section for field samples and mockups.

H. Distribution: Except for field samples or mockups, when submittal is approved, Contractor shall distribute approved copies for the following purposes:

1. One copy shall be marked and retained as a "Record Document" at the Project Site, and shall be available for comparison throughout the course of construction activity.
2. Additional copies shall be provided to manufacturers, subcontractors, suppliers, installers, governing authorities and others as required for performance of the applicable construction activities.

1.06 OTHER QUALITY ASSURANCE SUBMITTALS

A. Submit other quality assurance submittals in compliance with requirements in the individual specification sections.

B. Certifications: Submit notarized certifications from the party certifying compliance with specified requirements. Certifications shall be signed by an officer or other individual authorized to sign documents on behalf of the company certifying compliance.

1.07 REVIEW ACTION ON SUBMITTALS

A. Except for submittals for the record or for information or for another purpose where no action and return is required, the Contracting Officer or the Contracting Officer's authorized representative will review submittals and mark returned copies to indicate action taken.

B. Compliance with specified characteristics is the Contractor's responsibility, and is not part of the Contracting Officer's review and indication of action taken. No matter what review action is taken, final acceptance will depend on full compliance with the Contract Documents.

C. Submittals that do not contain an appropriate marking of approval by the Contracting Officer or Contracting Officer's representative shall not be used for construction.

D. Action Stamp: Each submittal will be stamped with a uniform action stamp. The stamp shall be marked to indicate one of the following actions taken:

1. Final Unrestricted Release: Where marked "Reviewed Without Comment", the work covered by the submittal may proceed, provided it complies with the requirements of the Contract Documents.
2. Final But Restricted Release: Where marked "Reviewed With Comment", the work covered by the submittal may proceed, provided it complies with the notations or corrections on the submittal and with the requirements of the Contract Documents.
3. Return for re-submittal: Where marked "Reviewed Revise and Resubmit", do not proceed with the work covered by the submittal, including purchasing, fabrication, delivery or any other activity. Revise or prepare a new submittal according to the notations on the submittal or on the return transmittal. Resubmit without delay, repeating as necessary to obtain a final release action mark.
4. No Action: Where a submittal is for the record or for information or for another purpose not requiring review action, the submittal may not be returned or may be returned and marked "Reviewed Action Not Required."

1.08 REVIEW TIME ON SUBMITTALS

A. In accordance with Section 01000 paragraph 1.13.A the Contractor shall be charged for review time for submittals requiring more than two reviews (original and one resubmission).

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION 01330

SECTION 01400 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
2. Requirements for Contractor to provide quality-assurance and quality-control services required by The Contracting Officer, or other authorities having jurisdiction, are not limited by provisions of this Section.

C. See Divisions 2 through 16 Sections for specific test and inspection requirements.

D. All quality-assurance services activities, certifications, tests, actions and procedures and all quality-control services tests, inspections, procedures, and related actions shall be paid for by the Contractor.

1.02 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements.

C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish the standard by which the Work will be judged.

D. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.

E. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

F. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.

G. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

H. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

I. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

J. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades people of the corresponding generic name.

K. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.03 CONFLICTING REQUIREMENTS

A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.04 SUBMITTALS

A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Reports: Prepare and submit certified written reports that include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.

9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and re-inspecting.

C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.05 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.

F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirement for specialists shall not supersede building codes and regulations governing the Work.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of

manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Mockups: Construct Mockup of EIFS and Polymer Acrylic color coated stucco exterior finish for approval prior to proceeding with the work:
1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
6. Demolish and remove mockups when directed, unless otherwise indicated.

J. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Sections in Divisions 2 through 16.

1.06 QUALITY CONTROL

A. Contractors Responsibilities: Where quality-control services are indicated, Contractor will engage a qualified testing agency to perform these services.

1. Contractor will furnish COR with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Tests and inspections not explicitly called out are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

1. Where services are indicated, engage a qualified testing agency to perform these quality control services.
2. Notify testing agencies at least 48 hours in advance of time when work that requires testing or inspecting will be performed.
3. Where quality-control services are indicated, submit six (6) copies of certified written report for each quality-control service.
4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
5. Submit additional copies of each written report directly to authorities having jurisdiction, when so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 1 Section "Submittal Procedures."

D. Retesting/Re-inspecting: Provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents. Retesting and re-inspecting shall be the Contractor's responsibility,

E. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release or revoke, alter, or increase the Contract Document requirements, or approve, or accept any portion of the Work.
6. Do not perform any duties of Contractor.

F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.07 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Contractor will engage a qualified testing agency to conduct special tests and inspections required by the plans, specifications and the COR:

B. Special Tests and Inspections: Contractor will engage a qualified special inspector as required by the plans, specifications and the COR:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which, includes a list of unresolved deficiencies?

5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and re-inspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

1.01 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
2. Comply with the Contract Document requirements for Division 1 Section "Cutting and Patching."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01400

SECTION 01410 – ENVIRONMENTAL PROTECTION

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. The Contractor shall perform the work minimizing environmental pollution and damage as the result of construction operations. Environmental pollution and damage is the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade the utility of the environment for aesthetic, cultural and/or historical purposes. The control of environmental pollution and damage requires consideration of land, water, and air, and includes management of visual aesthetics, noise, solid waste, as well as other pollutants. The environmental resources within the project boundaries and those affected outside the limits of permanent work shall be protected during the entire duration of this contract.

B. Contractor shall comply with all relevant mitigation measures required by Joint Forces Training Base. Point of Contact for Environmental Protection is Troy Hardin (telephone 562-795-2114).

C. Subcontractors: The Contractor shall ensure compliance with this section by subcontractors.

D. Environmental Protection Plan: The Contractor shall submit an environmental protection plan within 15 days after receipt of the notice to proceed. Approval of the Contractor's plan will not relieve the Contractor of responsibility for adequate and continuing control of pollutants and other environmental protection measures. The environmental protection plan shall include, but shall not be limited to, the following:

1. A list of Federal, State, and local laws, regulations, and permits concerning environmental protection, pollution control and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations, and permits.
2. Methods for protection of features to be preserved within authorized work areas like trees, shrubs, grasses and ground cover, landscape features, air and water quality, and soil.
3. Procedures to be implemented to provide the required environmental protection, to comply with the applicable laws and regulations, and to correct pollution due to accident, natural causes, or failure to follow the procedures of the environmental protection plan.
4. Location of the solid waste disposal area.
5. Drawings showing locations of any proposed temporary excavations or stockpiles of excess or spoil materials.
6. Environmental monitoring plans for the job site, including land, water, air, and noise monitoring.
7. Traffic control plan including measures to reduce the amount of mud transported onto paved public roads by vehicles or runoff.
8. Methods of protecting surface and ground water during construction activities.
9. Plan showing the proposed activity in each portion of the work area and identifying the areas of limited use or nonuse. Plan should include measures for marking the limits of use areas.
10. Drawing of borrow area location. Protection measures required at the work site shall apply to the borrow areas including final restoration for subsequent beneficial use of the land.

11. A recycling and waste prevention plan with a list of measures to reduce consumption of energy and natural resources; for example: the possibility to shred fallen trees and use them as mulch shall be considered as an alternative to burning or burial.
12. Training for Contractor's personnel during the construction period.

E. Permits: The Contractor shall obtain all necessary permits or licenses. The Government will not obtain any permits for this project; see Contract Clause PERMITS AND RESPONSIBILITIES. The State department of natural resources, through the national pollutant discharge elimination system (NPDES), requires general permits, a notice of intent, and a notice of discontinuation. The Contractor shall be responsible for implementing the terms and requirements of the appropriate permits as needed and for payment of all fees. Contractor shall address all NPDES requirements, including but not limited to preparation of the “SWPPP” and the “NOI”. All documentation related to NPDES must be submitted to the contracting officer for review and approval.

F. Preconstruction Survey: Prior to starting any onsite construction activities, the Contractor and the Contracting Officer’s Representative (COR) shall make a joint condition survey after which the Contractor shall prepare a brief report indicating on a layout plan the condition of trees, shrubs and grassed areas immediately adjacent to work sites and adjacent to the assigned storage area and access routes as applicable. This report will be signed by both the COR and the Contractor upon mutual agreement as to its accuracy and completeness.

G. Meetings: The Contractor shall meet with representatives of the COR to alter the environmental protection plan as needed for compliance with the environmental pollution control program.

H. Notification: The COR will notify the Contractor in writing of any observed noncompliance with the previously mentioned Federal, State or local laws or regulations, permits, and other elements of the Contractor's environmental protection plan. The Contractor shall, after receipt of such notice, inform the COR of proposed corrective action and take such action when approved. If the Contractor fails to comply promptly, the COR may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions shall be granted or costs or damages allowed to the Contractor for any such suspensions.

I. Litigation: If work is suspended, delayed, or interrupted due to a court order of competent jurisdiction, the COR will determine whether the order is due in any part to the acts or omissions of the Contractor, or subcontractors at any tier, not required by the terms of the contract. If it is determined that the order is not due to Contractor's failing, such suspension, delay, or interruption shall be considered as ordered by the COR in the administration of the contract under the contract clause SUSPENSION OF WORK.

J. Previously Used Equipment: The Contractor shall thoroughly clean all construction equipment previously used at other sites before it is brought into the work areas, ensuring that soil residuals are removed and that egg deposits from plant pests are not present; the Contractor shall consult with the USDA jurisdictional office for additional cleaning requirements.

K. Payment: No separate payment will be made for work covered under this section; all costs associated with this section shall be included in the contract unit and/or lump sum prices in the Bidding Schedule.

1.02 LAND RESOURCES

A. The Contractor shall confine all activities to areas defined by the drawings and specifications. Prior to the beginning of any construction, the Contractor shall identify the land resources to be preserved within the work area. Except in areas indicated on the drawings or specified to be cleared, the Contractor shall not remove, cut, deface, injure, or destroy land resources including

trees, shrubs, and grasses without permission. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. Where such emergency use is permitted, the Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs. Stone, earth or other material displaced into unclear areas shall be removed.

B. Work Area Limits: Prior to any construction, the Contractor shall mark the areas that need not be disturbed under this contract. Isolated areas within the general work area which are to be saved and protected shall also be marked or fenced. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, the markers shall be visible. The Contractor's personnel shall be knowledgeable of the purpose for marking and/or protecting particular objects.

C. Landscape: Trees, shrubs, grasses, and other landscape features indicated and defined on the drawings to be preserved shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques.

D. Unprotected Erodible Soils: Earthwork brought to final grade shall be finished as indicated. Side slopes and back slopes shall be protected as soon as practicable upon completion of rough grading. All earthworks shall be planned and conducted to minimize the duration of exposure of unprotected soils.

E. Disturbed Areas: The Contractor shall effectively prevent erosion and control sedimentation through approved methods including, but not limited to, the following:

1. Retardation and control of runoff. Runoff from the construction site or from storms shall be controlled, retarded, and diverted to protected drainage courses by means of diversion ditches, benches, berms, and by any measures required by area wide plans under the Clean Water Act.
2. Erosion and sedimentation control devices. The Contractor shall construct or install temporary and permanent erosion and sedimentation control features. Berms, dikes, drains, sedimentation basins, grassing, and mulching shall be maintained until permanent drainage and erosion control facilities are completed and operative.
3. Sediment basins. Sediment from construction areas shall be trapped in temporary or permanent sediment basins. The basins shall accommodate the runoff of a local 5 year storm. After each storm, the basins shall be pumped dry and accumulated sediment shall be removed to maintain basin effectiveness. Overflow shall be controlled by paved weirs or by vertical overflow pipes. The collected topsoil sediment shall be reused for fill on the construction site, and/or stockpiled for use at another site. The Contractor shall institute effluent quality monitoring programs as required by State and local environmental agencies.

1.03 WATER RESOURCES

A. The Contractor shall keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters. Toxic or hazardous chemicals shall not be applied to soil or vegetation when such application may cause contamination of the fresh water reserve. Monitoring of water areas affected by construction shall be the Contractor's responsibility. All water areas affected by construction activities shall be monitored by the Contractor.

B. Washing and Curing Water: Waste waters directly derived from construction activities shall not be allowed to enter water areas. Waste waters shall be collected and placed in retention ponds where suspended material can be settled out or the water evaporates to separate pollutants

from the water. Analysis shall be performed and results reviewed and approved before water in retention ponds is discharged.

1.04 AIR RESOURCES

A. Equipment operation and activities or processes performed by the Contractor in accomplishing the specified construction shall be in accordance with the State's rules and all Federal emission and performance laws and standards. Ambient Air Quality Standards set by the Environmental Protection Agency shall be maintained. Monitoring of air quality shall be the Contractor's responsibility. All air areas affected by the construction activities shall be monitored by the Contractor. Monitoring results will be periodically reviewed by the Government to ensure compliance.

B. Particulates: Dust particles; aerosols and gaseous by-products from construction activities; and processing and preparation of materials shall be controlled at all times, including weekends, holidays and hours when work is not in progress. The Contractor shall maintain excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and other work areas within or outside the project boundaries free from particulates which would cause the air pollution standards to be exceeded or which would cause a hazard or a nuisance. Sprinkling, chemical treatment of an approved type, light bituminous treatment, bag house, scrubbers, electrostatic precipitators or other methods will be permitted to control particulates in the work area. Sprinkling, to be efficient, must be repeated to keep the disturbed area damp at all times. The Contractor must have sufficient, competent equipment available to accomplish these tasks. Particulate control shall be performed as the work proceeds and whenever a particulate nuisance or hazard occurs.

C. Hydrocarbons and Carbon Monoxide: Hydrocarbons and carbon monoxide emissions from equipment shall be controlled to Federal and State allowable limits at all times.

D. Odors: Odors shall be controlled at all times for all construction activities, processing and preparation of materials.

E. Sound Intrusions: The Contractor shall keep construction activities under surveillance and control to minimize environment damage by noise.

1.05 WASTE DISPOSAL

A. Disposal of wastes shall be as specified below.

B. Solid Wastes: Solid wastes (excluding clearing debris) shall be placed in containers which are emptied on a regular schedule. Handling and disposal shall be conducted to prevent contamination. Segregation measures shall be employed so that no hazardous or toxic waste will become co-mingled with solid waste. The Contractor shall transport solid waste off Government property and dispose of it in compliance with Federal, State, and local requirements for solid waste disposal. Waste materials shall be hauled to the Government landfill site designated by the COR. The Contractor shall comply with Federal, State, and local laws and regulations pertaining to the use of landfill areas.

C. Chemical Wastes: Chemicals shall be dispensed ensuring no spillage to ground or water. Periodic inspections of dispensing areas to identify leakage and initiate corrective action shall be performed and documented. This documentation will be periodically reviewed by the Government. Chemical waste shall be collected in corrosion resistant, compatible containers. Collection drums shall be monitored and removed to a staging or storage area when contents

are within 6 inches of the top. Wastes shall be disposed of in accordance with Federal and local laws and regulations.

D. Hazardous Wastes: The Contractor shall take sufficient measures to prevent spillage of hazardous and toxic materials during dispensing and shall collect waste in suitable containers observing compatibility. The Contractor shall transport hazardous waste off Government property and dispose of it in compliance with Federal and local laws and regulations. Spills of hazardous or toxic materials shall be immediately reported to the COR. Cleanup and cleanup costs due to spills shall be the Contractor's responsibility.

E. Burning: Burning is not permitted.

1.06 POST CONSTRUCTION CLEANUP

A. The Contractor shall clean up all areas used for construction.

1.07 RESTORATION OF LANDSCAPE DAMAGE

A. The Contractor shall restore landscape features damaged or destroyed during construction operations outside the limits of the approved work areas.

END OF SECTION 01410

SECTION 01420 - REFERENCES

PART 1 - GENERAL

1.01 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.02 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.03 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

AA	Aluminum Association, Inc. (The)
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AATCC	American Association of Textile Chemists and Colorists (The)
ABMA	American Bearing Manufacturers Association
ACI	ACI International (American Concrete Institute)
ACPA	American Concrete Pipe Association
AEIC	Association of Edison Illuminating Companies, Inc. (The)
AF&PA	American Forest & Paper Association
AGA	American Gas Association
AGC	Associated General Contractors of America (The)
AHA	American Hardboard Association (Now part of CPA)
AI	Asphalt Institute
AIA	American Institute of Architects (The)
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALSC	American Lumber Standard Committee, Incorporated
AMCA	Air Movement and Control Association International, Inc.
ANSI	American National Standards Institute
APA	APA - The Engineered Wood Association
APA EWS	APA - The Engineered Wood Association; Engineered Wood Systems
ARI	Air-Conditioning & Refrigeration Institute

ARMA	Asphalt Roofing Manufacturers Association
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	ASME International (The American Society of Mechanical Engineers International)
ASSE	American Society of Sanitary Engineering
ASTM	ASTM International (American Society for Testing and Materials International)
AWCI	AWCI International (Association of the Wall and Ceiling Industry International)
AWCMA	American Window Covering Manufacturers Association (Now WCSC)
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
CCC	Carpet Cushion Council
CDA	Copper Development Association
CFFA	Chemical Fabrics & Film Association, Inc.
CGA	Compressed Gas Association
CIMA	Cellulose Insulation Manufacturers Association
CISCA	Ceilings & Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute
CRRC	Cool Roof Rating Council
CPA	Composite Panel Association
CPPA	Corrugated Polyethylene Pipe Association
CRI	Carpet & Rug Institute (The)
CRSI	Concrete Reinforcing Steel Institute

CSA	CSA International (Formerly: IAS - International Approval Services)
CSI	Construction Specifications Institute (The)
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute)
DHI	Door and Hardware Institute
EIA	Electronic Industries Alliance
EIMA	EIFS Industry Members Association
EJCDC	Engineers Joint Contract Documents Committee
EJMA	Expansion Joint Manufacturers Association, Inc.
ESD	ESD Association
FM Approvals	FM Approvals
FM Global	FM Global (Formerly: FMG - FM Global)
FMRC	Factory Mutual Research (Now FM Global)
FSA	Fluid Sealing Association
FSC	Forest Stewardship Council
GA	Gypsum Association
GANA	Glass Association of North America
GRI	(Now GSI)
GS	Green Seal
GSI	Geosynthetic Institute
HI	Hydraulic Institute
HI	Hydronics Institute
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)
HPVA	Hardwood Plywood & Veneer Association
IAS	International Approval Services (Now CSA International)
ICEA	Insulated Cable Engineers Association, Inc.

ICRI	International Concrete Repair Institute, Inc.
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The)
IESNA	Illuminating Engineering Society of North America
IEST	Institute of Environmental Sciences and Technology
IGCC	Insulating Glass Certification Council
IGMA	Insulating Glass Manufacturers Alliance
ISO	International Organization for Standardization
ISSFA	International Solid Surface Fabricators Association
ITS	Intertek Testing Service NA
ITU	International Telecommunication Union
KCMA	Kitchen Cabinet Manufacturers Association
LMA	Laminating Materials Association (Now part of CPA)
LPI	Lightning Protection Institute
MFMA	Metal Framing Manufacturers Association, Inc.
MPI	Master Painters Institute
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc.
NAAMM	National Association of Architectural Metal Manufacturers
NACE	NACE International (National Association of Corrosion Engineers International)
NADCA	National Air Duct Cleaners Association
NAIMA	North American Insulation Manufacturers Association
NCPI	National Clay Pipe Institute
NCTA	National Cable & Telecommunications Association
NEBB	National Environmental Balancing Bureau
NECA	National Electrical Contractors Association
NEMA	National Electrical Manufacturers Association
NETA	International Electrical Testing Association

NFPA	NFPA (National Fire Protection Association)
NFRC	National Fenestration Rating Council
NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NLGA	National Lumber Grades Authority
NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association)
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSF	NSF International (National Sanitation Foundation International)
NSSGA	National Stone, Sand & Gravel Association
NTMA	National Terrazzo & Mosaic Association, Inc. (The)
NWWDA	National Wood Window and Door Association (Now WDMA)
PDCA	Painting & Decorating Contractors of America
PDI	Plumbing & Drainage Institute
PGI	PVC Geomembrane Institute
RCSC	Research Council on Structural Connections
RFCI	Resilient Floor Covering Institute
SAE	SAE International
SDI	Steel Door Institute
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers (See ASCE)
SGCC	Safety Glazing Certification Council
SIA	Security Industry Association
SIGMA	Sealed Insulating Glass Manufacturers Association (Now IGMA)
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association

SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division)
SPIB	Southern Pine Inspection Bureau (The)
SPRI	Single Ply Roofing Industry
SSINA	Specialty Steel Industry of North America
SSPC	SSPC: The Society for Protective Coatings
SWI	Steel Window Institute
SWRI	Sealant, Waterproofing, & Restoration Institute
TCA	Tile Council of America, Inc.
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
TPI	Truss Plate Institute, Inc.
UL	Underwriters Laboratories Inc.
UNI	Uni-Bell PVC Pipe Association
USGBC	U.S. Green Building Council
WASTEC	Waste Equipment Technology Association
WCLIB	West Coast Lumber Inspection Bureau
WCMA	Window Covering Manufacturers Association (Now WCSC)
WCSC	Window Covering Safety Council (Formerly: WCMA - Window Covering Manufacturers Association)
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association)
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California)
WIC	Woodwork Institute of California (Now WI)
WMMPA	Wood Molding & Millwork Producers Association
WSRCA	Western States Roofing Contractors Association
WWPA	Western Wood Products Association

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

BOCA	BOCA International, Inc. (See ICC)
IAPMO	International Association of Plumbing and Mechanical Officials
ICBO	International Conference of Building Officials (See ICC)
ICBO ES	ICBO Evaluation Service, Inc. (See ICC-ES)
ICC	International Code Council
ICC-ES	ICC Evaluation Service, Inc.
SBCCI	Southern Building Code Congress International, Inc. (See ICC)
UBC	Uniform Building Code (See ICC)

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

CE	Army Corps of Engineers
CPSC	Consumer Product Safety Commission
DOC	Department of Commerce
DOD	Department of Defense
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FDA	Food and Drug Administration
GSA	General Services Administration
HUD	Department of Housing and Urban Development
LBL	Lawrence Berkeley National Laboratory
NCHRP	National Cooperative Highway Research Program (See TRB)
NIST	National Institute of Standards and Technology

OSHA	Occupational Safety & Health Administration
PBS	Public Building Service (See GSA)
PHS	Office of Public Health and Science
RUS	Rural Utilities Service (See USDA)
SD	State Department
TRB	Transportation Research Board
USDA	Department of Agriculture
USPS	Postal Service

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list.

ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA)
CFR	Code of Federal Regulations
DOD	Department of Defense Military Specifications and Standards
DSCC	Defense Supply Center Columbus (See FS)
FED-STD	Federal Standard (See FS)
FS	Federal Specification
FTMS	Federal Test Method Standard (See FS)
MIL	(See MILSPEC)
MIL-STD	(See MILSPEC)
MILSPEC	Military Specification and Standards
UFAS	Uniform Federal Accessibility Standards

F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01420

SECTION 01500 - TEMPORARY CONSTRUCTION FACILITIES

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. Site Plan: The Contractor shall prepare a site plan indicating the proposed location and dimensions of any area to be fenced and used by the Contractor, the number of trailers to be used, and avenues of ingress/egress to the fenced area and details of the fence installation. Any areas which may have to be graveled to prevent the tracking of mud shall also be identified. The Contractor shall also indicate if the use of a supplemental or other staging area is desired.

B. Employee Parking: Contractor employees shall park privately owned vehicles in an area designated by the COR. This area may be on the construction site or be within reasonable walking distance of the construction site. Contractor employee parking shall not interfere with existing and established parking requirements of the military installation.

1.02 AVAILABILITY AND USE OF UTILITY SERVICES

A. Payment for Utility Services: The Contractor shall be responsible for all temporary utilities and incurred costs.

B. Meters and Temporary Connections: The Contractor, at its expense and in a manner satisfactory to the COR, shall provide and maintain necessary temporary connections, distribution lines, and meter bases (Contractor will provide meters) required to measure the amount of each utility used for the purpose of determining charges. The Contractor shall notify the COR, in writing, 5 working days before final electrical connection is desired so that a utilities contract can be established. The Contractor will provide a meter and make the temporary power final hot connection after inspection and approval of the Contractor's temporary wiring installation. The Contractor shall not make the final electrical connection.

C. Sanitation: The Contractor shall provide and maintain within the construction area minimum field-type sanitary facilities approved by the COR. Government toilet facilities will not be available to Contractor's personnel.

D. Telephone: The Contractor shall make arrangements and pay all costs for temporary telephone facilities desired.

1.03 BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

A. Bulletin Board: Immediately upon beginning of work, the Contractor shall provide a bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the contract, Wage Rate Information poster, and other information approved by the COR. The bulletin board shall be located within the Contractor’s trailer at the project site in a conspicuous place easily accessible to all employees. Legible copies of the aforementioned data shall be displayed until work is completed. Upon completion of work the bulletin board shall be removed by and remain the property of the Contractor.

B. Project Sign: The requirements for the sign, content, and location shall be as directed by the Contracting Officer. The sign shall be 4-feet high x 8-feet wide, with the project name, name of contractor, along with project information such as future home of the California Army National

Guard, contact information and similar information. The sign shall be erected within 30 days after receipt of the notice to proceed. Upon completion of the project, the sign shall be removed from the site.

1.04 PROTECTION AND MAINTENANCE OF TRAFFIC

A. The Contractor shall maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the COR. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as required by the State and local authorities having jurisdiction. The traveling public shall be protected from damage to person and property. The Contractor's traffic on roads selected for hauling material to and from the site shall interfere as little as possible with public traffic. The Contractor shall investigate the adequacy of existing roads and the allowable load limit on these roads. The Contractor shall be responsible for the repair of any damage to roads caused by construction operations.

B. Barricades: The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas. Such barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

1.05 CONTRACTOR'S TEMPORARY FACILITIES

A. Administrative Field Offices: The Contractor shall provide and maintain administrative field office facilities within the construction area at the designated site. These field offices shall also contain an air-conditioned conference room with one table and chairs, sufficient in size to handle a meeting for 12 people, a multi purpose printer/copier/scanner/fax machine, and telephones. The conference room may be part of the Contractor’s field office or may be a separate trailer, which is similar in quality and construct to the trailer described in Section 1.6 of this specification section. Government office and warehouse facilities will not be available to the Contractor's personnel.

B. Storage Area: The Contractor shall construct a temporary 6 foot high chain link fence around trailers and materials. Fence posts may be driven, in lieu of concrete bases, where soil conditions permit. Trailers, materials, or equipment shall not be placed or stored outside the fenced area unless such trailers, materials, or equipment are assigned a separate and distinct storage area by the COR away from the vicinity of the construction site but within the military boundaries. Materials shall not be stockpiled outside the fence in preparation for the next day's work. Mobile equipment, such as tractors, wheeled lifting equipment, cranes, trucks, and like equipment, shall be parked within the fenced area at the end of each work day.

C. Appearance of Trailers: Trailers utilized by the Contractor for administrative or material storage purposes shall present a clean and neat exterior appearance and shall be in a state of good repair. Trailers that, in the opinion of the COR, require exterior painting or maintenance will not be allowed on the construction site.

D. Maintenance of Storage Area: Fencing shall be kept in a state of good repair and proper alignment. Should the Contractor elect to traverse, with construction equipment or other vehicles, grassed or unpaved areas which are not established roadways, such areas shall be

covered with a layer of gravel as necessary to prevent rutting and the tracking of mud onto paved or established roadways; gravel gradation shall be at the Contractor's discretion.

E. Security Provisions: Adequate outside security lighting shall be provided at the Contractor's temporary facilities. The Contractor shall be responsible for the security of its own equipment; in addition, the Contractor shall notify the appropriate law enforcement agency requesting periodic security checks of the temporary project field office.

F. Government Field Office Trailer: The Contractor shall furnish the Government one 10'x10' office within his temporary field office for exclusive use of the COR for the duration of the project. The Contractor shall also provide one computer and printer for use of the COR within this office. The office shall have locking door. The Contractor shall also provide one desk with locking drawers, four chairs and one 2-drawer locking file cabinet for use by the COR. The computer, printer, desk, chairs and file cabinet shall remain the property of the Contractor upon contract completion.

1.06 TEMPORARY PROJECT SAFETY FENCING

A. As soon as practicable, but not later than 15 days after the date established for commencement of work, the Contractor shall furnish and erect temporary project safety fencing at the work site. The safety fencing shall be a high visibility orange colored, high density polyethylene grid or approved equal, a minimum of 42 inches high, supported and tightly secured to steel posts located on maximum 10 foot centers, constructed at the approved location. The safety fencing shall be maintained by the Contractor during the life of the contract and, upon completion and acceptance of the work, shall become the property of the Contractor and shall be removed from the work site.

1.07 CLEANUP

A. Construction debris, waste materials, packaging material and the like shall be removed from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways shall be cleaned away. Materials resulting from demolition activities which are salvageable shall be stored within the fenced area described above or at the supplemental storage area. Stored material not in trailers, whether new or salvaged, shall be neatly stacked when stored.

B. Food and drinks will not be allowed inside perimeter building walls of the new Readiness Center during construction.

1.08 RESTORATION OF STORAGE AREA

A. Upon completion of the project and after removal of trailers, materials, and equipment from within the fenced area, the fence shall be removed and will become the property of the Contractor. Areas used by the Contractor for the storage of equipment or material, or other use, shall be restored to the original or better condition. Gravel used to traverse grassed areas shall be removed and the area restored to its original condition, including top soil and seeding as necessary.

END OF SECTION 01500

SECTION 01731 - CUTTING AND PATCHING

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes procedural requirements for cutting and patching.

B. See Divisions 2 through 16 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

C. See Division 7 Section "Through-Penetration Fire stop Systems" for patching fire-rated construction.

1.02 SUBMITTALS

A. Cutting and Patching Proposal: Submit a proposal describing procedures at least TEN (10) days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:

1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
3. Products: List products to be used and firms or entities that will perform the Work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utility Services and Mechanical/Electrical Systems: List services/systems that cutting and patching procedures will disturb or affect. List services/systems that will be relocated and those that will be temporarily out of service. Indicate how long services/systems will be disrupted.
6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
7. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.03 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.

C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1.04 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

3.03 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.

2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
4. Ceilings: Patch, repair, or re-hang in place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weather tight condition.

D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 01731

SECTION 01732 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the following:

1. Demolition and removal of selected portions of building or structure.
2. Demolition and removal of selected site elements.
3. Salvage of existing items to be reused or recycled.

B. See Division 2 Section "Site Clearing" for site clearing and removal of above- and below-grade improvements.

C. Hazardous materials are known to exist in and on these buildings. It is the sole responsibility of the Contractor to demolish, remove and dispose of all hazardous materials required by the project. Hazardous materials survey and identification reports (by others) are available from City Services, Inc. Los Angeles, CA (Project 4084).

1.02 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Detach items from existing construction and deliver them to Owner.

C. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.03 SUBMITTALS

A. Schedule of Selective Demolition Activities: Indicate detailed sequence of selective demolition and removal work, with starting and ending dates for each activity, interruption of utility services, use of elevator and stairs, and locations of temporary partitions and means of egress.

B. Pre-demolition Photographs: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by selective demolition operations. Comply with Division 1 Section "Photographic Documentation." Submit before Work begins.

1.04 QUALITY ASSURANCE

A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.

B. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

C. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

D. Standards: Comply with ANSI A10.6 and NFPA 241.

E. Pre-demolition Conference: Conduct conference at Project site.

1.05 PROJECT CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

1. Before selective demolition, Owner will remove the following items:

a. All stored items in the North Wing of Building 21.

b. All kitchen and club furnishings in the Center Wing of Building 21.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: Hazardous materials are present in construction to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.

1. Hazardous material demolition, removal and disposal shall be the sole responsibility of the Contractor.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

1.06 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that abandoned utilities have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.

F. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.

1. Comply with requirements specified in Division 1 Section "Photographic Documentation."

G. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.02 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.

B. Split and reroute existing mechanical and electrical systems (water, sewer, gas, storm drain, electrical power, telephone, data, and fire alarm, to provide service to (Building 21 and Building 25 South Wing (Mess Hall), North Wing (Classrooms) and new Administrative Wing.

C. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Arrange to shut off indicated utilities with utility companies.
2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

3.03 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Comply with requirements for access and protection specified in Division 1 Section "Temporary Facilities and Controls."

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

3.04 SELECTIVE DEMOLITION

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
5. Dispose of demolished items and materials promptly. Comply with requirements in Division 1 Section "Construction Waste Management".

B. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to designated Owner's storage area.
5. Protect items from damage during transport and storage.

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.05 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be salvaged, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.06 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 01732

SECTION 01735 - FIRE PREVENTION PRECAUTIONS FOR HOT WORK

PART 1 - GENERAL

1.01 SUMMARY

A. This section applies to safeguards to be observed in performing hot work, including welding, soldering, brazing and other operations where open flames or implements utilizing heat are used.

1.02 SAFETY PRECAUTIONS

A. The Contractor shall ensure that operations involving the use of open-flame, electrical arc equipment or flammable substances are not conducted until a permit for welding, cutting, and burning has been completed, signed and issued by the Building Manager.

B. The Contracting Officer's Representative (COR) must approve the location of asphalt kettles for roofing work.

C. Prior to commencing operations, a positive determination shall be made that it is impractical to conduct the hot work in a shop area or outside of the building. Coordinate suitable locations for hot equipment operations agreeable to the COR.

1.03 NOTIFICATON

A. The Contractor shall notify the COR of the area of operations for each day and of all subsequent changes that occur.

B. The Contractor shall notify the Building Manager of all locations where hot work has been performed not less than 30 minutes or more than 90 minutes after work is completed or stopped for the day.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 INSPECTION

A. Before starting operations, the Contractor shall furnish trained personnel to provide fire watches for locations where hot work is to be performed. One fire watcher may observe several locations in a relatively small contiguous area if approved by the Contracting Officer=s Representative.1.Contractor shall furnish suitable type, fully-charged, operable portable fire extinguisher to each fire watcher.

1. The Contractor shall provide fire watchers who know how to operate the fire extinguisher, how to turn on a fire alarm and how to summon the fire department.

B. Before starting operations, take suitable precautions to minimize the hazard of a fire communicating to the opposite side of walls, floors, ceilings and roofs from the operations.

3.02 SAFETY MEASURES

A. Hot work shall not be done in or near rooms or areas where flammable liquids or explosive vapors are present or thought to be present. A combustible gas indicator (explosimeter) test shall be conducted to assure that each area is safe. The Contractor is responsible for arranging and paying for each test.

B. Insofar as possible, the Contractor shall remove and keep the area free from all combustibles, including rubbish, paper and waste within a radius of 25 feet from hot operations.

1. If combustible material cannot be removed, the Contractor shall furnish fireproof blankets to cover such materials. At the direction of the Building Manager or COR, floors, walls, and ceilings of combustible material shall be wetted thoroughly with water before, during, and after operations sufficiently to afford adequate protection.
2. Where possible, the Contractor shall furnish and use baffles of metal or gypsum board to prevent the spraying of sparks, hot slag and other hot particles into surrounding combustible material.

C. The Contractor shall prevent the spread of sparks and particles of hot metal through open windows, doors, and holes and cracks in floors, walls, ceilings and roofs.

D. Cylinders of gas used in hot work shall be placed a safe distance from the work. The Contractor shall provide hoses and equipment free of deterioration, malfunction and leaks. Suitable supports shall be provided to prevent accidental overturning of cylinders. All cylinder control valves shall be shut off while in use with the gas pressure regulator set at 15 psi or less.

E. When hot work operations are completed or ended for the day, each location of the day's work shall be inspected by the Contractor 30 to 60 minutes after completion of operations to detect for hidden or smoldering fires and to ensure that proper housekeeping is maintained. Contractor shall cleanup the area of work at the end of each shift or workday.

F. Where sprinkler protection exists, the sprinkler system shall be maintained without interruption while operations are being performed. If operations are performed close to automatic sprinkler heads, gypsum board sheets or damp cloth guards may be used to shield the individual heads temporarily. The heads shall be inspected by the Contractor immediately after hot work operations cease, to ensure all materials have been removed from the heads and that the heads have not been damaged.

G. Suitable type, fully-charged, operable portable fire extinguisher shall be available at all times during hot work operations.

H. If any of the above safeguards are not employed, or are violated, the COR may, by written notice, stop the work until compliance is obtained. Such stoppage shall not relieve the Contractor form performing his work within the Contract period for the Contract price.

END OF SECTION 01735

SECTION 01780 – CLOSEOUT SUBMITTALS

1.01 SUBMITTALS

A. Government approval is required for submittals listed below with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330, SUBMITTAL PROCEDURES.

B.

1. Mark-Up As-Built Drawings (FOI):

   Contractor shall maintain Mark-Up As-Built Drawings showing final condition of the project. As-Built drawings shall consist of one set of black-line prints, neatly annotated in red, showing all changes made during construction. The As-Built Drawings shall be turned over to the Architect at the completion of construction for conversion into electronic files for use by the Government. Government shall withhold final payment until Mark-Up As-Built Drawings are completed and turned over to the Architect.

2. As-Built Record of Equipment And Materials (GA): Six copies of record listing the as-built materials and equipment incorporated into the construction of the project.

3. Warranty Management Plan (GA): Six sets of the warranty management plan containing information relevant to the warranty of materials and equipment incorporated into the construction project, including the starting date of warranty of construction. The Contractor shall furnish with each warranty the name, address, and telephone number of each of the guarantor's representatives nearest to the project location.

4. Warranty Tags (FIO): Two record copies of the warranty tags showing the layout and design.

5. Final Clean-Up (FIO): Two copies of the listing of completed final clean-up items.

C. The Contractor shall provide formal training of Government user personnel on all equipment installed under this contract. Training will be conducted by the manufacturer or his designated representative. This training shall not be less than 4 hours per unit of equipment and not longer than 40 hours, depending on the complex operation of the equipment, maintenance required, and safety training needed. The Contractor and Contracting Officer’s Representative (COR) will establish a list of items that require training during the submittal process. This list will be given to the Contractor for processing. The Contractor shall establish date and time that the training will be provided. The Contractor shall notify the COR thirty (30) working days prior to training. This will allow the COR sufficient time to notify the user and arrange for personnel to be present. Upon completion of training, the contractor shall provide the COR the sign-in sheet and written overview of the training.

1.02 PROJECT RECORD DOCUMENTS

A. As-Built Drawings: This paragraph covers as-built drawings complete, as a requirement of the contract. The terms "drawings," "contract drawings," "drawing files," "working as-built drawings" and "final as-built drawings" refer to contract drawings which are revised to be used for final as-built drawings.

B. Government Furnished Materials: One set of electronic CADD files in the specified software and format revised to reflect all bid amendments will be provided by the Government at the preconstruction conference for projects requiring CADD file as-built drawings.

C. Working As-Built Drawings: The Contractor shall revise 1 set of paper drawings by red-line process to show the as-built conditions during the prosecution of the project. These working as-built marked-up drawings shall be kept current on a daily basis and the set shall be available on the jobsite at all times. Field changes or modifications from the contract plans which are made in the work, or additional information which might be uncovered in the course of construction, shall be accurately and neatly recorded as they occur by means of details and notes. The marked-up drawings shall be turned over to the Government at the completion of construction for use by the A&E in completing the electronic As-Built Drawings set.

D. As-Built Record of Equipment and Materials: The Contractor shall furnish 6 copies of preliminary record of equipment and materials used on the project 15 days prior to final inspection. This preliminary submittal will be reviewed and returned 7 days after final inspection with Government comments. Two sets of final record of equipment and materials shall be submitted 10 days after final inspection. The designations shall be keyed to the related area depicted on the contract drawings. The record shall list the following data:

RECORD OF DESIGNATED EQUIPMENT AND MATERIALS DATA

Description	Specification Section	Manufacturer and Catalog, Model, and Serial Number	Composition and Size	Where Used

E. Final Approved Shop Drawings: The Contractor shall furnish final approved project shop drawings no later than 30 days after transfer of the completed facility.

F. Construction Contract Specifications: The Contractor shall furnish final as-built construction contract specifications, including modifications thereto, 30 days after transfer of the completed facility.

G. Real Property Equipment: The Contractor shall furnish a list of installed equipment furnished under this contract. The list shall include all information usually listed on manufacturer's name plate. The "EQUIPMENT-IN-PLACE LIST" shall include, as applicable, the following for each piece of equipment installed: description of item, location (by room number), model number, serial number, capacity, name and address of manufacturer, name and address of equipment supplier, condition, spare parts list, manufacturer's catalog, and warranty. A draft list shall be furnished at time of transfer. The final list shall be furnished 30 days after transfer of the completed facility.

1.03 WARRANTY MANAGEMENT

A. Warranty Management Plan: The Contractor shall develop a warranty management plan which shall contain information relevant to the clause Warranty of Construction. At least 30 days before the planned pre-warranty conference, the Contractor shall submit the warranty management plan for Government approval. The warranty management plan shall include all required actions and documents to assure that the Government receives all warranties to which it is entitled. The plan shall be in narrative form and contain sufficient detail to render it suitable for use by future maintenance and repair personnel, whether tradesmen, or of engineering background, not necessarily familiar with this contract. The term "status" as indicated below shall include due date and whether item has been submitted or was accomplished. Warranty information made available during the construction phase shall be submitted to the COR for

approval prior to each monthly pay estimate. Approved information shall be assembled in a binder and shall be turned over to the Government upon acceptance of the work. The construction warranty period shall begin on the date of project acceptance and shall continue for the full product warranty period. A joint 4 month and 9 month warranty inspection shall be conducted, measured from time of acceptance, by the Contractor, COR and the Customer Representative. Information contained in the warranty management plan shall include, but shall not be limited to, the following:

B.

1. Roles and responsibilities of all personnel associated with the warranty process, including points of contact and telephone numbers within the organizations of the Contractors, subcontractors, manufacturers or suppliers involved.
2. Listing and status of delivery of all Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and for all commissioned systems such as fire protection and alarm systems, sprinkler systems, lightning protection systems, etc.
3. A list for each warranted equipment, item, feature of construction or system indicating:

    a. Name of item.
    b. Model and serial numbers.
    c. Location where installed.
    d. Name and phone numbers of manufacturers or suppliers.
    e. Names, addresses and telephone numbers of sources of spare parts.
    f. Warranties and terms of warranty. This shall include one-year overall warranty of construction. Items which have extended warranties shall be indicated with separate warranty expiration dates.
    g. Cross-reference to warranty certificates as applicable.
    h. Starting point and duration of warranty period.
    i. Summary of maintenance procedures required to continue the warranty in force.
    j. Cross-reference to specific pertinent Operation and Maintenance manuals.
    k. Organization, names and phone numbers of persons to call for warranty service.
    l. Typical response time and repair time expected for various warranted equipment.

4. The Contractor's plans for attendance at the 4 and 9 month post-construction warranty inspections conducted by the Government.
5. Procedure and status of tagging of all equipment covered by extended warranties.
6. Copies of instructions to be posted near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

C. Performance Bond: The Contractor's Performance Bond shall remain effective for a period of one year following completion of construction and approval of final inspection.

D.

1. In the event the Contractor fails to commence and diligently pursue any construction warranty work required, the COR will have the work performed by others, and after completion of the work, will charge the remaining construction warranty funds of expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.
2. In the event sufficient funds are not available to cover the construction warranty work performed by the Government at the Contractor's expense, the COR will have the right to recoup expenses from the bonding company.
3. Following oral or written notification of required construction warranty repair work, the Contractor shall respond in a timely manner. Written verification will follow oral instructions. Failure of the Contractor to respond will be cause for the COR to proceed against the Contractor.

E. Pre-Warranty Conference: Prior to contract completion, and at a time designated by the COR, the Contractor shall meet with the COR to develop a mutual understanding with respect to the requirements of this section. Communication procedures for Contractor notification of construction warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the COR for the execution of the construction warranty shall be established/reviewed at this meeting. In connection with these requirements and at the time of the Contractor's quality control completion inspection, the Contractor shall furnish the name, telephone number and address of a licensed and bonded company which is authorized to initiate and pursue construction warranty work action on behalf of the Contractor. This point of contact will be located within the local service area of the warranted construction, shall be continuously available, and shall be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any of its responsibilities in connection with other portions of this provision.

F. Contractor's Response to Construction Warranty Service Requirements: Following oral or written notification by the COR, the Contractor shall respond to construction warranty service requirements in accordance with the "Construction Warranty Service Priority List" and the three categories of priorities listed below. The Contractor shall submit a report on any warranty item that has been repaired during the warranty period. The report shall include the cause of the problem, date reported, corrective action taken, and when the repair was completed. If the Contractor does not perform the construction warranty within the time frame specified, the Government will perform the work and back charge the construction warranty payment item established.

G.

1. First Priority Code 1. Perform onsite inspection to evaluate situation, and determine course of action within 8 hours, initiate work within 24 hours and work continuously to completion or relief.
2. Second Priority Code 2. Perform onsite inspection to evaluate situation, and determine course of action within 16 hours, initiate work within 36 hours and work continuously to completion or relief.
3. Third Priority Code 3. All other work to be initiated within 3 work days and work continuously to completion or relief.
4. The "Construction Warranty Service Priority List" is as follows:

a. Code 1-Electrical

1) Power failure (entire area or any building operational after 1600 hours).
2) Security lights
3) Smoke detectors

b. Code 2-Electrical

1) Power failure (no power to a room or part of building).
2) Receptacle and lights (in a room or part of building).

c. Code 1-Gas

1) Leaks and breaks.
2) No gas to hot water heaters or HVAC equipment.
3)

d. Code 1-Roof Leaks

1) Temporary repairs will be made where major damage to property is occurring.

e. Code 2-Roof Leaks

1) Where major damage to property is not occurring, check for location of leak during rain and complete repairs on a Code 2 basis.

f. Code 2-Water (Exterior)

1) No water to facility.

g. Code 3-All other work not listed above.

H. Warranty Tags: At the time of installation, each warranted item shall be tagged with a durable, oil and water resistant tag approved by the COR. Each tag shall be attached with a 316 stainless steel wire and shall be sprayed with a silicone waterproof coating. The date of acceptance and the Contractor Supervisor's signature shall remain blank until project is accepted for beneficial occupancy. The tag shall show the following information.

a. Type of product/material _____

b. Model number _____

c. Serial number _____

d. Contract number _____

e. Warranty period _____ from _____ to _____

f. Inspector's signature _____

g. Construction Contractor _____

Address _____

Telephone number _____

h. Warranty contact _____

Address _____

Telephone number _____

i. Warranty response time priority code _____

j. WARNING - PROJECT PERSONNEL TO PERFORM ONLY OPERATIONAL MAINTENANCE DURING THE WARRANTY PERIOD.

1.04 MECHANICAL TESTING, ADJUSTING, BALANCING, AND COMMISSIONING

A. Prior to final inspection and transfer of the completed facility; all reports, statements, certificates, and completed checklists for testing, adjusting, balancing, and commissioning of mechanical

systems shall be submitted to and approved by the COR as specified in applicable technical specification sections.

1.05 OPERATION AND MAINTENANCE MANUALS

A. Operation manuals and maintenance manuals shall be submitted as specified. Operation manuals and maintenance manuals provided in a common volume shall be clearly differentiated and shall be separately indexed.

1.06 FINAL CLEANING

A. The premises shall be left broom clean. Stains, foreign substances, and temporary labels shall be removed from surfaces. Carpet and soft surfaces shall be vacuumed. Equipment and fixtures shall be cleaned to a sanitary condition. Filters of operating equipment shall be replaced. Debris shall be removed from roofs, drainage systems, gutters, and downspouts. Paved areas shall be swept and landscaped areas shall be raked clean. The site shall have waste, surplus materials, and rubbish removed. The project area shall have temporary structures, barricades, project signs, and construction facilities removed. A list of completed clean-up items shall be submitted on the day of final inspection.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01780

SECTION 02080 - SITE SPECIFIC ASBESTOS & LEAD ABATEMENT

PART 1 GENERAL

1.01 Introduction

Building 55 at the Joint Forces Training Base (JFTB) in Los Alamitos is undergoing renovation that will include disturbing asbestos and lead containing materials on the components of the building. Lead paint is on all of the paint systems on the building.

1.01.1 The scope of work will include removal of asbestos and lead containing components and paint preparation of lead containing paint systems.

1.01.2 The Site-Specific Specification covers identification of the asbestos and lead-containing materials to be removed from the building and provides suggestions as to methodology and other project-specific requirements.

The recommendations regarding methodology are intended to indicate the Project Environmental Consultant's opinion as to an effective means of ensuring thorough removal of the hazardous materials, compliance with applicable regulations, and protection of the JFTB from liability for perceived or actual exposure of unprotected personnel to hazardous materials. They are not intended to refute or replace other procedures contained in the General Specification (See Sections 02085 and 02095), or to override applicable laws or regulations. The contractor is responsible for adherence to all applicable laws and regulations, regardless of the Environmental Consultant's recommendations or the Specification's requirements.

PART 2 MATERIALS

2.01 Asbestos and Lead-Containing Materials to be Disturbed or Removed are indicated in the report at the end of this section.

PART 3 EXECUTION

3.01 Job set-up

3.01.1 The manual demolition of components will require area containment and material stabilization prior to removal. The containment will consist of barrier segregation from other trades. Additionally, entry and exit will be controlled and a wash station will be provided.

3.01.2 Paint preparation containment will require barrier control from other trades. A drop will be placed on the ground surface around the building. Additionally, entry and exit to the area will be controlled. A wash station will be present.

3.02 Removal Procedures

3.02.1 Manual Component Removal: The plans indicate removal quantities for the project. The materials will be removed manually. The remaining structure components must not be damaged during removals.

3.02.2 Surface Preparation of Surfaces Containing Lead Paint:

Surface preparation will require sanding or scraping of lead-containing paint. Such work is to be conducted by a certified lead worker under the direction of a certified lead contractor supervisor. Current evidence of medical suitability to do lead-related work and to wear a HEPA respirator will be required.

All paint debris from the preparation procedures must be contained within the work area. At a minimum a drop cloth to catch debris will be required. If there is a likelihood that debris will be blown away from the work area, polyethylene sheeting should be used to contain the area.

Paint preparation will include complete sanding of surfaces to a smooth paint ready condition. Paint edges will be feathered to a smooth finish. All paint edges will be secure to the substrate.

Cracks in timbers (to remain) will be filled with appropriate wood filler and sanded to a smooth finish. All nails that extrude beyond the timber finish surface will be removed and new fasteners attached.

When surface preparation is complete an appropriate primer (wood, metal, etc.) will be applied to the prepared areas. The primer product must be pre-approved by the owner and be compatible with the final finishes.

3.03 Disposal Procedures

3.03.1 Lead: All waste will be tested according to the parameters outlined in the following section 3.3.2. *(This section supersedes information found in the "general specification")* Waste will be accumulated in bags or barrels inside the containment and stored temporarily in a designated contractor area until testing is complete. **The contractor will conduct all lead testing at his own expense**. The Consultant will oversee all sample taking and may elect to split the sample and send to the same lab at the JTFB's expense to ensure sample integrity.

3.03.2 Lead testing procedures are outlined in several regulations and can be conflicting. There are also several documents published that have sought to outline the regulations and can be mistaken as authentic regulatory documents. Currently in California the testing procedures for the determination of waste materials suspected to be contaminated with lead are as follows:

Intact lead containing waste materials can be disposed of as "regular construction debris" in a Municipal Solid Waste Landfill (MSWLF).

3.03.3 For lead "loose and flaky" waste the following procedures must be followed:

A TTLC test (total threshold limit concentration) is performed. If the results are less than 50mg/kg the waste is not hazardous and can be disposed of as construction debris.

A TTLC test is performed. If the results are greater than 50 mg/kg but less than 350 mg/kg, a STLC (soluble threshold limit concentration) must be performed. If that test result is less than 5mg/L, the waste is non-hazardous and can be disposed of as construction debris.

A TTLC test is performed. If the results are greater than 350 mg/kg but less than 1000 mg/kg, a STLC (soluble threshold limit concentration) must be performed. If that test result is less than 5mg/L, the waste is non-hazardous hazardous waste and must be disposed of in a class I landfill, however may be transported as non-hazardous waste.

If the STLC is greater than 5mg/L, the waste is at least a California hazardous waste. A TCLP (toxicity characteristic leaching procedure) must then be performed to determine if it is Federally regulated. If the result of the TCLP is 5mg/L or greater, the waste is Federally regulated and requires treatment. If it is less than 5mg/L, the waste is a California hazardous waste and must be disposed of at a Class I facility.

If the result of the TTLC is greater than 1000 mg/kg, the waste is at least a California hazardous waste. A TCLP test must be performed to determine if the waste is Federally regulated. If the result is 5mg/L or greater the waste is Federally regulated and requires treatment. If the result is below 5mg/L the waste is California hazardous waste and must be disposed of at a Class I landfill.

In California, if a TTLC is not done the waste is assumed to be at least a California hazardous waste. However, knowingly shipping or classifying non-hazardous wastes as hazardous is a violation of certain codes and regulations and therefore unacceptable.

If the waste is shipped out of the state of California, waste hauler and landfill requirements must be met. It is expected that a TCLP will be required for the shipment of waste out of state and that a full RCRA 8 metals test must be done.

A favorable finding by the TTLC procedure can result in disposing of the material as ordinary construction waste. An unfavorable finding will require additional testing.

A favorable finding by the TCLP procedure can result in the material being classified as a California hazardous waste, but not a Federal hazardous waste. TCLP alone cannot qualify material as being ordinary construction waste.

3.04 Clearance Procedures

3.04.1 Lead wipe sampling: Each of the lead containments will require a clearance provided by the contractor. The clearance sample will be taken on a surface of the work area. The threshold used to determine building usage by unprotected staff will be the CDPH clearance level of 800 ug/ft2 *(rough surfaces).* An outside approved certified environmental testing laboratory will be required for sampling clearance of all containments. Samples may not be collected until the Project Environmental Consultant judges that the work areas are visually clean and ready for sampling.

3.05 Other Considerations

3.05.1 Waste transport on base: No waste may be transported between the work areas and the storage containers without separation from base staff.

3.05.2 Training: Workers engaged in lead abatement will be required to have CDPH certification. The contractor is required to maintain a respirator program and conduct fit testing on the employees. Copies of the fit test records must be supplied. A medical surveillance program including blood lead levels is required. Medical records will be supplied prior to job start.

3.05.2 Warning Tape and Signs: Work areas must be clearly identified at all doors with lead warning signs in Spanish and English. Areas where equipment and workers are present outside the work areas must be separated from students by warning tape.

3.05.3 Failed clearance: The JTFB is paying for the clearance sampling, however if the clearance fails the contractor will be responsible for any subsequent testing. The amount of $400.00 will be deducted from the contract for each set of clearance wipe samples conducted.

3.05.4 Lead Project Monitor: A CDPH-certified project monitor will be engaged by the JTFB to act as its representative on technical issues relating to abatement, as well as air monitoring and clearance testing. The project monitor, who must be present during all on-site abatement activities, must approve all work practices by the abatement contractor. A major responsibility of the project monitor will be to minimize the chance of exposure or perceived exposure to lead by site occupants.

3.05.5 Notification Requirements: As of January 2002, OSHA (or DOSH the Department of Occupational Safety and Health) requires all contractors to notify the department when disturbing lead containing surface coatings above 1.0mg/cm2. This level is the same threshold for abatement by HUD (Department of Housing and Urban Development). The notification rule suggests several items of concern for contractors. The first is that OSHA may be indicating that workers disturbing paint systems above the 1.0mg/cm2 threshold are more likely to be exposed. Two, that OSHA may be more likely to visit a jobsite with levels higher than 1mg/cm2, and three, that if the site is visited and lead safe practices are not in place that fines would be incurred.

CDPH notification will be required for all lead abatement activities.

SECTION 02085 - GENERAL SPECIFICATION FOR ASBESTOS ABATEMENT

1.01 DESCRIPTION OF WORK: This section covers the furnishing of all labor, materials, facilities, equipment, services, employee training and testing, permits and agreements, and waste transport and disposal necessary to perform the work required for asbestos removal in accordance with these specifications, the drawings and notations, EPA, SCAQMD, OSHA, NIOSH, State of California regulations, and any other applicable federal, state, and local government regulations. Whenever there is a conflict or overlap of the above references, the most stringent provisions are applicable.

A. The abatement Contractor shall perform the work and provide the services listed below:

1. Perform abatement of identified asbestos-containing materials.

2. Asbestos removal work shall be performed using full and modified containments and protection with HEPA-filtered exhaust ventilation and decontamination facilities.

3. Perform asbestos decontamination by wet wiping, HEPA vacuuming of all visible debris and dust in affected areas.

4. Install all necessary scaffolding and planking to keep work areas safe at all times.

5. Remove, transport, and dispose of as contaminated waste any asbestos-containing building materials as indicated in these specifications and/or as directed by the Certified Asbestos Consultant (CAC).

6. Thoroughly clean the work areas and obtain a final clearance approval from the Consultant.

B. Section 02080 contains a summary of the materials to be removed in this project. Bidders must confirm and verify all quantities prior to submitting their proposal and start of any work. Quantity information provided in Section 02080 is approximate.

1.02 RELATED WORK: This General Specification does not reference the specific materials present or the unique requirements of a specific project. It is intended as a reference document in the event the Site Specific Notations contain insufficient detail.

1.03 CONSULTANT AUTHORITY: The Contractor shall provide an owner approved California Certified environmental consultant for the purposes of the management of the Asbestos Abatement described herein. The Consultant, acting as agent for the Owner, has the authority to stop the abatement work at any time he determines that conditions are not within the specifications and applicable regulations. The stoppage of work shall continue until conditions have been corrected and corrective steps have been taken to the satisfaction of the Consultant. Standby time required to resolve violations shall be at the Contractor's expense. Stop Work Orders may be issued for, but shall not be limited to the following:

A. Excessive airborne fibers inside and outside the work area.

B. Breaks in barriers

C. Loss of negative air (0.02 inches of water is the minimum negative pressure to be maintained.)

D. Any other situation (outside the work area) where the Consultant establishes that the following limits have been exceeded:

Non-Work Area Limits	0.05 f/cc Action level
	8-hour TWA PEL 0.1 f/cc

1.04 QUALIFICATIONS: Approval of the experience and qualifications of the contractor by the Owner is required and shall be based on submission by the Contractor of the following:

A. Be a firm specializing in the removal of asbestos, have been successfully engaged in such work for not less than the past three years, and be capable of demonstrating its ability to perform asbestos abatement activities by submitting the following in writing:

1. Evidence that principals of the firm and all employees involved in asbestos abatement operations are familiar with:

    a. US EPA regulations, 40 CFR Part 61, Subparts A and M
    b. US EPA regulations, 40 CFR 763
    c. SCAQMD Rule 1403
    d. OSHA regulations 29 CFR Part 1926, Subpart C

2. Evidence of possession of written standard and emergency operating procedures and employee protection plans which include specific reference to OSHA medical monitoring and respirator training programs.

3. Description of all previous asbestos abatement contracts that have been terminated, including the circumstances surrounding the termination.

4. Evidence that the firm is licensed by the State of California to perform such work.

5. Description of violations and citations received by Contractor by any regulatory agency and final determination made by said regulatory agency.

B. Contractor's workers for this project:

1. Proof that every employee performing the functions of enclosure, removal, or encapsulation of asbestos have:

    a. Had instruction with regard to the hazards of asbestos, safety and health precautions, use and requirements for protective clothing and equipment including respirators, and engineering and other hazard control techniques and procedures, as required by 29 CFR 1926.1101(k)(8).
    b. Had medical examinations as required by 29 CFR 1926.1101(m).
    c. Complete and accurate records of medical examinations as required by 29 CFR 1926.1101(n).
    d. Obtained and hold a current license to work in the state of California.

2. Competent person(s) conforming to 29 CFR 1926.1101(b) with at least one year of experience on all phases of asbestos abatement projects.

3. Supervisors/foremen selected for this project must show evidence of supervisory experience on at least five other projects of similar or greater scope. Supervisors/foremen must speak English and be fluent in the languages of their workers.

4. Environmental laboratory and its employees must conform to the Quality Control Procedures of 29 CFR 1926.1101 Appendix A to analyze personnel air samples.

1.05 DEFINITIONS: Where applicable or stated, terms shall have the following definitions:

A. All terms not defined herein shall have the meaning given in the applicable publications and regulations.

B. Abatement Activities shall mean all activities from the initiation of work area preparation through successful air clearance performed at the conclusion of the project.

C. Air Lock shall mean a confined space designed to control air movement between two areas. It is composed of sealed spaces with curtained doorways at its portals. A Worker Decontamination Facility contains at least three air locks.

D. Ambient Air Monitoring shall mean measurement or determination of airborne asbestos fiber concentrations outside but in the general vicinity of the work site.

E. Amended Water or Wetting Agent shall mean water to which an approved surfactant has been added in proportion of at least one ounce of surfactant to five gallons water.

F. Asbestos-Containing Material (ACM) shall mean any insulation, fireproofing, plaster, ceiling, or floor covering, or any other building material containing a detectable amount of asbestos.

G. Asbestos-Contaminated Objects shall mean any objects that may be contaminated by asbestos or ACM as determined by the Consultant.

H. Asbestos Disposal shall mean the removal of containerized asbestos, ACM, asbestos-containing waste material, and asbestos-contaminated objects from the regulated area to the final EPA-approved disposal site.

I. Authorized Visitors are visitors authorized by the Consultant or any representative of any regulatory or other agency having jurisdiction over the project.

J. Barriers or Containment Barriers shall mean walls, tunnels, or enclosures erected to separate any section of an abatement area from adjoining spaces. Where indicated on drawings, barriers shall be constructed of 2x4s, 16" on centers, on plywood walls at least ½" thick, and all seams in plywood and edges shall be sealed with tape and spray glue. The inside (work side) of all such barriers shall be covered with one or more layers of 6-mil polyethylene sheeting, as dictated by the Hygienist. Tunnels to maintain public access through a work area shall also be defined as part of the barriers. Tunnels shall be lined with two layers of polyethylene sheeting.

K. Baseline or Background Air Monitoring shall mean a measurement or determination of airborne asbestos fiber concentrations inside the workplace and outside a building prior to starting abatement activities.

L. Certified Asbestos Consultant is defined as one trained and certified by the State of California to provide consulting services. Certified Asbestos Consultant is synonymous with Consultant and CAC as used throughout this specification.

M. Class I Non-Friable Asbestos-Containing Material is material containing more than one percent asbestos and that, when dry, can be broken, crumbled, pulverized or reduced to powder in the course of demolition or renovation activities. It includes but is not limited to fractured or crushed asbestos cement products, transite materials, mastic, roofing felts, roofing tiles, cement water pipes, and resilient floor covering. (Per South Coast Air Quality Management District Rule 1403)

N. Class II Non-Friable Asbestos-Containing Material is all other material containing more than one percent asbestos that is neither friable nor Class I non-friable. . (Per South Coast Air Quality Management District Rule 1403)

O. Clean Room is the outermost chamber of the decontamination facility. It is used by the workers to change from street clothing into protective clothing and respirators and for the storage of their street clothing.

P. Competent Person is an OSHA-trained Contractor Supervisor, having completed a forty-hour training program at a certified training center and satisfied the experience requirements.

Q. Containment is the enclosed work area. Containments are airtight and normally maintained in a negative pressure status.

R. Contamination means having been in contact with asbestos or other hazardous materials and containing, usually on the surface, visible or microscopic evidence of the materials.

S. Decontamination means removal of contamination to the degree specified in the Contract documents, usually to be determined on-site by the Resident Hygienist.

T. Decontamination Facility is the usually three-stage unit, which is used for ingress and egress from the work area by the workers. It consists of a dirty room, a shower, and a clean room. Flaps separate the rooms.

U. Dirty Room is the innermost segment of a decontamination facility. It is the area where the contaminated tools and personal protective clothing are kept until they can be cleaned or disposed of.

V. Engineering Systems are procedures or physical facilities designed to facilitate the removal of asbestos or asbestos-contaminated items, or to reduce the likelihood of exposure to asbestos.

W. Equipment Room is the Dirty Room.

X. Exhaust Unit is commonly referred to as a negative air machine. It consists of a fan and a series of filters including a HEPA-filter. Its purpose is to pull fresh air through a decontamination facility into the contained work area for mixing with the contaminated interior air and then exhausting the interior air through the filter system to the exterior.

Y. Foreman is the direct line supervisor of the work crew. He is generally directly involved in the interior work activities and is the primary contact with the Project Superintendent.

Z. Friable Asbestos-Containing Material is material containing more than one percent asbestos that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

AA. Glove Bag is a polyethylene device designed to be installed around a small area containing asbestos – usually on a pipe. It can be sealed so as to create a containment

around a mini-work area. The work is conducted by a worked outside the glove bag using gloves that are an integral part of the bag itself.

BB. HEPA-Filtered Exhaust Units or Fans shall mean a fan equipped with a High Efficiency Particulate Air (HEPA) filter, greater than 99.97 percent efficient by 0.3 micron DOP test, and complying with ANSI z9.2 (1979), Local Exhaust Ventilation. It shall be used to create a negative pressure in a work area (relative to that in surrounding areas) in order to prevent the escape of asbestos fibers. It shall also be used to reduce and control the airborne concentration of asbestos fibers.

CC. HEPA-Filtered Vacuum shall be a vacuum cleaner specifically designed for and equipped with HEPA-filtrations.

DD. Install shall mean to set in place completely ready for normal use or service, including all necessary mounting facilities, connections, and testing.

EE. Isolation Barriers shall mean the construction of partitions, the placement of solid materials, and the plasticizing of apertures to seal off the workplace from surrounding areas and to contain asbestos fibers in the work area.

FF. Lockout shall mean the safe approved means for shutting down HVAC equipment, electrical panels or breakers, and water, so that they cannot be inadvertently turned back on.

GG. Log shall mean an official record of all activities that occurred during the project and it shall identify the building owner, agent, contractor, workers, floor number, date, work area, and other relevant information to the project.

HH. Major Abatement shall mean the removal of ACM under contained conditions utilizing full isolation and negative pressure systems.

II. Mini-cube Enclosure shall mean a two-chamber (clean room/dirty room) polyethylene enclosure with curtained doorways used exclusively for ingress and egress to the ceiling plenum. The cube shall be constructed of PVC piping or equal and be large enough to accommodate a standard ladder for worker access. The Mini-cube Enclosure shall be equipped with a HEPA-vacuum and Hudson sprayer or other water source for worker decontamination.

JJ. Minor Abatement shall mean the removal of ACM utilizing “glove bag” methods or modified containment.

KK. NIOSH shall mean the National Institute of Occupational Safety and Health.

LL. OSHA shall mean Occupational Safety and Health Administration.

MM. Outside Air shall mean the air outside the buildings and structures.

NN. Outside/Ambient Air Samples shall mean samples collected outside of the containment area in the building and analyzed using the NIOSH 7400 method.

OO. Protect Fixed Items shall mean to cover with solid enclosures and 6-mil polyethylene sheeting and secure by taping or gluing water and airtight.

PP. Provide shall mean to furnish or supply and install.

QQ. Regulated Area shall have the meaning set forth in 29 CFR 1926.1101.

RR. Remove Asbestos shall mean to make a surface free of all visible fibrous materials or microscopically detectable asbestos fibers.

1.06 JOB SUPERVISION

A. The Removal Contractor shall provide on-site an English-speaking Supervisor and at least one Foreman for each work area at times when work is in progress. The Supervisor and Foreman should be competent persons as defined by 29 CFR 1926.1101 and must be experienced in asbestos removal work, knowledgeable of all EPA, OSHA, and local regulations, and capable of skillfully executing all work promptly, efficiently and in compliance with all requirements of this Specification.

B. Before work begins and continuously during the job, a competent person who is capable of identifying asbestos and all other hazards in the workplace and selecting the appropriate control strategy for such hazards, and who has the authority to take prompt corrective measures to eliminate such hazards, shall always be on site and shall conduct inspections of the worksite.

C. Proof of qualifications and asbestos removal job references will be required, upon request, for both the Supervisor and Foreman.

D. The Owner or Consultant reserves the right to have any supervisory personnel removed if they do not demonstrate the requisite experience or skills to safely direct the work, and adequately protect their own employees or other occupants of the building.

E. The Asbestos Removal Contractor shall instruct, train, and provide with required protective devices, all workers of other trades who must enter any work area before it is certified clean. The instruction shall include at a minimum, proper use and fitting of respiratory protective devices and protective clothing, entry and exit procedures for all work areas, hazards of asbestos exposure, work procedures, and other safety requirements contained in the Specification. Proof of such instructions for all Subcontractor workers, and workers of other trades employed by the Removal Contractor shall be supplied prior to being allowed into the work area.

1.07 PRE-CONSTRUCTION MEETING: After the contract has been executed, the Consultant shall arrange for a Pre-Construction Meeting to be attended by a representative of the Owner, the Consultant (CAC), and the Asbestos Abatement contractor. At this meeting the Asbestos Abatement Contractor shall identify his Supervisor(s) and Foreman, and present two (2) bound copies of the detailed submittal items described in Section 1.25 clearly labeled as described in that section.

A. The parties shall also discuss and reach agreement on the following items:

1. Contractor listing of existing site conditions (i.e. damage, etc.)

2. Contractor and supporting vendor access and parking.

3. Coordinate Contractor access routes to the work area, including approved doors, stairways, corridors, and elevators with the Owner's building management.

4. Availability of building utility services such as power, water, and drains.

5. Determination of equipment and other moveable items to be removed from the work area(s) by the Contractor and the location of temporary storage space.

6. Location, coverage, and use of isolation barriers and Decontamination Facilities.

7. Emergency response procedures.

8. Any other technical issues or logistical factors that will minimize interference with the Owner's and the building's tenant operations and facilitate Contractor activities.

1.08 AVAILABILITY OF TRAINED PERSONNEL: There shall be a sufficient number of trained and qualified workers, foremen and supervisors to accomplish the work within the required schedule. Since the Owner's work activities cannot start prior to the successful abatement and demolition of the work area, it is imperative that a sufficient number of trained personnel be engaged throughout the abatement process. No untrained or other personnel not fully qualified and pre-approved shall be employed to speed up completion of the abatement work.

All employees working with or around asbestos-containing materials will need to be trained according to OSHA (CFR 1926.1101 (k) (9). Employees performing Class I and II work shall be required to have a minimum of 32 hours of training, and Class III work shall require a minimum of 16 hours of training as outlined in the OSHA regulations. It is suggested that all workers, including the general contractor and his subcontractors, complete a two-hour Awareness training course. Those projects where trades are working under modified containment conditions and where the asbestos-containing materials are disturbed shall be considered Class III work and must have 16 hours of training.

1.09 STANDARD OPERATING PROCEDURES: Develop, submit for approval, and implement a standard operating procedure for abatement work to ensure maximum protection and safeguard from asbestos exposure the workers, tenants, and the environment. (See also Section 1.25 - SUBMITTALS.) The standard operating procedure shall ensure:

A. Tight security on a 24-hour basis from unauthorized entry into the workspaces.

B. Proper protective clothing and respiratory protection prior to entering the workspaces from the outside.

C. Safe work practices in the work place, including provisions for inter-room communications, exclusion of eating, drinking, smoking, or use of procedures or equipment that would in any way reduce the effectiveness of respiratory protection or other engineering controls.

D. Proper exit practices from the workspace to the outside through the showering and decontamination facilities.

E. Removing, encapsulating, or enclosing asbestos in ways that minimize release of fibers.

F. Packing, labeling, loading, transporting, and disposing of contaminated material in a way that minimizes or prevents exposure and contamination.

G. Emergency evacuation of personnel for medical or safety (fire and smoke) so that exposure will be minimized.

H. Safety from accidents in the workspace, especially from electrical shocks, slippery surfaces, and entanglements in loose hoses and equipment.

I. Provisions for effective supervision and OSHA-specified personnel air monitoring for exposure during the work.

J. Engineering systems that will minimize exposure to fibers in the workspace, including the exact locations, numbers, sized, and types of HEPA-filtered exhaust fans.

1.10 NOTIFICATIONS, PERMITS, WARNING SIGNS, LABELS, AND POSTERS:

A. The contractor shall provide the required written pre-notification to EPA, SCAQMD, CAL/OSHA, and any other regional, state, and local authority having jurisdiction over the project. Copies of the pre-notifications shall be delivered to the Consultant before any work begins. The Contractor must secure all other permits required for the work, including disposal of asbestos in an approved landfill. These permits must also be delivered to the Owner before any work begins.

B. The Contractor shall provide the necessary follow-up notices that may be required, obtain all permits, and pay all governmental taxes, fees, and other costs in connection with his work. He shall file all necessary plans, prepare all documents, and obtain all necessary approvals of all governmental departments having jurisdiction.

C. The Contractor shall include in the work, without extra compensation, all labor, materials, services, apparatus, and drawings (in addition to contract drawings and documents) to comply with all applicable laws, ordinances, rules, and regulati

D. All materials and work shall comply with the specifications of the NBFU, FM, NEC, UL, local utility companies, and the Board of Health, with the recommendations of the fire insurance rating organization having precedence. When the state and national building codes and contract requirements are in excess of the applicable codes, rules, or regulations, the contract provisions shall be given precedence, unless the Consultant grants an exception.

E. The Contractor shall comply with the requirements of the following regulations, and maintain a copy of each of these at the work site:

1. U.S. Department of Labor, OSHA Asbestos Regulations (29 CFR 1926.1101 and 29 CFR 1910.134(b).

2. U.S. EPA National Emission Standard for Asbestos (40 CFR 61, subpart M)

3. South Coast Air Quality Management District (SCAQMD – Rule 1403.

4. NESHAPS Labeling Requirements.

F. Erect OSHA-specified warning signs around the workspace and at every point of potential entry from the outside including the entrance to the Decontamination Facility's Clean Room. The signs shall conform to OSHA requirements with the words "Danger, Asbestos Hazard, and Do Not Enter". The warning signs shall be bright color so that they shall be easily noted. The size of the signs and their lettering shall be no less than OSHA requirements.

G. The Contractor shall also provide OSHA and DOT-required labels as well as NESHAPS labeling requirements for all plastic bags and drums utilized to transport contaminated material from the work areas to the EPA-approved disposal landfill.

H. Provide any other signs, labels, warnings, and posted instructions that are necessary to protect, inform and warn workers and visitors of the hazard of asbestos exposure. Also post in a prominent and convenient place (e.g. the Clean Room of the Decontamination Facility) for the workers' use a copy of the latest applicable regulations of OSHA, EPA, and NIOSH, and a copy of these Specifications and the applicable drawings.

1.11 SUBMITTALS DURING THE WORK: Submit at least two copies of the following items to the Consultant (See also Section 1.25).

A. Security and safety logs showing names and social security numbers of persons entering the workplace, date and time of entry and exit, records of any accident, emergency evacuation, and any other safety or health incident. These logs shall be provided to the Consultant and the Owner on a daily basis.

B. Disposal certificates. Copies shall be submitted on a weekly basis with completed original certificates submitted upon receipt from the landfill. Manifests shall indicate the area where the waste was located prior to removal.

C. HEPA unit static pressure differential readings daily.

D. Monitoring results as conducted by the Contractor's Representative shall be submitted on a daily basis to the Consultant.

E. Contractor shall provide written inspection reports on all respiratory equipment to the Consultant on a daily basis.

F. Recordings/printouts of negative pressure manometer readings inside containment shall be submitted on a daily basis to Consultant.

1.12 PROTECTION OF PERSONS AND PROPERTY:

A. General Safety Requirements

1. The Removal Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with his work. The Removal Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to (1) all employees in the work area and other persons who may be affected thereby, (2) all the work and all materials to be incorporated therein, and (3) other property at the Project Site and adjacent thereto. The Removal Contractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations and orders of any public authority bearing on the safety of persons and property and their protection from damage, injury or loss. The Removal Contractor shall promptly remedy all damage or loss to any property caused in whole or in part by the Removal Contractor, any Subcontractor, any Sub-Subcontractor, or anyone directly or indirectly employed by any of them, or by anyone of whose acts any of them may be liable, except damage or loss attributable to the acts or omissions of the Owner or Consultant, or any directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Removal Contractor. The Removal Contractor shall be responsible for the protection of any finished work from damage or defacement by his operation. The foregoing obligations of the Removal Contractor are in addition to the Removal Contractor's obligations under Paragraph 8.

2. Life Safety Systems: The Removal Contractor shall assess and control the real or potential impact of his actions upon the Owner's life safety systems (e.g. smoke detectors, sprinkler systems, etc.) Coordination must be established prior to any action on the part of the Removal Contractor, and is subject to modification by the Owner at any time based on the Owner's assessment of risks to the function of the life safety systems associated with the Removal Contractor's actions.

B. The Removal Contractor shall establish an effective safety program in accordance with the requirements set forth in OSHA Part 1926 – Safety and Health Regulations for Construction; Subparts A through Z.

C. A "Pre-Construction Safety Conference" shall be held prior to work at the convenience of the Owner. The purpose of this meeting will be to discuss and evaluate the Removal Contractor's proposed safety program.

1.13 FIRE PROTECTION AND FIRE PREVENTION:

A. Permits: The Removal Contractor shall obtain any permits necessary from the applicable departments of the municipality, including but not limited to the City Fire Department. The permits shall be obtained prior to storage or installation of Removal Contractor's materials on the Owner's property.

B. Smoke Alarms: Smoke detection systems consisting of above-ceiling smoke detectors wired to a central junction panel may be found in the work area. The systems will remain in operation throughout the removal project unless otherwise agreed in advance by the Owner. The Removal Contractor shall seal the system as follows:

1. Notify the Building Security Department at least 24 hours in advance of contact with any component of the system.

3. Once the detectors are exposed by removal of the ceiling, wipe each detector with a damp cloth and seal watertight in a bag or plastic sheeting.

4. Seal the junction panel watertight in a plastic sheet.

5. Removal Contractor shall not use the system's wiring for support of equipment such as lights and shall decontaminate all system components as specified.

D. Fire Protection

1. The local Fire Department and Department of Building and Safety shall be invited by the Removal Contractor to familiarize themselves with the project and to keep their preplanning tactics concurrent with the progress of the work.

2. Water supply for fire protection, either temporary or permanent, shall be made available as soon as combustible materials arrive at the site. There shall be no delay in the installation of fire protection equipment. Standpipes shall be maintained in conformity with the progress of the building activity in such a manner that they are always ready for fire department use.

3. Adequate temporary fire protection shall be provided. Ample multi-purpose dry chemical portable fire extinguishers, having extinguishing ratings of at least 4A: 60BC shall be distributed throughout the premises. Pressurized water

extinguishers of 2½-gallon capacity shall supplement the multi-purpose dry chemical extinguisher where welding and cutting operations are conducted. Small rubber-lined hose, with adjustable shut-off nozzles, shall be available as soon as hydrants or standpipes are ready and shall be connected to outlets in areas where construction is in progress. Fire fighting equipment shall be conspicuously located and readily accessible at all times, and be maintained in operating condition.

4. The Contractor shall be responsible for training his workers in the safe and proper use of portable fire extinguishers. A fire-fighting program is to be followed throughout all phases of construction and demolition work involved.

5. Temporary telephones or an alternate system as required by the Fire Department shall be installed prior to the start of construction for use in transmitting fire alarms. Inform all personnel as to their location and use. Post the emergency phone number of the local fire department near all telephones.

6. Access for the fire department shall be provided and shall be maintained readily accessible at all times. At all times existing elevators, including Removal Contractor's designated elevators shall be provided with access to permit fire department use for emergency operations.

E. Fire Prevention

1. Flammable and Combustible Liquids

a. Only approved containers and portable tanks shall be used for storage and handling of flammable or combustible liquids. All containers and tanks shall be Underwriter's Laboratories listed. Safety cans shall be equipped with flame arresters.

b. Flammable and combustible liquids shall be kept in closed containers when not actually in use.

c. No more than one day's working supply shall be allowed inside the building at a time. Flammable or combustible liquids shall be stored in approved flammable liquids storage cabinet with no more than 60 gallons of such liquid stored in any one cabinet. No more than three storage cabinets are to be located in a single storage area.

d. Conspicuous and legible signs prohibiting smoking or use of open flames shall be posted in areas where the liquids are being dispensed, used, or stored.

2. Compressed Gas Cylinders

a. Valve protection caps shall be in place when compressed gas cylinders are transported, moved, or stored.

b. Compressed gas cylinders shall be secured in an upright position at all times.

c. Oxygen cylinders shall be separated from fuel gas cylinders during storage. Separation shall be at least 20 feet or, if separation by this distance is not possible, the cylinders shall be separated by a five-foot high partition having a fire resistance rating of at least 30 minutes.

d. Cylinders shall be kept at a safe distance and shielded from welding or cutting operations. Cylinders shall not be placed where they can contact an electrical circuit.

e. Storage of compressed gas cylinders shall be limited to the absolute minimum. Conspicuous and legible signs prohibiting smoking or use of open flames shall be posted in areas where oxygen or fuel gas cylinders are stored.

3. Hazardous Operations

a. Hazardous operations shall not be performed until the necessary special fire protection (e.g. portable fire extinguisher, small hose) is in service.

b. Cutting and welding operations shall conform to the requirements of the local fire prevention code. A permit system shall be used for cutting and welding operations on the job site under the supervision of a person having a Certificate of Competency issued by the Fire Department. A permit shall not be issued until (1) it has been determined that cutting and welding can be safely conducted at the desired location, (2) combustibles have been moved away or safely covered, and (3) a watchman with extinguisher is posted for the duration of the work, and for 30 minutes thereafter, to see that sparks or drops of hot metal do not start fires. Additional fire watchmen shall be provided during welding or cutting operations where sparks or molten metal may drop several floors.

4. Housekeeping

a. Combustible waste material and rubbish shall not be stored or allowed to accumulate within the building or in the immediate vicinity, and shall be removed from the premised as rapidly as practical, i.e., at least once a day and more frequently if conditions indicate the need.

b. Materials subject to spontaneous ignition such as oily waste and paint rages shall be placed in approved self-closing waste containers after use and disposed of each day.

c. Combustible materials shall be kept at a minimum by implementing a carefully scheduled plan for delivery of such material.

d. If crating and packing materials holding supplies and equipment are combustible, the equipment shall be uncrated and unpacked as soon as possible after arrival at the site. Combustible packing and crating shall be safely disposed.

5. Tarpaulins

a. Only tarpaulins and materials with fire retardant characteristics as permitted by the local fire department (See paragraph A above.) shall be used.

b. When used for a temporary enclosure, the enclosing materials shall be fastened securely so it cannot be blown against heaters or other sources of ignition by winds and drafts.

6. Scaffolding, Shoring and Forms

a. Steel scaffolding or approved fire retardant treated lumber and planking shall be used on both the outside and the inside of the building.

b. Unnecessary accumulation of combustible forms of lumber shall be avoided. Those portions of the building where combustible forms are present shall not be used for storage of other combustible building supplies.

c. Fire extinguishing equipment shall be provided during forming and stripping. Charged hose lines shall meet this requirement.

7. Smoking

a. Smoking shall be prohibited at or in the vicinity of hazardous operations or materials.

b. Where smoking is allowed, safe receptacles shall be provided for smoking materials.

The Removal Contractor shall develop evacuation procedures to be used in the event of an emergency. These procedures shall be reviewed with the Owner and the Consultant before starting the Work.

1.14 ELECTRICAL

A. Safety Requirements

a. A licensed electrician in compliance with the most recent edition of the National Electric Code shall perform all electrical work, unless otherwise provided by OSHA regulations.

b. The non-current-carrying metal parts of fixed, portable, and plug-connected equipment shall be grounded. Portable tools and appliances protected by an approved system of double insulation need not be grounded. All light and power circuits in asbestos removal areas shall be ground fault protected.

c. Extension cords shall be the 3-wire type, shall be protected from damage, and shall not be fastened with staples, hung from nails, or suspended from wires. Splices shall have soldered wire connections with insulation equal to the cable. Worn or frayed cords shall not be used.

d. Safe lighting equipment shall be provided with a preference for floodlights rather than indiscriminate use of unprotected lamps strung on temporary wiring. Exposed bulbs shall be guarded to prevent accidental contact. Temporary wiring shall be properly insulated and substantially supported. Circuits shall be properly designed and fused. All temporary lighting inside of asbestos removal areas shall be waterproofed.

e. Receptacles for attachment plugs shall be approved, concealed contact type. Where different voltages, frequencies, or types of current are supplied, receptacles shall be of such design that attachment plugs are not interchangeable.

f. Each disconnecting means for motors and appliances and each service feeder or branch circuit at the point where it originates shall be legibly marked to indicate its purpose.

g. The Removal Contractor shall coordinate all power requirements including Ground Fault Interrupted (GFI) panel design and extension cord requirements, with the Building Manager and Consultant.

h. The Removal Contractor shall install and supply at no additional charge all AC power and extension cords for the Resident Hygienist to collect all area and final air clearance samples.

1.15 SITE SECURITY

A. Requirements: Security for the project shall be the responsibility of the Abatement Contractor and be coordinated with the School District.

1.16 SCAFFOLDING, RIGGING AND HOISTING:

A. Unless otherwise specified, the Work shall include providing all scaffolding, rigging, hoisting, and services necessary for accomplishing the removal and reinstallation work specified herein. The Removal Contractor shall remove all equipment from the premises when no longer required.

2. Scaffolds (General)

a. Scaffolds shall be erected on sound, rigid footing, capable of carrying the maximum intended load without settling or displacement.

b. Scaffolds and their components shall be capable of supporting without failure at least 4 times the maximum intended load.

c. Guardrails and toe boards shall be installed on all open sides and ends of platforms more than 10 feet above the ground or floor, except needle beam scaffolds and floats.

1.17 EMERGENCY PRECAUTIONS

A. The Contractor shall establish emergency and fire exits from the work area for the workers and building occupants. All emergency exits which must pass through a work area shall be equipped with two (2) sets of protective clothing and PAPR respirators continuously charged at all times.

B. Contractor shall notify only Owner and parties that are required by law to be notified. Owner and consultant shall determine if any agencies other than those required by law are to be notified.

C. The Contractor shall be prepared to administer appropriate first aid to injured personnel at the site after decontamination. Seriously injured personnel shall be treated immediately in the work area or evacuated without performing decontamination. When an injury occurs, the Contractor shall stop work and implement fiber reduction techniques (e.g. water spraying) until the injured person has been removed from the work area.

D. Before the Contractor starts actual removal of asbestos materials, he shall notify the Owner's building management as to the danger of entering the work area, and they shall also be invited to attend an informal training program to be conducted by the Contractor to provide information regarding abatement activities, decontamination practices, etc. The Contractor shall make every effort to help the Owner form plans of action should their personnel need to enter the contaminated area.

1.18 RESPIRATORY PROTECTION

A. The Contractor shall provide all worker, foremen, superintendents, authorized visitors, and inspectors personally issued and marked respiratory protective equipment approved by NIOSH (including only R series rated filters.) When respirators with disposable filters are employed, the Contractor shall provide sufficient filters for replacement as necessary by the worker or authorized visitor. Filters shall be disposed of as contaminated waste.

B. Instruct and train each worker involved in asbestos abatement or maintenance and repair of friable asbestos-containing materials in proper respiratory use and required that each worker always wear a respirator, properly fitted on the face in the work areas from the start of any operation which may cause airborne asbestos fibers until the work areas is completely decontaminated. Use respiratory protection appropriate for the fiber levels encountered in the work place or as required for other toxic or oxygen-deficient situations encountered.

C. Air-purifying respirators with disposable filters shall only be allowed as defined in Part 3.

D. PAPR's shall be used as long as 0.5 f/cc is not exceeded in the work area. If exceeded, all work inside the Work Area shall stop and corrective actions will be required until the fiber levels are reduced to less than 0.5 f/cc. Half face air purifying respirators may be used only during non-friable asbestos abatement, preparation work, installation of critical Barriers, and tear down of the containment.

E. Unless otherwise permitted, respiratory protection as specified herein shall be worn at all times, including preparation of the work areas, loading and unloading of waste containers in the work area or at the transport truck, and cleaning of the work area.

F. Facial hair such as beards, long sideburns, and moustaches, which interfere with the seal of air purifying type respirators, is prohibited. Workers with eye contact lenses must wear protective goggles.

G. Respiratory protection maintenance and decontamination procedures shall meet the following requirements:

1. Respiratory protection equipment shall be inspected and decontaminated on a daily shift basis in accordance with OSHA 29 CFR 1910.134(b).

2. HEPA filters for negative pressure air filtering respirators shall be changed upon each exit from containment.

3. Respiratory protection shall be the last piece of worker protection equipment to be removed. Workers must wear respirators in the shower while going through decontamination procedures.

4. Airline respirators with HEPA filtered disconnect shall be disconnected in the equipment and worn into the shower. Powered air purifying respirator face pieces shall be worn into the shower. Filter/power pack assemblies shall be decontaminated in accordance with manufacturer's recommendations.

5. Respirators shall be stored in a dry place and in such a manner that the face piece and exhalation valves are not distorted.

6. Organic solvents shall not be used for the washing of respirators.

7. Whenever respirator design permits, workers shall perform a positive and negative air pressure fit test each time a respirator is worn. Powered air-purifying respirators shall be tested for adequate flow (using methods specified by the manufacturer) every four hours of use and each time the worker enters or exits the work area. The Contractor shall maintain written logs of these tests.

8. The Contractor shall furnish to the Consultant written documentation that each worker is medically approved to wear respirators and has been properly trained in their use, inspection, care, maintenance, and fit testing pursuant to the Contractor's written Respirator Plan. (Reference Submittal Section 1.25.)

9. Breathing air supply systems shall conform to the USEPA NIOSH Document No. EPA-560-OPTS-86-0001 (April, 1986) entitled "A Guide to Respiratory Protection for the Asbestos Abatement Industry."

H. Except to the extent that more stringent requirements are written directly into the Contract Documents, the following regulations and standards have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies were bound herewith. Where there is a conflict in requirements set forth in these regulations and standards, the more stringent requirements must be met.

OSHA U.S. Department of Labor Occupational Safety and Health Administration, Safety and Health Standards 29 CFR 1910, Section 1001 and Section 1910.134, 29 CFR 1926.1101.

CSA Canadian Standard Association, Rexdal, Ontario, Standard Z180.1-1978, "Compressed Breathing Air."

ANSI American National Standard Practices for Respiratory Protection, ANSI Z88.2-1980.

NIOSH National Institute for Occupational Safety and Health

1.19 PROTECTIVE CLOTHING:

A. Provide to all workers, foremen, superintendents and authorized visitors and inspectors protective disposable clothing consisting of full body coveralls, head covers, gloves, 18-inch high boot-type covers or reusable footwear, and eye protection in accordance with 29 CFR 1926.1101(3)(I). Sufficient disposable clothing shall be continuously supplied in the decontamination facility for workers, consultant, and inspectors.

B. Provide hard hats and safety shoes as required by job conditions and safety regulations for all personnel entering the containment.

C. Reusable footwear, hard hats, and eye protection devices shall be left in the "Contaminated Equipment Room" until the end of the asbestos abatement work, at which time they shall be disposed of as ACM waste or transferred to another work area by methods approved by the consultant.

D. All disposable protective clothing shall be discarded and disposed of as asbestos waste every time the wearer exits from the workplace to the outside through the decontamination facility.

1.20 ENCLOSURES, SHOWERS, AND TOILETS (DECONTAMINATION FACILITIES):

A. Provide decontamination facilities located in an area approved by the Consultant.

B. The Decontamination Enclosure System for workers and visitors shall consist of three adjoining rooms that are separated by air locks (see below definition) as follows: Clean Room at entrance followed by Shower Room, followed by and Equipment Room, leading to the Work Area.

C. The facility shall be installed prior to erecting protective coverings and before disturbing any ACM. The Owner may make available existing toilet facilities to the Contractor where possible. Where not possible, the Contractor shall provide and properly maintain portable service.

D. The Decontamination Facility shall be constructed using 2x4 stud framing and ½" plywood attached for walls (or other suitable and approved set-up), and one layer of 6-mil poly sheeting attached for a ceiling. The interior surfaces of the walls, floor, and roof/ceiling shall then be covered with an additional layer of 6-mil poly sheeting sealed water and airtight with duct tape at all overlapping seams.

E. The entire floor of the Decontamination Facility shall be covered with two layers of 6-mil poly sheeting turned up 12-16" on the wall sides. The upper layer of floor poly sheeting shall be replaced as wear necessitates.

F. An Air Lock is a system permitting ingress and egress without permitting air movement. It consists of two curtained doorways at least eight feet apart where space permits. Each curtained doorway shall be constructed by placing three overlapping sheets along the top of the doorway, securing each along the top of the doorway. The first and third sheets shall be secured on one side of the doorway and the middle sheet shall be secured on the other side of the doorway. There are no swinging/closing doors between airlocks. The doors (curtains) shall be approximately three feet wide.

G. Provide benches and lockers for storage of street clothes and respiratory equipment of workers in the clean room. Also provide in the same room uncontaminated disposable protective clothing and equipment in sufficient quantities for all workers and visitors. Workers and visitors to change from street clothes to disposable protective clothing and

gear prior to entering the contaminated area shall use this room. The room shall be adequately sized for such purposes.

H. Provide in shower room facilities with hot and cold water so arranged to provide complete showering of workers and visitors as they exit from the contaminated area. Connect the shower water drains to a leak-proof pump and commercially manufactured filtering system consisting of several filters in series, including a 5-micron final filter, and an adequately sized pump. Discharge from this system shall be to a location coordinated with the building management. Used water filters shall be packaged and disposed of as asbestos waste. Make provisions to prevent any contaminated run-off from the shower room. The shower room facilities and size shall be adequate to allow decontamination and thorough washing of all the workers and visitors within the 15-minute escape time. Soap and clean dry towels shall be provided in sufficient quantities for all personnel.

I. Provide the equipment room with storage for contaminated clothing and equipment. In this room workers and visitors shall dispose of their disposable protective clothing (except respirator) as they prepare to enter the shower room. Adequate quantities of clean, protected waste bags, filters for the HEPA vacuums and exhaust units, and other tools and equipment necessary for the work shall be stored in this room. Waste containers and excessive quantities of equipment shall not be stored in this room.

J. Viewing ports: At least one view port is to be installed for any containment where asbestos abatement activities are underway regardless of size. Multiple viewing ports are to be installed for large containments or where continuous view is obstructed.

K. Cleaning: The Decontamination Facility shall be cleaned using a HEPA-filtered vacuum at least once each shift, or more frequently if need to prevent residue accumulation.

L. Prohibitions: Smoking, drinking, or eating shall not be permitted in the Work Area or Decontamination Facility. Personal equipment such as radios or flashlights shall not be permitted in the Work Area, Shower Room, or Equipment Room unless they can be washed in the shower.

M. The Contractor shall post or have available the following items in the Clean Room of the Worker Decontamination Facility:

1. A copy of the U.S. Environmental Protection Agency Regulations for Asbestos, 40 CFR 61 Subparts A and M; a copy of OSHA Asbestos Regulations, 29 CFR 1926.1101; a copy of South Coast Air Quality Management District Rule 1403.

2. A list of telephone numbers and addresses for local hospital, emergency squad, local fire department, and the name of the designated Building Management staff members.

3. A copy of the asbestos abatement specifications and drawings.

4. Name of the competent person and list of names of contractor’s employees who are authorized to enter the regulated area.

5. Contractor’s name, list of Contractor’s organization chain of command at the construction site, and phone number of responsible representative who may be reached 24 hours per day.

6. A telephone and/or means of contact to emergency personnel, as well as continuous contact inside the work area.

7. Signs as required by 29 CFR 1926.1101 (k) (7) (ii).

N. Ensure that barriers and plastic linings are effectively sealed and taped at all times, and that the shower room is watertight. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect the facility at the beginning of each work period. The Consultant shall also be allowed to use smoke generators to test effectiveness of barriers, flow of air through the Decontamination Facility, and the HEPA-exhaust systems.

O. Establish and maintain emergency and fire exits from the work areas satisfactory to local fire officials and the Consultant. Exits shall be checked daily for exterior blockages or impediments to exiting.

1.21 PERSONNEL PROTECTION AND DECONTAMINATION:

A. Provide all personnel throughout the abatement process with the specified protective clothing and respiratory protection. Ensure that all personnel entering and leaving the workplace follow the following procedures:

1. Entering from the outside: Change from street clothes into the protective clothing and clean protective gear, go through the Shower room into the Dirty Equipment Room, pick up equipment and tools and enter the Work Area.

2. Exiting from the Work Area: Dispose of all protective clothing into plastic bags labeled for asbestos waste. Do not take off the respirator, but while still wearing the respirator enter the shower and shower thoroughly. Remove the respirator while still in the shower and wash and wipe it thoroughly to decontaminate it. After drying, enter the Clean Room; store the decontaminated respirator in the designated space and dress into street clothes.

3. Post written procedures in the work place and train all personnel in the procedures for the evacuation of the injured and the handling of potential fires. Provide aid to a seriously injured worker without delay for decontamination. Make provisions to minimize exposure of rescue workers and to minimize spreading of contamination during evacuations and fire procedures.

4. The Contractor shall instruct all employees and workers in the proper care of their personally issued respiratory equipment, including daily maintenance, sanitizing procedures, etc.

5. Contractor’s project supervisory personnel shall inspect all respiratory equipment at the beginning of each work period, including breaks and lunch periods. Written records of these inspections shall be maintained and provided to the Consultant (refer to Section 1.25.) During preparation work prior to actual removal, contractor may use half face respirators. During removal and cleaning of friable ACM, Paper’s at a minimum will be required.

1.22 ASBESTOS WASTE DISPOSAL PROCEDURES:

A. It is the responsibility of the Contractor to determine current waste handling, transportation, and disposal regulations for the work site and for each waste disposal

landfill. The Contractor must comply fully with the regulations and all U.S. Department of Transportation and EPA requirements, and state and local regulations.

B. The Contractor shall document actual disposal of the waste at the designated landfill by completing a written Disposal Certificate, signed by the landfill operator, and forwarding the original to the Consultant.

C. Consultant approval of Contractor payment requests may be denied until receipt of such Disposal Certificates. The following procedure shall be followed:

1. Prior to Start of Work

a. Letter from abatement contractor to consultant identifying intended waste hauler(s) and landfill(s). Include all licenses, permits, authorizations, etc.

2. During Work

a. Contractor to document number of waste bags removed in each area.

b. Chain-of-custody letter or form to be signed by abatement contractor, Hauler, and landfill operator, for each shipment.

c. Shipping manifests as required by code, per shipment.

d. Weight tickets or other appropriate documentation of proper disposal to be provided to the Landfill operator, per shipment.

3. After Completion of Work

a. Letter from Contractor to Consultant stating that all shipping and dumping was done in accordance with all applicable codes, laws and regulations and in accordance with specifications.

D. Definition: Wastes are defined as all asbestos-containing or potentially asbestos-containing materials or other items which have not been completely cleaned or sealed to the satisfaction of the Consultant while inside the work area, and must be removed from the job site. Asbestos wastes may include building materials, insulation, disposable clothing and protective equipment, plastic sheeting and tape, exhaust systems or vacuum filters, contractor equipment, or other materials designated by state or local authorities or the Consultant, or which have been potentially contaminated with asbestos and have not been fully cleaned inside the work area by vacuuming followed by thorough washing.

E. Waste Packaging: All waste material shall be promptly placed in 6-mil polyethylene bags as it is generated. A sufficient number of waste bags shall be located in the immediate work area, and in the Equipment (dirty) room of the Worker Decontamination Facility. The bagged material shall be placed in a second 6-mil polyethylene bag in the load out chamber. The contractor shall count the bags and estimate the total volume leaving the work area, and maintain a written record of such (waste manifest) (Reference Section 1.22K-3). (See also following Paragraphs)

F. Removal of Waste from the Work Area: Bags containing waste material must be washed and then placed in second bags for removal to the storage container and subsequent transport to the disposal facility.

1. The loaded bags must be checked for leakage and then placed in the washroom by workers inside the work area.

2. Once in the washroom, wet cleaning shall clean external surfaces of contaminated containers and equipment a second time.

3. The cleaned containers of waste and equipment shall be placed in uncontaminated leak tight-labeled 6-mil plastic bags (or 6-mil sheeting if physical characteristics necessitate and permit). Air volumes shall be minimized, and the bags or sheeting shall be sealed. Items that may puncture or tear the plastic bags or sheeting shall be placed in a hard wall container such as a drum, and then sealed.

4. All bags will be labeled prior to removal from the work area. SCAQMD's interpretation is that all bags (non-hazardous and hazardous) be labeled with a generator label depicting the owner name and address.

5. The clean recontainerized items shall be moved into the airlock for subsequent transfer to a holding area. The washroom workers shall not enter this airlock or the work area until waste removal is finished for the period.

6. Workers who have entered from uncontaminated areas with appropriate personal protective equipment shall remove recontainerized items and cleaned equipment from the airlock to the holding area.

7. The recontainerized items of waste and cleaned, bagged equipment shall be placed in open top, watertight plastic carts or drums. These carts or drums shall be held in the holding area pending removal. The carts or drums shall be HEPA-vacuumed and wet-cleaned immediately following the removal of the containers of waste from them, and the location of where they are emptied shall also be HEPA-vacuumed.

8. The exit from the waste decontamination facility shall be monitored and secured at all times to prevent unauthorized entry.

G. Waste Container Storage: Sealed waste bags may be temporarily stored in a pre-designated and approved outside area, until a truckload quantity is obtained. The temporary storage area shall be prominently identified and posted with signs, and waste containers shall be covered with polyethylene sheeting or otherwise protected from further contamination.

H. Waste Removal Scheduling: All waste containers shall be decontaminated and removed from the work area before final cleanup is started and isolation barriers are taken down. Once a truckload of waste containers has accumulated, the Contractor shall arrange for transportation to the disposal site. Waste shall not be stored in the worker or waste decontamination facilities. Outside bag storage must be monitored and secured at all times to prevent tampering. Storage must be in secure areas.

I. Waste Transportation and Disposal Regulations: It is the responsibility of the Contractor to determine and unsure that he is complying with: 1) the current waste handling regulations applicable to each work site; and 2) the current regulations for transporting and disposing waste at each ultimate disposal landfill. He must comply fully with these regulations and with all U.S. Department of Transportation, State, EPA and all federal and local requirements.

The Contractor (or his Subcontractor) at no additional cost shall maintain a valid solid waste transportation registration issued by the California Department of Health Services Toxic Substance Division; and obtain, complete, and fully comply with any other local

hazardous waste manifesting requirements. A copy of any manifest forms shall be sent to the Consultant after disposal is completed and all required data and signatures have been inserted. (Manifest to have original of ACM waste)

J. Asbestos Hauling: Transportation methods shall comply with the provisions of EPA Title 40, Part 61, Subpart M, Title 22 of the California Administrative Code, Division 4 Environmental Health, Chapter 30, Minimum Standards for Management of Hazardous and Extremely Hazardous Wastes, and with any hazardous waste regulations for temporary storage, transport, and disposal if such codes are enforced in states where the waste shall be stored, transported or disposed of.

K. Waste Container Removal and Disposal Procedure:

1. The costs for waste packaging, transportation, and approved landfill disposal (plus all related record keeping) shall be included in Contractor's Prices.

2. The contractor shall package, label, and remove all asbestos waste as specified in the above Sections. Packaging shall be accomplished in a manner that minimizes waste volume, but insures waste containers shall not tear or break. All material shall be bagged in a minimum of two (2) 6-mil labeled bags.

3. The Consultant must observe removal of all waste containers to verify their condition and certify the total volume of waste material (to the nearest cubic yard). The Contractor shall then insert the quantity on the Disposal Form/Waste Manifest, and give the original of these forms to the waste hauler for transport to the landfill operator for signature.

4. The Contractor shall provide legal transportation of asbestos wastes to the ultimate disposal landfill. The Contractor shall verify actual delivery, receipt, and disposal of each load of waste at the designated landfill by completing a Disposal Certificate, obtaining the landfill operator's signature, and forwarding the original to the Consultant.

5. Waste must be disposed at a site conforming to 40 CFR 61.156.

1.23 ASBESTOS WASTE TRANSPORTATION GUIDELINES:

The following guidelines are hereby communicated to the Contractor to ensure the Contractor properly selects and effectively monitors the performance of the Asbestos Waste Transporter.

A. Asbestos Waste Transportation Permits and Labels

1. The Waste Transporter shall possess, and all vehicles shall be labeled with, U.S. Department of Transportation (DOT) identification numbers assigned to the Waste Carrier by the DOT in accordance with DOT Federal Motor Carrier Safety Regulations (49 CRF Part 390). DOT ID numbers are required for interstate transport.

2. The Waste Transporter shall also possess asbestos transportation permits where required by any state law. A permit will be required for transportation of waste from the state in which the waste was generated, if said state has permit requirements. Current federal regulations do not require a hauler to obtain a special asbestos permit in order to transport asbestos waste through multiple states en route to a permanent landfill.

B. Asbestos Waste Transport Vehicles

1. All motor vehicles used to transport asbestos waste should have records, which indicate a history of regular inspections, maintenance, and repairs. The vehicle must be operated and maintained in a safe and proper working order at all times. Vehicles likely to break down or cause an accident shall not be used.

2. All asbestos waste transport vehicles must utilize enclosed transport compartments. Open top bins may only be used when the work method has been pre-approved by the consultant. Compartments must be sufficient to contain the transported waste, prevent damage to the waste containers, and prevent fiber release. Vehicles that utilize compactors to reduce waste volumes shall not be used.

C. Accident Contingency Plan/Consequence Management

1. The Asbestos Transporter shall maintain an Accident Contingency Plan designed to effectively manage any roadway incident leading to the release of asbestos materials from the transport compartment. Such a plan should address procedures for the following key elements (at a minimum):

   a. Emergency notification of local and state agencies in the event of an incident.

   b. Emergency notification and response by local asbestos remediation companies.

   c. Guidelines for establishing a controlled area at the incident site.

   d. Guidelines for site remediation.

   e. Guidelines for subsequent off-loading and transfer of waste if transport compartment of vehicle is effectively disabled.

2. The Asbestos Waste Transporter shall maintain pollution liability insurance. This insurance shall be adequate to protect the insured against financial liability resulting from accidental asbestos releases and exposures, which arise from a roadway incident and result in bodily injury, property damage, or environmental harm.

3. The Asbestos Waste Transporter shall indemnify and hold the Owner/Generator and its agents harmless from any consequences arising from an asbestos release incident during the transport of asbestos to the final disposal site.

1.24 SUBMITTAL REQUIREMENTS

The following items must be submitted in time for review prior to the start of work. Two copies of the submittals will be required. The submittals will be bound in a three ring (D ring) view binder. Tab dividers with a table of contents will separate the categories. The first tab and the last three tabs will be left blank to make room for final close-out documents.

A. Pre-Abatement Submittals

1. Emergency Phone List -24 hour access
2. Contractors License – Number and Classification
3. DOSH Registration Number
4. Insurance - Liability and Workers Compensation
5. Hazardous Hauler Information – EPA I.D. #'s etc.
6. Landfill – Name, Location, and EPA I.D. #
7. AQMD – Notifications, Equipment Registrations.

8. Company Asbestos Operating Procedure
9. Injury and Illness Protection Plan
10. Hazard Communication Plan
11. Respiratory Protection Plan
12. Worker Training Certificates
13. Worker Medical Certificates
14. Worker Respirator Fit Tests
15. List of Equipment – On-site
16. MSDS – Material Safety Data Sheets

B. Post-Abatement Submittals

1. Daily Sign-in Log
2. De-Con Entry Sign-In Log
3. Results of On-Site Monitoring
4. AQMD Revisions
5. Copies of Waste Manifests

PART 2 – PRODUCTS

2.01 GENERAL REQUIREMENTS

A. The Contractor shall deliver all material and equipment to the site in the original containers having the name of the manufacturer and details for proper storage and usage.

B. All materials or equipment delivered to the site shall be unloaded, temporarily stored, and transferred to the Work Area in a manner, which shall not interfere with the operations of the Owner.

C. The Consultant and the Owner must approve unloading and temporary storage sites and transfer routes in advance.

D. Damaged or deteriorated materials may not be used and must be promptly removed from the premises. Material, which becomes contaminated, with asbestos-containing material shall be packaged as ACM and legally transported and disposed of in an approved, secure, asbestos landfill.

2.02 MATERIALS, TOOLS, AND EQUIPMENT:

A. All materials, tools, and equipment must comply at a minimum with this Specification and relevant federal, state and local codes.

1. HEPA-Filtered Exhausts – Air inside each asbestos removal area shall be exhausted to the atmosphere (building exterior) through a High Efficiency Particulate Air (HEPA) filter.

One or more HEPA-filtered portable exhaust units shall be provided for each work area, of sufficient total capacity to provide at least four complete changes of air per hour, and an inward velocity through all openings to the work area of at least 200 fpm, and a static negative air pressure of at least 0.02 inches of water. Replaceable pre-filters shall precede the HEPA-filter, and the unit must be designed such that it cannot be operated unless the HEPA-filters are in place.

The units must also be designed with lights or alarms, which indicate that the filters are properly installed and functional, and which determine when the filters must be changed. Flexible hoses (ducts) of sufficient length must be provided to allow the units to discharge outside of the buildings. Ducts shall exit through metal collars in a plywood insert. Exhausts with other types of particulate cleaning systems, such as electrostatic precipitators, shall not be allowed. (Reference Section 1.24b-2)

2. Plastic Sheeting and Bags – Shall be polyethylene or equivalent with a thickness of at least 6 mil for all applications. Both transparent and opaque plastic will be required as directed by the Consultant. Waste disposal bags shall be of 6-mil thickness with appropriate warning labels as described in Section 1.22 E.

3. Encapsulants – Encapsulating agents shall be approved by the Owner and must be compatible with the replacement materials. The encapsulants must be UL tested.

4. Wetting Agent or Surfactant – Shall be 50% polyoxyethylene ester and 50% polyoxyethylene ether or equivalent, mixed in the proportion of one-ounce surfactant per five gallons of water. The material must be odorless, non-flammable, nontoxic, non-irritating, and non-carcinogenic. It shall be applied as a mist using a low-pressure airless sprayer recommended by the surfactant manufacturer.

5. Tape and Glue – Shall be capable of sealing plastic to finished surfaces without damage when it is removed. The bonding strength and resulting seal integrity must not be affected by mist or water, encapsulating agent, or any other materials used in the work area.

6. Warning Signs and Labels – Shall comply with 29 CFR 1926.1101 (7) (ii), and all other federal, state, or local codes and regulations.

7. Waste Containers and Transportation – Shall be bags as noted in Item No. 2 above, drums or other closed containers, suitable for loading, temporary storage, transit, and unloading of contaminated waste without rupture, or otherwise causing spillage or exposure to persons or emissions to the atmosphere. Transportation methods shall comply with the provisions of EPA Title 40, part 61, Subparts A and B, and with any hazardous or special waste regulations for temporary storage, transport, and disposal if such codes are enforced in states or cities where the waste will be generated, stored, transported, or disposed of. All containers shall be labeled in accordance with OSHA Regulation 29 CFR 1926.1101(8), NESHAPS, and 49 CFR parts 171 and 172, Hazardous Substances: Final Rule.

8. Respiratory Protection Devices - Shall be NIOSH approved (including only R-series rated filters) and shall comply with all provisions of 29 CFR 1926.1101. Fit testing procedures must comply with 29 CFR 1926.1101 Appendix C. Documentation of fit testing procedure must be provided. (See Submittal Section 1.25-1).

9. Electrical Equipment – Shall be Underwriters Laboratory listed and approved, and shall have ground fault circuit interrupt protection, which has been installed by a licensed electrician.

10. Ladders or Scaffolds – Shall be OSHA-approved and be of sufficient dimensions and quantities so that workers, the consultant, and other inspectors can easily and safely access all work surfaces. Scaffold joints and ends shall be sealed with tape to prevent incursions of asbestos fibers. All ladders at the worksite will be properly "tied-off".

11. Hand Power Tools – Shall be equipped with HEPA-filtered local exhaust ventilation if used to drill, cut into, or otherwise disturb ACM.

12. Brushes – All brushes shall have nylon bristles. Wire brushes may be used upon specific approval by the Consultant.

13. Lumber/Plywood – All lumber and plywood supplied by and used by the Contractor shall be fire retardant, unless authorized by the Consultant.

PART 3 – EXECUTION

3.01 PRE-ASBESTOS ABATEMENT PREPARATIONS:

The Contractor shall prepare the work area as described in this section. Preparation work shall be performed according to the following general sequence of steps and procedures to insure that proper containment and protection systems are installed prior to any work, which could generate airborne asbestos fibers.

A. Remove and relocate any non-fixed items (not removed by the Owner) to storage areas designated by the Owner.

B. Isolate, clean by HEPA vacuuming and washing, and seal airtight with two layers of 6-mil poly sheeting and tape, all HVAC system diffusers, grills, and registers in or servicing the work area.

C. Carefully clean all surfaces in the work area, which may be contaminated with any dust or debris by using wet methods and a vacuum equipped with HEPA filter.

D. Cover any openings with a minimum of two layers poly sheeting. Erect any required barriers, coverings, or access platforms; post access restriction signs, seal all openings into the work area; install any temporary access openings; poly all floors and walls; protect and cover all fixed items. Install Decontamination Facility and HEPA exhaust system as described herein.

E. Isolate all electrical systems as directed by the Owner, and provide temporary power and lighting as required for the work area.

F. Obtain Consultant's approval of all preparation work prior to starting removal of asbestos material.

3.02 ISOLATION AND SEALING OF HVAC SYSTEMS

A. Prior to performing any asbestos removal work in an area, the contractor shall make appropriate adjustments to any affected air handling systems to prevent air movement to and from the work area through HVAC or exhaust ductwork, or any other penetrations into the work area. The adjustments shall be pre-approved by the Consultant and the Owner. If HVAC ducts or duct insulation are found to be contaminated, care shall be taken to clean or removed the contamination prior to installation of the HVAC seals. If

ducts are to be removed, cleaning of the ducts can be conducted after the seals are placed on the duct openings. Affected HVAC systems shall be de-energized during this process. Filters in affected HVAC systems shall be removed and packaged for disposal as asbestos waste and then replaced with equal filters at the conclusion of the work.

B. Once the above isolation has been made, but before any asbestos-related work has begun, the Contractor shall locate, block, and seal airtight at the work area boundary all supply air ducts, return air ducts, other exhaust ducts, and any other open penetrations into the work area. The seals (air blockage) must have two 6-mil poly coverings. They shall be capable of remaining intact and preventing all air flow for the duration of work in the area. After installation, the Consultant must individually approve each seal. All ceiling, floor, or wall mounted supply air diffusers, registers, grills, and other HVAAC fixtures shall also be cleaned with HEPA vacuums and then sealed with two layers of 6-mil poly sheeting secured with duct tape. Contractor must provide “lock out” systems on all HVAC equipment, which will be shut off during the removal process.

C. No flow of air out of the work area shall be permitted except via HEPA-filtered exhaust units.

3.03 ISOLATION OF ELECTRICAL SYSTEMS AND INSTALLATION OF TEMPORARY POWER AND LIGHTING:

A. The scope of the required electrical isolation and protection work includes isolation and protection of electrical equipment that is in the area from which asbestos must be removed, and could therefore possibly become a hazard through contact or water spray short-circuiting. Shutdown of electrical circuits shall include providing labor to monitor, inspect, and service temporary power circuits, lighting, and equipment as required by local codes and regulations. Contractor must provide “lock out” systems on all electrical panels or equipment, which will be shut off during the removal process.

B. Temporary light shall be provided by the Contractor in the work area where asbestos removal is performed. The Contractor’s licensed electrician as mutually agreed upon by Owner and Contractor and hereinafter referred to, as the Contractor’s licensed electrician shall initially inspect the removal work area for the condition of electrical conduit and junction boxes. The purpose of this inspection is to assist the Contractor in the preparation and performance of his work, and to provide for the safety of work crews.

C. All materials and workmanship shall conform to the latest editions of the following codes, standards, and specifications;

1. National Electrical Code (NEC)
2. National Bureau of Standards, Handbook H30, National Electrical Safety Code
3. State and Local codes and all other authorities having jurisdiction
4. Underwriters Laboratories (UL)
5. National Board of Fire Underwriters
6. OSHA

D. Temporary lighting and power systems shall exceed all OSHA, state, and local regulations temporary lighting levels shall exceed OSHA requirements and provide surface lighting for nighttime work.

E. The contractor is responsible for visiting the site (at no additional cost) to investigate existing electrical conditions and isolation requirements.

F. All Contractor costs associated with the isolation of electrical systems and installation of temporary power and lighting must be included in his prices.

G. The non-current carrying metal parts of fixed, portable, and plug-connected equipment shall be grounded. Portable tools and appliances protected by an approved system of double insulation need not be grounded. All light and power circuits in the asbestos removal area shall be ground fault protected.

H. Extension cords shall be the 3-wire type; shall be protected from damage, and shall not be fastened with staples, hung from nails, or suspended from wires. Splices shall have soldered wire connection with insulation equal to the cable. Worn or frayed cords shall not be used.

I. Safe lighting equipment shall be provided with waterproof floodlights. Exposed bulbs shall be guarded to prevent accidental contact. Temporary wiring shall be properly insulated and substantially supported. Circuits shall be properly designed and fused. All temporary lighting inside the asbestos removal area shall be weatherproofed.

J. Receptacles for attachment plugs shall be approved, concealed contact type. Where different voltages, frequencies, or types of current are supplied, receptacles shall be of such design that attachment plugs are not interchangeable.

K. Each disconnecting means for motors and appliances and each service federal or branch circuit at the point where it originates, shall be legibly marked to indicate its purpose.

3.04 ISOLATION OF WORK AREAS AND INSTALLATION OF DECONTAMINATION FACILITIES:

A. Work Area Isolation and Protection:

1. The Contractor shall isolate the work area for the duration of work by completely closing and sealing all openings and doorways into the work area, including, but not limited to, heating and ventilation ducts, doorways, windows, floors and ceiling penetrations, and lighting. Isolation/sealing shall be accomplished by using two layers of 6-mil poly sheeting taped securely in place, or by caulking, including the construction as noted in 3 below. The work area shall be protected and sealed airtight to the extent possible and be subject to the approval of the Consultant.

2. Emergency and fire exits shall be maintained.

3. Isolation Partitions and Barriers – Open doorways, cased openings, windows, air vents, filtration areas, etc. and other openings as mandated by project conditions shall be sealed airtight with temporary structural portions as follows:

a. Erect wood or metal studs 16” on center and then cover the opening with ½ “ plywood sheathing or equivalent on work area side only.

b. Cover the work side of this partition with a double layer of plastic sheeting with joints staggered and sealed with tape. Edges of the partition at floor, walls, ceiling, and all joints shall be caulked airtight.

4. Shut down and isolate heating, cooling, and ventilating air systems to prevent contamination and fiber dispersal to other areas of the building.

5. All water sources shall be isolated so that there is no possibility that water can be turned on accidentally. All water sources shall be shut off below the sink if possible.

6. Thoroughly pre-clean all dust or debris from any fixed objects, floors, or other equipment within the work area using HEPA vacuuming equipment and wet washing. Do not use brooms, brushes, dry mops, or non-HEPA vacuum cleaners for this precleaning work.

   Seal all seams, joints, covers or casings with tape, and enclose fixed objects or equipment with a minimum of two layers of 6-mil plastic sheeting secured and sealed airtight with duct tape. Provide and install plywood coverings as necessary to protect fixed items, which could be accidentally damaged.

7. Cover floors with a minimum of two independent layers of 6-mil plastic sheeting, turning each layer up onto the wall a minimum of 16" and fasten securely to wall (after all wall criticals are sealed.) Cover walls with two layers of 6-mil plastic sheeting extending to the floor, overlapping the two floor sheets by not less than 12" including the turn-up. All joints in plastic sheets shall be taped and glued in a manner to prohibit air movement, and to prevent passage of water or other liquids. The bottom layer of floor poly shall be securely fastened to the floor to prevent creases or slippage that would pose a hazard to workers. Any floor drains or other openings shall be sealed individually with two layers of 6-mil sheeting and tape and then covered by the remaining two layers of poly. Pits, pumps and other openings shall be covered so as to prevent a tripping hazard and then covered with two layers of 6-mil sheeting. Any pipe insulation shall be covered in two layers of 6-mil sheeting.

8. Install work area HEPA-filtered exhaust systems as previously specified in Section 1.24.

9. The Contractor shall post warning signs in English and Spanish meeting the requirements of OSHA 29 CFR 1926.1101(k)(7)(ii) at the outside doorway to the Decontamination Facility which shall be the only non-emergency entrance to the work area. The Consultant may also request that the Contractor post additional warning signs around the work area or at other potential entrances or exposure points in accordance with California Proposition 65.

   Warning signs shall be readily visible to any person attempting to enter the work area.

3.05 APPROVAL OF PREPARATION WORK:

After the asbestos removal work area has been prepared as specified above, the Contractor shall request a formal site inspection by the Consultant. No removal, demolition, or other disturbance of asbestos containing materials, dust or debris shall occur until the Consultant has inspected and approved the site preparation work in writing.

3.06 REMOVAL OF CEILINGS:

A. The Contractor shall remove and dispose of suspended ceilings as asbestos waste to obtain access to inspect and seal the removal areas.

B. Ceiling removal work shall not commence until each work area is completely isolated and protected, HVAC and electrical systems are shut down and sealed, and HEPA exhaust system and Decontamination Facility is installed and the work area has been inspected and formally approved by the Consultant.

C. Workers shall wear specified full personal protective equipment (disposable suits and powered air purifying respirator) at all times during ceiling demolition, cleaning, and waste packaging tasks as described below.

3.07 CLEANING OF ASBESTOS CONTAMINATED SURFACES:

A. This section pertains to the cleaning of surfaces, which are potentially contaminated with asbestos-containing dust, and debris as identified in the Description of Work or discovered in the performance of the specified work. Such cleaning shall be required to prevent this dust from becoming airborne and posing an exposure risk to building occupants or interfering in air monitoring activities. Cleaning action shall be performed as preliminary exposure control procedures prior to performing other actions which are required. Cleaning shall consist of HEPA vacuuming followed by wet mopping or wiping of surfaces in a manner, which prevents dust generation but effectively rids the surface of all visible debris, dust, film, and grime.

B. Each HEPA vacuum cleaner shall be separately equipped with an airtight securely attached hose of proper length and a collection wand, brush and other special attachments appropriate t the required cleaning tasks. The equipment shall be properly operated at all times and shall contain no air leaks.

C. Cleaning Procedure:

1. Remove large pieces of debris by hand, and then dry vacuum all surfaces using HEPA filtered equipment and a collection attachment which minimizes dust generation. Surfaces shall be cleaned by working outward from the point of access so that workers do not walk on or disrupt uncleaned surfaces.

2. Lightly wet the surface of any material that could produce airborne fibers by using an airless sprayer and amended water.

3. Collect, package, label and dispose of vacuumed material as asbestos waste.

4. Thoroughly wet wipe or mop all surfaces to remove any remaining dirt or grime, being careful not to wet or damage any electrical equipment, furniture, or other sensitive surfaces.

5. Allow surfaces to completely dry, and then inspect them for any visible remaining dirt or fibrous material.

6. HEPA vacuum any remaining dirt or fibers using an efficient collection attachment.

7. Collect and pump all wastewater through a 5-micron filter (multistage filtration system). Dispose of filtered material and the filter as asbestos waste.

8. Request Consultant to conduct final inspection of cleaning work prior to performing any other specified activities.

3.08 ASBESTOS REMOVAL UNDER GENERAL CONTAINMENT PROCEDURES:

A. This section covers the removal of asbestos-containing troweled and sprayed acoustical material, linoleum sheeting, exterior stucco, exterior texture, and window putty and vibration dampers as specified in the documents or as directed by the Consultant.

B. Amended water (wetting agent) mixed and carefully applied using an airless sprayer as specified by the manufacturer, shall continuously be used to control the release of asbestos fibers from friable material prior to and during removal. The amended water shall be applied in sufficient quantity to fully penetrate and saturate the friable material before it is removed. Wetting shall commence up to 8 hours before removal work to ensure effectiveness.

C. Removal methods:

1. No asbestos removal work shall begin until the work area has been prepared and approved by the Consultant. Removal workers shall wear powered air purifying respirators and protective clothing throughout all removal, cleanup, and waste handling operations.

2. Small test patches of asbestos material shall be wetted and then removed and examined by the Consultant and Supervisor to determine the degree of saturation prior to removing the bulk of the material. With prior approval the Contractor may use removal encapsulants instead of amended water; applied per manufacturers and federal guidelines.

3. After large areas of the asbestos material have been fully wetted and tested, the asbestos shall be carefully removed in small sections by hand using scrapers or other suitable tools.

4. As the material is removed, it shall be promptly wetted and packed into impermeable, labeled 6-mil poly disposal bags. When each bag is full, the packaged material shall be sprayed with amended water, sealed (using duct tape or other fastener approved by the Consultant), and transported to a temporary storage area inside the work area.

5. If the asbestos material is located on surfaces higher than 15 feet above the floor, the Contractor shall provide closed chutes (with maximum incline of 60 degrees from horizontal) or scaffolding for waste containers to prevent dropping material down to the floor during the Project.

6. The Contractor shall repeatedly spray the friable material to prevent it from drying out.

7. Once the majority of the asbestos has been removed, the Contractor shall scrub the surface with a nylon brush or equivalent, and a water spray, and then thoroughly wash it to remove all remaining material.

8. After obtaining written approval of the cleaning from the Consultant, the Contractor shall then seal all substrate surfaces from which asbestos material has been removed with at least one coat of an approved penetrating encapsulant.

9. The Contractor shall minimize contamination of the work floor, the exterior of disposal containers, and all other surfaces within the work area. At the end of

each shift, all surfaces shall be cleaned of all materials and then HEPA vacuumed or wet mopped.

10. The decontamination facility shall be wet cleaned using wet cleaning methods upon completion of any waste removal. When the worker decontamination facility's shower room alternates as a waste container washroom, the shower room shall be washed with cloths or mops saturated with a detergent solution immediately prior to wet cleaning.

11. The decontamination facility shall be wet cleaned and HEPA vacuumed as appropriate after each shift change and meal break.

12. Excessive water accumulation or flooding or excessive accumulation of debris in the work area shall require work to stop until the water or debris is collected and disposed of properly.

3.09 REMOVAL UNDER MODIFIED CONTAINMENT

A. Modified containments are areas that have been partially protected with polyethylene sheeting and equipped with HEPA exhaust units to facilitate air filtration. The workers decontamination facility shall consist of two rooms as specified in Section 1.20 consisting of a clean room and a dirty room. Modified containments shall be utilized only when removing non-friable asbestos such as vinyl floor tiles and mastic, base cove mastic, transite flues, etc. as specified by the contract documents or Consultant. HEPA exhaust units shall be installed and exhausted to the exterior of the containment and all penetrations (including doors, windows, HVAC, etc.) shall be sealed with poly to prevent fiber migration from the regulated area.

B. If a condition is encountered wherein the fiber count limits of the inside (0.50 f/cc) and outside (0.05 f/cc) of the work areas are exceeded during ACM removal activities and efforts to reduce this prove futile, the contractor shall stop all work and shall remove the ACM using the method of "asbestos removal under general containment procedures, complete with full decontamination facilities."

C. Worker protection will require disposable protective clothing (double suit) and a minimum of Air Purifying Respirators with disposable dual HEPA-filtered cartridges approved by NIOSH.

3.09.1 REMOVAL OF ASBESTOS-CONTAINING FLOOR TILES AND ASSOCIATED MASTIC

A. Removal Procedure

1. Seal doors, windows, and other openings into the work area with two independent layers of 6-mil poly.

2. Shut down HVAC, as required, for duration of work activities.

3. Remove or cover furniture or fixed objects with 6-mil poly. Protect walls up to a height of 6 feet with one layer 6-mil poly.

4. Install HEPA unit to facilitate air filtration.

5. Workers shall wear disposable coveralls (double suit) and a minimum of air purifying respirators with NIOSH approved asbestos cartridges.

6. Whenever carpets cover the floor tiles or mastic, the carpets shall be removed only under regulated conditions and pre-approved by the Consultant.

7. Removal shall be performed so as to minimize fracturing or cutting of floor tiles (to minimize potential fiber release) by using wet methods and hand scrapers. Heating or the application of dry ice may also be used.

8. Electrical grinding or cutting tools should not be used during the removal operation.

9. Floor tiles shall be double bagged or placed in drums or boxes with appropriate asbestos warning labels and disposed of according to specified regulations.

10. Contractor may use an emulsifiable solvent degreaser or equivalent to ascertain that this solvent is appropriate for the materials to be removed and acceptable to the designated landfill operator.

3.09.2 REMOVAL OF ASBESTOS-CONTAINING TAR PAPER, FELTS, UNDERLAYMENT, AND TAR SEALANT ROOFING MATERIALS: The following work practice requirements are for the removal/disturbance of asbestos-containing roofing materials, i.e. tar sealants and roofing systems. Mechanical removal practices, other than use of saw cutting, will require full compliance with all SCAQMD Rule 1403 requirements. HEPA vacuuming of roofing surface immediately following removal is required. HEPA vacuuming equipment will be operated in compliance with Rule 1403 (d) (1) (D) (i) (III) provisions.

A. Preparation

1. As required by federal OSHA, CAL-OSHA, and any other applicable federal, state, and local safety agencies, guard rails, scaffolding, rigging, etc. shall be installed as necessary prior to removal activities commencing. Ropes and safety harnesses must be utilized where applicable.

2. Remove all objects not fastened to existing structure from the work area prior to commencing removal activities.

3. Cover all stationary objects and surfaces not intended for removal or stripping of asbestos containing roofing materials. Cover and render air-tight all air passage-ways, such as doors, windows, skylights, air circulation units, vents and registers in the work are, with plastic sheeting, or hard wood barriers with studded support.

4. Confine all debris associated with roofing removal activities and prevent dispersal into the facility structure.

5. Utilize plastic sheeting catch devices secured at the structure foundation to contain incidental falling roofing debris.

6. Warning tape shall be installed surrounding building where debris may accidentally be dislodged during preparation and removal activities. Tape shall remain in place and be inspected daily throughout the removal project.

B. Removal and Handling

1. When cleaning roof surface do not use tools or devices, which could cause debris to become airborne, e.g. brooms, blowers, high-pressure rinse, etc.

2. Adequately wet with amended water the areas to be worked prior to the initiation of the removal process. Amended water will be used continually throughout the work period to ensure that any asbestos-containing material exposed by manual force or saw cutting is wet and remains wet until final disposal.

3. The wetting solution shall be applied with airless spray or low-pressure spray equipment to avoid displacement and dispersal of asbestos fibers. Hose-end sprayers may be used when outside temperatures require more aggressive wetting procedures.

4. All efforts shall be made to manually loosen and remove the roofing material with limited chipping and breaking.

5. Roofing material may be cut into smaller, manageable pieces depending upon mode of transport and disposal.

6. An encapsulant shall be used during the cutting process to prevent asbestos fiber release.

7. All non-friable roofing materials shall be carried to the edge of the roof where off-loading will take place by means of a chute or hoist.

8. Carefully lower asbestos-containing material that has been removed to the ground or a lower floor without dropping, throwing, sliding, or otherwise damaging the asbestos-containing material, or transport the asbestos-containing material to the ground or a lower floor via leak tight chutes or containers when removal occurs more than 50 feet above the ground and the material is not in units or sections.

9. Roofing material must be immediately sealed into airtight containers, covered drop box, or plastic wrapping of at least 6-mil thickness.

10. Immediately following removal of roofing materials from deck apply amended water to entire exposed surface.

11. Remaining wetted asbestos-containing materials, including plastic or wood barriers, shall be placed in leak-tight containers or sealed plastic bags.

12. Maintain on-site storage of encapsulated materials or leak-tight containers within an enclosed storage area prior to transport. Leak-tight containers and encapsulated materials shall not be accessible to the general public.

13. All asbestos-containing waste material shall be placed in leak-tight containers that will not allow said material to escape while moving them from work area to disposal container or transport vehicle.

14. Contractors wanting to dispose of roofing materials via burrito wrap enclosure must provide a letter from the approved asbestos waste disposal site providing information regarding proper burrito wrapping methods and proper methods for unloading the waste from the waste hauling container.

3.09.3 REMOVAL USING GLOVE-BAG ENCLOSURE

A. Materials:

1. Bags. Bags commercially manufactured specifically for glove bag enclosure removal of asbestos shall be used.

2. Chilled amended water, duct tape, plastic sheeting and waste bags, a minimum of air purifying respirator with HEPA cartridges, disposable coveralls, warning signs, HEPA-filtered vacuum cleaner, and wetable fiberglass cloth will be required.

3. Utility knife, tin snips as required, wire cutters, as required, industrial stapler, nylon brush, and other hand tools will be required.

4. Airless sprayer equipped with approximately 3 linear feet of flexible tubing and wand for insertion into the glove bag.

B. Precautions

1. Maximum temperature of components allowable for glove bag work as specified by glove bag manufacturer.

2. Contain the work area: shut down HVAC, exclude casual personnel, close doors, and install warning signs.

3. Wear personal protection: disposable coveralls and air purifying respirators with HEPA filters.

4. Install modified containment

5. Provide supplementary lighting as required.

6. Contractor shall utilize HEPA-exhaust units on-site during all glove bag operations.

7. Contractor shall provide a crew of two or more persons for glove bag removal.

C. Preparation

1. Place necessary tools in the glove bag. Wrap the bag on the pipe, seal with staples and tape leaving enough sealed space above pipe for access. Secure the bag to support the weight of the stripped insulation and water.

2. Insert the HEPA vacuum nozzle and wetting agent sprayer flexible tubing into the bag and seal air tight.

D. Removal

1. Install a decontamination facility and utilize modified containment. Install a HEPA filtration unit.

2. During removal periodically wet the inside surfaces and waste for better visibility and fiber control. Use cold water to prevent fogging.

3. During removal, periodically use HEPA-vacuum to compensate for any leaks and to reduce airborne fiber levels.

4. Cut the insulation cleanly for neat sealing of exposed insulation. Leave a 2" margin at the edge of the bag for safety.

5. After removal and brushing, wash down all interior bag surfaces to below the level where the bag will be sealed and saturate the waste. Look for residue in folds and on the backside of the pipe, etc.

6. Gather tools in a gloved hand and pull the glove inside out. Seal the arm with tape and cut through the middle of the tape. Save the bagged tools for the next glove bag operation.

7. Collapse the bag with the HEPA vacuum. With the vacuum still applied, seal the bag just above the glove level. Remove the nozzle and tubing. Remove the glove bag from the component and immediately place in a waste bag. Check the component for loose waste and vacuum as required.

E. Following Removal

1. Seal exposed insulation with fiberglass wetable cloth while the insulation is damp, unless additional removal is planned.

2. If no additional removal is planned, the glove-enclosed tools shall be immersed in a pail of water, opened, and cleaned. The water and waste must be disposed of as asbestos waste.

3. At the direction of the Consultant all stripped pipe surfaces shall be encapsulated.

3.09.4 REMOVAL OF ASBESTOS-CONTAINING SPRAY-APPLIED FIREPROOFING OR ACOUSTICAL PLASTER

A. Work Area Preparation

1. Full containment will be required, which includes at least two layers of six-mil polyethylene sheeting on the walls and floor.

2. Negative pressure must be maintained in the work area

B. Removal of Materials Interfering with Access

1. Suspended ceiling panels, when present under the asbestos-containing material must be assumed to be contaminated. As such they must be cleaned by HEPA-vacuuming inside the work area and wet wiped as they are removed from through the waste removal port. Alternatively, they are to be disposed of as hazardous waste.

C. Removal of the Fireproofing or Acoustic Plaster

1. The materials to be removed must be thoroughly wetted with amended water prior to scraping.

2. The bulk material may be removed by use of hand scrapers. The surfaces must then be brushed and wet wiped until the Consultant confirms that they are sufficiently clean.

3.09.5 REMOVAL OF THERMAL SYSTEM INSULATION OTHER THAN BY GLOVE BAG

A. When thermal system insulation is present in quantities or locations, which make the use of glove bags infeasible, they may be removed in a manner similar to that described for fireproofing or acoustic plaster.

3.10 CONSULTANT'S APPROVAL OF REMOVAL WORK

A. Upon completion of the removal work, but prior to commencing encapsulation or post-abatement cleaning of the work area, the Contractor shall request the Consultant to conduct an inspection and approval of the removal work.

B. All asbestos materials shall be removed, gross debris cleaned up, and waste bags removed from the work area prior to this approval.

3.11 CLEANING AND FINAL DECONTAMINATION

A. This section applies to cleaning the work area where asbestos removal work has been performed. After all asbestos-containing or contaminated materials have been removed; the Contractor shall remove all wastes and perform a thorough multi-stage final cleanup and decontamination of the work area per the methods indicated below. Final cleaning shall be performed only after all waste is packaged and removed, but prior to re-installing equipment or dismantling any barriers, decontamination facility, or protective coverings. Cleaning shall be performed before replacing any type of insulation, and shall be subject to the Consultant's approval based on a visual inspection (including surface wipe testing if appropriate and air testing performed using NIOSH method 7400. HEPA exhaust systems shall operate continuously throughout the cleaning and air testing process until the Consultant authorizes their shutdown and removal from the work area. The Contractor shall notify the Consultant at least one hour in advance of the expected completion time of the site cleaning in order to allow the scheduling of air clearance testing.

B. Methods and Approvals: Cleaning methods and approvals shall consist of the following tasks performed in the listed order.

1. Remove all visible accumulations of asbestos debris on the protective coverings on floors, walls, and other surfaces, and then HEPA vacuum all surfaces to pick up excess water and gross saturated debris. A wet-dry shop vacuum dedicated to asbestos abatement may be used before HEPA vacuuming.

2. After HEPA vacuuming, the work area air shall be lightly misted with amended water and then all protective coverings on ceilings, walls, floors, and other items in the work area shall be wiped clean (first cleaning.)

3. After the Contractor has completed the above steps, he shall request that the Consultant inspect the site. To facilitate scheduling of this inspection, the Contractor must notify the Consultant of the anticipated completion time of the initial cleaning work at least two hours in advance.

4. If the Consultant observes any asbestos waste or fibers within the work area during the inspection, the Contractor shall perform additional cleanup and decontamination as directed by the Consultant.

5. If the Consultant approves this first cleaning, the Contractor shall slowly remove the upper layer of all protective poly coverings on floors, walls, ductwork, and other surfaces and package them in 6-mil waste bags. The waste bags shall then be removed from the work area using the procedures described in Section 1.22. The bottom layer of protective poly coverings, the decontamination facilities, the HEPA exhaust systems, all barrier walls and seals on HVAC components shall remain in place and in use.

6. Unless otherwise permitted, the contractor shall then perform a second cleaning of all surfaces in the work area by HEPA vacuuming and wet washing. Upon the approval of the Consultant, all remaining protective poly coverings shall be slowly removed and disposed of as described in Section 1.22. However, the barrier walls, decontamination facilities, HEPA exhaust systems, and seals on HVAC components shall remain in place and in use, as well as the final layer of polyethylene protecting the walls and windows.

7. Upon obtaining the Consultant's written approval of final cleaning, the contractor shall encapsulate all substrate surfaces and other surfaces within the work area as specified herein. Unless otherwise permitted, drying time shall be as specified by the manufacturer before final air sampling is conducted.

8. After successful completion of the final air clearance testing as prescribed in the following section, the contractor shall carefully remove in the listed order: the decontamination facilities; any temporary barrier walls or tunnels, seals on HVAC components. The HEPA exhaust systems shall be removed only after all other items are removed. A HEPA vacuum shall be kept on site during this final disassembly work to clean up any dust or debris.

9. If any of the post cleaning PCM air sample results are above 0.01f/cc, or TEM's above 70 structures per square millimeter on average, or a pre-existing level of normal background fibers if shown to be higher than 0.01 f/cc by the Consultant, the Consultant may require additional cleaning and decontamination and the above inspection and air tests shall be repeated by the Consultant.

10. Workers shall wear approved respiratory and personal protective equipment throughout all cleanup and waste disposal activities.

3.12 MONITORING, TESTING, AND INSPECTION

A. The Owner's Consultant shall monitor the performance and execution of the work. The monitoring work shall be performed both inside the work area and the surroundings to ensure full compliance with these specifications and all applicable regulations. Ambient air samples will be collected and analyzed by the Consultant. The Contractor shall provide full support to the Consultant throughout the work. Monitoring and inspections shall include air samples in the work space, periodic personnel samples at breathing levels on a number of workers, air samples in the areas surrounding the work areas and the outside, checking of the Contractor's standard operating procedures, engineering controls, respiratory protection equipment, packing, packaging, transporting and disposal of asbestos, decontamination facilities and procedures, and any other aspects of the abatement process that may impact the health and safety of the people and the pollution of the environment.

B. The Owner or Consultant shall bear all costs in connection with the sample collection and laboratory work referenced in Paragraph A above. However, the costs of all subsequent sample collection by the Consultant and laboratory work required because the limits

specified were exceeded in the initial tests, shall be borne by the Contractor. The Contractor shall also conduct and bear the cost of personal air samples for OSHA compliance.

C. The Contractor shall receive copies of all laboratory reports representing the results of the Consultant's air monitoring and inspection program. All information shall be recorded in the Contractor's air monitoring log.

3.13 AIR MONITORING BY CONTRACTOR

A. The Contractor shall be responsible for personal air monitoring to document compliance with OSHA regulations using the methods listed below.

B. The analysis laboratory performing this work shall be an independent party not financially or managerially connected to the Contractor.

C. The laboratory shall be participating successfully in the AIHA/NIOSH Proficiency Analytical Testing (PAT) program.

D. Air sampling materials and equipment requirements are as follows:

1. Sampling for analysis by Phase Contrast Microscopy shall employ cellulose ester collection filters with 0.8-micron pore size or less. Cassettes shall be loaded with filters under clean laboratory conditions. A 0.5-micron pore size cellulose ester-backing filter shall be placed behind the collecting filter, followed by the cellulose support pad and the cassette base.

2. The filter assembly shall be upstream of all other components in the sampling train. An airflow-measuring device, when used, shall be downstream of the filter and upstream of the pump assembly or integrated with the pump.
3. Sampling pumps shall supply constant flow.

4. An airflow measuring/metering device shall be used, and shall be calibrated before and after each use.

E. Numbers and frequencies of personal air sampling shall be as required by OSHA regulations but not less then two samples per eight hour work shift during times of asbestos removal work.

F. Results of sample analysis shall be reported to the Consultant within twenty-four hours of collection.

G. All other air sampling for compliance with the Specifications shall be performed by the Owner's Consultant at no cost to the Contractor except where the Contractor **fails** specified tests. Final air samples shall be collected and analyzed using Phase Contrast Microscopy (PCM) or Transmission Electron Microscopy (TEM). If the area fails the first clearance air test, the Contractor must re-clean the work area. Subsequent PCM or TEM testing will be at the expense of the Contractor.

H. The Contractor shall use a pre-approved chain-of-custody form for all personal air samples he collects.

I. All PCM samples shall be analyzed pursuant to NIOSH Method 7400.

J. The Contractor shall at no additional charge provide and install AC power and extension cords for the Consultant to collect all area and final air clearance samples as required herein.

3.14 FINAL INSPECTION AND TESTING

A. After thorough cleaning of the workplace, and if a high degree of cleanliness has been achieved, the Contractor shall notify the Consultant that the workplace is ready for inspection and final testing. The Owner's Consultant and the Contractor shall then visually inspect the workplace for the detection of any visible asbestos dust or contamination. If the visual inspection does not reveal any dust or other signs of contamination, final air testing shall commence.

B. The final testing shall take place under active agitation of the air in the workplace with the HEPA filtered exhaust units operating. The Contractor shall also supply and operate additional circulating fans and leaf blowers as directed by the Consultant during this final testing to ensure effective air circulation.

The final test shall consist of taking air samples in the workplace to establish that airborne fiber levels do not exceed 0.01 f/cc by PCM. If the Hygienist determines that, based on background tests, the normal levels of fibers in the workplace are greater than 0.01 f/cc, that normal level of fibers shall become the clearance criterion. Surface wipe samples may also be taken and analyzed at the option of the Owner to confirm the results of the air sampling. At the option of the Owner, TEM analysis may also be employed for final air samples. If the results of the final testing are not satisfactory, thorough wet cleaning and/or HEPA vacuuming shall be repeated until the required decontamination results are achieved.

Contractor should assume that final air testing and analysis should require the following minimum times to perform: PCM 6-12 hours, TEM 24-72 hours.

C. After achieving the level of cleanliness and decontamination as specified herein and a confirmed by the final testing and checking, the Consultant shall thoroughly inspect the space jointly with the Contractor to determine whether any damage has been done to the finishes, equipment, or any other part of the work space. A final inspection report shall be prepared jointly by the Consultant and the Contractor for review with the Owner detailing the items to be fixed by the Contractor.

END OF SECTION 02085

SECTION 02095 - GENERAL SPECIFICATION FOR LEAD ABATEMENT

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK: This section covers the furnishing of all labor, materials, facilities, equipment, services, employee training and testing, permits and agreements, and waste transport and disposal necessary to perform the work required for LEAD removal in accordance with these specifications, the drawings and notations, EPA, OSHA, NIOSH, DHS, State of California regulations, and any other applicable federal, state, and local government regulations. Whenever there is a conflict or overlap of the above references, the most stringent provisions are applicable.

A. The abatement Contractor shall perform the work and provide the services listed below:

1. Perform abatement of identified lead-containing materials.
2. Lead removal work shall be performed using full and modified containments and protection with HEPA-filtered exhaust ventilation and decontamination facilities.
3. Perform lead decontamination by wet wiping, HEPA vacuuming of all visible debris and dust in affected areas.
4. Install all necessary scaffolding and planking to keep work areas safe at all times.
5. Remove, transport, and dispose of as contaminated waste any lead-containing building materials (or paint) as indicated in these specifications and/or as directed by the Certified Project Designer (DHS).
6. Thoroughly clean the work areas and obtain a final clearance approval from the (DHS) Certified Project Monitor.

B. Section 2090 contains a summary of the materials to be removed in this project. Bidders must confirm and verify all quantities prior to submitting their proposal and start of any work. Quantity information provided in Section 2090 is approximate.

1.02 RELATED WORK: This General Specification does not reference the specific materials present or the unique requirements of a specific project. It is intended as a reference document in the event the Site Specific Notations contain insufficient detail.

1.03 OWNER ROLE: The performance and execution of the project shall be monitored by the Owner or Owner designated representative to ensure full compliance with these Specifications and applicable regulations. The owner will assume the cost associated with the independent laboratory and inspection work required in this Specification for the final clearance testing and random analyses as specifically noted.

1.04 CONSULTANT AUTHORITY: The Contractor shall provide an owner approved California certified environmental consultant for the purposes of the management of the Lead- Based Paint Abatement described herein. The Consultant will represent the Owner in all phases of the lead- based paint abatement project at the discretion of the Owner. The Abatement Subcontractor will regard the Consultant direction as authoritative and binding as provided herein, in matters particularly, but not limited to, the following:

A. Approval of work areas.
B. Review of monitoring results.
C. Completion of the various segments of work.
D Final completion of lead- based paint abatement.
E. Submission of data.
F. Daily field punch list items.

1.05 DEFINITIONS**:** Applicable provisions of the General Conditions and Supplementary Conditions of the Contract and General Requirements are given in this Section. For the purposes of this Section:

A. Abatement: Means any measure designed to permanently eliminate lead- based paint hazards in accordance with standards established by the EPA Administrator pursuant to Title IV of the Toxic Substances Control Act (TSCA). Abatement strategies include: removal of lead- based paint; enclosure of lead- based paint; encapsulation of lead-based paint (with a product that has been shown to meet standards established or recognized pursuant to Title IV of TSCA); replacement of building components coated by lead- based paint; removal of lead- contaminated dust; removal or covering of lead-contaminated soil with a durable covering (not grass or sod, which are considered interim control measures); as well as all preparation, cleanup, disposal, post- abatement clearance testing, record- keeping, and monitoring (if applicable).

B. Abatement Area: Means the exterior of the building or an area isolated from the building interior by containment.

C. Accessible Surface: Means any surface that is below five (5) feet in height from the floor or ground or is exposed in such a way that a child can come in contact with the surface.

D. Biological Monitoring: Is the analysis of a person blood to determine the level of lead contamination in the body. Biological monitoring for lead hazard reduction work includes blood sampling and analysis for lead and zinc protoporphyrin levels.

E. Certified Industrial Hygienist: Is a person certified by the American Board of Industrial Hygiene and who has at least four years experience and a graduate degree or five years experience; and who has passed a two- day examination offered by the Board (see also industrial hygienist).

F. Change Room: The area of a worker decontamination facility used for removing protective equipment prior to entering the clean room.

G. Clean Room: The area of a worker decontamination facility used for donning protective equipment and storing street clothes.

H. Code Enforcement Agency: Means the State Lead Poisoning Prevention Program or its agent, or the local board of health or other agency responsible for enforcing the State Sanitary Code or sections thereof.

I. Commissioner: means the Commissioner of Public Health

J. Common Area: Means a room or area that is accessible to more than one tenant in a building (e. g., common hallways, stairwells, laundry rooms).

K. "Consultant": Shall refer to the Environmental Consultant, and its designated, authorized representatives.

L. Containment: Means a process for protecting other workers, residents, and the environment by isolating areas from exposures to lead dust and debris created during abatement in a work area.

M. Decontamination of Personnel: Shall include, at a minimum, HEPA vacuuming of disposable personal protective clothing according to the provisions in 29 CFR 1926.62.

N Decontamination of Work Areas: Shall be as specified in Section 3.1.

O. Defective Surface: Means peeling, flaking, chalking, scaling, or chipping paint; or, paint over crumbling, cracking, or falling plaster, or plaster with holes in it; paint over a defective or deteriorating substrate; paint that is separating from the substrate; and paint that is damaged in any manner such that a child can be exposed to the paint from the damaged area.

P. Employee: Any person employed or hired by an employer in any lawful employment.

Q. Employer: Any person, firm, corporation, partnership, association, or other entity engaged in a business or providing services, including the State and any of its political subdivisions, or any person acting in the direct interest of any of the foregoing in relation to any employee or place of employment.

R. Elevated Blood Lead Level: In adult workers, means a blood lead concentration equal to or greater than twenty- five (25) micrograms per deciliter (´g/ dl) or an increase of ten (10) ´g/ dl above baseline levels.

S. Enclosure: Means covering surfaces and sealing or caulking with durable materials so as to prevent or control chalking, peeling, or flaking substances containing toxic levels of lead from becoming part of house dust or accessible to children.

T. Entity: Means any person, partnership, firm, association, corporation, sole proprietorship, or any other business concern, state or local government agency or political subdivision or authority thereof, or any religious, social, or union organization, whether operated for profit or otherwise.

U. "General Trades Contractor": Shall refer to the contractor responsible for coordination of all filed sub- bids and general construction.

V. Hazardous Level of Lead for Waste Disposal: Is 5.0 parts per million (ppm) as defined by RCRA Toxicity Characteristic Leachate Procedure (TCLP) or other requirement set by local or state authorities.

W. High Efficiency Particulate Air (HEPA) Filter: Means a type of filtering system capable of filtering out particles of 0.3 microns or greater diameter from a body of air at 99.97% efficiency or greater.

X High Phosphate Detergent: Is detergent that contains at least five percent (5%) tri-sodium phosphate (TSP) or other equally effective cleaning agent.

AA Intact Surface: Means a defect- free surface with no loose, peeling, chipping, or flaking paint. Painted surfaces must be free from crumbling, cracking, or falling plaster and must not have holes in them. Intact surfaces are not damaged in any way.

BB Lead- based: Refers to paints, glazes, and other surface coverings containing a toxic level of lead.

CC. "Owner": Shall refer to the Owner and its designated, authorized representatives.

DD. Paint Removal: Means a strategy of abatement that entails stripping lead paint from surfaces.

EE. Qualified Abatement Subcontractor: A sub- contractor capable of providing a properly trained and equipped work force for abatement work. All workers employees to perform

abatement activities shall have successfully completed a minimum of 24 hours of training in the potential hazards of abating lead based paint. Abatement contractors must possess the appropriate license or certification from the State or local government.

FF. Removal: Means a strategy of abatement which entails the removal of components, such as windows, doors, and trim that contain toxic levels of lead such that new components which are lead free may be installed.

GG. "Subcontractor": Shall refer to the Abatement Contractor.

HH. Toxic Level of Lead in Surface Coatings: Is 1.0 milligrams or more per square centimeter (mg/ cm™) by XRF methods or 5,000 ´g/ g (0.5%) by laboratory testing, as defined in HUD Regulation and the Lead- Based Paint Poisoning Prevention Act.

II. Toxicity Characteristic Leachate Procedure (TCLP): Is the EPA required sample preparation for determining the hazard characteristic of a waste generated at a lead abatement site.

JJ. "Wet Wall": Shall refer to walls that contain plumbing fixtures and/ or pipes, including both supply and sanitary lines.

1.06 SAFETY REGULATIONS: The following are some applicable Federal regulations:

Occupational Safety and Health Administration
29 CFR 1910 General Industry Standards
29 CFR 1910.1025 Lead Standard for General Industry
29 CFR 1910.134 Respiratory Protection
29 CFR 1910.1200 Hazard Communication
29 CFR 1910.245 Specifications for Accident Prevention (Sign and Tags)
29 CFR 1926 Construction Industry Standards
29 CFR 1926.62 Construction Industry Lead Standard

Environmental Protection Agency
40 CFR Part 261 United States Environmental Protection Agency Regulations

Department of Housing and Urban Development
24 CFR Parts 35, 36, 37 HUD Lead- Based Paint Regulations
HUD Guidelines for the Evaluation and Control of Lead- Based Paint Hazards in Housing

1.07 CODES AND STANDARDS: All work shall conform to the standards set by applicable federal, state and local laws, regulations, ordinances, and guidelines in such form in which they exist at the time of the work on the contract and as may be required by subsequent regulations including the following:

A. ASTM - American Society for Testing Materials.
B. ANSI - American National Standards Institute.
   1. ANSI Z288.2- 8 Practices for Respiratory Protection
   2. ANSI Z9.2 1979 Fundamentals Governing the Design and Operation of Local Exhaust systems.
C. U. L. - Underwriters Laboratories, Inc.

1.08 ABATEMENT REGULATIONS AND GUIDELINES: In addition to any detailed requirements of the Specifications, the Abatement Subcontractor shall, at his own cost and expense, comply with all laws, ordinances, rules, and regulations of federal, state, regional and local authorities regarding handling and storing of lead waste material. The Contractor and Subcontractor must also comply

with the provisions of the HUD Guidelines for the Evaluation and Control and Lead- Based Paint Hazards in Housing

1.09 ABATEMENT SUBCONTRACTOR RESPONSIBILITY

A. All regulations by the above and other governing agencies in their most current version are applicable throughout this project. Where there is a conflict between this Specification and the cited federal, state or local regulations or guidelines, the more restrictive or stringent requirements shall prevail. This Section refers to many requirements found in these references, but in no way is it intended to cite or reiterate all provisions therein or elsewhere. It is the Abatement Subcontractor responsibility to know, understand, and abide by all such regulations, guidelines and common practices.

1.10 QUALIFICATION CRITERIA: The Owner requests that documentation be provided for all aspects of the work at the Bid opening detailing the firm qualifications on the following criteria:

A. License Requirements. Firm(s) shall be qualified to perform abatement operations as defined by the HUD Guidelines and Local Law and have workers and supervisors who have successfully completed training courses covering abatement issues. This course shall cover all topics required by HUD, EPA and Local Law. These topics should include, but not be limited to, the following:

1. Toxicity of Lead
2. How Can I Protect Myself? (Respirators, Personal Protective Equipment and Decontamination Procedures)
3. Other Chemical and Safety Hazards
4. Using Tools
5. Completing the Project
6. Role of the Inspector
7. Lead in Construction and Abatement
8. Monitoring and Medical Removal
9. Signs and Labels
10. Preparing the Work Area
11. Cleanup: How and Why
12. Clearance
13. Worker Responsibilities

B. All Contractors are also advised that licenses in other trades may be required. The Subcontractors are responsible for insuring that all licensing requirements for appropriate trades and procedures are met.

C. Demonstrated Ability of Workers. Firm(s) must demonstrate that they have (or will have) a sufficient number of trained abatement workers who have successfully completed training in accordance with the topics listed above to complete all aspects of work covered in this Specification.

D. Previous Experience

1. Abatement Subcontractor. The Abatement Subcontractor for abatement must have successfully completed at least three abatement projects involving all requirements elements of abatement work, including worker protection, medical monitoring, work area preparation, clean- up and clearance, valued at a minimum of one hundred thousand dollars ($ 100,000.00) for each project.

2. Abatement Subcontractors. If a Subcontractor for caustic paste, needle gun and pre- fabricated metal window wraps or other subtask in the abatement process will be used, the Subcontractor must be identified by name and contract amount on the bid form. If the Abatement Subcontractor plans to do this work, the firm name and amount must be entered on the bid form. If the General Contractor plans to do this work, the firm name must be entered in on the bid form, but the contract amount must be left blank.

1.11 NOTIFICATIONS / APPROVALS

A. Provide in proper and timely fashion all necessary notifications to relevant Federal, State and local authorities and obtain and comply with the provisions of all permits or applications required by the work specified, as well as make all required submittals required under those auspices. The Abatement Subcontractor shall indemnify the Owner, Architect and Consultant from, and pay for all claims resulting from, failure to adhere to these provisions. The costs for all permits, applications, and the like, are to be borne by the Abatement Subcontractor. For each apartment, the Abatement Subcontractor shall notify in writing the following agencies, five (5) days prior to the date abatement will begin (in accordance with Local Law) and shall provide evidence of notifications to the Owner and General Trades Contractor at the preconstruction conference and on site at all times:

1. Certification or Licensing State Agency
2. Department of Public Health Childhood Lead Poisoning Prevention Program
3. Occupants of the Dwelling Unit to be abated and occupants of the Building to undergo abatement activities, in conjunction with Owner.

1.12 FEE'S, PERMITS, AND LICENSES

A. The Abatement Subcontractor shall pay all licensing fees, royalties, and other costs necessary for the use of any copyrighted or patented product, design, invention, or processing the performance of the job specified in this Section. The Abatement Subcontractor shall be solely responsible for costs, damages or losses resulting from any infringement of these patent rights or copyrights. The Abatement Subcontractor shall hold the Owner, Architect and the Consultant harmless from any costs, damages, and losses resulting from any infringement of these patent rights or copyrights. If the Contract Specification requests the use of any product, design, invention, or process that requires a licensing fee or royalty fee for use in the performance of the job, the Abatement Subcontractor shall be responsible for the fee or royalty and shall disclose the existence of such rights.

B. Applications and Permits. The Abatement Subcontractor shall make all applicable and necessary notifications (in proper and timely fashion) to relevant federal, state, and local authorities and shall obtain and comply with the provisions of all permits or applications required by the work specified, as well as make all required submittals required under those auspices. The Abatement Subcontractor shall indemnify the Owner, Architect and Consultant from, and pay for all claims resulting from failure to adhere to these provisions. The costs for all permits, applications, and the like, are to be assumed by the Abatement Subcontractor.

C. The Abatement Subcontractor shall be responsible for securing all necessary permits for work under this Section, including hauling, removal, and disposal, fire, and materials usage, or any other permits required to perform the specified work.

1.13 COORDINATION AND COOPERATION: The Abatement Subcontractor shall meet with the Architect, Owner, and Consultant for a Pre- Construction meeting prior to commencing work on the project. The meeting shall be at the facility of Owner at a mutually convenient time and date to be determined by the Owner and Consultant. At the meeting, the Abatement Subcontractor shall be represented by authorized representatives and the field supervisors who shall run the project on a daily basis, and shall present evidence that all requirements for initiation of the work have been met. The minimum agenda for the meeting shall be:

A. Channels of communication;
B. Construction schedule, including sequence of critical work;
C. Designation of responsible personnel;
D. Procedures for safety, security, quality control, housekeeping, and related matters;
E. Use of premises, facilities and utilities;
F. Review of "Pre- Job Submittals;" and
G. Discussion of a detailed Project Specification Work Plan composed of at least the following:

1. A sketch showing the detail, location and layout of the clean area, the dirty area (Decon System) and the work area.
2. The sequencing of the work.
3. The timing and projected completion of the work.
4. Detailed description of the method to be employed in order to control airborne and wastewater pollution.
5. The type of equipment and amount of equipment available to the Abatement Subcontractor to be used on the project, including HEPA vacuums, etc.
6. The procedures to contain package and remove the waste from the work area and the procedures and locations of the disposal of hazardous and non-hazardous waste.
7. An air-sampling plan that includes:
8. Air sampling training and strategy, sampling locations, projected number of samples; and frequency, methodology, and duration of sampling.
9. The type of respirators to be used, protective equipment to be used, and a respirator program, if applicable.
10. A safety precautions plan may include special precautions taken by the Abatement Sub or Subcontractors in performing their respective tasks, safety equipment to be worn by employees, frequency of safety meetings, and all other relevant functions to be performed by the abatement Contractors to ensure a safe workplace.
11. Any other data that enhances this work plan. Innovative ideas and/ or technologies are encouraged.

1.14 DOCUMENTATION / SUBMITTALS

A. Pre-Abatement/ Job. The Abatement Subcontractor shall provide three (3) copies of the following Pre-Job Submittals at the Pre- Construction Conference for the acceptance of the Owner:

1. Copies of all notifications, permits, applications, licenses, and like documents required by federal, state, or local regulations obtained or submitted in proper fashion.
2. Copies of medical records, including lead blood level monitoring data and a notarized statement by the examining medical doctor that such examinations took place, and when, for each employee to be used on the project.
3. Copies of Contractor certificates, licenses, and copies of each supervisor license and worker certificates

4. Record of successful respirator fit testing performed by a qualified individual within the previous six months, for each employee to be used on this project with the employee name and social security number with each record;
5. Proposed respiratory protection program for employees throughout all phases of the job, including make, model and NIOSH approval numbers of respirators to be used.
6. A detailed Project Specification Work Plan as described in Section 3.1.1.
7. Written description, for the Owner review and acceptance, of all proposed procedures, methods, or equipment to be utilized that differ from the Contract Specifications, including manufacturers specifications on any equipment not specified for use by this Section; in all instances, the Subcontractor must comply with all applicable federal, state and local regulations.
8. Proposed electrical safeguards to be implemented by qualified Electrical Subcontractor, including but not limited to location of transformers, GFCI outlets, lighting, and power panels necessary to safely perform the job, including a description of electrical hazards safety plan for common practices in the work area.
9. Proposed worker orientation plan which at a minimum includes a description of lead hazards and abatement methodologies, a review of worker protection requirements, and the outline of safety procedures.
10. Chain- of- Command of responsibility at work site including supervisors, foreman, and competent person, their names, resumes and certificates of training.
11. List of all supervisors and workers intended to be assigned to the project.
12. Proposed Emergency Plan and route of egress from work areas in case of fire or injury, including the name and phone number of nearest medical assistance center. This shall be conspicuously posted at the work site.
13. The name and address of Abatement Subcontractor blood lead testing lab, OSHA- CDC listing, and Certification in the state where work site is located.
14. The name and address of Abatement Subcontractor personal air monitoring and waste disposal lead testing laboratory(ies) including certification(s) of accreditation for lead in the EPA National Lead Laboratory Accreditation Program, listing of relevant experience in air and debris lead analysis, and presentation of a documented Quality Assurance and Quality Control Program.
15. Material Safety Data Sheets (MSDS) on all materials and chemicals to be used on the project.
16. Name, address, and ID number of the hazardous waste hauler, waste transfer route, and proposed disposal site.
17. Name, address, and ID number of the proposed construction debris site.
18. Proposed heating system to be employed.

B. During Job. The Abatement Subcontractor is required to submit to the Owner and Consultant, a weekly status report including:

1. Number of buildings started
2. Number of buildings completed awaiting test results
3. Number of buildings failing clearance
4. Number of buildings passing clearance
5. Results from personal air samples
6. Results from TCLP testing
7. Results from other testing
8. Quantity of materials used during the abatement process. (Tyvek suits, poly, chemical, etc.)
9. Any other relevant data as requested by the Owner.

10. Medical, license, and Respirator Fit Test 24 hours in advance of any new employees starting on the project.

C. Post- abatement. The Abatement Subcontractor is required to submit to the Owner the following at a Post- Construction conference:

1. Copies of manifests and receipts acknowledging disposal of all hazardous and non- hazardous waste material from the project showing delivery date, quantity, and appropriate signature of landfill authorized representative.
2. A notarized copy of the entry- exit logbook.
3. All personal monitoring results.
4. All TCLP test results.

1.15 PERSONAL PROTECTION

Respiratory Protection/ Protective Clothing

A. Prior to commencing all work, all workers shall be instructed in all aspects of personnel protection, work procedures, emergency evacuation procedures and use of equipment including procedures unique to this project.

B. Respiratory protection shall meet the requirements of OSHA as presented in 29 CFR 1910.134 titled "Respiratory Protection" and 29 CFR 1926.62 titled "Lead in Construction." The protection factors shown in 29 CFR 1926.62 shall be used for this project.

C. Abatement Subcontractor shall provide appropriate respiratory protection equipment for each worker and ensure usage during potential lead exposure.

D. Abatement Subcontractor shall select respirators from among those jointly approved as being acceptable for protection by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part 11.

D. Abatement Subcontractor shall have adequate supply of HEPA filter elements or other necessary filter elements and spare parts on site for respirators in use.

E. Respiratory Protection Requirements

1. The Qualified Abatement Subcontractor shall provide respirators and all necessary maintenance materials at no cost to the employees. Employees shall wear the following respirators at all times while abatement work is underway or while present in the work area.

(a) For use while sanding, scraping or stripping with a heat gun, the minimum required respirator shall be the half- mask, air- purifying respirator equipped with HEPA filters or a powered, air- purifying respirator with high efficiency filters or the half mask supplied- air respirator operated in the positive- pressure mode, if required under local law.
(b) For use with caustics or in replacement, the minimum required respirator shall be the half-mask, air- purifying respirator equipped with high efficiency filters. Whenever a chemical preparation is used in conjunction with a mechanical or powered technique, the use of an additional

combination cartridge, appropriate to the exposure, shall be used unless a supplied- air respirator is used.

(c) For use during removal or demolition of components with surfaces covered with lead- based paint, the minimum required respirator shall be the half- mask, air purifying respirator equipped with high efficiency filters.

1.16 SEQUENCING AND SCHEDULING

A. Work/ Scheduling Requirements**:**

1. Work shall be carried out in sequential phases. Inspection and approval of each phase by the Consultant shall be sought and gained before proceeding to the next phase and in accordance with the schedule agreed upon by Owner at the Pre- Construction meeting as amended. As a Contract requirement, any reasonable delay caused by this requirement will not constitute a basis for claim against the Owner or Consultant.

B. Job Sequences

1. The Abatement Subcontractor shall extend full cooperation to Owner in all matters involving the use of Owner facilities. At no time shall the Abatement Subcontractor cause or allow to be caused conditions which may cause risk or hazard to the general public or conditions that might impair safe use of the facility. The use of the facility electricity, water or like utilities by the Abatement Subcontractor shall be coordinated through the Owner.

2. The Abatement Subcontractor shall submit a time- line schedule, not date specific, to Owner and Consultant for integration into the overall project schedule. Coordinate the work of this section with that of all other trades. Phasing and scheduling of this project will be at the discretion of the Owner and Consultant and shall not proceed in any area without the express consent of the Owner and Consultant. The Abatement Subcontractor shall be available within 24 hours notice for additional work or rework if after acceptance of the work it is found that full abatement or clearance was not achieved from the initial work effort as determined by the Owner and Consultant.
It shall be understood by the Abatement Subcontractor that this project is being done on a building- by- building basis and delays between each building should be anticipated since the General Contractor must complete installation of the new electrical service conduit prior to starting a new building.
3. The proposed time line for the work in this Section, as noted above, shall show the time involved from start to finish of abatement operations, including preparation, removal, clean- up, and tear- down portions of the job.
4. A final written schedule shall be prepared for approval by the Owner and the Consultant.

C. Working Hours: The work in this Section shall be carried on under the usual construction conditions, in conjunction with all other work at the site. The Abatement Subcontractor shall cooperate with the Owner, Consultant, General Contractor, and sub-contractors and equipment suppliers working on the site, coordinate the work with them and proceed in a manner so as not to delay the progress of the project.

1. The Abatement Subcontractor shall coordinate the work with the progress of the work of other trades so that the work shall be completed as soon as conditions permit. Any overtime hours worked or additional costs incurred due to lack of or improper coordination with General Contractor or other trades of the General

Contractor by the Abatement Subcontractor shall be assumed by the Abatement Subcontractor without any additional cost to the Owner.

2. Any costs associated with repeated cleaning due to a failure to achieve clearance shall be borne by the Abatement Subcontractor without any additional cost to the Owner.

PART 2 - PRODUCTS

2.01 SUBSTITUTION OF MATERIALS AND/ OR METHODS

A. Any substitution in materials or methods to those specified shall be approved by the Consultant and Owner prior to use. Any requests for substitution shall be provided in writing to the Consultant and the Owner. The request shall clearly state the rationale for the substitution.

B. Submit to the Consultant and the Owner product data and samples of all materials to be considered as an alternate.

C. Product data shall consist of manufacturer catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, material safety data sheets (MSDS) and other standard descriptive data. Submittal data shall be clearly marked to identify pertinent materials, products or models and show performance characteristics and capacities. Samples shall be of sufficient size and quantity to clearly illustrate the functional characteristics of the product or material with integrally related parts and attachment devices.

D. No work shall begin which requires submittal for approval until the consultant has "approved" or "approved as noted" the submittal.

2.02 MATERIALS AND EQUIPMENT: The work of this Section, without limiting the generality thereof, includes the furnishing of labor, materials, tools, equipment, services and incidentals necessary to complete all Lead Based Paint Abatement in accordance with the Plans and Specifications. These Plans and Specifications are intended to describe, and provide for a finished and complete piece of work; work, which is described by any portion of these documents, shall be complete in every detail and in accordance with established trade practice, notwithstanding whether or not every item or detail necessarily involved is particularly mentioned.

A. Approvals and Inspections. All temporary facilities, work procedures, equipment, materials, services, and agreements must strictly adhere to and meet this Section along with EPA, OSHA, NIOSH, HUD regulations recommendations, and guidelines, as well as any other federal state, and local regulations. Where there exists an overlap of these regulations and guidelines, the most stringent one applies. All work performed by the Abatement Subcontractor is further subject to approval of the Owner, and/ or Consultant.

B. Materials

1. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name and product technical description.
2. Damaged or deteriorating materials shall not be used and shall be removed from the premises.
3. Polyethylene sheet in a roll size to minimize the frequency of joints shall be delivered to job site with factory label indicating 6 mil.
4. Polyethylene disposable bags shall be six (6) mil with pre- printed label. Tie wraps for bags shall be plastic, five (5) inches long (minimum), pointed and looped to secure filled plastic bags.

5. Tape or adhesive spray will be capable of sealing joints in adjacent polyethylene sheets and for attachment of polyethylene sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water.
6. Impermeable containers are to be used to receive and retain any lead containing or contaminated materials until disposal at an acceptable disposal site. (The containers shall be labeled in accordance with EPA and DOT standards.
7. HEPA filtered exhaust systems shall be used during any dust generating abatement operations.
8. All caustics shall be properly labeled and containerized in leak- tight containers.
9. Machine Sanding Equipment - Sanders shall be of the dual action, rotary action, orbital or straight-line system type, fitted with a high efficiency particulate air (HEPA) dust pick- up system. Air compressors utilized to operate this equipment shall be designed to continuously provide 90 to 110 p. s. i. or as recommended by the manufacturer.
10. Heat Blower Gun Equipment - Electrically operated, heat- blower gun shall be a flameless electrical paint softener type. Heat- blower shall have electronically controlled temperature settings to allow usage below a temperature of 1,100 degrees Fahrenheit. Heat- blower shall be DI type (non- grounded) 120 V, AC application. Heat- blower shall be equipped with various nozzles to cover all common applications (cone, fan, glass protector, spoon reflector, etc.).
11. Chemical Stripping Removers - Chemical removers shall contain no methylene chloride products. Chemical removers shall be compatible with, and not harmful to the substrate that they are applied to. Chemical removers used on masonry surfaces shall contain anti- stain formulation that inhibits discoloration of stone, granite, brick and other masonry construction. Chemical removers used on interior surfaces shall not raise or discolor the surface being abated.
12. Chemical Stripping Agent Neutralizer - Chemical stripping agent neutralizers may be used on exterior surfaces only. Neutralizers shall be compatible with and not harmful to the substrate that they are applied to. Neutralizers shall be compatible with the stripping agent that has been applied to the surface substrate.

2.03 TOOLS AND EQUIPMENT

A. Provide suitable tools for all abatement operations.

B. The Abatement Subcontractor shall have available sufficient inventory or dated purchase orders for materials necessary for the job including protective clothing, respirators, filter cartridges, polyethylene sheeting of proper size and thickness, tape, and air filters.

C. The Abatement Subcontractor shall have available power cables or sources such as generators (where required).

D. Vacuum units, of suitable size and capacities for project, shall have HEPA filter(s) capable of trapping and retaining at least 99.97% of all monodispersed particles of 0.3 micrometers in diameter.

F. The Abatement Subcontractor will have reserve units so that the station system will operate continuously.

PART 3 – EXECUTION

3.01 LOCATION AND WORK STATEMENT: The site for abatement and locations of the effected buildings are described in the summary of work. The Abatement Subcontractor shall retain full ownership of all lead waste and construction waste generated during abatement procedures outlined in this specification.

3.02 WORK AREA SET UP

GENERAL

A. SITE SAFETY: The Abatement Subcontractor is responsible for all safety at the work site. This includes, but is not limited to electrical safety, mechanical (tool) safety, fire safety, and personnel protective safety. Safety requirements are, for the most part, common sense and sound business practice; however, the Abatement Subcontractor is advised that federal, state and local regulations exist which govern safety on the work site. Therefore, in addition to the following, the Abatement Subcontractor is responsible for adhering to the most stringent requirements in affect by any of the following entities or these Specifications.

1. A primary concern in this type of work is to ensure that adequate exits exist in the event of an emergency and conversely, that adequate entrances exist for emergency personnel. The nature of this work requires sealing entrances and the extensive use of six- mil polyethylene sheeting; however, the Abatement Subcontractor should never permanently seal (i.e., nail, bolt, hard cover) any potential escape exits and should take extra care to clearly identify potential exits and inform the workers.

B. SITE SAFETY PLAN: Prior to the initiation of the abatement work, the following tasks must be completed by the Contractor: The Abatement Subcontractor shall establish a work site safety plan which includes a set of emergency procedures and shall post them in a conspicuous place at the work site. The safety plan should include provisions for the following:

1) Evacuation of injured workers
2) Emergency and fire exit routes from all work areas, including local telephone numbers for fire and medical emergency personnel
3) Copies of applicable insurance certificates
4) Employee work logs

The Abatement Subcontractor is responsible for training all workers in safety procedures. At a minimum, one employee on site shall be trained and certified in basic first aid by the American Red Cross or equivalent. A general first aid kit may be maintained in the containment for treating minor medical problems.

C. ACCESS TO WORK AREAS

1 The Owner will provide specific access as required during the project to the Abatement Subcontractor and personnel assigned to the project. The Abatement Subcontractor will be responsible for the security of each building or portion thereof involved in the abatement project. It will also be the Abatement Subcontractor responsibility to allow only authorized personnel as defined below in Section 3.5 into the work area, and to secure all assigned entrances and exits at the end of the workday so as to prevent unauthorized entry.
2. The Abatement Subcontractor shall maintain a bound log book in which any person entering or leaving the lead abatement work area must sign and enter the dates and times of entry and departure.

3. Use of waste containers on- site shall be controlled under the following requirements:
   (a) Location of waste containers on- site shall be coordinated with the Owner and Consultant.
   (b) The waste containers shall be solid enclosed containers, lined with two layers of six- mil polyethylene sheeting and locked and secured at all times.
   (c) The Abatement Subcontractor shall comply with all federal, state and local regulations and ordinances regarding lead waste storage.
4. The Abatement Subcontractor, supervisor will not allow anyone access to the dwelling unless they have successfully passed an approved training program.

3.03 OCCUPANT PROTECTION: During the course of the abatement project, the protection of the building occupants and their belongings shall be the responsibility of both the Abatement Subcontractor and the occupants. Relocations of occupants and the use of engineering controls shall be employed throughout the entire project.

3.04 OWNER RESPONSIBILITIES: The Owner shall be responsible for all aspects addressing the relocation of tenants during daily construction activities of the abatement project. This shall include, but not be limited to, the following:

A. Provision of supplementary living quarters for tenant displaced during daily construction activities.

3.05 TENANT RESPONSIBILITIES: The tenants shall be responsible for providing an unobstructed work place for the Abatement Subcontractor prior to vacating the unit during daily construction activities. The tenant responsibilities include, but are not limited to, the following:

A. Removal of all paintings, pictures, plaques, draperies, shelves, and otherwise applied items from outside wall surfaces within the apartment.

B. Removal of all furniture from around the perimeter of the outside walls to a location in the center of the room no closer than four (4) feet from the work area walls. If the room is too small to accomplish this, the furniture must be removed from the room.

C. If the tenants are not capable of moving large items, the Owner shall be notified forty-eight (48) hours in advance, and shall supply a work crew to do so.

3.06 ABATEMENT CONTRACTOR RESPONSIBILITIES: The Abatement Subcontractor shall be responsible for establishing and maintaining all engineering controls referenced herein and as required to prevent dispersal of lead contamination from the work area. While this is the prime responsibility of the Abatement Subcontractor, additional responsibility will include, but not be limited to, the following:

A. Provide notifications and posting as required by these specifications.

B. Protect tenant personal possessions as specified in these specifications including, but not limited to, furniture and boxed items located in the center of work area rooms.

C. The Abatement Subcontractor shall be responsible for and bear all costs resulting from damage caused to the tenant possessions during the abatement work.

3.07 PROTECTIVE PROCEDURES

A. Personal Air monitoring: Both personal air and area (ambient) air sampling will occur periodically throughout the project. The Abatement Subcontractor is advised of the following sampling:

1. Consultant will perform clean area air monitoring sampling and analysis for all phases of the work in this Section. This sampling will include personal air monitoring of Abatement Subcontractor employees and ambient air sampling within the work area.
2. Air samples may also be collected by the Consultant outside critical barriers of the work area in the clean room, and in areas adjacent to the clean room.
3. The Consultant will also collect wipe samples both within the abatement area and outside.
4. Any adjustment, tampering, and/ or deliberate interference with Consultant air monitoring equipment by the Abatement Subcontractor personnel will not be tolerated. Furthermore, the Abatement Subcontractor may be held liable for prosecution under applicable laws and regulations for attempting to falsify test results.

B. Worker Protection Requirements:

1. Biological Monitoring. All workers must have baseline and post- abatement blood lead level measurements determined by the whole blood lead method, utilizing the Vena- Puncture technique with results provided to the Owner and Consultant. This screening shall be performed every two months for the first six (6) months, and every six months thereafter if blood lead levels do not increase by more than 10 ´g/ dl. In addition, the Abatement Subcontractor shall have a medical examination performed on each employee. This medical examination must be performed before workers begin lead contaminated work area and at the termination of an employee employment or yearly, whichever comes first. A worker shall be removed from the job whenever three blood-sampling tests average more than 25 ´g/ dl or if a single test exceeds 30 ´g/ dl. A formal investigation shall occur whenever a worker blood lead level rises more than 10 ´g/ dl over the baseline level. The Abatement Subcontractor shall be responsible for medical surveillance and record keeping, as defined in the OSHA Lead in Construction Standard (29 CFR 1926.62) and Local Law.

2. Training Requirements: All workers and supervisors shall have successfully completed a course provided by a licensed training provider meeting all requirements of EPA and Local Law. Supervisors shall be licensed by the responsible Local State Agency responsible. The Abatement Subcontractor will adhere to the requirements of OSHA regulations CFR 1910.1200 and 1926.62.

3. Supervision: The Abatement Subcontractor shall provide one site supervisor whose responsibilities include coordination, safety, security and execution of all phases of the lead removal project. The supervisor shall not be used as a lead removal worker, and shall be assigned full time to the project. The supervisor shall be fully qualified in all aspects of lead abatement practices and procedures, and have a three- day training course provided by a certified training provider and approved by the responsible Local State Agency within the previous year prior to commencement of lead- related work.

4. Respirators and Personal Protective Equipment (PPE)

    a. Personal protection in the form of disposable coveralls and NIOSH and MSHA approved respirators, is required for all workers, supervisors, and

authorized visitors entering the work area during the abatement and cleaning operations. A half- face negative pressure respirator is required until air-monitoring data proves otherwise. Authorized visitors (i. e., federal, state, and local inspectors) must provide a current health and medical report certifying them as approved to wear half- face respirators, and must wear PAPRs until air monitoring data permits the use of half face respirators.

b. Each worker shall be supplied with a minimum of two (2) complete disposable suits every day. Removal workers shall not be limited to two (2) suits, and the Abatement Subcontractor will be required to supply additional suits as is necessary. In addition to disposable suits for the workers, the Abatement Subcontractor shall also supply suits for the Consultant and other personnel who are authorized to inspect the worksite. Contractor must consider this cost in the bid. Disposable suits, such as TYVEK suits, and other personal protective equipment (PPE) must be donned prior to entering work area. A clean area will be provided for workers to put on suits and other personal protective equipment and to store their street clothes.
Suits will be worn inside the work area after the area passes pre-abatement inspection and shall remain in use until the area passes final clearance inspection. Lightweight nylon clothes may be worn under the suit, but these clothes must be changed before leaving the work area and should be laundered separately.

c. Work clothes shall consist of moisture repellent, disposable full- body suits, head covers, gloves with cuffs extending outside the sleeves of the protective suit, boot or shoe covers, a face shield and eye protection. Hard hats shall be worn. In addition, when caustic paste is used as an abatement agent, full- body suits and gloves impervious to caustics, glove extenders, face shields and boot or shoe covers are required.

d. Eye protection to personnel engaged in lead operations shall be furnished when the use of a full-face respirator is not required.

f. Goggles with side shields will be worn when working with a material that may splash or fragment, or if protective eye wear is specified on the Material Safety Data Sheet (MSDS) for that product.

g. Additional respiratory protection by supplemental filters, such as organic vapor cartridges, may be needed when handling some coating products. Consult the Material Safety Data Sheets (MSDS) and obtain the proper filters as necessary.

h. The Abatement Subcontractor shall provide portable eyewash stations inside all work areas where caustic paste is to be used.
The stations should be capable of providing a flow of water for at least five minutes. The Abatement Subcontractor shall provide another station capable of providing a flow of water for at least fifteen minutes in the clean area. Squeeze bottles are not sufficient eyewash stations.

i. The Abatement Subcontractor shall supply workers and supervisory personnel with NIOSH and MSHA approved respirators and HEPA filters. Respiratory protection shall be implemented for all work performed by the Abatement Subcontractor under this Section. The respirators shall be sanitized and maintained according to the manufacturer specifications. Disposable respirators shall not be considered acceptable under any circumstances. The Abatement Subcontractor will maintain on- site a sufficient supply of HEPA filters to allow workers and supervisory personnel to change contaminated filters per manufacturer

recommendations or when breathing resistance is encountered. The Abatement Subcontractor is solely responsible for means and methods used and for compliance with applicable regulations:

(1) Half- mask, negative pressure, air purifying respirators equipped with high efficiency filters for airborne lead dust levels not in excess of 0.5 mg/ m3 (10 times the Permissible Exposure Limit) shall be used during component removal and enclosure abatement methods, with the exception of surface preparation for enclosures.

(2) Full- face Powered Air Purifying Respirators (PAPRs) with high efficiency filters for airborne dust levels not in excess of 2.5 mg/ m3 (50 time the Permissible Exposure Limit) will be required during all abatement demolition methods and encapsulation surface preparation methods and as required by OSHA 1926.62.

(3) Pressure demand, full face, supplied air respirators are required when airborne lead dust concentrations are expected to meet or exceed 50 mg/ m3 (1000 times the Permissible Exposure Limit). Respirators will not be removed until the worker enters the washing area of the decontamination chamber.

j. Respirators shall be individually assigned to removal workers for their exclusive use. All respiratory protection shall be provided to workers in accordance with the approved respiratory protection program, which includes all items in OSHA 29 CFR 1910.134 (B), (D), (E), & (F), and the OSHA lead standard 29 CFR 1926.62. A copy of this program shall be kept at the worksite, and shall be posted in the clean area.

k. Workers must perform negative and positive pressure fit checks each time a respirator is put on, whenever the respirator design so permits.

l. Powered air purifying respirators (PAPR) shall be tested for adequate flow as specified by the manufacturer.

m. Workers shall be given a qualitative fit test in accordance with procedures detailed in OSHA 29 CFR 1910.1025, Appendix D, Qualitative Fit Test Protocols, for all respirators to be used on this abatement project. An appropriately administered quantitative fit test may be substituted for the qualitative fit test.

n. If a question exists as to the proper selection of respirators, the Contractor may consult the OSHA Lead in Construction Standard (29 CFR 1926.62).

o. Upon leaving the active work area, cartridges must be removed, and respirators cleaned in a disinfectant solution and clean water rinsed.

p. Clean respirators should be stored in plastic bags when not in use.

q. The Abatement Subcontractor shall inspect respirators daily for broken, missing, or damaged parts.

r. The Abatement Subcontractor shall provide personal sampling to check personal exposure levels. Samples shall be taken for the duration of the work shift or for eight hours, whichever is less. Personal samples need not be taken every day but must be taken in accordance with 29 CFR

1926.62. Sampling will determine eight- hour Time- Weighted Average exposures (TWA). Results shall be provided to the Owner and Consultants within 48 hours of the sampling.

s. Abatement Subcontractor shall comply with all OSHA, state, or other applicable requirements of worker medical examinations for approval to wear respiratory protection, and shall submit document of such approval to the Owner.

5. Exposure Conditions: If air-monitoring data, gathered by the Abatement Subcontractor or Consultant shows that worker exposure to airborne lead exceeds 50 ´g/ m3, the following conditions apply:

a. Clothing. Street clothes cannot be worn into containment. Workers must wear nylon shorts, TYVEK shorts, or nothing under disposable suit.

b. Showers. Showers must be provided. Shower water must pass through at least a 5.0 micron filter before returning to the public waste system.

(1) All workers must shower upon leaving the work area.
(2) A five- stage decontamination unit must be constructed of six-mil polyethylene sheeting and consisting of a dirty room, airlock, shower, airlock, and clean room.

A. Personal Air Sampling

1. General. The Abatement Subcontractor is required to perform the personal air sampling activities during all lead paint abatement work. The results of such sampling shall be posted, provided to individual workers, and submitted to Owner and Consultant as described herein.

2. Sampling. Samples shall be taken for the duration of the work shift or for eight hours, whichever is less. Personal samples need not be taken every day after the first day if working conditions remain unchanged, but must be taken every time there is a change in the removal operation, either in terms of the location or the type of work. Sampling will be used to determine eight- hour Time- Weighted Averages (TWA). The Abatement Subcontractor is responsible for personal sampling as outlined in OSHA Standard 29 CFR 1926.62. This sampling will determine the degree of respirator protection required, subject to the regulations.

3. Sampling Results. Air sampling results shall be transmitted to the Owner and individual workers in written form no more than forty- eight (48) hours after the completion of a sampling cycle. The reporting document shall list each sample result, sampling time and date, personnel monitored and their social security numbers, flow rate, sample duration, sample yield, cassette size, and analysts name and company, and shall include an interpretation of the results. Air sample analysis results will be reported in micrograms of lead per cubic meter of air (´g/ m3).

4. Testing Laboratory. The Abatement Subcontractor testing lab shall be certified for lead air sample by the American Industrial Hygiene Association. Abatement Subcontractor shall submit for the Owner and Consultant review and acceptance the name and address of the laboratory, certification(s) of accreditation for heavy metal analysis, and a listing of relevant experience in air lead analysis, and presentation of a documented Quality Assurance and Quality Control program.

5. Air Monitoring Frequency. The air monitoring frequency for Abatement Subcontractor operations will be established in accordance with the requirements set forth in 29 CFR 1926.62.

3.07 WORKER HYGIENE PRACTICES: In order to avoid possible exposure to dangerous levels of lead and to prevent possible contamination of areas outside the demarcated work area, work shall follow the general guidelines listed below:

A. Work Area Entry: At no time shall a worker or other authorized personnel entering the work area go further than the Clean Area without proper respiratory protection and protective clothing.

B. Work Area Departure: The worker shall remove all gross contamination, debris and dust from the disposable suit by completely HEPA vacuuming them before leaving work area.

C. Personal Protective Equipment: All persons leaving the work area must remove their personal protective equipment (except respirators) before leaving the containment. Suits shall be removed "inside out" to minimize the dispersal of lead dust.

D. Wash Facilities: All workers must wash upon leaving the work area. Wash facilities will be provided by the abatement Subcontractor. This wash facility will consist of; at least, warm running potable water, soap, and towels. All wastewater must be contained and disposed of in accordance with this Specification.

E. Equipment: All equipment used by the workers inside the work area shall be either left in the work area or thoroughly decontaminated before being removed from the area. Extra work clothing (in addition to the disposable suits supplied by the Abatement Subcontractor) shall be left in the clean area until the completion of work in that area. The clean area shall be cleaned of all visible debris and disposable materials daily.

F. Prohibited Activities: Under no circumstances shall workers or supervisory personnel eat, drink, smoke, chew gum, or chew tobacco or remove their respirators in the work area. To do so shall be grounds for the Owner and/ or Consultant to STOP all removal operations. Only in the case of life threatening emergency shall workers or supervisory personnel be allowed to remove their protective respirators while in the work area. In this situation, respirators are to be removed for as short a duration as possible.

G. Footwear: As with additional clothing, all work footwear shall be left inside the decontamination area until the completion of the job and then shall be HEPA vacuumed and wiped or discarded as contaminated waste.

H. Shock Hazards: The Abatement Subcontractor is responsible for using safe procedures to avoid electrical hazards. Power will be shut off and checked before work begins when a hazard exists. All extension cords and power tools used within the work area shall be attached to Ground Fault Circuit Interrupters (GFCI).

3.08 CONTROL OVER ABATEMENT WORK: All work procedures shall be continuously controlled and monitored by the Contractor to assure that the building will not be further contaminated. The following controls shall be instituted on each working day:

A. Start Up: Prior to work on any given day, the Contractor designated project supervisor will discuss the day work schedule with his work force to evaluate job tasks with respect to safety procedures and requirements specified to prevent contamination of the other parts of the building or the employees. This includes a visual survey of the work area and the decontamination enclosure systems.

B. **Access:** The Contractor shall maintain control of and be responsible for access to all work areas to ensure the following requirements:

1. Non- authorized personnel are prohibited from entering the area at all times of day and night.
2. All authorized personnel entering the work area shall be familiar with the worker protection procedures contained in this specification and shall be equipped with properly fitted respirators and protective clothing;
3. All personnel who are exiting from the decontamination enclosure system shall be properly decontaminated.
4. Lead waste, which is taken out of the work area, must be properly handled in accordance with these specifications. The surface of any waste containers, removed from the work area, shall be wiped down with a minimum of a 5% solution of tri- sodium phosphate or other equivalent cleaning agent prior to removing it from the work area.
5. Building components with lead painted surfaces shall be removed from the work area and placed directly into a labeled and secured disposal container or a designated storage area.

3.09 ABATEMENT PROCEDURES

General

A. CLEANING PROCEDURES

1. End of Day Cleaning. Thirty (30) minutes or more if necessary prior to the end of each workday, the lead work area must be cleaned of all debris. Under no circumstances will lead clean- up be permitted when active lead paint abatement work is proceeding. All abatement activity must cease during the cleanup period. Such cleaning shall include a thorough HEPA vacuuming of all affected surfaces, as determined by the Consultant. Additionally, cleaning requires the use of a solution of five percent tri- sodium phosphate (TSP) or other equally effective cleaning agent. All waste materials generated during this daily clean- up shall be disposed of as hazardous waste, unless analytical testing proves otherwise.

2. Equipment Cleaning. Durable equipment, such as power and hand tools, generators, and vehicles shall be cleaned at least monthly or prior to removal from buildings undergoing abatement or the site. All equipment shall be cleaned by HEPA vacuuming and high- phosphate (tri- sodium phosphate) washing (or use of an equivalent cleaner).

   a. High Efficiency Particulate Air (HEPA) vacuum: The Abatement Subcontractor will obtain training in the use of the HEPA vacuum from the manufacturer prior to use and submit evidence of this training to the Owner and Consultant. The Abatement Subcontractor shall obtain HEPA vacuum attachments, such as various size brushes, crevice tools, and angular tools to be used for varied applications and service the HEPA vacuum routinely to assure proper operation. Caution shall be used any time the HEPA is opened for filter replacement or debris removal. Operators shall wear a full set of protective clothing and equipment, including respirators, when using and emptying the HEPA vacuuming equipment.

3. Preliminary Clean- Up. Upon completion of the lead paint abatement and a satisfactory visual inspection by the Owner/ Consultant in a given work area, a preliminary clean- up shall be performed by the Abatement Subcontractor. This clean- up includes removal of any contaminated material, equipment or debris including polyethylene sheeting from the work area, except for critical barriers. The polyethylene sheeting shall first be sprayed or misted with water for dust control, the resulting abatement debris removed, then the sheeting shall be folded in upon itself. All polyethylene sheeting used for critical barriers shall remain in place until final clearance testing results have passed the clearance criteria set forth herein.

   a. Large Debris. Large debris from demolition (i. e. doors, windows, baseboards) shall be wrapped in polyethylene sheeting at least six- mil thick, sealed with heavy duty duct tape, and stored until proper disposal.
   b. Small Debris. Prior to picking up or collecting small debris, the surfaces of this debris will be sprayed with a fine mist of water. The debris will be picked up, collected and placed into a single plastic bag, at least six- mils thick. The bags shall not be overloaded, shall be securely sealed, and shall be stored in the designated area until disposal. Dry sweeping is not permitted in the work area; wet sweeping will require approval by the Consultant.
   c. Sheeting. Removal of surface six- mil polyethylene sheeting shall begin from upper levels, such as on cabinets, counters or shelves. Removal of floor polyethylene sheeting shall begin at the corners and folded into the middle to contain the dust or residue. All collected polyethylene sheeting shall be placed in six- mil polyethylene bags for proper disposal as described in this Specification.
   d. HEPA Vacuuming. Once the six- mil polyethylene sheeting is removed from the work area, cleaning shall begin with a thorough HEPA vacuuming of all surfaces, starting at the ceilings, proceeding down the walls and including window, doors and door trim and floor. The floor shall be vacuumed last, beginning at the farthest corners from the entrance to the work area. HEPA vacuuming shall again be performed as noted above, after the following TSP wash.
   e. TSP Wash. Abatement Subcontractor shall next wash or mop the same surfaces with a tri- sodium phosphate (TSP) detergent solution (five percent) or other equally effective cleaning agent and allow surfaces to dry. Then a second HEPA Vacuuming of the surfaces will be performed by the Abatement Subcontractor, as described above. By the conclusion of the cleaning phase, all visible dust and debris shall have been completely removed.
   f. Hygiene, Cleaning Equipment and Supplies. Special attention shall be given to personal hygiene and the cleaning of supplies and/ or equipment. All mop heads; sponges and rags shall be replaced or changed daily, at a minimum. Rags, mop heads or sponges may be reused if Abatement Subcontractor has them cleaned via a washing system specially equipped with HEPA filtration.
   g. Detergents. The Abatement Subcontractor shall prepare and use detergents containing five to ten percent TSP according to the manufacturer instructions. The manufacturer recommended coverage will be followed. The wastewater from clean up shall be contained and disposed of according to all applicable Federal, state, county and local regulations and guidelines. In no instance shall wastewater be disposed in storm sewers (e. g., yard inlet or street drain) or sanitary sewers (e. g., toilet, sink, or any other household/ residential/ commercial type drain system) without specific governmental approval.

B. COMPONENT REMOVAL

1. Depending on location of the work area, establish an exterior regulated area or work area containment.

2. Score paint at edges, corners etc. to reduce chipping of paint. Carefully remove by wet scraping loose and flaking paint prior to removal of components in accordance with the following procedure:

   a. Fine mist surface with wet wash detergent or water using plant mister or garden sprayer.
   b. Carefully scrape loose and flaking material.
   c. Clean up paint chips and flakes by wet sweeping or pick up with wet towels.

3. Care shall be taken to avoid damage to adjacent areas during the removal of components.

4. Carefully remove the lead-based painted components to minimize the disturbance of LBP and generation of dust.

5. HEPA vacuum and/or wet wipe to remove all paint chips, debris and dust generated during the work. Do not allow dust or debris to accumulate.

6. Components that are removed shall be wrapped, labeled and disposed of in accordance with applicable regulations.

7. Install temporary ¾ inch plywood and stud framing openings where entrance door or windows are removed. Provide temporary lockable doors where egress is required.

8. Decontamination for workers using “component removal” procedures will at a minimum:
   a. HEPA-vacuum contaminated coveralls to remove gross debris prior to removal.
   b. Wash hands and face with soap to decontaminate
   c. Wash respirator
   d. Wash hands and face prior to leaving the work area

C. CAUSTIC PAINT REMOVAL – PROCEDURES

1. General: Caustic paste application and use shall be in accordance with manufacturer instruction for each product. Prior to beginning the application, all accumulated dust, dirt, and visible oil and grease shall be removed with a five percent TSP and water solution or other equally effective cleaning agent. When a caustic stripping agent is used as the abatement agent, the Abatement Subcontractor shall provide and ensure the use of the following items:
   - Full-body coveralls with hood impervious to caustic substances;
   - Gloves impervious to caustic substances;
   - Glove extenders;
   - Face shield;
   - Appropriate boot or shoe covers;
   - An eyewash station;
   - A suitable and unrestricted wash area in the event of inadvertent exposure.

2. Paint Removal - A caustic stripping agent may require multiple applications, depending on a variety of circumstances. When this type of material is used, care should be taken to avoid drying of the agent. It may become necessary to lightly mist over area with water to keep it moist. Surfaces that come in contact with the stripping agents used in this methodology during washing or neutralizing shall be completely cleaned before the waste dries.

    a. Each worker, in order to be allowed in the work area, must have received specific instructions on the procedures to remove material that inadvertently comes in contact with skin, and eye washing procedures, together with information on the nature of the danger. This can be accomplished by general safety meetings that are regularly scheduled and with a "right- to- know" booklet that is in a location that is known to all persons and is readily accessible.
    b. In addition to standardized work area preparation, to protect surrounding areas, polyethylene sheeting shall be placed flush to the surrounding walls for a firm seal to avoid leakage of waste below the polyethylene sheeting, and the joint shall be caulked. The Abatement Subcontractor may place absorbent pads or material below the surface being abated and/ or place waterproof duct tape on the surface adjacent to that being abated, to prevent damage to the adjacent wall or floor surface. The Abatement Subcontractor is responsible for repairing any adjacent surfaces harmed by the chemical removal process. This includes contamination of these surfaces by chemical residue.
    c. A dwell time may be a specified by the manufacturer. The Subcontractor shall run a series of test patches to determine the optimal amount of time for the chemical to work on a particular component.
    d. Removal of the caustic stripping agent after dwell time shall be performed by scraping the waste off the substrate onto the paper, using a metal scraper. Application process shall be repeated if, in the opinion of the Consultant, complete removal of the paint is not attained. At no time shall dry scraping be used.
    e. Once removal of paint from the abated surface is complete, clean- up procedures shall then follow and include wash- down of the surface and neutralization.
    f. Once the neutralizing process is complete, the surface shall undergo normal clean- up procedures of HEPA vacuuming, wet wash and repeated HEPA vacuuming.
    g. All worker protection equipment as specified shall be left within the work area during all phases of the work. This equipment may be transferred between work areas using double six (6) mil polyethylene bags to prevent contamination of clean areas.
    h. All accumulated debris resulting from removal of caustic paste shall be treated as hazardous and shall be properly stored and disposed of according to EPA, DOT, and all other applicable federal, state, and local regulations.
    i. Any wood flooring contaminated by the absorption of lead caustic shall be replaced by the Abatement Subcontractor at his/ her expense.

3. Application and Removal

    a. Spray or hand trowel paste according to manufacturer specifications (no less than " thick). The caustic stripping agent should be applied with recommended special spray equipment approved by the manufacturer to ensure proper application of product, if spray application is used.

(1) During spray application no more than two workers (one person applying and one helper) shall be allowed in the work area. Security of work area is absolutely essential.

b. Never remove material with personnel below, or in a manner that would allow caustic to fall on, splatter or contact personnel in the vicinity of the removal.
-Minimize the fall distance of the paste/ paint.

c. Work area shall be properly heated so as to meet temperature requirements outlined in the manufacturer specifications. Heating procedures shall be subject to the approval of the Consultant and Owner, and shall be supplied by the G. C.

d. Abatement Subcontractor shall make certain that during the application, dwell time and removal of caustic paste, the work area is secured.

4. Clean Up

a. Collect caustic paste cloth with paste/ paint along with remaining residue and put into six (6) mil polyethylene bags and dispose of in compliance with all regulations and specifications.

b. Spray surface lightly with water spray. Then with a nylon scrub brush, agitate surface to loosen all residue. Thoroughly scrub surface, being sure to get all crevices, grooves, cracks, etc.

c. Lightly spray clean water on surface, removing remaining residue. The use of a wet vacuum to assist in the clean- up is suggested. Make certain that entire surface is clean of any paint/ paste residue.

5. Treat residue (paste, paper, water, etc.) as hazardous waste until results of TCLP tests are available. Disposal will be dependent upon these results.

5. Neutralization

a. Apply caustic stripping agent neutralizer in accordance with manufacturer recommendations. Wash neutralizer off with clean water, per manufacturer recommendations.

b. Apply second application of caustic stripping agent neutralizer if needed and allow to dry. After one to three (1- 3) hours, wash neutralizer off with clean water and allow surface to dry completely.

c. Abatement Subcontractor should use pH paper to determine if neutralization is adequate. A dry surface showing a pH of between 6 and 8 after the proper drying out period, is ready to be recoated. A pH over 8 should be treated to another application of neutralizer and left to dry before retesting. It is most important that the surface properly dry out before recoating.

D. MECHANICAL REMOVAL PROCEDURES

1. Equipment used must be approved by the owner or owner’s representative.

a. Manufacturer product data on equipment must be submitted prior to the commencement of the work.

b. Description of removal methods to be used for each substrate to be abated. (Include manufacturer’s operating instructions)

2. Depending on the type of equipment used, an exterior regulated area or a (interior) containment may be required.

3. Machinery

a. Portable sander with HEPA vacuum attachment: maintain HEPA vacuum attachment in operation during sanding operation. Sanding surface shall be held flat to surface. Conduct sanding operations on flat surfaces only. Do not allow sanding pad surface to extend beyond surface being sanded.

b. Needle Gun with HEPA vacuum attachment: Maintain HEPA vacuum attachment in operation during removal operations. Select proper shroud to match the configuration of the surface being treated.

c. Vacuum Blasting with a HEPA vacuum attachment: Conduct abrasive removal of exterior surfaces only using machine blasting equipment mounted with fully contained, coaxially mounted local exhaust hood with HEPA vacuuming capability and using either recyclable or dry ice (CO_2) abrasive media.

d. Flameless heat gun: maximum operating temperature of 700 degrees Fahrenheit. Proper respiratory and worker protection prior to use.

e. Paint scrapers: Use wet scraping methods only.

f. Sand paper: Use wet sanding methods only

E. SURFACE PREPARATION / PAINT FILM STABILIZATION: Depending on extent and location of work, establish either an exterior regulated area or work area containment. The following descriptions include preparation of surfaces for enclosures and the stabilization of lead-based painted surface to be encapsulated or painted.

1. Surface Preparation

a. Remove loose, flaking and deteriorated paint by wet scraping or wet sanding.
b. Remove loose, unsound or deteriorated substrate.
c. HEPA vacuum and wet wipe to remove all paint chips, debris and dust generated during the work. Do not allow dust or debris to accumulate.
d. Label all LBP areas to be enclosed.
e. Package and dispose of all LBP waste in accordance with section 3.12

2. Paint Stabilization

a. Substrate Repairs

(1) Prior to stabilizing lead-based paint, correct substrate surface defects. Remove loose, and unsound deteriorated surfaces.

b. Paint Removal

(1) Wet scraping: remove all loose, flaking and deteriorated paint by wet scraping. Continually mist surface with water during scraping.

(2) Wet Sanding: prepare finish surface by wet sanding. Feather edges lightly. Keep surface wet while sanding.

3.10 VISUAL INSPECTIONS: The Abatement Subcontractor shall request a visual inspection by the Owner or Consultant. If the area does not pass a visual inspection (e. g., no visible dust or debris), the Abatement Subcontractor shall re-clean the area as outlined in Steps 4, 5, 6, and 7 in Section 3.9(c).

A. Post- abatement Visual Inspection: The Consultant shall confirm job completeness by determining whether all surfaces have been abated according to the approved abatement plan and project specification. The Consultant will then determine if the building has been adequately cleaned by examining all surfaces for dust and debris. If dust is found, the work area should be recleaned, and the damp cloth test repeated.

3.11 CLEARANCE SAMPLING

A. Post- abatement Clearance: When all surfaces have passed visual inspection, wipe samples as detailed in Section 3.8.4 (1) shall be performed by the Consultant. The standards for passing a wipe test are outlined in Section 3.8.4 (2). Should laboratory results indicate that the wipe test clearance level is exceeded, the Abatement Subcontractor shall re- clean the affected area, at no additional cost to the Owner, utilizing the methods specified above. Retesting will then be performed to verify compliance with the mandated levels. Abatement Subcontractor shall pay for all additional testing and provide, at no additional cost, a recleaning of an effected area and personal belongings until the clearance level is achieved.

B. Finish Coatings: Finished coatings including, but not limited to, stains, primer, sealers and polyurethane coatings, if used, shall only be applied upon approval by the Owner/ Consultant. Any surface requiring painting shall be primed with an approved primer. All primers or finish coating materials shall have labeling stating, in equal or appropriate wording, "does not contain lead- based paint greater than 600 parts per million" (0.06%) and "does not contain mercury." In lieu of label wording, a manufacturer statement to this effect may be substituted.

C. Inspection/ Clearance Standards: When clean- up has been completed and all surfaces have been final cleaned, wipe samples by the Consultant or Industrial Hygienist will be performed. The following standards must be met for all "clearance" requirements:

1. Wipe Tests: When only some component types are to be sampled in a specific area, the Consultant will ensure that the component types to be sampled are randomly selected. Within an area, the specific components to be sampled shall be selected at random and the specific sample location on a large component shall be selected at random.
In order to compare results with applicable federal clearance criteria, the following methods must be used.

a. The sampling location (a specific surface area) must be selected, and the surface area of that location carefully measured and recorded.
b. The wipe sampling procedure must ensure that a very high percentage of the surface dust present on the sample location is captured on the wipe.
c. Wipe sample collection criteria for abatement shall be as follows:

D. Retests: Should laboratory results indicate that the wipe test clearance level is exceeded, the Abatement Subcontractor shall reclean the affected area, at no additional

cost to the Owner, utilizing the methods specified above. Retesting will then be performed to verify compliance with the mandated levels. Abatement Subcontractor shall pay for all additional testing and provide, at no additional cost, a reclining of an affected area until the clearance level is achieved.

E. Air Sampling Procedure: Air sampling shall be conducted by the Consultant. Samples shall be collected and analyzed for total airborne lead. Air sampling will be collected during, but not limited to, the pre- abatement and post- abatement periods.

1. Sampling Apparatus. Air Sampling shall be collected utilizing a closed- face, 37 millimeter cassette. A mixed cellulose ester filter with 0.8 micrometer pore size with a cellulose support pad shall be placed in the cassette. Air sampling pumps shall be calibrated at 2.0 liters per minute prior to sampling. All pumps shall be post calibrated.

2. Analytical Method. The NIOSH 7082 (AAS) procedure shall be used for sample analysis. A blank filter shall be submitted with each set of samples.

F. Data Reporting for Lead in Air: Laboratory results for air samples shall be provided in micrograms of lead per cubic meter of air. Information specific to obtaining the air samples should be listed on a separate data form for air samples, which would include the following:

1. Location where sample was taken
2. Length of time in use
3. Approximate volume of air sampled
4. Abatement/ clearance status
5. Abatement method (e. g., removal vs. enclosure)

G. Analytical Laboratory Qualifications: Analytical laboratories must be recognized by the EPA as participating in the National Lead Laboratory Accreditation Program (NLLAP). The Laboratory must show evidence that it is proficient in lead analysis under the Environmental Lead Proficiency Analytical Testing Program. If the laboratory is not currently enrolled in these programs, the laboratory will be required to enroll in the next round of ELPAT samples. The laboratory must be accredited within a one-year period by an organization recognized by NLLAP that has signed a Memorandum of Understanding with EPA. Currently, the American Industrial Hygiene Association (703- 849- 8888) and the American Association for Laboratory Accreditation (301- 670- 1377) have signed such memoranda of understanding with EPA.

1. All dust, paint, and soil samples shall be analyzed for total lead, not "bioavailable" lead, as required in the HUD Guidelines for Evaluation and Control of Lead- Based Paint in Housing.

2. The following procedure (or equivalent) shall be employed for the analysis of the wipe samples:
Remove and unfold the wipe from the shipment container. Cut the wipe into small pieces and place in a 125 ml Phillips beaker. Quantitatively rinse the shipment container into the Phillips beaker. Cover the wipe with 10 ml of distilled water. Add 2 ml of concentrated HNO3 and 2 ml of HC1. Gently heat for 20- 30 minutes under reflux. Cool and transfer both the liquid and the bulk material left to a 50 ml volumetric flask. If there is too much bulk material left over, rinse with distilled water and squeeze with a glass rod. Add distilled water to make up to final volume. Prior to analysis by AA or ICP, an aliquot is filtered through ashless

filter paper, and then centrifuged at 9K rpm for 20 minutes. The supernatant liquid is drawn off and analyzed.

H. Qualifications of Sampling Personnel

All personnel conducting environmental sampling for this project should be certified as a lead based paint inspector, risk assessor, or inspector technician or equivalent by the Environmental Protection Agency or the appropriate state agency, or be under the supervision of such a person. Certified Industrial Hygienists are not required to have additional certification as a lead- based paint inspector.

3.12 DISPOSAL OF WASTE MATERIAL

A. Caution Note for Contractors:
All materials, whether hazardous or non- hazardous, shall be disposed of in accordance with all laws and the provisions of this Section and any or all applicable federal, state, county, or local regulations and guidelines. It shall be the sole responsibility of the Qualified Abatement Subcontractor to assure compliance with all laws and regulations relating to this disposal. Until analytical results are available, all waste materials (including water) shall be segregated and treated as hazardous.

1. Applicability. Initial TCLP results have been used to classify waste into six categories. The categories are defined by the substrate type and the amount of the six toxic metals regulated by RCRA and most commonly found in paint.
2. Waste Segregation - The Abatement Subcontractor shall be responsible for segregating waste in accordance with the previously defined six categories. Separate waste dumpsters shall be used for each of the six categories. Prior to disposal of each dumpster of waste, a representative sample will be collected by the on- site inspector, paid for by the abatement Subcontractor and analyzed by TCLP for the RCRA metals. The result of each TCLP analysis will dictate the disposal requirement for each dumpster.
3. Component Classification - The initial TCLP results have been used to establish the following waste segregation categories: For bidding purposes Categories I and IV shall be considered construction waste. Categories II, III, V, and VI shall be considered hazardous waste.

B. Disposal Requirements. The Abatement Subcontractor shall contact the Regional EPA, state, local, and all other pertinent authorities to determine lead- based paint debris disposal requirements. If applicable, the requirements of the Resource Conservation and Recovery Act (RCRA) must be complied with, as well as any or all other applicable federal, state, county, or local waste requirements.
The Owner/ Consultant will supply the Abatement Subcontractor with a list of some of the appropriate agencies. During or after the actual abatement, the Abatement Subcontractor shall not leave any debris in the yard or near- by property, incinerate debris, dump debris by the road, place debris in any unauthorized dumpster, or introduce lead contaminated (non- filtered) water into storm sewers (shall not be poured down yard inlet or street drain) or sanitary sewers (shall not be flushed down toilet or any other household/ residential/ commercial type drain system). All wastewater shall be labeled "filtered" (using 5 micron filter) or "non- filtered." All non- filtered wastewater containers shall be labeled "hazardous waste" and with a date the Abatement Subcontractor began to collect contaminated water in that container.

C. EPA ID Numbers. The Abatement Subcontractor shall apply for an EPA identification number from the appropriate office; if more than 100 kg of hazardous waste will be generated from the abatement process during any calendar month. If less than 100 kg is to be generated, the Abatement Subcontractor shall obtain a Small Quantity Generator RCRA Hazardous Material ID number. The Consultant will assist the chosen Abatement Subcontractor in contacting the appropriate office to secure the identification number. The Abatement Subcontractor also has the responsibility to coordinate this action through the State and secure any additional number as required.
The following testing must be performed by a laboratory properly certified by the State of State. The name of the laboratory must be supplied to the Owner/ Consultant prior to the initiation of the testing.

D. TCLP Test. Testing on lead- based paint abatement waste materials by use of the Toxicity Characteristic Leaching Procedure (TCLP) will be completed and paid by the Abatement Subcontractor, and results shall be supplied to the Consultant and Owner. Testing results on most building components have been performed by the Consultant and are attached to this contract specification.

E. Testing of Materials. The testing of material shall be performed as obtained to minimize the storage of "assumed" hazardous material. In absence of written official state guidance, the Abatement Subcontractor shall take at least one (1) composite sample of the items listed below for the RCRA eight (8) heavy metals. The Abatement Subcontractor shall also determine if additional testing for other compounds, such as pH, flashpoint, etc., are required for disposal at a particular landfill. The following materials shall be tested to determine whether or not they are hazardous:
1. Waste water.
2. Dust from HEPA filters.
3. Metals that have not been previously tested.
4. Plastic sheets, duct tape, or tape used to cover floors and other services during the lead- based paint removal.
5. Solvents and caustics used during the stripping process.
6. Liquid waste, such as wash water used to decontaminate wood after solvents have been used, and liquid waste from exterior (or interior) water blasting.
7. Rags, sponges, mops, scrapers, and other materials used for testing, abatement, and clean- up.
8. Disposable work clothes and respirator filters cartridges.
9. Any other items contaminated with lead- based paint or items produced as a result of lead based paint abatement activity, such as the water filters.

F. Storage Requirements. Any item found to be hazardous, by way of testing, shall be kept in a secured area or lockable container that is inaccessible to all persons other than abatement personnel. All hazardous waste shall be labeled "Hazardous Waste - Contains Lead" and a date that the Abatement Subcontractor began to collect waste in that container. All hazardous and non- hazardous waste shall be kept in totally and completely separate containers. Until TCLP testing proves an item to be non- hazardous, all items shall be considered hazardous and stored in a secured area or lockable container.

G. Regulations. The Abatement Subcontractor will be required to comply with the Resource Conservation and Recovery Act (RCRA) and/ or any other applicable state, county law, regulation and/ or guidelines, whichever is most stringent.

H. Waste Transportation. If the Abatement Subcontractor is not a RCRA/ DOT/ EPA certified Hazardous Waste Transporter, a contract shall be entered into with a certified transporter to move the waste. The Abatement Subcontractor shall require the certified hazardous waste transport firm to follow RCRA, DOT, EPA, and any/ all other applicable regulations. Many transporters are also capable of supplying pertinent information and services applicable to necessary rules, regulations, and specifications. The certified transporter/ hauler shall submit for Owner/ Consultant approved their qualifications to perform the work as specified herein. The Abatement Subcontractor shall be responsible for all actions of the waste hauler as pertaining to waste removal and disposal under this Section and all EPA, DOT, and other applicable regulations.

I. The Abatement Subcontractor must supply documents that detail the site(s) to be used for ultimate waste disposal. Documents from these disposal sites must be supplied by the Abatement Subcontractor to the Owner/ Consultant from the disposal facilities stating that hazardous and/ or construction waste will be accepted by these facilities. In addition, the Abatement Subcontractor must submit documents from these sites proving that they are licensed/ permitted to accept such waste and will accept the waste proposed by the Abatement Subcontractor for treatment or ultimate disposal.

J. Waste Containers. The Abatement Subcontractor will comply with EPA and DOT regulations for waste containers. The Abatement Subcontractor shall contact the state and local authorities to determine their criteria for containers. In the case of any conflict in regulations, the more stringent regulation shall apply.

K. Emergencies. Abatement Subcontractors shall: contact local fire, police, hospitals or local emergency response teams and inform them of the type of hazardous waste activity and ask for assistance in the event of an accident; keep and properly maintain a suitable fire extinguisher(s) on site; have an immediate means of communication with a regulatory agency in the event of an emergency; keep a list of phone numbers of regulatory agencies on site, make sure all employees know how to deal with all types of accidents; make one person who is always on site, when the site is occupied, the emergency coordinator to ensure that emergency procedures are carried out in the event an emergency arises; and keep and maintain a "right to know" manual that is in an easily accessible location and in an area that is known to all employees.

L. Disposal Packaging. The Abatement Subcontractor shall place lead- based paint fragments and debris produced as a result of any abatement activity and lead dust in six-mil polyethylene (plastic) bags that are air- tight and puncture- resistant.

1. Cleaning Materials. The Abatement Subcontractor will place all disposable cleaning materials such as sponges; mop heads, filters, disposable clothing, and brooms in six- mil plastic bags. If after testing, those materials are determined to be hazardous, the bags will be sealed, labeled, and considered hazardous waste.
2. Contaminated Debris. In particular, the Abatement Subcontractor shall separate, label, and containerize the following:
    a. All paint or paint fragments removed by chemical strippers, surface preparation, or by any abatement methodology;
    b. Grossly contaminated body suits.
    c. HEPA vacuum contents, filters, and respirator cartridges: paint chips or other abatement debris on plastic should always be HEPA vacuumed prior to picking up the plastic.
    d. All hazardous wastes or materials should be kept totally separate from non- hazardous materials.

3. Polyethylene Sheeting. The Abatement Subcontractor shall clean surfaces and equipment and containerize large debris. Prior to removing any six (6) mil polyethylene sheeting, the Abatement Subcontractor shall lightly mist the sheeting in order to keep dust down and remove and containerize any debris and fold six (6) mil polyethylene sheeting inward to contain debris and to form tight bundles to containerize for disposal. The Abatement Subcontractor shall place all plastic sheeting in six (6) mil thick polyethylene bags and seal.

N. Removing and Transporting Waste

1. Vehicles. The Abatement Subcontractor shall ensure that all non- hazardous waste is transported in covered vehicles to a landfill, or lined landfill, if required.
2. Container Handling. The Abatement Subcontractor shall carefully place the containers into the truck or dumpster used for disposal. At NO time will debris or containers be thrown or dropped.
3. Dust or Debris. If the Abatement Subcontractor subcontracts the removing of the non- hazardous lead- based paint abatement waste, the Contractor shall ensure that the company removing the waste material adequately covers all loads so as to assure that no dust or debris is released.
4. Liquid Wastes. The Abatement Subcontractor shall contain and properly dispose of all liquid waste, including lead- contaminated wash water if not filtered and drained.
5. Containers. The Abatement Subcontractor shall HEPA vacuum the exterior of all waste containers prior to removing the waste containers from the work area and shall wet wipe the containers to ensure that there is no residual contamination. Containers should then be moved out of the work area into the designated storage area.
6. Solvents. The Abatement Subcontractor shall place solvent residues and residues from strippers in drums made out of materials that cannot be dissolved or corroded by chemicals. Solvents will be tested by the Abatement Subcontractor to determine of they are hazardous. Solvents, caustic, and acid waste must be segregated and not stored in the same containers.

3.13 SOIL REMEDIATION PROCEDURES

A. Soil Sampling Procedure

1. Pre- abatement Soil Sampling. In order to establish baseline lead- in- soil conditions on the site prior to the initiation of exterior lead abatement, soil samples will be collected.

B. Post- abatement Soil Sampling

1. Post-abatement soil samples will be collected at the same building where pre-abatement soils samples were collected.

2. If pre- abatement soil samples at any of the ten building locations exceed 1,000 ´g/ g, the Contractor may be required to perform soil excavation and removal at additional cost as specified in Section 3.10.4.

3. If pre- abatement soil samples are at or below 1,000 ´g/ g, and post- abatement soil samples exceed 1,000 ´g/ g, the Contractor will be required to perform soil excavation and removal at no additional cost as specified in Section 3.10.4 under Section 3.11 Damages.

C Excavation and Removal of Contaminated Soil

1. Careful excavation will begin with equipment, such as an excavator or backhoe. Work will continue with hand tools as directed by the Consultant. Careful handling of soil with hand tools shall be employed in order to avoid damaging the structure and to minimize waste generation.
2. Excavation to a depth of two (2) inches will take place within the area identified by the Consultant.
3. Excavation will be performed with care to protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by equipment, contaminated soil, and other hazards created by operations.
4. Excavated soils will be placed in a pre- designated area on six (6) mil polyethylene roll sheeting and covered with the same material.
5. Proper protective measures will be taken to prevent human exposure to excavated soils. Protective measures shall include installation of construction fencing around excavated soil and staking or weighting polyethylene sheeting to prevent wind or precipitation damage.
6. Careful removal of contaminated soil will begin with equipment, such as an excavator or pay loader. Work will continue until all contaminated soil is removed from the area outlined on the site plan to the specified depth.
7. Appropriate worker protection practices shall be followed as specified in OSHA Regulations.

D. Laboratory Testing for Lead in Soil

1. Pre- abatement and post- abatement soil lead analysis will be performed. EPA protocols for soil sampling will be followed.

END OF SECTION 02095

SECTION 06100 - ROUGH CARPENTRY

PART 1 - GENERAL

1.01 SUMMARY

A. Work Includes: The complete furnishing and installation of the following:
1. Structural wood framing with dimension lumber and timbers
2. Rooftop equipment bases and support curbs.
3. Wood blocking, cants and nailers.
4. Wood furring
5. Wood sleepers
6. Structural sheathing

1.02 QUALITY ASSURANCE

A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Special Inspection: Inspection and testing shall be performed in accordance with CBC Chapter 17 and as delineated in the Statement of Special Inspections.

C. Comply with the references listed below; when an edition (year) is not listed, comply with the most current edition.

1.03 REFERENCES

A. NDS-05: National Design Specification (NDS) for Wood Construction with 2005 Supplement, by the American Forest & Paper Association (AF&PA).

B. SDPWS-08: Special Design Provisions for Wind and Seismic, by the AF&PA.

C. PS 1: *Structural Plywood*, by the U.S. Department of Commerce (DOC)

D. PS 2: Performance Standard for Wood-based Structural-use Panels, by the DOC.

E. PS 20: American Softwood Lumber Standard, by the DOC.

F. 2010 California Building Code (CBC), based on the 2009 International Building Code (IBC).

G. Applicable or referenced materials and testing standards by the American Society of Testing Materials (ASTM).

1.04 SUBMITTALS

A. Comply with the requirements of Division 1 Specifications.

B. Product Data: For each type of process, factory-fabricated product, anchors, connectors, and fasteners.

C. Include data for wood-preservative and fire-retardant treatment (when applicable) from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

D. AITC Certificate of Compliance for glued-laminated timbers

E. Sheathing type and grade for each application.

F. Lumber grade and species for each application.

G. Manufacturer's installation requirements and recommendations, and maintenance instructions.

PART 2 - PRODUCTS

2.01 WOOD PRODUCTS, GENERAL

A. Lumber: Per DOC PS 20 or equivalent and applicable rules of grading agencies indicated.
1. WCLIB or WWPA grading agency, approved by the ALSC Board of Review.
2. Factory mark each piece of lumber with grade stamp of grading agency.
3. Provide dressed lumber, S4S, unless otherwise indicated.
4. Douglas Fir-Larch (DF), unless specifically noted otherwise. (Hem-Firm, Douglas Fir-Larch-North, Douglas Fir-South, and Pines are not allowed under this Section.)

B. Engineered Wood Products:
1. Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project. Refer to related Sections.
2. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.02 PRESERVATIVE-TREATED WOOD

A. Preservative Treatment by Pressure Process, shall conform to AWPA Standards. Additionally:
1. ACQ-treated wood or approved equal shall be used, except where borate-treated wood is allowed.
2. Borate-treated wood may be used for interior dry conditions (such as a sill plate or ledger on a wall that will be covered and weatherproofed). Borate-treated wood may not be used where it may come into contact with soil, moisture or liquid water.
3. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

B. Kiln-dry lumber after treatment to a maximum moisture content of 14 percent.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Application: Treat items indicated on the construction documents, and the following:
1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, furring, and similar concealed members in contact

with masonry or concrete.

3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
4. Wood framing 4x and smaller members that are less than 18 inches above the ground in crawlspaces or unexcavated areas.
5. Wood framing 6x and larger members supporting wood joists (i.e. girders) that are less than 12 inches above the ground in crawlspaces or unexcavated areas.
6. Wood floor plates that are installed over concrete slabs-on-grade.

2.03 FIRE-RETARDANT-TREATED WOOD

A. General: Use where indicated in the construction documents.
1. Comply with performance requirements in AWPA C20 (lumber) and AWPA C27 (plywood).
2. Use Exterior type for exterior locations and where indicated.
3. Use Interior Type A, High Temperature (HT) for enclosed roof framing, framing in attic spaces, and where indicated.
4. Use Interior Type A, unless otherwise indicated.

B. Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.

2.04 DIMENSION LUMBER FRAMING

A. Maximum Moisture Content: 19 percent, except where kiln-dried or other moisture content is indicated.

B. Grades shall be as indicated on the construction documents, with minimum as follows or better:
1. 1x, 2x and 3x: No. 2
2. 4x and larger: No. 1

C. Exposed Framing (Indicated to Receive a Stained or Natural Finish): Provide material hand-selected for uniformity of appearance and freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane. Use Species and Grade as indicated above for structural framing of same type. Use better and/or architectural grade when required by the Owner or Architect.

2.05 WOOD STRUCTURAL PANELS (or “SHEATHING”)

A. Shall conform to the requirements for their type in DOC PS 1 or PS 2.

B. Each panel shall be identified for grade and glue type by the trademarks of an approved testing and grading agency.

C. Minimum thicknesses are per the drawings.

D. Panel Index (PI) or “Roof/Floor span rating” shall not be less than the following:
1. 40/20 for floor or roof-deck sheathing.
2. 24/0 for roof sheathing.

E. Where sheathing may be subjected to repeated wetting and redrying or long-term exposure to weather or similar conditions:
1. “Exterior Plywood” – Grade C-C or Structural 1 C-C with exterior glue

F. Where sheathing will not be subjected to repeated wetting and redrying or long-term exposure to weather or similar conditions:
1. Plywood – Grade C-D with exterior glue (or "CDX"), Exposure 1.
2. Composite Panel, Oriented Strand Board (OSB), or other Mat-Formed Structural-Use Panel – Grade Structural 1, Exposure 1.

G. Where "Structural 1" (or "Struct 1" or "ST1") is required per the plans, use Grade Structural 1 sheathing per PS 1 or PS 2.

2.06 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
1. Blocking.
2. Nailers.
3. Cants.
4. Furring
5. Rooftop equipment bases and support curbs, unless prefabricated metal units are installed that do not require wood base or curbs (except for blocking between framing).

B. For items of dimension lumber size, provide Stud or No. 2 or better grade lumber with 19 percent maximum moisture content; Douglas Fir-Larch; WCLIB or WWPA.

2.07 FASTENERS

A. General:
1. Provide fasteners of size and type indicated that comply with requirements specified.
2. Where fasteners are exposed to weather, soil, moisture, preservative-treated wood, fire-retardant-treated wood, or in an area of high relative humidity, they shall be of hot-dipped zinc-coated galvanized steel or stainless steel.
3. Number and size of fasteners connecting wood members shall not be less than that set forth in 2010 CBC Table 2304.9.1 Fastening Schedule.

B. Nails:
1. ASTM F1667
2. "Common" refers to common steel wire nails or spikes. "Sinker" refers to steel sinker nails. "Box" refers to steel box nails.
3. Lengths of nails shall be sufficient to provide at least 10 diameters embedment into the main member, except that when attaching sheathing, minimum embedment into main member shall be 1 1/2" for 10d nails or 1 3/8" for 8d nails.
4. Conform with the following diameters (per NDS), unless noted otherwise:
a. 20d Common: 0.192"
b. 20d Sinker: 0.177"
c. 20d Box: 0.148"
d. 16d Common: 0.162"
e. 16d Sinker: 0.148"
f. 16d Box: 0.135"
g. 10d Common: 0.148"
h. 10d Sinker: 0.120"
i. 10d Box: 0.128"
j. 8d Common: 0.131"
k. 8d Sinker: 0.113"

l. 8d Box: 0.113”

C. Power-Driven Fasteners: NES NER-272.

D. Bolts: Steel bolts complying with ASTM A307, with ASTM A563 hex nuts and flat washers, unless noted otherwise. Plate washers conforming to ASTM A36 are required where indicated on the drawings.

E. Powder-Actuated Fasteners (or “Shotpins”):
1. Preservative-treated or fire-retardant-treated Wood: PDPWL-300MG by Simpson Strong-Tie, or Approved Equal.
2. Untreated Wood: PDPWL-300 by Simpson Strong-Tie, or Approved Equal.
3. Per ICC-ES ESR-2138, or Approved Equal’s ICC-ES Report.
4. 0.145 in. dia. x 3 in. long headed fastener with 1 in. dia. washers.

2.08 METAL FRAMING ANCHORS

A. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include: Simpson Strong-Tie Co., KC Metals Products, Inc., or Approved Equal.

B. Design: Simpson Strong-Tie Co. products were used as the basis of design. Product callouts on construction documents refer to Simpson Strong-Tie model number. Provide products with allowable design loads, as published by manufacturer and ICC evaluation report, that meet or exceed those by Simpson Strong-Tie Co. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

C. Galvanized Steel Sheet: Zinc-coated complying with ASTM A653, minimum G60 coating.

D. Connectors exposed to weather, soil, or in contact with ACQ treated wood shall have minimum G185 zinc coating, be hot-dip galvanized, or be stainless steel.

2.09 MISCELLANEOUS STEEL

A. Where steel plates, sections, fabricated connectors or other miscellaneous steel elements are shown in the drawings or otherwise required in the project, provide as follows:
1. Conform to requirements of ASTM and fabricate according to AISC and AWS standards.
2. Special inspection of welding is required.
3. ASTM A36 or Type 304 Stainless Steel
4. Steel that is exposed to weather, moisture, or soil must be hot dip galvanized or of stainless steel.
5. Bolt holes shall be AISC “standard holes.” Do not oversize or slot.
6. Finishes are per the Architect.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General Requirements:
1. Fabricate, size, install, connect, fasten, bore, notch, and cut wood and sheathing with joints true, tight, and well-nailed, screwed or bolted as required; members to

have solid bearing without being shimmed, unless noted otherwise. Set horizontal members subject to bending with the crown up. Install framing plumb, square, true and cut for full bearing. Splices are not permitted between bearings. Use full lengths unless otherwise specified.

2. Notching, drilling, splicing, or cutting of any structural member is not permitted without prior approval. Reinforce or replace wood framing members damaged by erroneous cutting as directed by the Engineer. Whenever necessary to avoid splitting, sub-drill (pre-drill) for nails and screws with the diameter of the hole smaller than that of nails or screws.
3. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Perform cutting for other trades under the direction of trade involved. Locate furring, nailers, blocking, ledgers, and similar supports to comply with requirements for attaching other construction.
4. Do not splice structural members between supports, unless otherwise indicated.
5. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated on the construction documents.
6. Comply with 2010 CBC (2009 IBC) details for conventional wood frame construction, except where indicated.

B. Sheathing:

1. Nail as specified on the plans with perimeter nails not closer than ½" from the edges. Do not overdrive nails through the face grain.
2. Install with the face grain across supports, end supports staggered and the edges of sheets centered over supports. Provide minimum 2x thick blocking of the same depth as the joists or 3x4 flat blocking under all plywood edges, except that full-depth blocking is required under walls.
3. Provide cant strips and saddles where shown or necessary to pitch water to drain.
4. Sheathing installation shall conform to APA recommendations.
5. Use of machine nailing is subject to a satisfactory jobsite demonstration and the approval of the project Owner or Owner's Representative, Architect, or Engineer. The approval is subject to continued satisfactory performance. Machine nailing is not allowed for 5/16" or thinner sheathing. If the nail heads penetrate the outer ply by more than would be normal for a hand-held hammer, or if minimum allowed edge distances are not maintained, the performance will be deemed unsatisfactory and machine nailing shall be discontinued.

C. Fasteners:

1. Lag Screws: Install with the base of the head flush with the surface of the connected member. Bore lead holes approximately ¾ of diameter and same depth as shank (except when not required by the manufacturer, such as for Simpson SDS Screws). Provide a standard washer under the head of the lag when bearing upon wood. Install by using a wrench, not by driving with a hammer. Soap or other lubricant shall be used on the lag screws or in the lead holes to facilitate insertion and prevent damage to the lag screws. Locate lag screws on centerline of member (e.g. block, rim, joist) unless shown otherwise.
2. Bolts: Drill bolt holes 1/32" to 1/16" larger than bolt diameter such that bolts fit tight. Provide standard washers under the heads and nuts when bearing upon wood. Holdown bolts shall be torqued tight just prior to covering the wall. The inspector shall verify that bolts are installed tight.
3. Powder-Actuated Fasteners (or "Shotpins"):
   a. May be used for attachment of miscellaneous furring, framing, and interior non-bearing stud wall sill plates to concrete or masonry.
   b. Sill plates shall have fasteners placed at 6" from ends and at a spacing of 16" o.c. or less.
   c. Install per the fastener's ICC-ES Report and with minimum 1¼" embedment, unless noted otherwise.

4. Nails shall not be driven closer together than ½ their length nor closer to the edge or end of lumber than ¼ their length (except for sheathing). The penetration of nails or spikes into pieces receiving the point shall not be less than ½ the nail length, except that 16d may be used to connect pieces of 2x. Use “common” nails unless noted otherwise.
5. Comply with the 2010 CBC (2009 IBC) Table 2304.9.1 Fastening Schedule.

D. Metal Framing Anchors:
1. Install metal framing to comply with manufacturer's written instructions and the applicable ICC evaluation report.
2. Provide the type of nails specified by the manufacturer and fully drive nails into all holes of the connector unless noted otherwise on plans.
3. Where A35 or LTP4 clips are placed directly against the framing, 1 1/2” long nails are acceptable; where these clips are placed over plywood, use full-length common nails through plywood into framing.
4. Use LTP5 connectors in lieu of LTP4 connectors when all nails in the LTP4 cannot be driven into solid wood framing, such as when bridging over roof or floor sheathing.

E. Comply with AWPA requirements for applying field treatment to cut surfaces of preservative-treated lumber.

3.02 FIELD QUALITY CONTROL

A. Refer to the Special Inspection requirements on the plans. Contractor shall engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Correct deficiencies in Work that inspections indicate does not comply with the Contract Documents.

C. Repair defective elements where required by the Owner, Architect, or Engineer. Remove and replace elements that cannot be repaired to Owner, Architect, or Engineer's approval. Any repair or replacement shall be at no additional cost to the Owner.

END OF SECTION

SECTION 07212 - MINERAL FIBER INSULATION

PART 1 GENERAL

1.01 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 665	Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing
ASTM C 930	Potential Health and Safety Concerns Associated with Thermal Insulation Materials and Accessories
ASTM D 3833	Water Vapor Transmission of Pressure-Sensitive Tapes
ASTM D 4397	Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications
ASTM E 84	(Rev. B) Surface Burning Characteristics of Building Materials
ASTM E 96	Water Vapor Transmission of Materials
ASTM E 136	Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1910.134	Respiratory Protection

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 31	Installation of Oil Burning Equipment
NFPA 54	National Fuel Gas Code
NFPA 70	National Electrical Code
NFPA 211	Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliances

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY (TAPPI)

TAPPI T803 OM	Puncture Test for Containerboard

1.02 SUBMITTALS

1.02.1 Manufacturer's Catalog Data

a. Batt or Blanket Insulation

b. Accessories

1.02.2 Instructions

a. Batt or Blanket Insulation

1.03 DELIVERY, STORAGE, AND HANDLING

1.03.1 Delivery

Deliver materials to site in original sealed wrapping bearing manufacturer's name and brand designation, specification number, type, grade, R-value, and class. Store and handle to protect from damage. Do not allow insulation materials to become wet, soiled, crushed, or covered with ice or snow. Comply with manufacturer's recommendations for handling, storing, and protecting of materials before and during installation.

1.03.2 Storage

Inspect materials delivered to the site for damage; unload and store out of weather in manufacturer's original packaging. Store only in dry locations, not subject to open flames or sparks, and easily accessible for inspection and handling.

1.04 SAFETY PRECAUTIONS

1.04.1 Respirators

Provide installers with dust/mist respirators, training in their use, and protective clothing, all approved by National Institute for Occupational Safety and Health (NIOSH)/Mine Safety and Health Administration (MSHA) in accordance with 29 CFR 1910.134.

1.04.2 Smoking

Do not smoke during installation of batt thermal insulation.

1.04.3 Other Safety Concerns

Consider other safety concerns and measures as outlined in ASTM C 930.

PART 2 PRODUCTS

2.01 BATT OR BLANKET INSULATION

ASTM C 665, Type II, with non-reflecting coverings; Class A, batt membrane-faced surface with a flame spread of 25 or less.

2.01.1 Thermal Resistance Value (R-VALUE)

R-30, or as indicated otherwise on the drawings.

2.01.2 Recycled Materials

Provide Thermal Insulation containing recycled materials to the extent practicable, provided the material meets all other requirements of this section. The minimum required recycled materials content by weight are:

Rock Wool: 75 percent slag Fiberglass: 20 to 25 percent glass cullet

2.01.3 Prohibited Materials

Do not provide asbestos-containing materials.

2.03 BLOCKING

Wood, metal, unfaced mineral fiber batts in accordance with ASTM C 665, Type I, or other approved materials. Use only non-combustible materials meeting the requirements of ASTM E 136 for blocking around chimneys and heat producing devices.

2.06 ACCESSORIES

2.06.1 Adhesive

As recommended by the insulation manufacturer.

2.06.2 Mechanical Fasteners

Corrosion resistant fasteners as recommended by the insulation manufacturer.

2.06.3 Wire Mesh

Corrosion resistant and as recommended by the insulation manufacturer.

PART 3 EXECUTION

3.01 EXISTING CONDITIONS

Before installing insulation, ensure that areas that will be in contact with the insulation are dry and free of projections which could cause voids, compressed insulation, or punctured vapor retarders. If moisture or other conditions are found that do not allow the workmanlike installation of the insulation, do not proceed but notify NEXCOM of such conditions.

3.02 PREPARATION

3.02.1 Blocking Around Heat Producing Devices

Install non-combustible blocking around heat producing devices to provide the following clearances:

a. Recessed lighting fixtures, including wiring compartments, ballasts, and other heat producing devices, unless these are certified by the manufacturer for installation surrounded by insulation: 3 inches from outside face of fixtures and devices or as required by NFPA 70 and, if insulation is to be placed above fixture or device, 24 inches above fixture.

b. Masonry chimneys or masonry enclosing a flue: 2 inches from outside face of masonry. Masonry chimneys for medium and high heat operating appliances: Minimum clearances required by NFPA 211.

c. Vents and vent connectors used for venting the products of combustion, flues, and chimneys other than masonry chimneys: Minimum clearances as required by NFPA 211.

f. Gas Fired Appliances: Clearances as required in NFPA 54.

g. Oil Fired Appliances: Clearances as required in NFPA 31.

Blocking around flues and chimneys is not required when insulation batt, including any attached vapor retarder, passed ASTM E 136, in addition to meeting all other requirements stipulated in Part 2. Blocking is also not required if the chimneys are certified by the manufacturer for use in contact with insulating materials.

3.03 INSTALLATION

3.03.1 Insulation

Install and handle insulation in accordance with manufacturer's Instructions. Keep material dry and free of extraneous materials. Ensure personal protective clothing and respiratory equipment is used as required. Observe safe work practices.

3.03.1.1 Electrical wiring

Do not install insulation in a manner that would sandwich electrical wiring between two layers of insulation.

3.03.1.2 Continuity of Insulation

Install batt insulation to butt tightly against adjoining batts and to studs, rafters, joists, sill plates, headers and any obstructions. Provide continuity and integrity of insulation at corners, wall to ceiling joints, roof, and floor. Avoid creating thermal bridges.

3.03.1.3 Installation at Bridging and Cross Bracing

Insulate at bridging and cross bracing by splitting batts vertically at center and packing one half into each opening. Butt insulation at bridging and cross bracing; fill in bridged area with loose or scrap insulation.

3.03.1.5 Insulation Batt with Affixed Vapor Retarder

Locate vapor retarder on interior side of building. Do not install batts with affixed vapor retarders unless so specified. Unless the insulation manufacturer's instructions specifically recommend not to staple the flanges of the vapor retarder facing, staple flanges of vapor retarder at 6 inchintervals flush with face or set in the side of truss, joist, or stud. Avoid gaps and bulges in insulation and "fishmouth" in vapor retarders. Overlap both flanges when using face method. Seal joints and edges of vapor retarder with pressure sensitive tape. Stuff pieces of insulation into small cracks between trusses, joists, studs and other framing, such as at door and window heads, jambs, and sills, band joists, and headers. Cover these insulated cracks with vapor retarder material and tape all joints with pressure sensitive tape to provide air and vapor tightness.

3.03.1.6 Insulation without Affixed Vapor Retarder

Provide snug friction fit to hold insulation in place. Stuff pieces of insulation into cracks between trusses, joists, studs and other framing, such as at door and window heads, jambs, and sills, band joists, and headers.

3.03.1.8 Special Requirements for Ceilings

Place insulation under electrical wiring occurring across joists. Pack insulation into narrowly spaced framing.

END OF SECTION 07212

SECTION 07466 - FIBER CEMENT TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Trim boards.

B. Accessories.

1.02 RELATED SECTIONS

A. Section 06100 - Rough Carpentry: Framing and Sheathing.

B. Section 07920 - Joint Sealants.

C. Section 09910 - Painting.

1.03 REFERENCES

A. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants; 1998.

B. ASTM C 1185 - Standard Test Methods for Sampling and Testing Non-Asbestos Fiber-Cement Flat Sheet, Roofing and Siding Shingles, and Clapboards; 1999.

C. ASTM C 1186 - Standard Specification for Flat Non-Asbestos Fiber Cement Sheets; 1999.

D. ASTM E 72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction; 1998.

E. ASTM E 84 -- Standard Test Method for Surface Burning Characteristics of Building Materials; 1999.

F. ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials; 1995.

G. ASTM E 136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 1999.

H. ASTM E 228 - Standard Test Method for Linear Thermal Expansion of Solid Materials With a Vitreous Silica Dilatometer; 1995.

I. ASTM G 26 - Standard Practice for Operating Light-Exposure Apparatus (Xenon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials; 1996.

1.04 SUBMITTALS

A. Make submittals under provisions of Section 01330.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Preparation instructions and recommendations.

2. Storage and handling requirements and recommendations.
3. Installation methods, including nailing patterns.
4. Applicable model code authority evaluation report (ICC, CCMC, etc.)

C. Trim manufacturer's requirements for vapor retarders, primer, paint, etc., to be installed by others.

D. Maintenance and periodic inspection recommendations.

E. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Provide installer with not less than three years of experience with products similar to those specified.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store products off the ground, on a flat surface, and under a roof or separate waterproof covering.

1.07 WARRANTY

A. Provide 50 year limited cement board trim warranty.

B. Register manufacturer's warranty, made out in Owner's name, with copy to Owner.

PART 2 PRODUCTS

2.01 MANUFACTURER

A. CertainTeed Corporation, www.certainteed.com. James Hardie Building Products, Inc. www.jameshardie-commercial.com, or equal.

2.02 TRIM BOARDS

A. Fiber Cement Board Trim Boards - Fiber Cement Board Trim Boards consist of cement, fly ash and cellulose fiber formed under high pressure into boards with integral surface texture; complying with ASTM C 1186 Type A Grade II; machined edges; for nail attachment.
1. Surface Burning Characteristics: Flame spread index of 0, smoke developed index of 5, maximum; when tested in accordance with ASTM E 84 (Class I/A).
2. Flammability: Noncombustible, when tested in accordance with ASTM E 136.
3. Flexural Strength: At least 1450 psi (10 MPa) when in equilibrium condition, and at least 1015 psi (7 MPa) when in wet condition, tested in accordance with ASTM C 1185.
4. Coefficient of Thermal Expansion: Less than 1 x 10^-5/inch/inch/degree F (0.5 x 10^-5/degree C), when tested in accordance with ASTM E 228.
5. Freeze Thaw Resistance: At least 80 percent flexural strength retained, when tested in accordance with ASTM C 1185.
6. UV Resistance: No cracking, checking, or erosion, when tested for 2000 hours in accordance with ASTM G 26.

7. Water Tightness: No water droplets on underside, when tested in accordance with ASTM C 1185.

2.03 ACCESSORIES

A. Provide the following joint conditions: 3/16” expansion gaps at butt joints
   1. Butt joints over backing with 3/16: expansion gap, and sealant to form a seamless finish appearance.
   2. Outside corners, butted at 45º with sealant in expansion gap.

B. Sealant: Paintable, 100 percent acrylic latex caulk complying with ASTM C 920. Provide backing at soffit joints. Apply sealant to form a seamless finish appearance.

C. Nails: Length as required to penetrate minimum 1-1/4 inch (32mm) into solid backing; hot-dipped galvanized or stainless steel.

D. Field Finish Paint: 100 percent acrylic latex as specified in Section 09910.

PART 3 EXECUTION

3.01 EXAMINATION

A. Prior to commencing installation, verify governing dimensions of building and condition of substrate.

A. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Examine, clean, and repair as necessary any substrate conditions that would be detrimental to proper installation.

B. Do not begin installation until unacceptable conditions have been corrected.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions and Drawing details.
   1. Read warranty and comply with all terms necessary to maintain warranty coverage.
   2. Install in accordance with conditions stated in model code evaluation report applicable to location of project.
   3. Use trim details indicated on drawings.
   4. Touch up all field cut edges before installing.
   5. Pre-drill nail holes if necessary to prevent breakage.

B. Allow space between both ends of panels that butt against trim for thermal movement; seal joint between panel and trim with exterior grade sealant to form a seamless finish appearance.

C. After installation, seal all joints. Seal around all penetrations. Paint all exposed cut edges.

D. Finish Painting: Specified in Section 09910.

E. Finish Painting: Within 24 months after installation, paint and trim with one coat finish paint.

F. Finish Painting: Within 24 months after installation, paint and trim with one coat primer and two coats finish paint.

3.04 CLEANING

A. At completion of work, remove debris caused by installation from project site.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 07466

SECTION 07536 - PREPARATION FOR RE-ROOFING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Roof surface examination.

B Materials removal.

C. Temporary protection.

D. Field quality control.

E. Schedules.

1.02 RELATED SECTIONS

A. Quality Control Section.

B. Carpentry Section.

C. Section 07536 - Modified Bitumen Roofing.

D. Section 9910 - Painting

1.03 DESCRIPTION

A. All Roof Areas: Remove roof membrane, existing perimeter flashings, base flashings, counterflashings, vent stack flashings, vapor retarder, roof mounted mechanical equipment, and other items as identified on project drawings and as required for re-roofing operations.

B. Perform carpentry, curb modifications and wood deck repairs as identified in Carpentry Section.

1.04 QUALIFICATIONS

Materials Removal Firm: Company specializing in performing the work of this Section with minimum three years documented experience.

1.05 SUBMITTALS

Provide plan showing proposed tear off and reroof sequence.

1.06 PRE-INSTALLATION CONFERENCE

The prime contractor and all subcontractors shall attend pre-construction conference scheduled by COR (Contracting Officer's Representative).

1.07 ENVIRONMENTAL REQUIREMENTS

A. Do not remove existing roofing membrane when weather conditions threaten the integrity of the building contents or intended continued occupancy.

B. Maintain continuous temporary protection prior to and during installation of new roofing system.

C. Dispose of all tear off materials in accordance with local, State and Federal regulations.

1.08 SCHEDULING

A. Schedule work under the provisions of General Requirements Section.

B. Schedule work to coincide with commencement of installation of new roofing system and work of other Sections.

C. Remove only existing roofing membrane materials that can be replaced with new membrane materials the same day.

D. Perform all concrete restoration, sawcutting and high pressure water blasting prior to removal of roofing membrane.

1.09 COORDINATION

Coordinate roofing work with affected trades.

PART 2 - PRODUCTS

2.01 MATERIALS

Temporary Protection: Sheet polyethylene or fiber reinforced plastic tarpaulins; provide adequate weights to retain sheeting in position.

PART 3 - EXECUTION

3.01 EXAMINATION

Verify that existing roof surface is clean and ready for work of this section.

3.02 MATERIALS REMOVAL

A. Remove metal counter flashings to permit access to top edge of base flashings.

B. Remove roofing membrane and materials, perimeter and base flashings, vent flashings, flashings around roof penetrations. Remove and reinstall mechanical equipment to facilitate reroofing. Remove all miscellaneous wires (telephone, cable or television) from roof surface.

C. Remove vapor retarder, sheathing paper, and/or underlayment.

D. Repair existing wood and concrete deck surfaces to provide smooth working surface to receive new roof system.

E. Modify existing curbs as required to provide 8" minimum clearance above finished roof surface. All new curbs shall meet 8" clearance above roof surface.

F. Install wood nailers around perimeter of roof decks, at all roof penetrations, high roof ridge, as shown on project drawings and at all other locations as required by roof membrane manufacturer.

G. Prior to installing the roofing material, remove from deck all debris, nails, sharp objects, dirt, moisture, petro chemical materials or projections which could in any way damage the insulation and roofing system. Clean sweep roof, remove refuse and dispose of it off-site.

3.03 TEMPORARY PROTECTION

A. Provide temporary protective sheeting over uncovered deck surfaces.

B. Turn sheeting up and over curbing. Retain sheeting in position with weights or temporary fasteners.

C. Provide for surface drainage from sheeting to existing drainage facilities.

D. Do not permit traffic over unprotected or repaired deck surface.

E. Provide tarpaulin protection of building contents from silting inside of building. Cover any equipment or materials that could be in direct line of dripping of water or silt from roofing operations above (i.e. reglet cut).

3.04 FIELD QUALITY CONTROL

A. Field inspection will be performed under provisions of General Requirements Section. Deck inspection will identify the exact condition of existing roof deck and any repair requirements. Areas repaired will be dimensionally identified on as-built plans.

B. Contractor shall notify the COR 48 hours in advance of roofing material removal for individual roof sections, (high roof and/or low roof etc.), as the work progresses, to arrange for roof deck inspections. Inspections of the existing roof decks will be performed jointly by the Contractor, COR, and the Construction Inspector.

C. Examination: Following material removal, the roof decking will be examined for defects such as portions of old membrane remaining, excessive surface roughness, rust conditions, structurally unsound materials, and any other adverse condition that will effect execution of the work, quality, and warranty of the new roof membranes. Verify all flues will extend 24 inches above finished roof surface.

D. Any new roofing materials placed prior to the inspection as identified in Items 3.04 B and C above, will be completely removed at the Contractor's expense. All such materials removed, shall not be reused in the work without the express written approval of the Inspector.

3.05 SCHEDULES

Salvageable Items. Any items to be salvaged from buildings shall be designated by COR. COR will instruct contractor where salvageable items will be stored on site.

END OF SECTION 07536

SECTION 07552 - SBS MODIFIED BITUMINOUS ROOFING

PART 1 - GENERAL

1.01 SUMMARY OF WORK

A. Contractor to supply the necessary labor, materials and equipment to provide a Class B fire rated and "Cool Roof" rated roofing system at the roof area as specified herein. Work shall include, but is not limited to, the following:

1. Remove and dispose of existing roofing & insulation system to the deck. Repair approximately 500 S.F. of damaged wood deck as directed by Contracting Officer's Representative (COR). Actual quantities may vary and payment shall be made for the actual square feet of repaired deck, based on square foot costs submitted in the bid.

2. Install a new 2-ply SBS modified bitumen roof system with mineral surfaced cap sheet, torch applied, over 1/4 inch dens-deck board (primed with asphalt primer), mechanically fastened over the existing plywood or 1X6 sheathed deck. Where indicated new roofing membrane shall then be coated with a 2 part acrylic coating (32 Mil. DFT min.) conforming to "Cool Roof" program. 20 year NDL warranty shall cover complete assembly, including insulation, insulation adherent, and roofing. Coating materials shall have 7 year minimum labor & material warranty.

3. Install SBS modified base flashing systems. Install new vent flues, vent flashings and type "B" vent caps. Vent caps shall be installed at height required by 2001 CMC. Contractor shall modify/install vents, ducts and equipment curbs to maintain a minimum 8" curb height above finished roof surface. Install tapered insulation crickets at all roof curbs & walls at roofing edges.

4. Contractor shall modify or install all utilities and ducting as required to perform work described in this section and on project drawings.

1.02 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

A. Section 06100 - Rough Carpentry.

B. Section 07620 - Sheet Metal Flashing and Trim.

1.03 RELATED SECTIONS

A. Section 06100 – Rough Carpentry.

B. Section 07536 - Preparation for Re-Roofing.

C. Section 07620 - Sheet Metal Flashing and Trim: New reglet and flashing.

1.04 REFERENCES

A. ASTM D1622 - Density, Overall.

B. ASTM D41 - Asphalt Primer.

C. ASTM D4586 Type 1 - SBS Asphalt Roof Cement (Asbestos Free).

D. ASTM D5147-91 - Testing Modified Bituminous Sheet Material.

E. FM (Factory Mutual) - Roof Assembly Classifications.

F. NRCA (National Roofing Contractors Association) - Roofing and Waterproofing Manual.

G. UL (Underwriters Laboratories, Inc.) - Fire Hazard Classifications.

H. California Building Code, 2001 Edition.

I. ASTM D-6162: Standard Specification for SBS Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements.

1.05 SUBMITTALS

A. Submit product data for all materials used in the work for this project under provisions of General Requirements Section.

B. Shop Drawings: Indicate setting plan for densdeck board mechanical fastener type and layout, joint and termination detail conditions, conditions of interface with vents and other materials, curb modification details, flashing details and deck repair.

C. Product Data: Provide data indicating membrane and bitumen materials, base flashing materials, walk pads, polyisocyanurate insulation, protective covering and decking. Submit one 6" x 6" sample of roof SBS cap sheet, SBS interply, densdeck and SBS base flashing materials to Architect. Submit one (1) of each type of mechanical fastener to Architect.

D. Manufacturer's Installation Instructions: Install roofing materials in accordance with manufacturer's instructions. See item 3.06 E-2 below.

E. Manufacturer's Certificate: Certify that Products meet or exceed all ASTM, UL, FM and government requirements specified in Items 1.04 and 1.08.

F. Manufacturer's Field Reports: Submit under provisions of General Requirements Section. Indicate procedures to be followed.

G. Manufacturer's Warranty: Submit copy of proposed warranty in accordance with Paragraph 1.13.

1.06 QUALITY ASSURANCE

A. Maintain copies of each document on site, in accordance with General

Requirements Section.

B. Perform Work in accordance with NRCA Roofing and Waterproofing Manual, SMACNA Sheet Metal Fabrication Manual, manufacturer's instructions, the drawings and specifications contained herein. Where the cited references contain more than one detail for a specific purpose, the most stringent condition shall govern.

C. Roof Coating Manufacturer's representative and COR (Contracting Officer's Representative) shall jointly inspect the finished coating system to resolve any deficiency issues prior to project close out.

1.07 QUALIFICATIONS

A. Contractor/Applicator: Company specializing in performing the work of this section with minimum five years documented experience and two years documented experience with specified materials. Contractor/Applicator shall provide a certificate issued by the roofing system manufacturer stating that the contractor/applicator has successfully installed a minimum of 500 squares of the proposed manufacturer's system and that the same 500 squares are currently under warranty issued by the roofing system manufacturer. Certification shall be presented with the contractor's bid package. Failure to provide this certification at the time of the bid opening may be grounds for bid rejection.

1. Manufacturer shall meet with designated COR representatives prior to the start of the job to inspect the site and clarify any questions that might arise. Provide a work-in-progress inspection at beginning of work, 50%, and at completion of the work. Promptly conduct a final inspection, to certify that materials installed comply in all respects with the requirements of this specification; and were installed in strict accordance with manufacturer's current requirements for the specified system.

1 08 REGULATORY REQUIREMENTS

A. Manufacturer shall submit proof of the following tests and agency requirements:

1. UL: Class B Fire Hazard Classification. Material shall pass this test without the use of a mineral surface covering.

2. FM: Roof Insulation Assembly Classification, wind uplift requirement of I90, in accordance with FM Construction Bulletin 1-28.

1.09 PRE-INSTALLATION CONFERENCE

A. Convene one week prior to commencing work of this section.

B. Review requirements for preparation and installation procedures, coordinating and scheduling required with related work and conditions which could possibly interfere with successful performance of the work.

C. Require Manufacturer's Technical Representative to participate in the conference.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products in accordance with provisions of General Requirements Section.

B. Roofing material shall be delivered to job-site in new, dry manufacturers original unopened containers with seals and labels intact, clearly showing catalog number, product description approved inspection agency label, where and by whom manufactured and in quantities sufficient to assure continuous work.

C. Store rolled goods on end on pallet supports. Do not double stack membrane. Maintain aisle space between stacks to facilitate fire suppression. Discard any flattened roll goods.

D. Do not overload structure with building materials. Do not store materials on finished roof membrane.

E. Protect insulation from direct exposure to sunlight and moisture.

F. Assure that materials are kept clean, and away from excessive heat, cold and moisture; do not remove labels or tear off protective covering until ready for application and inspected by ECI representative; store in an enclosed area where temperature is above 50 degrees and below 90 degrees Fahrenheit, securely tied with rope. Material shall not be stored directly on the ground or any improved surface.

1.11 ENVIRONMENTAL REQUIREMENTS

A. Do not apply roofing membrane during unsuitable weather when ambient temperature is below 50 degrees F.

B. Maintain roofing felts above 40 degrees F. for 24 hours prior to application.

C. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is present (rain, mist, dew, frost and or snow).

D. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

1.12 COORDINATION

A. Coordinate the work of this section with installation of associated counter flashings installed by other sections as the work proceeds.

B. Work shall not begin until other trade work required ahead of membrane application is completed.

1.13 WARRANTY

A. Provide three year applicators performance warranty, which shall cover workmanship and materials and repair or replacement of same at no cost to the Government. Blistering and buckling shall be covered by this warranty.

B. Provide 20 year manufacturers Non-prorated, No Dollar Limit (NDL), No Penal Sum (NPS)

warranty. Warranty shall cover leaks due to defective material and poor workmanship, and damage to roofing system resulting from failure of roof membrane system to provide a water tight system.

C. Warranty shall be submitted under provisions of General Requirements Section.

D. Coating Manufacturer: Coating manufacturer shall issue a 7-year warranty against peeling, flaking and cracking. The same company supplying and warranting the roofing membrane shall supply and issue the coating warranty too.

1.14 SAFETY REQUIREMENTS

A. Contractor shall comply with all building and safety codes and shall report any non compliance of these specifications or manufactured installation procedures to roof manufacturer's representative prior to beginning work.

B. Safety standards set forth by the Occupational Safety and Health Administration (OSHA) shall be maintained and followed by the Contractor, Sub Contractor(s) and work crews at all times.

C. Contractor shall comply with the California Fire Code, 2001 Edition. There shall be at least four fire extinguishers of a minimum 20 BC classification, located within the work area.

PART 2 - PRODUCTS

2.01 MEMBRANE MATERIAL

A. Manufacturers - Dual reinforced (polyester and fiberglass) membrane materials installed (Torched) over Dens-Deck board over insulation:

1. MB Technology I2T-FGFT160CWH

2. Alternate systems must be approved by the Military Department. The assembly (base and cap) shall weigh a minimum weight of 230 lbs. / sq. and a minimum thickness of 288 mils.

B Roofing Membrane System: SBS interply, SBS mineral surface cap sheet, edge and base flashings shall be produced by the same manufacturer. All components shall be SBS Modified meeting the following characteristics:

1. SBS Torch Interply Sheet: M.B. Technology FT160CSA.
   a. Thickness: 140 mils min. + 10%
   b. Average Weight: 114 lbs/sq min.
   c. Reinforcement: Dual Reinforced.

2. SBS Mineral Surfaced Cap & Flashing Sheet: M.B. Technology FGFT160CWH.
   a. Thickness: 170 mils min. + 10%
   b. Reinforcement: Dual Reinforced.
   c. Average Weight: 116 lbs/sq min.

d. Top Surface: Mineral Granules.

C. Roof Coating: Roofing Material Manufacturer's recommended coating that offers 7 year minimum warranty.

1. Manufacturers: Complying with California "coolroof" criteria. Materials shall be labeled and EPA/DOE Energy Star Product. General Coating, CO24 base & top or Approved Equal. The same company issuing the roofing warranty shall supply the coating.

2. Primer: #220AF emulsion roof coating or approved equal conforming to ASTM D-1227 Type II, Class 1; SS-R-1781 (except asbestos free) and MIL-R-3472A (except asbestos free).

3. Finish Coating: #501 elasto-brite co-polymer elastomeric emulsion exterior protective coating or approved equal.

a. Color: White
b. Solid by Weight: 59%
c. Solids by Volume: 50%
d. Hardness Shore A: 70
e. Elongation: 300%
f. Tensile Strength: 350 psi
g. Permeability: 1.5

2.02 BITUMINOUS MATERIALS

A. Asphalt Primer: ASTM D41.

B. Modified Asphalt Roof Cement: ASTM D4586 (Type I Asbestos Free) - Elastomeric mastic. Acceptable manufacturers - Gibson Homan, Pro's Choice 1010 or approved equal.

2.03 INSULATION / DENS-DECK

A. Manufacturers:

1. Apache
2. Firestone
3. Manville
4. Georgia Pacific

B. Dens-Deck

Gypsum board is authorized as per following characteristics:

1. Asphalt Pre Primed Gypsum Board shall be ASTM E84 and ASTM E136.

a. Thickness 1/4 inch
b. Density 52.8 lb/cu ft
c. Size 48 x 96 inches min.

2.04 CANTS

Perlite Cant and Tapered Edge Strips: ASTM C 728-91, Asphalt impregnated perlite. Cants shall be preformed to 45 degree angle with a 4" vertical leg, and 4" horizontal leg, unless noted otherwise.

2.05 ROOF WALKPADS

Walkway Pads: Malarkey (recycled materials), 36" x 48" with 1/2" minimum thickness, compatible with mineral surfaced cap sheet (depending on roof system) of the same material identified in Paragraph 2.02 of this section.

2.06 ACCESSORIES

A. Metal discs: Shall be flat discs or caps of zinc coated sheet metal not lighter than 28 gauge and not less than 1-3/8 inches in diameter. Discs shall be formed to prevent dishing. Bell or cup-shaped caps are not acceptable. Minimum withdraw resistance of nails or fasteners shall be as required to obtain a Factory Mutual I90 wind uplift rating.

B. Plumbing Vents and Penetration Flashing: Shall meet or exceed ASTM-B29, 4 lb. sheet lead.

C. Base Flashing Nails: Nails shall-be of galvanized steel, except that hard copper nails shall be used with copper: aluminum or stainless steel nails shall be used with stainless steel. Nails and fasteners shall be flush driven through flat metal discs of not less than 1-3/8 inch diameter. Metal discs may be omitted when one piece composite nails or fasteners with heads not less than one inch diameter are used. Unless other wise specified, minimum withdraw resistance of nails or approved fasteners shall be 40 pounds each in the specific decks, when driven.

D. Caulking Sealant: ASTM C-920, shall consist of a single component, high performance, elastomeric sealant. Acceptable manufacturers:

1. Flexible Seal by AC Products, Inc., Placentia, CA.

2. Sonolastic NP 1 by Sonneborn Building Products, Minneapolis, MN.

3. Other products must be approved in writing by the Project Inspector prior to application.

E. Parapet Wrap or Stucco Flashing: W.R. Grace, Bituthene or equal as approved by roofing system manufacturer.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that surfaces and site conditions are ready to receive work.

B. Verify deck is supported and secured.

C. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped towards gutters and ready for installation of roof system. If depressions are

discovered, it will be the responsibility of the Contractor to add roofing interplies, as required, to provide proper drainage.

D. Verify deck surfaces are dry and free of debris.

E. Confirm dry deck with moisture meter at 19% moisture maximum.

F. Verify adjacent concrete roof members do not vary more than 1/4 inch in height. Verify grout keys are filled flush.

G. Verify adjacent decks do not vary more than 1/4". Add taper board to adjust variances and provide for smooth deck transition.

H. Verify roof openings, curbs, pipes, conduit, sleeves, ducts, vents and flues through roof deck are solidly set, modified as required and new cant strips, pressure treated wood nailers and reglets are in place.

I. Verify that wood deck has been repaired in accordance with Carpentry Section.

J. Verify that roof decking has been inspected in accordance with Section 07536 - Preparation for Reroofing.

3.02 WORKMANSHIP

A. All roofing work shall be accomplished with a foreman and laborers who are thoroughly skilled in the application of specified materials; with all workmanship done in such a manner as to fulfill the requirements of the drawings and specifications.

B Any specific directions furnished by manufacturer, in writing, on company letterhead, and as published in the manufacturer's manual for built-up roofing systems, regarding the application of roofing materials shall be faithfully followed.

C. All deviations from the manufacturer's published instructions shall be secured in writing on company letterhead from the manufacturer's representative prior to beginning work.

D. The Contractor shall supervise installation of and be responsible for, seeing that roof mechanical and electrical equipment, and other work is properly set and roof membrane is not damaged; make roof and flashing repairs as necessary; advise Government Inspector, General Contractor, and/or Contracting Officer's Representative in writing of all potential leaks as may be caused by other trades.

E. The Contractor shall maintain a competent foreman, English speaking, to continuously supervise the work, with authority to discard unsuitable materials and remove unsatisfactory workmen from the project.

3.03 ASPHALT HANDLING, HEATING AND APPLICATION

A. Cutting or alterations of primer and sealants will not be permitted.

3.04 PREPARATION FOR DENS-DECK APPLICATION

A. Verify wood deck is clean and ready to accept prior to fastening dens-deck.

3.05 DENS-DECK APPLICATION

A. Lay dens deck boards with edges in moderate contact without forcing. Cut board to fit neatly to perimeter blocking and around penetrations through roof.

B. Dens-deck shall be secured to deck with screws and plate, with a minimum of 16 fasteners per 4 x 8 board, number and type of fasteners shall be in compliance with FM requirements.

C. Dens-deck in contact with wood decks shall be mechanically fastened. Dens-deck and plywood shall have all joints staggered. Fasteners and fastening pattern shall be submitted for review and must meet FM I-90.

D. Do not apply more dens-deck than can be covered with membrane in same day.

3.06 SBS INTERPLY MEMBRANE

A. Install only as much roofing material as can be completed and covered in accordance with the requirements of this specification and the roofing manufacturer's requirements in one (1) day.

B. Do not allow traffic, stacked roofing materials or any equipment on completed roofing surfaces without adequate protective walkpads or minimum 1/2 inch plywood.

C. Prior to applying any membrane, the Contractor and his Foreman shall review these specifications and the manufacturer's technical manual with the Manufacturer's Technical Representative to make certain that all aspects of the membrane system application are understood. Certify this requirement to the COR in writing.

D. Application of membrane system shall proceed in strict accordance with specifications, detailed drawings and manufacturer's technical manual.

E. Smooth Surfaced Interply - Torch Application:

1. Torch weld SBS FT160CSA interply membrane to asphalt primed dens-deck roofing board in half width starter strips along the roof edge with subsequent course applied in full width rolls. Torchweld allowing 3.5 inch side laps and 6 inch on end laps. End laps shall be staggered with a minimum spacing of 36 inches. Apply to produce a 1/8 inch to 1/4 inch outflow of bitumen at all seams. Areas with less than 1/8 inch outflow will be checked with a trowel, heat applied between laps and properly sealed.

2. Turn sheet up a minimum of 2" above cants at all vertical surfaces.

3. Apply membrane smooth, free from air pockets, fishmouths, wrinkles, or tears. Ensure full bond of membrane to substrate.

4. Insure that all fishmouths are cut and objects causing separation between plies are removed. Do not attempt to walk down fishmouths. Patch areas if the cut is made after the interply has set up.

5. All membranes shall be cut to conform to the nailer spacing. Nail the end lap across the width of the sheet, with the first nail spaced 3/4" from the leading edge of the sheet, and the remaining nails spaced approximately 8.5" o.c. The nails shall be staggered across the width of the nailer to reduce the risk of the sheet tearing along the nail line. Nails must have an integral 1" diameter cap. Where capped nails are not used, fasteners must be driven through caps having a 1" diameter.

F. SBS Reinforcing Strip Application (Base Flashings)

1. The SBS reinforcing strip shall be cut into manageable lengths prior to application. Lay the material but on the roof and allow it to relax and flatten.

2. Torchweld SBS 160 mil reinforcing strip to modified interply and primed vertical surfaces. Reinforcing strip shall extend from 4 inches above the cant to 4 inches onto field membrane.

3. Course shall be laid with a minimum of 4" end lap.

4. Bitumen runout at side laps shall extend 1/8 inch to 1/4 inch onto interply surface, beyond salvage edge.

G. Mineral Surfaced Cap Sheet Application Torch Applied

1. The mineral surfaced SBS cap sheet shall be cut into manageable lengths prior to application. Lay the material out on the roof and allow it to totally relax and flatten.

2. The mineral surfaced membrane shall be applied via torching. The first layer at edges shall be full width. To begin, first preheat the salvage edge of the previously laid membrane. When torching the roll itself, use a steady torching technique, keeping the torch moving to bring the entire surface to the proper temperature prior to bonding.

3. Allow laps to relax as long as possible before fusing. Side laps shall be interply heat fused prior to interply fusing of the end lap of the same sheet. Pressure shall be applied on the top of the lap to ensure solid contact. All laps shall be fused before leaving job for the day.

4. Bitumen runout at side laps shall extend 1/8" to 1/4" onto mineral surface, beyond salvage edge and covered with mineral granules as recommended by material manufacturer.

5. End laps of cap membrane shall be staggered a minimum of 36".

6. Extend mineral surfaced cap membrane a minimum of 4" above all cants. Fuse membrane to face of cant and underlying SBS reinforcement interply. Apply torch to underside of cap membrane only and press into place.

7. Apply membrane smooth, free from air pockets, fishmouths, wrinkles, or tears. Ensure full bond of membrane to substrate.

8. Install two plies membrane and bitumen glaze coat for cut-off at end of day's operation. Glaze cut off plies exposed at end of working day. Remove cut-off before resuming roofing.

9. Insure that all fishmouths are cut and objects causing separation between plies are removed. Do not attempt to Walk down fishmouths. Patch areas if the cut is made after the interply mopping has set up.

10. Seal edges and ends permanently waterproof.

H. If moisture penetrates roofing membrane at any location, all wet material will be replaced by contractor at no expense to the Government.

I. All Finished work of others which is damaged in the execution of work under this section shall be replaced or restored to the original condition by Contractor at the Contractor's expense.

J. Install walkpads after roof surface is coated. Coat walkpads, set joints 6" maximum and 2" minimum distance apart to allow proper roof drainage. Install walk pads at locations as detailed in project drawings.

3.07 FLASHINGS AND ACCESSORIES

A. Install required cant strips before applying base sheet, field membrane and flashings.

B. Coordinate installation of roof drains and related flashings with roofing and deck repair operations.

C. Base flashings shall be composed of 1 layer SBS mineral surfaced cap sheet over 1 layer 160 mil SBS interply membrane reinforcing strip as shown on project drawings.

D. Install base flashings at all roof wall junctures, projections and curb per manufacturers requirements. Special care shall be taken to generously preheat the surface to which the flashing is being applied prior to heating the bottom of flashing membranes.

E. When flashing is installed over a porous surface, apply a coating of asphalt primer at a minimum rate of 1/2 to 3/4 gal. per 100 S.F. of area and allow to completely dry.

F. All metal flanges to be stripped in with 160 Mil. SBS interply sheet and mineral surfaced cap membrane shall be coated (both sides) with asphalt primer and allowed to dry thoroughly, 24 hours minimum.

G. Mineral surfaced flashing membrane shall be unrolled and cut to desired width and maximum length of 10 feet.

H. The flashing must not remain open at the end of the work day.

I. The contractor and construction inspector shall thoroughly inspect the completed flashing system at the end of each day's work.

J. Mechanically fasten top edge of base flashings with approved fasteners per roofing manufacturer's specifications and project drawing details.

K. The Contractor shall insure that a uniform slope is provided at all roof areas so that water will drain and will not pond at building perimeter. If, upon flood testing, water does pond at any location on this roof area, the roofing shall be removed, resloped and repaired at the Contractor's expense.

L. Install 4 lb. lead sleeves on all vent pipe/conduit roof penetrations. Flanges shall extend a minimum of 6 inches in all directions on top of the new interply membrane, and be stripped into the roof membrane with SBS base flashings. The top of the sleeve shall be cut even

with the top of the vent and shall have preformed sleeve cap installed. Pipes and conduit shall have a draw-band seal and rain diverter utilized if the vent pipe extension is too high. Installation procedures shall comply with NRCA, or SMACNA standard details and specifications.

M. Install roofing system manufacturer's approved parapet wrap material over wood nailer and top of base flashings. Wrap shall extend 1-1/2" minimum below wood/concrete juncture.

3.08 FIELD QUALITY CONTROL

A. Field inspection will be performed under provisions of General Requirements Section, and manufacturers requirements.

B. All mineral surfaced cap membrane shall be carefully inspected for construction damage and imperfect heat fusion. Any holes or tears shall be patched with the appropriate mineral surfaced cap membrane. The patch must extend a minimum of 411 in all directions from the edges of the tear or puncture.

C. All mineral cap membrane edges exposed at waste stacks, vent stacks and other similar assemblies shall be caulked with a smooth continuous bead of approved sealant.

D. Where free water is discovered between the plies, the affected area shall be removed and rebuilt in dry conditions. Where insulation is found to be wet, the insulation, and 12 inch perimeter, shall be removed and new built-up roofing and insulation shall be installed at no additional cost to the Government.

E. Deficiencies identified during final inspection shall be corrected within five (5) working days, and will be re-inspected at Final Inspection.

F. All heat weld assembly installations shall be inspected prior to leaving the site to assure that no smoldering or combustible materials are ignited through the night or in the absence of contractor’s workmen.

G. Require site attendance of roofing and insulation material manufacturers as required by progress scheduling during installation of the Work. Notification to all concerned parties must be received not less than 48 hours prior to required attendance.

3.09 CLEANING

A. Remove bituminous markings from finished surfaces.

B. Repair, replace and repaint any items or finishes defaced or disfigured by work under this contract.

C. In areas where finished surfaces are soiled by bitumen or any other source of soiling caused by work of this section, consult bitumen manufacturer for cleaning advice and conform to their documented instructions.

3.10 DEBRIS DISPOSAL

A. Contractor shall make his own arrangements for disposal of debris or other waste material away from job site at his own expense, and assume total responsibility for proper disposal of all materials in accordance with local, State and Federal regulations.

B. Debris from project will be removed daily, and at no time allowed to block any thoroughfare. Premises shall be cleaned to satisfaction of the COR.

3.11 PROTECTION OF FINISHED WORK

Where traffic must continue over finished roof membrane, protect surfaces with temporary walk pads or 1/2" plywood sheeting per manufacturer's requirements.

3.12 FINAL INSPECTION PRIOR TO COATING

A. All cap membrane shall be carefully inspected by the owner’s representative for construction damage and imperfect adhesion. Any holes or tears shall be patched with the appropriate cap membrane. The patch must extend at least 4” in all directions from the edges of the tear or puncture. The final inspection of the roofing system shall be done prior to application of the coating. Cover the walk pad with plastic or tarp so that coating is not applied to the walk pad.

3.13 COATING APPLICATION

A. Power wash surface (use pressure of 800 to 1200 psi). Scrub areas with build-up of dirt, grease, and other foreign matter with solution of tri-soduim phosphate (TSP) and water rinse thorough. New granulated cap sheet can be coated within 21 days of original installation or longer as required by either SBS roofing manufacturer or coating manufacturer. Surface must be dry.

Surface and air temperatures must be a minimum of 60°F and rising. DO NOT apply if heavy dew or rain is expected within 24 – 48 hours. Apply on a clear, sunny day in morning hours with a 3/4” nap exterior paint roller or professional airless sprayer. First, apply one coat over all seams and joints. Allow to cure to one hour or until dry, then apply two (2) uniform coats over entire surface, avoiding excessive rolling. Two full coats are needed for

all applications. Apply second coat perpendicular to first coat back rolling where necessary. Allow an additional 1 – 2 coats where standing water exists.

3.14 FIRE WATCH

A. Fire watch shall be provided continuously during and for a t least 3 hours following torch application. At least two 2 – 1/2 gallon containers of water and two 4A60BC extinguishers shall be available during the fire watch. When work is interrupted, or at the end of a section of roofing, and at end of each day's work, areas which had been subjected to torch applications shall be surveyed with an infra-red sensing device. Hot spots shall be cooled and re-surveyed. If a hot spot persists, the roof shall be cut open and any smoldering shall be extinguished before the foreman leaves the site.

END 0F SECTION 07552

SECTION 07620 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Manufactured reglets and counterflashing.
2. Formed roof drainage sheet metal fabrications.
3. Formed low-slope roof sheet metal fabrications.
4. Formed wall sheet metal fabrications.

1.02 SUBMITTALS

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

B. Shop Drawings: Show installation layouts of sheet metal flashing and trim, including plans, elevations, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled work.

1. Include details for forming, joining, supporting, and securing sheet metal flashing and trim, including pattern of seams, termination points, fixed points, expansion joints, expansion-joint covers, edge conditions, special conditions, and connections to adjoining work.

C. Samples: For each exposed product and for each finish specified.

D. Maintenance data.

E. Warranty: Sample of special warranty.

1.03 QUALITY ASSURANCE

A. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or shown on Drawings.

B. Preinstallation Conference: Conduct conference at Project site.

1.04 WARRANTY

A. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 SHEET METALS

A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying a strippable, temporary protective film before shipping.

B. Metallic-Coated Steel Sheet: Restricted flatness steel sheet, metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M.

1. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating designation; structural quality.
2. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, Class AZ50 coating designation, Grade 40 (Class AZM150 coating designation, Grade 275); structural quality.
3. Surface: Mill phosphatized for field.
4. Exposed Coil-Coated Finish:

a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat.
b. Three-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat.
c. Siliconized Polyester: Epoxy primer and silicone-modified, polyester-enamel topcoat.

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

2.02 UNDERLAYMENT MATERIALS

A. Polyethylene Sheet: 6-mil- (0.15-mm-) thick polyethylene sheet complying with ASTM D 4397.

B. Felt: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, nonperforated.

C. Self-Adhering, High-Temperature Sheet: Minimum 30 to 40 mils (0.76 to 1.0 mm) thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.

1. Thermal Stability: ASTM D 1970; stable after testing at 240 deg F (116 deg C).
2. Low-Temperature Flexibility: ASTM D 1970; passes after testing at minus 20 deg F (29 deg C).

D. Slip Sheet: Building paper, 3-lb/100 sq. ft. (0.16-kg/sq. m) minimum, rosin sized.

2.03 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.

1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.

a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating.
b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
c. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.

2. Fasteners for Copper Sheet: Copper, hardware bronze or Series 300 stainless steel.
3. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
4. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.
5. Fasteners for Zinc-Coated (Galvanized) or Aluminum-Zinc Alloy-Coated Steel Sheet: Hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329 or Series 300 stainless steel.

C. Solder:

1. For Copper: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead.
2. For Stainless Steel: ASTM B 32, Grade Sn60, with an acid flux of type recommended by stainless-steel sheet manufacturer.
3. For Zinc-Coated (Galvanized) Steel: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead or Grade Sn60, 60 percent tin and 40 percent lead.

D. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.

E. Elastomeric Sealant: ASTM C 920, elastomeric polymer sealant; low modulus; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

F. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

G. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.

H. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.

2.04 REGLETS

A. Reglets: Units of type, material, and profile indicated, formed to provide secure interlocking of separate reglet and counterflashing pieces, and compatible with flashing indicated with factory-mitered and -welded corners and junctions with interlocking counterflashing on exterior face, of same metal as reglet.

1. Material: Galvanized steel, 0.022 inch (0.56 mm) thick.
2. Finish: With manufacturer's standard color coating.

2.05 FABRICATION, GENERAL

A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, metal thickness, and other characteristics of item indicated. Fabricate items at the shop to greatest extent possible.

1. Obtain field measurements for accurate fit before shop fabrication.
2. Form sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
3. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces exposed to view.

B. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant.

C. Expansion Provisions: Where lapped expansion provisions cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints.

D. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.

E. Seams: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.

F. Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use.

G. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer.

2.06 ROOF DRAINAGE SHEET METAL FABRICATIONS

A. Hanging Gutters: Fabricate to cross section indicated, complete with end pieces, outlet tubes, and other accessories as required. Fabricate in minimum 96-inch- (2400-mm-) long sections. Furnish flat-stock gutter spacers and gutter brackets fabricated from same metal as gutters, of size recommended by SMACNA but not less than twice the gutter thickness. Fabricate expansion joints, expansion-joint covers, gutter bead reinforcing bars**,** and gutter accessories from same metal as gutters.

B. Downspouts: Fabricate rectangular downspouts complete with mitered elbows. Furnish with metal hangers, from same material as downspouts, and anchors.

1. Hanger Style: Concealed.
2. Fabricate from the following materials:

a. Galvanized Steel: 0.022 inch (0.56 mm) thick.

C. Scuppers: Fabricate scuppers of dimensions required with closure flange trim to exterior, 4-inch- (100-mm-) wide wall flanges to interior, and base extending 4 inches (100 mm) beyond cant or tapered strip into field of roof. Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch (0.71 mm) thick.

2.07 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

A. Roof-Edge Flashing (Gravel Stop) and Fascia Cap: Fabricate in minimum 96-inch- (2400-mm-) long, but not exceeding 10-foot- (3-m-) long, sections. Furnish with 6-inch- (150-mm-) wide, joint cover plates. Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch (0.71 mm) thick.

B. Copings: Fabricate in minimum 96-inch- (2400-mm-) long, but not exceeding 10-foot- (3-m-) long, sections. Fabricate joint plates of same thickness as copings. Furnish with continuous cleats to support edge of external leg and interior leg. Miter corners, seal, and solder or weld watertight. Fabricate from the following materials:

1. Galvanized Steel: 0.040 inch (1.02 mm) thick.

C. Base Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch (0.71 mm) thick.

D. Counterflashing and Flashing Receivers: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

E. Roof-Penetration Flashing: Fabricate from the following materials:

1. Lead as indicated in Roofing Specification Section 07536.

F. Roof-Drain Flashing: Fabricate from the following materials:

1. Stainless Steel: 0.016 inch (0.40 mm) thick.

2.08 WALL SHEET METAL FABRICATIONS

A. Through-Wall Flashing: Fabricate continuous flashings in minimum 96-inch- (2400-mm-) long, but not exceeding 12-foot- (3.6-m-) long, sections, under copings, at shelf angles, and where indicated. Fabricate discontinuous lintel, sill, and similar flashings to extend 6 inches (150 mm) beyond each side of wall openings. Form with 2-inch- (50-mm-) high, end dams where flashing is discontinuous. Fabricate from the following materials:

1. Stainless Steel: 0.016 inch (0.40 mm) thick.

B. Opening Flashings in Frame Construction: Fabricate head, sill, jamb, and similar flashings to extend 4 inches (100 mm) beyond wall openings. Form head and sill flashing with 2-inch- (50-mm-) high, end dams. Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

PART 3 - EXECUTION

3.01 UNDERLAYMENT INSTALLATION

A. Polyethylene Sheet: Install polyethylene sheet with adhesive for anchorage. Apply in shingle fashion to shed water, with lapped and taped joints of not less than 2 inches (50 mm).

B. Felt Underlayment: Install felt underlayment with adhesive for temporary anchorage. Apply in shingle fashion to shed water, with lapped joints of not less than 2 inches (50 mm).

C. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free. Comply with temperature restrictions of underlayment manufacturer for installation; use primer rather than nails for installing underlayment at low temperatures. Apply in shingle fashion to shed water, with end laps of not less than 6 inches (150 mm) staggered 24 inches (600 mm) between courses. Overlap side edges not less than 3-1/2 inches (90 mm). Roll laps with roller. Cover underlayment within 14 days.

3.02 INSTALLATION, GENERAL

A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement so that completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.

1. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
3. Space cleats not more than 12 inches (300 mm) apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.
4. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
5. Install sealant tape where indicated.
6. Torch cutting of sheet metal flashing and trim is not permitted.

B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by SMACNA.

1. Coat back side of sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene sheet.

C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with sealant concealed within joints.

D. Fastener Sizes: Use fasteners of sizes that will penetrate wood sheathing not less than 1-1/4 inches (32 mm) for nails and not less than 3/4 inch (19 mm) for wood screws metal decking not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.

E. Seal joints as shown and as required for watertight construction.

F. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches (38 mm), except reduce pre-tinning where pre-tinned surface would show in completed Work.

1. Do not solder metallic-coated steel sheet.
2. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
3. Stainless-Steel Soldering: Tin edges of uncoated sheets using solder recommended for stainless steel and acid flux. Promptly remove acid flux residue from metal after tinning and soldering. Comply with solder manufacturer's recommended methods for cleaning and neutralization.
4. Copper Soldering: Tin edges of uncoated copper sheets using solder for copper.

G. Rivets: Rivet joints in uncoated aluminum where indicated and where necessary for strength.

3.03 ROOF DRAINAGE SYSTEM INSTALLATION

A. General: Install sheet metal roof drainage items to produce complete roof drainage system according to SMACNA recommendations and as indicated. Coordinate installation of roof perimeter flashing with installation of roof drainage system.

B. Hanging Gutters: Join sections with riveted and soldered joints or with lapped joints sealed with sealant. Provide for thermal expansion. Attach gutters at eave or fascia to firmly anchored gutter brackets or straps spaced not more than 36 inches (900 mm) apart. Provide end closures and seal watertight with sealant. Slope to downspouts.

1. Install gutter with expansion joints at locations indicated, but not exceeding, 50 feet (15.24 m) apart. Install expansion-joint caps.

C. Built-in Gutters: Join sections with riveted and soldered or lapped joints sealed with sealant. Provide for thermal expansion. Slope to downspouts. Provide end closures and seal watertight with sealant.

1. Install felt underlayment layer in built-in gutter trough and extend to drip edge at eaves and under felt underlayment on roof sheathing. Lap sides a minimum of 2 inches (50 mm) over underlying course. Lap ends a minimum of 4 inches (100 mm). Stagger end laps between succeeding courses at least 72 inches (1830 mm). Fasten with roofing nails. Install slip sheet over felt underlayment.
2. Install gutter with expansion joints at locations indicated, but not exceeding, 50 feet (15.24 m) apart. Install expansion-joint caps.

D. Downspouts: Join sections with 1-1/2-inch (38-mm) telescoping joints. Provide hangers with fasteners designed to hold downspouts securely to walls. Locate hangers at top and bottom and at approximately 60 inches (1500 mm) o.c. in between.

E. Splash Pans: Install where downspouts discharge on low-slope roofs. Set in adhesive material compatible with the roofing.

F. Scuppers: Install scuppers where indicated through parapet. Continuously support scupper, set to correct elevation, and seal flanges to interior wall face, over cants or tapered edge strips, and under roofing membrane.

3.04 ROOF FLASHING INSTALLATION

A. General: Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

B. Roof Edge Flashing: Anchor to resist uplift and outward forces according to recommendations in SMACNA's "Architectural Sheet Metal Manual" and as indicated. Interlock bottom edge of roof edge flashing with continuous cleat anchored to substrate at staggered 3-inch (75-mm) centers.

C. Copings: Anchor to resist uplift and outward forces according to recommendations in SMACNA's "Architectural Sheet Metal Manual" and as indicated.

1. Interlock exterior bottom edge of coping with continuous cleat anchored to substrate at 24-inch (600-mm) centers.
2. Anchor interior leg of coping with washers and screw fasteners through slotted holes at 24-inch (600-mm) centers.

D. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending a minimum of 4 inches (100 mm) over base flashing. Install stainless-steel draw band and tighten.

E. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing 4 inches (100 mm) over base flashing. Lap counterflashing joints a minimum of 4 inches (100 mm) and bed with sealant.

F. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with elastomeric or butyl sealant and clamp flashing to pipes that penetrate roof.

3.05 WALL FLASHING INSTALLATION

A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to SMACNA recommendations and as indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.

B. Opening Flashings in Frame Construction: Install continuous head, sill, jamb, and similar flashings to extend 4 inches (100 mm) beyond wall openings.

3.06 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder and sealants.

C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.

END OF SECTION 07620

SECTION 07920 - JOINT SEALANTS

PART 1 GENERAL

1.01 REFERENCES

The latest edition of publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 834	Latex Sealants
ASTM C 920	Elastomeric Joint Sealants

1.02 SUBMITTALS

Submit the following in accordance with Section 01330, "Submittals."

Product Data

Sealants

Primers

Bond breakers

Backstops

Data for the sealants shall include shelf life, recommended cleaning solvents, and colors for selection.

1.03 ENVIRONMENTAL CONDITIONS

The ambient temperature shall be within the limits of 40 and 100 degrees F when sealant is applied.

1.04 DELIVERY AND STORAGE

Deliver materials to the job site in unopened manufacturers' external shipping containers, with brand names, date of manufacture, color, and material designation clearly marked thereon. Elastomeric sealant containers shall be labeled to identify type, class, grade, and use. Carefully handle and store materials to prevent inclusion of foreign materials or subjection to sustained temperatures exceeding 100 degrees F or less than 0 degrees F.

PART 2 PRODUCTS

2.01 SEALANTS

Provide sealant that has been tested and found suitable for the substrates to which it will be applied.

A. Interior Sealant

ASTM C 920, Type S or M, Grade NS, Class 12.5, Use NT. Location(s) and color(s) of sealant shall be as follows:

LOCATION	COLOR
1. Small voids between walls or partitions and adjacent lockers, casework, shelving, door frames, built-in or surface-mounted equipment and fixtures, and similar items.	Match adjacent surface color
2. Perimeter of frames at doors, windows, and access panels which adjoin exposed interior concrete and masonry surfaces.	Match adjacent surface color
3. Joints of interior masonry walls and partitions which adjoin columns, pilasters, concrete walls, and exterior walls unless otherwise detailed.	Match adjacent surface color
4. Interior locations, not otherwise indicated or specified, where small voids exist between materials specified to be painted.	Match adjacent surface color
5. Behind escutcheon plates at valve pipe penetrations.	Match adjacent surface color

B. Exterior Sealant

For joints in vertical surfaces, provide ASTM C 920, Type S or M, Grade NS, Class 25, Use NT. For joints in horizontal surfaces, provide ASTM C 920, Type S or M, Grade P, Class 25, Use T. Location(s) and color(s) of sealant shall be as follows:

LOCATION	COLOR
1. Joints and recesses formed where frames and subsills of windows, doors, louvers, and vents adjoin masonry, concrete, or metal frames. Use sealant at both exterior and interior surfaces of exterior wall penetrations.	Match adjacent surface color
2. Joints between new and existing exterior masonry walls.	Match adjacent surface color
3. Masonry joints where shelf angles occur.	Match adjacent surface color
4. Expansion and control joints.	Match adjacent surface color
5. Interior face of expansion joints in exterior concrete or masonry walls where metal expansion joint covers are not required.	Match adjacent surface color
6. Voids where items pass through exterior	Match adjacent

walls.	surface color
7. Metal reglets, where flashing is inserted into masonry joints, and where flashing is penetrated by coping dowels.	Match adjacent surface color
8. Metal-to-metal joints where sealant is indicated or specified.	Match adjacent surface color
9. Joints between ends of gravel stops, fascias, copings, and adjacent walls.	Match adjacent surface color

C. Floor Joint Sealant

ASTM C 920, Type S or M, Grade P, Class 25, Use T. Location(s) and color(s) of sealant shall be as follows:

LOCATION	COLOR
1. Seats of metal thresholds for exterior doors.	Match adjacent surface color
2. Control and expansion joints in floors, slabs, and walkways.	Match adjacent surface color

2.02 PRIMERS

Provide a nonstaining, quick-drying type and consistency recommended by the sealant manufacturer for the particular application.

2.03 BOND BREAKERS

Provide the type and consistency recommended by the sealant manufacturer for the particular application.

2.04 BACKSTOPS

Provide glass fiber roving or neoprene, butyl, polyurethane, or polyethylene foams free from oil or other staining elements as recommended by sealant manufacturer. Backstop material shall be compatible with sealant. Do not use oakum and other types of absorptive materials as backstops.

2.05 CLEANING SOLVENTS

Provide type(s) recommended by the sealant manufacturer except for aluminum and bronze surfaces that will be in contact with sealant.

PART 3 EXECUTION

3.01 SURFACE PREPARATION

Surfaces shall be clean, dry to the touch, and free from dirt frost, moisture, grease, oil, wax, lacquer, paint, or other foreign matter that would tend to destroy or impair adhesion. When resealing an existing joint, remove existing calk or sealant prior to applying new sealant.

A. Steel Surfaces

Remove loose mill scale by sandblasting or, if sandblasting is impractical or would damage finish work, scraping and wire brushing. Remove protective coatings by sandblasting or using a residue-free solvent.

B. Aluminum or Bronze Surfaces

Remove temporary protective coatings from surfaces that will be in contact with sealant. When masking tape is used as a protective coating, remove tape and any residual adhesive just prior to sealant application. For removing protective coatings and final cleaning, use nonstaining solvents recommended by the manufacturer of the item(s) containing aluminum or bronze surfaces.

3.02 SEALANT PREPARATION

Do not add liquids, solvents, or powders to the sealant. Mix multicomponent elastomeric sealants in accordance with manufacturer's instructions.

3.03 APPLICATION

A. Joint Width-To-Depth Ratios

1. Acceptable Ratios:

JOINT WIDTH	JOINT DEPTH	
For metal, glass, or other nonporous surfaces:	Minimum	Maximum
1/4 inch (minimum)	1/4 inch	1/4 inch
over 1/4 inch	1/2 of width	Equal to width
For wood, concrete, or masonry:		
1/4 inch (minimum)	1/4 inch	1/4 inch
Over 1/4 inch to 1/2 inch	1/4 inch	Equal to width
Over 1/2 inch to 2 inches	1/2 inch	5/8 inch
Over 2 inches	(As recommended by sealant manufacturer)	

-0.33>b. Unacceptable Ratios: Where joints of acceptable width-to-depth ratios have not been provided, clean out joints to acceptable depths and grind or cut to acceptable widths without damage to the adjoining work. Grinding shall not be required on metal surfaces.

B. Backstops

Install backstops dry and free of tears or holes. Tightly pack the back or bottom of joint cavities with backstop material to provide a joint of the depth specified. Install backstops in the following locations:

1. Where indicated.

2. Where backstop is not indicated but joint cavities exceed the acceptable maximum depths specified in paragraph entitled, "Joint Width-to-Depth Ratios."

C. Primer

Immediately prior to application of the sealant, clean out loose particles from joints. Where recommended by sealant manufacturer, apply primer to joints in concrete masonry units, wood, and other porous surfaces in accordance with sealant manufacturer's instructions. Do not apply primer to exposed finish surfaces.

D. Bond Breaker

Provide bond breakers to the back or bottom of joint cavities, as recommended by the sealant manufacturer for each type of joint and sealant used, to prevent sealant from adhering to these surfaces. Carefully apply the bond breaker to avoid contamination of adjoining surfaces or breaking bond with surfaces other than those covered by the bond breaker.

E. Sealants

Provide a sealant compatible with the material(s) to which it is applied. Do not use a sealant that has exceeded shelf life or has jelled and can not be discharged in a continuous flow from the gun. Apply the sealant in accordance with the manufacturer's instructions with a gun having a nozzle that fits the joint width. Force sealant into joints to fill the joints solidly without air pockets. Tool sealant after application to ensure adhesion. Sealant shall be uniformly smooth and free of wrinkles. Upon completion of sealant application, roughen partially filled or unfilled joints, apply sealant, and tool smooth as specified.

3.04 PROTECTION AND CLEANING

A. Protection

Protect areas adjacent to joints from sealant smears. Masking tape may be used for this purpose if removed 5 to 10 minutes after the joint is filled.

B. Final Cleaning

Upon completion of sealant application, remove remaining smears and stains and leave the work in a clean and neat condition.

1. Masonry and Other Porous Surfaces: Immediately scrape off fresh sealant that has been smeared on masonry and rub clean with a solvent as recommended by the sealant manufacturer. Allow excess sealant to cure for 24 hour then remove by wire brushing or sanding.

2. Metal and Other Non-Porous Surfaces: Remove excess sealant with a solvent-moistened cloth.

END OF SECTION 07920

SECTION 08110 - STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.01 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI/DHI A115	Steel Door Preparation Standards
ANSI A151.1	Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcings

STEEL DOOR INSTITUTE (SDI)

ANSI/SDI 100	Standard Steel Doors and Frames
SDI 105	Recommended Erection Instructions for Steel Frames
SDI 107	Hardware on Steel Doors (Reinforcement - Application)
SDI 111F	Recommended Completed Opening Anchors for Standard Steel Doors and Frames

1.02 SUBMITTALS

Submit the following in accordance with Section 01330, "Submittals."

Shop Drawings:

Doors

Frames

Show elevations, construction details, metal gages, hardware provisions, method of glazing, and installation details.

Product Data:

Doors

Frames

Accessories

Submit manufacturer's descriptive literature for doors, frames, and accessories. Include data and details on door construction, panel (internal) reinforcement, insulation, and door edge construction.

1.03 DELIVERY, STORAGE, AND HANDLING

Deliver doors, frames, and accessories undamaged and with protective wrappings or packaging. Provide temporary steel spreaders securely fastened to the bottom of each welded frame. Store doors and frames on platforms under cover in clean, dry, ventilated, and accessible locations, with 1/4 inch airspace between doors. Remove damp or wet packaging immediately and wipe affected surfaces dry. Replace damaged materials with new.

PART 2 - PRODUCTS

2.01 STANDARD STEEL DOORS

ANSI/SDI 100, except as specified otherwise. Doors shall be either hollow steel construction or composite construction. Prepare doors to receive hardware specified in Section 08710, "Door Hardware." Undercut doors and frames as indicated. Exterior doors shall have top edge closed flush. Doors shall be 1 3/4 inches thick, unless otherwise indicated.

A. Door Grades:

Extra Heavy-Duty Doors

ANSI/SDI 100, Grade III, Model 2, of size(s) and design(s) indicated.

2.02 ACCESSORIES

A. Moldings

Provide moldings around wire fabric, glass or louvers. Provide nonremovable moldings on the outside of exterior doors and on the corridor side of interior doors. Other moldings may be stationary or removable. Secure inside moldings to the stationary moldings, or provide snap-on moldings. Muntins shall interlock at intersections and shall be fitted and welded to stationary moldings.

2.03 STANDARD STEEL FRAMES

ANSI/SDI 100, except as otherwise specified. Form frames to sizes and shapes indicated, with welded corners. Provide steel frames for doors and transoms, unless otherwise indicated.

A. Welded Frames

Continuously weld frame faces at corner joints. Mechanically interlock or continuously weld stops and rabbets. Grind welds smooth.

B. Stop and Beads

Form stops and beads from 0.9 mm thick (20-gage) steel. Provide for glazed and other openings in standard steel frames. Secure beads to frames with oval-head, countersunk Phillips self-tapping steel metal screws or concealed clips and fasteners. Space fasteners approximately 12 to 16 inches on centers. Miter molded shapes at corners. Butt or miter square or rectangular beads at corners.

C. Terminated Stops

Where indicated, terminate interior door frame stops 150 mm (6 inches) above floor.

D. Anchors

Provide anchors to secure the frame to adjoining construction. Provide steel anchors, zinc-coated or painted with rust-inhibitive paint, not lighter than 1.2 mm thick (18 gage).

1. Wall Anchors

Provide at least three anchors for each jamb. For frames which are more than 2285 mm (7.5 feet) in height, provide one additional anchor for each jamb for each additional 760 mm (2.5 feet) or fraction thereof.

a. Masonry: Provide anchors of corrugated or perforated steel straps or 5 mm (3/16-inch) diameter steel wire, adjustable or T-shaped;

b. Stud Partitions: Weld or otherwise securely fasten anchors to backs of frames. Design anchors to be fastened to wood studs with nails, open steel studs by welding or anchor with minimum 6 mm (1/4-inch) machine bolts as shown.

c. Completed Openings: Secure frames to previously placed concrete or masonry with expansion bolts in accordance with SDI 111F.

2. Bottom Anchors

Provide wall anchors drilled for 3/8-inch anchor bolts at bottom of each jamb member.

2.04 HARDWARE PREPARATION

Reinforce, drill, and tap doors and frames to receive finish hardware. Prepare doors and frames for hardware in accordance with the applicable requirements of SDI 107 and ANSI/DHI A115. Drill and tap for surface-applied hardware at the project site. Build additional reinforcing for surface-applied hardware into the door at the factory. Locate hardware in accordance with the requirements of ANSI/SDI 100, as applicable. Punch door frames with the exception of frames that will have weather stripping to receive a minimum of two rubber or vinyl door silencers on lock side of single doors and one silencer for each leaf at heads of double doors. Set lock strikes out to provide clearance for silencers.

2.05 FINISHES

A. Factory-Primed Finish

Unless specified otherwise, factory prime metal doors and frames as specified in ANSI/SDI 100.

B. Factory-Applied Enamel Finish

After factory priming, apply one coat of medium-gloss enamel to exposed surfaces. Separately bake or oven dry each coat. Drying time and temperature requirements shall be in accordance with the coating manufacturer's recommendations. Color(s) of finish coat shall be as noted and shall match approved color sample(s).

2.06 FABRICATION AND WORKMANSHIP

Finished doors and frames shall be strong and rigid, neat in appearance, and free from defects, waves, scratches, cuts, dents, ridges, holes, warp, and buckle. Molded members shall be clean cut, straight, and true, with joints coped or mitered, well formed, and in true alignment. Dress exposed welded and soldered joints smooth. Design door frame sections for use with the wall construction indicated. Corner joints shall be well formed and in true alignment. Conceal fastenings where practicable. Design frames in exposed masonry walls to allow sufficient space between the inside back of trim and masonry to receive caulking compound.

A. Grouted Frames

All frames to be installed in exterior walls shall be filled with mortar or grout, fill the stops with strips of rigid insulation to keep the grout out of the stops and to facilitate installation of stop-applied head and jamb seals.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Frames

Set frames in accordance with ANSI/SDI 100. Plumb, align, and brace securely until permanent anchors are set. Anchor bottoms of frames with expansion bolts or powder-actuated fasteners. Build in or secure wall anchors to adjoining construction. Backfill frames with mortar. When an additive is provided in the mortar, coat inside of frames with corrosion-inhibiting bituminous material. For frames in exterior walls, ensure that stops are filled with rigged insulation before grout is placed.

B. Doors

Hang doors in accordance with clearances specified in ANSI/SDI 100. After erection and glazing, clean and adjust hardware.

3.02 PROTECTION

Protect doors and frames from damage. Repair damaged doors and frames prior to completion and acceptance of the project or replace with new, as directed. Wire brush rusted frames until rust is removed. Clean thoroughly. Apply an all-over coat of rust-inhibitive paint of the same type used for shop coat.

3.03 CLEANING

Upon completion, clean exposed surfaces of doors and frames thoroughly. Remove mastic smears and other unsightly marks.

END OF SECTION 08110

SECTION 08515 - ALUMINUM REPLACEMENT WINDOWS

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. All materials, equipment and labor necessary for the installation of aluminum windows, with factory glazing, anchors, brackets and attachments, in accordance with drawings and as specified herein.

2. Configurations Including:

Picture Window, Horizontal Slider	With nailing flange for new construction. Milgard Window Co. Series 1110, horizontal sliding window & 710 picture window with horizontal T-bar assembly

1.02 REFERENCES

A. Windows shall comply with the requirements of AAMA/NWWDA 101/I.S.2-97 (American Architectural Manufacturer's Association).

B. Units to meet performance standards for:

1. ASTM E 283 - Test method for inspection rate of air leakage through exterior windows, curtain walls, and doors under specified pressure differences across the specimen.

2. ASTM E 330 - Test method for structural performance of exterior windows, and doors by uniform static air pressure difference.

3. ASTM E 547 - Test method for water penetration of exterior windows, curtain walls, and doors by cyclic static air pressure difference.

1.03 PERFORMANCE REQUIREMENTS

A. Testing standards for air infiltration, water penetration and structural performance: AAMA/NWWDA 101/I.S.2-97 for type of window unit indicated.

B. Air infiltration: Maximum 0.30 CFM per square foot at inward test pressure of 1.57, ASTM E 283.

C. Water penetration: No water penetration at inward test pressure of 3.75 psf, ASTM E 547.

D. Structural performance: No glass breakage, damage to hardware, permanent deformation at positive and negative test pressure of 37.5 psf, ASTM E 330.

1.04 SUBMITTALS

A. Product data: Submit manufacturer's product specifications, technical support data, installation and maintenance recommendations and standard details for each type of unit required, including finishing methods, hardware and accessories.

B. Product drawings: For each type of window specified, submit standard assembly and details for lap siding, stucco, CMU, brick veneer and power wall. Include stacking bar details for any mulled windows or configurations.

C. Color samples: Submit samples of each required aluminum finish.

D. Certification: Provide certification by a recognized, independent testing laboratory certifying that each required type of window complies with performance requirement indicated.

1.05 DELIVERY, STORAGE AND HANDLING

A. Comply with manufacturer's instructions for protection of units from damage.

B. Deliver in manufacturer's protective packaging.

1.06 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing of extruded aluminum with a minimum 10 years documented experience.

1.07 WARRANTY

A. Commercial

1. Provide manufacturer's standard warranty which agrees to repair or replace units that fail in workmanship for a period of ten years from the original date of purchase.

2. Warranty includes coverage of materials and labor in full by the manufacturer.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Subject to compliance of materials and requirements listed.

B. Milgard extruded aluminum windows.

2.02 MATERIALS

A. Aluminum: Comply with requirements of AAMA/NWWDA 101/I.S.2-97, 6063-T5 temper for strength, corrosion resistance and application of required finish. Finish shall be manufacturer’s standard white factory painted unless noted otherwise.

B. Extrusion frame members are to be 0.060 in thickness for structural wall.

2.03 GLASS AND GLAZING:

Provide the manufacturer's standard sealed insulating glazing material that complies with ASTM E 774-88 Class A and is at least 3/4"overall in thickness.

A. Factory glazed except where field glazing is required due to large window unit dimensions.

B. Spacer Bar: PPG Intercept(tm) warm-edge stainless steel spacer.

C. Glazing Stops: Provide screw-applied or snap on glazing stops (beads), coordinated with glass selection and glazing system indicated.

2.04 HARDWARE:

Provide the manufacturer's standard hardware fabricated from a corrosive resistant material and of sufficient strength to perform its intended function. For application of exposed hardware, use fasteners that match the finish of the hardware being fastened. All locking hardware must have certified forced entry resistance performance per CMBSO 1-79, CAWM 300/301.

A. Horizontal Slider: Automatic, spring loaded adjustable positive lock. Self-lubricating, dual nylon rollers operate on monorail track.

2.05 ACCESSORIES

A. Weatherstripping: All operating sash members shall be double weatherstripped with either fin seal, silicone treated polypropylene or dual durometer vinyl bulb seal.

B. Insect Screens: Provide insect screens for each operable exterior sash or ventilator. Locate screens on inside or outside of window sash or ventilator, depending on window type. Design windows and hardware to accommodate screens in a tight-fitting removable arrangement with a minimum of exposed fasteners and latches.

C. Fasteners: Provide aluminum, non-magnetic steel, epoxy adhesive, or other materials warranted by the manufacturer to be non-corrosive and compatible with window members, trim, hardware, anchors and other components of window units. Where fasteners screw-anchor into aluminum frame members less than 0.125" thick, reinforce the interior with aluminum to receive screw threads, or provide standard, non-corrosive, pressed-in, splined grommet nuts.

D. Anchors, Clips and Window Accessories: Fabricate anchors, clips and window accessories of aluminum or non-magnet stainless steel. Anchors, clips and window accessories fabricated of hot-dip zinc coated steel or iron may be used for concealed work.

2.06 FABRICATION

A. Fabricate frames allowing for minimum clearances and shim spacing around perimeter of assembly, yet enabling installation.

B. Corners shall be precisely mitered with rigid, mechanically fastened joints. All joints shall be sealed.

C. Provide drainage holes with moisture pattern to exterior.

D. Prepare components to receive anchor devices. Provide anchorage items.

E. Provide integral weather stop flange to perimeter of unit.

F. Assemble insect screens to fully integrate with window frame. Frames to be manufactured of cambered aluminum and reinforced with rigid plastic corner keys. Screen mesh to fit taut and secure in frame. Door screens are extruded aluminum for strength and durability.

G. Factory glaze except where field glazing is required due to window unit dimensions.

2.07 FINISHES

A. Dark Bronze Anaodized Exterior Finish: Provide fabricator's standard shop finish.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify wall openings and adjoining air and vapor seal materials are ready to receive work of this section.

3.02 INSTALLATION

A. Comply with manufacturer's specifications and recommendations for installation of window units, hardware, operators, accessories and other window components. Comply with AAMA 2410-03 Standard Practice for installation of windows with a flush fin over an existing window frame.

B. Windows shall be factory sized to fit in each framed opening, whether new or created by removing an existing window. Windows will be 1/2"smaller than the framed (rough) opening to allow 1/4"clearance on all sides (tolerance 1/16") for standard wood siding applications.

C. Windows shall be fabricated to rough opening size with 1/2"deductions automatically made, so that no additional calculations will be required.

D. Opening panels must be closed and locked during installation. Windows must be installed level, plumb and square with 1/4"clearance on all sides with weep holes at the bottom in a weather tight manner.

E. Headers must not be nailed. Nail through fin into framing along sides and base. At the head, nails may be placed 1/2"above fin and bent down over fin to allow for header deflection.

F. Adjust operating sash and hardware to provide tight fit at contact points and weatherstripping.

Lubricate hardware and moving parts.

G. Seal frames at corners the full length of the seam where mounting flanges meet.

3.03 CLEANING

A. Clean interior and exterior glass surfaces promptly after installation. Take care to avoid damage to protective coatings and finishes.

B. Clean all exterior aluminum surfaces.

C. Do not use petroleum distillants to clean windows.

END OF SECTION 8515

SECTION 8710 - FINISH HARDWARE

PART 1 – GENERAL

1.01 Summary

A. Section includes providing and installing of finish hardware, electrified hardware and gasketing for swinging doors.

B. Related sections

1. Section 08110 Steel Doors & Frames

1.02 References

A. ANSI/BHMA

1. ANSI A156.1-1988 Hinges
2. ANSI A156.2 -1994 Cylindrical Locks
3. ANSI A156.3-1994 Exit Devices
4. ANSI A156.4-1992 Closers
5. ANSI A156.5-1992 Auxiliary Locks
6. ANSI A156.6-1994 Door Trim
7. ANSI A156.8-1994 Overhead Stops
8. ANSI A156.16-1989 Auxiliary Hardware
9. ANSI A156.18-1993 Materials and Finishes
10. ANSI A156.22-1996 Door Gasketing

B. NFPA

1. NFPA80-1995 Standards for Fire Doors
2. NFPA101-1997 Life Safety Code

C. CABO/ANSI

1. ANSI A117.1-1992 Accessible Buildings

D. DHI

1. Recommended Locations for Architectural Hardware – 1990
2. Sequence and Format for the Hardware Schedule – 1996

3. Abbreviations and Symbols – 1983

4. Keying Systems and Nomenclature – 1989

1.03 Submittals

A. Provide all submittals in accordance with Division 1

B. Detailed schedules to be vertical style. Provide 6 copies within 60 days of award of contract.

C. Schedule and detail each floor separately. For doors of different sizes or where hinges, closers or locks are different, a separate heading shall be used. No labeled openings shall be combined with non-labeled openings.

D. Submit 4 copies of product data sheets with detailed schedules. Product data sheets to indicate those products conform to quality, function and design as specified.

E. Provide manufacturers installation templates for hinges, locks and latches, flush bolts, exit devices and closers to door and frame manufacturers within 60 days of award of contract.

G. Provide 6 copies of keying schedule using format described in DHI manual “Keying systems and Nomenclature” within 60 days of award of contract.

H. Provide 6 copies of manufacturers wiring diagrams for installation of electrically operated hardware.

I. Upon substantial completion of project, provide 3 copies of manufacturers operation and maintenance manuals for mortise locks, exit devices, closers and closer holder release devices. Manuals to be bound in 3-ring binder with project name on front.

1.04 Quality Assurance

A. Manufacturers part numbers indicated are intended to be a guide as to design, quality, function and service. Substitutions will be considered only if application is made a minimum of 10 days prior to bid in accordance with provisions in Division 1. Provide all substantiating data to support equivalency of design, quality, function and service of requested substitute items.

B. Finish hardware supplier shall have been regularly engaged in the business of supplying finish hardware for a minimum of 3 years and shall have a full time staff employee that is an accredited Architectural Hardware Consultant.

1.05 Delivery and Storage

A. Finish hardware items shall be packed in manufacturers original carton with hardware set number and door number clearly marked on each item box.

B. Delivery of finish hardware shall be to the project location or other storage location as specified.

1. Hardware shall be ordered so that it will be available on time for job requirements.

2. Coordinate hardware with related trades such as aluminum, steel and wood doors, frames, millwork and others as applicable.

C. Storage of finish hardware shall be in a secured, lighted area protected from the elements and other damage.

1.06 Warranty

A. All finish hardware shall be warranted against defects in material and workmanship for a period of 1-year minimum from project substantial completion.

B. Exit devices to be warranted against defects in material and workmanship for a period of 5 years from date of manufacture.

C. Surface closers to be warranted against defects in material and workmanship for a period of 25 years from date of manufacture.

D. Cylindrical locks to be warranted against defects in material and workmanship for a period of 10 years from date of manufacture..

E. Division 1 section on Warranties and Bonds affecting this section shall take precedence unless warranties listed in this section are in excess of Division 1 requirements; then this section shall take precedence.

1.07 Maintenance

A. Furnish notification of requirements and procedures for finish hardware items requiring periodic maintenance and/or adjustment as specified by manufacturer.

B. Upon occupancy of building, arrange an appointment with the Owner's representative to instruct this person in the proper use, servicing, adjusting and maintenance of the hardware furnished under this section.

C. Furnish 50 extra key blanks upon completion of project.

D. Furnish two each of special adjusting tools furnished with hardware.

E. Furnish 6 each of typical fasteners used to install hardware.

F. Provide representative templates, instruction sheets and installation details to the Owner's representative upon acceptance of building. This information to include one copy each of the hardware and keying schedules and shall be incorporated into a binder.

PART 2 – PRODUCTS

2.01 The following manufacturers meet the quality, design and function requirements for the project:

Product	Manufacturer
Hinges	PBB, Inc. – Ontario, CA
Continuous Hinges	PBB, Inc. – Ontario, CA
Locksets	PDQ Lock Company – Leola, PA

Exit Devices	Von Duprin – Indianapolis, IN
Anti-Vandal Pulls	Trimco – Los Angeles, CA
Closers	Norton - Monroe – Monroe, NC
Door Pulls/Push	Trimco – Los Angeles, CA
Thresholds and Seals	National Guard Products – Memphis, TN
Protective Plates	Trimco – Los Angeles, CA
Overhead Stops	Dorma Architectural Hardware – Reamstown, PA
Door Stops	Door Controls International – Dexter, MI
Coordinators	Door Controls Int.– Dexter, MI
Auto Flush Bolts	Door Controls Int.– Dexter, MI

2.02 Materials

All screws to be Phillips head. Provide sex nuts and/or bolts for through bolting of hardware to fire rated doors as required by NFPA 80.

A. Hinges and Continuous Hinges

1. Quantity required

A. Doors up to 60” high – 2 required

B. One additional hinge for each additional 30” or fraction thereof in door height over 60”

2. Hinge height

A. 1¾” thick door up to 36” wide – 4½”

B. 1¾” thick door 36” to 48” wide – 5”

3. Use heavy weight hinges for doors over 41” wide.

4. All door hinges shall be ball bearing type.

5. Provide continuous hinges for reverse bevel exterior doors equipped with locking device.

6. Hinges shall conform to ANSI A156.1

B. Flush Bolts/Surface Bolts

1. Shall be Door Controls Intl. 945 or 962 series as specified.

2. Shall conform to ANSI A156.5

C. Locksets

1. Cylindrical locks shall be PDQ Lock Company “XGT” series, interchangeable core to accept Best Lock Co. 7 pin cores. Verify keyway requirements with JFTB Facilities Dept.

2. Locks and cylinder housings to be of same manufacturer.

3. Locksets shall be cylindrical, conforming to ANSI A156.2, Grade 1

4. Trim to be flat lever design. Lever trim to return to within ½” of door face with plate trim through bolted.

   A. Provide curved lip strikes

   B. Provide knurled tactile lever on electrical or mechanical room doors.

D. Exit Devices

1. Exit Devices shall be Von Duprin 99 series as specified.

2. Devices shall conform to ANSI A156.3, Grade 1

3. Devices used on fire rated doors shall have UL label for fire rating equal to or greater than opening requirement.

4. Devices shall be push pad type. Exterior trim where used shall closely match trim on balance of locks.

5. Exterior trim shall be Trimco 1091 Anti-Vandal Pull as specified.

E. Door Closers

1. Door closers shall be American Eagle 7100 series as specified.

2. Closers shall conform to ANSI A156.4, Grade 1, surface type.

3. “Door Saver” closers shall be adjusted to 95 degree door swing as appropriate.

F. Push and Pull Plates

1. Shall be Trimco #71 series as specified, or approved equal.

2. Shall conform to ANSI A156.6.

3. Standard plate size shall be 4” x 16”.

4. Provide with countersunk screw holes and oval head wood or machine screws as necessary. Push plates shall be beveled on all four sides.

G. Protective Plates

1. Protective plates shall be Trimco #90 series as specified, or approved equal.

2. Shall conform to ANSI A156.6.

3. Provide with countersunk screw holes and oval head wood screws or machine screws as necessary.

4. Protective Plates shall be beveled on top, bottom and side edges.

   A. Sizes
      1. Kick plate – 10" x door width less 2" x .050 thick for single doors.
      2. Kick plate – 10" x door width less 1" x .050 thick for pairs of doors.
      3. Mop plate – 6" x door width less 1" x .050 thick for single doors.
      4. Mop plate – 6" x door width less 1" x .050 thick for pairs of doors.

H. Overhead Stops/Holders

1. Overhead stops shall be Dorma 900 series as specified, or approved equal.

2. Shall conform to ANSI A156.8.

I. Door Stops/Wall Stops

1. Door Stops shall be Door Controls Intl. as specified, or approved equal.

2. Shall be provided with fasteners for walls as follows:

   A. Drywall or other sheeting: Toggler and sheet metal screws

   B. Masonry: Expansion anchor and machine screws

   C. Wood Doors: Wood screws

   D. Hollow Metal Doors: Sheet metal screws

J. Door Gasketing

1. Door Gasketing shall be National Guard as specified.

2. Shall conform to ANSI A156.22-1996.

3. Gasketing for fire doors shall conform to Positive Pressure requirements under UL10C and UBC 7.2-1996

2.03 Finishes

A. General finish is 630 (satin stainless steel).

1.	Hinges	630	(satin stainless steel)
2.	Locks and Latches	626	(satin chrome)
3.	Exit Devices, Push/Pulls and Protective plates.	630	(satin stainless steel)
4.	Overhead Stops	626	(satin chrome)
5.	Auxiliary Hardware	630	(satin stainless steel)
	or	626	(satin chrome)
6.	Door Closers	689	(aluminum paint)

7.	Door Stops	630	(satin stainless steel)
8.	Gasketing	as specified.	

2.04 Keying

A. Locks to be provided with construction cores. Change out of construction cores to Best Lock Co. permanent cores shall be performed by contractor with owner's representative and JFTB Facilities representative upon acceptance of project.

B. Construction change keys to be delivered to contractor's representative at job site.

2.05 Key Control

A. Provide a key control cabinet comparable to MMF 201-6000 series. Key cabinet shall have capacity equivalent to number of key changes plus 20%. Set up the key cabinet with all change keys tagged and indexed with a cross-index system. Deliver key cabinet to the Owner's representative prior to building occupancy. Instruct owner's representative in the use of the key control system. Installation and hanging of keys on hooks shall be by the owner.

PART 3 – EXECUTION

3.01 Examination

A. Examine door frames for proper installation, squareness, fit and preparation for installation of finish hardware. Repair, adjust or replace as required.

B. Group finish hardware by door number and confirm all scheduled items and fasteners required are available for installation. Obtain missing items as required.

3.02 Installation

A. Install finish hardware in accordance with manufacturer's instructions and templates.

B. Install finish hardware in accordance with DHI recommended locations for architectural hardware.

C. Installation shall be completed by a firm and personnel who have been regularly engaged in the business of installation of finish hardware for a minimum of 3 years.

D. Coordinate with Division 16 for connection of electrified hardware.

E. Upon completion of installation, provide an inspection by an accredited Architectural Hardware Consultant to confirm the proper installation of hardware per the approved schedule. Make corrections as required.

3.03 Adjusting and Cleaning

A. All finish hardware to be left clean and free of disfigurement.

B. Adjust all finish hardware for proper fit and operation.

C. Final closer adjustment to be made a substantial completion of project when HVAC system is operating normally and building openings are in normal operation condition.

3.04 Protection

A. Provide for the protection of all finish hardware items until final acceptance by the architect upon project completion.

3.05 Hardware Groups

HW-1

2	ea	Continuous Hinge	CH51	630	PBB
1	ea	Exit Device (active door)	99CD-NL x double door strike	626	VON
1	ea	Anti-Vandal Pull	1091SS	630	TRM
1	ea	Rim Cylinder Housing (exterior access)*	ICR7	626	GMS
1	ea	Mortise Cylinder Housing (interior)*	ICM7-ST	626	GMS
1	set	Self-latching flush bolts (inactive door)	845	630	DCI
1	ea	Dustproof Strike	80	630	DCI
1	ea	Door Coordinator	664	PC	DCI
2	ea	Door Closer	8501 CLP	Alum.	NOR
2	ea	Kick Plate	#90 - 10" x 2" LDW B4E	630	DJO
1	ea	Door Bottom - 36"	220SA	Alum.	NGP
1	ea	Door Bottom - 28"	220SA	Alum.	NGP
1	ea	Threshold/ADA ramp**	R0100	Alum.	NGP
1	set	Weatherstrip	A626A	Alum.	NGP
1	ea	Astragal	158SA	Alum.	NGP

* - IC cores to be provided by end user, or obtained by contractor upon request

** - Spec based on 1" sill height, please adjust part number per field measurements

HW-2

1	ea	Continuous Hinge	CH51	630	PBB
1	ea	Exit Device	99CD-NL	626	VON
1	ea	Anti-Vandal Pull	1091SS	630	TRM
1	ea	Rim Cylinder Housing (exterior access)*	ICR7	626	GMS
1	ea	Mortise Cylinder Housing (interior)	ICM7-ST	626	GMS
1	ea	Door Closer	8501 CLP	Alum.	NOR
1	ea	Kick Plate	#90 - 10" x 2" LDW B4E	630	DJO
1	ea	Door Bottom - 42"	220SA	Alum.	NGP
1	ea	Threshold/ADA ramp**	R0100	Alum.	NGP

1	set	Weatherstrip	A626A	Alum.	NGP

* - IC cores to be provided by end user, or obtained by contractor upon request

** - Spec based on 1" sill height, please adjust part number per field measurements

PBB	PBB Hinge	Ontario, CA
VON	Von Duprin	Indianapolis, IN
TRM	Trimco	Los Angeles, CA
GMS	GMS	Redmond, WA
DCI	Door Controls International	Dexter, MI
NOR	Norton Door Controls	Monroe, NC
DJO	Don-Jo Manufacturing	Sterling, MA
NGP	National Guard Products	Memphis, TN

3.06 Door Index

01	HW-1
02	HW-1
03	HW-2

END OF SECTION 08710

SECTION 08800 - GLAZING

PART 1 - GENERAL

1.01 REFERENCES

The latest edition of publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z97.1	Safety Glazing Materials Used in Buildings

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C669	Glazing Compounds for Back Bedding and Face Glazing of Metal Sash
ASTM C864	Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers
ASTM C920	Elastomeric Joint Sealants
ASTM C1036	Flat Glass
ASTM C1048	Heat-Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass
ASTM D673	Mar Resistance of Plastics
ASTM D4802	Poly(Methyl Methacrylate) Acrylic Plastic Sheet
ASTM E163	Fire Tests of Window Assemblies
ASTM E774	Sealed Insulating Glass Units

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

16 CFR 1201	Architectural Glazing Materials

GLASS ASSOCIATION OF NORTH AMERICA (GANA)

GANA GM	Glazing Manual
GANA SM	Sealant Manual

THE INSULATING GLASS MANUFACTURERS ALLIANCE (IGMA)

SIGMA A1202	Commercial Insulating Glass Dimensional Tolerances
SIGMA TM-3000	Glazing Guidelines for Sealed Insulating Glass Units

1.02 SUBMITTALS

Submit the following in accordance with Division 1, Submittal Section.

A. Manufacturer's Instructions

1. Setting and sealing materials

2. Glass setting

3. Submit glass manufacturer's recommendations for glass sizes and thickness, setting and sealing materials and for installation of each type of glazing material specified.

B. Samples: submit 12” square sample of each type of glass.

1.03 DELIVERY, STORAGE, AND HANDLING

Deliver products to the site in unopened containers, labeled plainly with manufacturers' names and brands. Store glass or polycarbonate and setting materials in safe, dry locations and do not unpack until needed for installation. Handle and install materials in a manner that will protect them from damage.

1.04 ENVIRONMENTAL REQUIREMENTS

Do not start glazing work until the temperature is above 40 degrees F and rising, unless procedures recommended by the glass or polycarbonate manufacturer and approved by the Contracting Officer’s Representative (COR) are made to warm the glass and rabbet surfaces. Provide ventilation to prevent condensation of moisture on glazing work during installation. Do not perform glazing work during damp or rainy weather.

PART 2 - PRODUCTS

2.01 GLASS

ASTM C1036, unless specified otherwise. In doors and sidelights, provide safety glazing material conforming to 16 CFR 1201.

A. Glass

PPG Solargrey or equal. Verify glass thickness for sizes shown with manufacturer’s requirements. Provide tempered glass where required by 2010 California Building Code (CBC).

2.02 SETTING AND SEALING MATERIALS

Provide as specified in the GANA GM, SIGMA TM-3000, SIGMA TB-3001, and manufacturer's recommendations, unless specified otherwise herein. Do not use metal sash putty, nonskinning compounds, nonresilient preformed sealers, or impregnated preformed gaskets. Materials exposed to view and unpainted shall be gray or neutral color.

A. Elastomeric Sealant

ASTM C920, Type S or M, Grade NS, Class 12.5, Use G. Use for channel or stop glazing metal sash. Sealant shall be chemically compatible with setting blocks, edge blocks, and sealing tapes, with sealants used in manufacture of insulating glass units. Color of sealant shall be match existing.

B. Preformed Channels

Neoprene, vinyl, or rubber, as recommended by the glass manufacturer for the particular condition.

C. Sealing Tapes

Preformed, semisolid, polymeric-based material of proper size and compressibility for the particular condition. Use only where glazing rabbet is designed for tape and tape is recommended by the glass or sealant manufacturer. Provide spacer shims for use with compressible tapes. Tapes shall be chemically compatible with the product being set.

D. Setting Blocks and Edge Blocks

Lead or neoprene of 70 to 90 Shore "A" durometer hardness, chemically compatible with sealants used, and of sizes recommended by the glass manufacturer.

E. Accessories

Provide as required for a complete installation, including glazing points, staples, clips, shims, angles, beads, and spacer strips. Provide noncorroding metal accessories. Provide primer-sealers and cleaners as recommended by the glass and sealant manufacturers.

PART 3 - EXECUTION

3.01 PREPARATION

Preparation, unless otherwise specified or approved, shall conform to applicable recommendations in the GANA GM, GANA SM, SIGMA TB-3001, SIGMA TM-3000, and manufacturer's recommendations. Determine the sizes to provide the required edge clearances by measuring the actual opening to receive the glass. Grind smooth in the shop glass edges that will be exposed in finish work. Leave labels in place until the installation is approved, except remove applied labels on heat-absorbing glass and on insulating glass units as soon as glass is installed. Securely fix movable items or keep in a closed and locked position until glazing compound has thoroughly set.

3.02 GLASS SETTING

Shop glaze or field glaze items to be glazed using glass of the quality and thickness specified or indicated. Glazing, unless otherwise specified or approved, shall conform to applicable recommendations in the GANA GM, GANA SM, SIGMA TB-3001, SIGMA TM-3000, and manufacturer's recommendations. Handle and install glazing materials in accordance with manufacturer's instructions. Use beads or stops which are furnished with items to be glazed to secure the glass in place.

A. Sheet Glass

Cut and set with the visible lines or waves horizontal.

B. Installation of Heat-Absorbing Glass

Glass shall have clean-cut, factory-fabricated edges. Field cutting will not be permitted.

3.03 Tolerances and Clearances of Units

Design to prevent the transfer of stress in the setting frames to the glass. Springing, twisting, or forcing of units during setting will not be permitted.

3.04 CLEANING

Clean glazing surfaces per manufacturer’s recommendations. Remove labels, paint spots, putty, and other defacement as required to prevent staining. Glazing shall be clean at the time the work is accepted.

END OF SECTION 08800

SECTION 09220 - PORTLAND CEMENT PLASTER (STUCCO)

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the following:

1. Nonstructural framing and furring.
2. Exterior portland cement plasterwork (stucco) on metal lath and solid**-** plaster bases.

1.02 SUBMITTALS

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

B. Samples: For each type of factory-prepared colored and textured finish coat indicated; 12 by 12 inches (305 by 305 mm), and prepared on rigid backing.

C. Manufacturer's printed instructions for application of finish coats, base primer, fiberglass mesh architectural foam panels, base coat, leveling coat, lath, and perimeter flashing at all openings or patched openings.

1.03 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: For portland cement plaster assemblies with fire-resistance ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

B. Mockups: Before plastering, install mockups of at least 100 sq. ft. (9 sq. m) in surface area to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Install mockups for each type of finish indicated.
2. For interior plasterwork, simulate finished lighting conditions for review of mockups.
3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.04 PROJECT CONDITIONS

A. Comply with ASTM C 926 requirements.

B. Exterior Plasterwork: Apply plaster when ambient temperature is greater than 40 deg F (4.4 deg C).

PART 2 - PRODUCTS

2.01 MANUFACTURERS

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

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
2. Products: Subject to compliance with requirements, provide one of the products specified.

2.02 NONSTRUCTURAL STEEL FRAMING MEMBERS, GENERAL

A. Components, General: Comply with ASTM C 1063. For steel sheet components not included in ASTM C 1063, comply with ASTM C 645 requirements for metal, unless otherwise indicated.

B. Cold-Rolled Channels: Base metal thickness of 0.0538 inch (1.37 mm) with ASTM A 653/A 653M, G60 (Z180), hot-dip galvanized zinc coating.

C. Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, not less than 0.0475-inch (1.21-mm) diameter, unless otherwise indicated.

2.03 STEEL FRAMING FOR CEILINGS

A. Suspended Furring:

1. Main Runners (Carrying Channels): Cold-rolled channels, in depth indicated.
2. Cross Furring: Cold-rolled channels, 3/4 inch (19.1 mm) deep.

B. Direct Furring: Cold-rolled channels, 3/4 inch (19.1 mm) deep.

C. Tie Wire:

1. For tying main runners directly to beams or joists (where wire hangers are used between beams or joists), use double loop of 0.1205-inch- (3.06-mm-) diameter wire.
2. For tying furring directly to concrete structure without main runners, use 0.0800-inch- (2.03-mm-) diameter wire.
3. For tying furring directly to steel or wood structure without main runners, use double loop of 0.0625-inch- (1.59-mm-) diameter wire, or quadruple loop of 0.0475-inch- (1.21-mm-) diameter wire.
4. For saddle tying cross furring to main runners use 0.0625-inch- (1.59-mm-) diameter wire, or double strand of 0.0475-inch- (1.21-mm-) diameter wire.

D. Wire Hangers: 0.162-inch- (4.12-mm-) diameter wire.

2.04 METAL LATH

A. Expanded-Metal Lath: ASTM C 847 with ASTM A 653/A 653M, G60 (Z180), hot-dip galvanized zinc coating.

1. Diamond-Mesh Lath: Self-furring.

    a. Weight: 3.4 lb/sq. yd. (1.8 kg/sq. m).

B. Wire-Fabric Lath:

1. Welded-Wire Lath: ASTM C 933; self-furring.

    a. Weight: 1.4 lb/sq. yd. (0.8 kg/sq. m).

2. Woven-Wire Lath: ASTM C 1032; self-furring, with stiffener wire backing.

    a. Weight: 1.1 lb/sq. yd. (0.6 kg/sq. m). Type: 1 1/2", #17.

C. Paper Backing: FS UU-B-790, Type I Grade D, Style 2 vapor-permeable paper.

1. Provide paper-backed lath unless otherwise indicated.

2.05 ACCESSORIES

A. General: Comply with ASTM C 1063 and coordinate depth of trim and accessories with thicknesses and number of plaster coats required.

B. Zinc and Zinc-Coated (Galvanized) Accessories:

1. Foundation Weep Screed: Fabricated from hot-dip galvanized steel sheet, ASTM A 653/A 653M, G60 (Z180) zinc coating.
2. Cornerite: Fabricated from metal lath with ASTM A 653/A 653M, G60 (Z180), hot-dip galvanized zinc coating.
3. External-Corner Reinforcement: Fabricated from metal lath with ASTM A 653/A 653M, G60 (Z180), hot-dip galvanized zinc coating.
4. Cornerbeads: Fabricated from zinc or zinc-coated (galvanized) steel.

    a. Small-nose style; use unless otherwise indicated.

5. Casing Beads: Fabricated from zinc or zinc-coated (galvanized) steel; square-edged style; with expanded flanges.
6. Control Joints: Fabricated from zinc or zinc-coated (galvanized) steel; one-piece-type, folded pair of unperforated screeds in M-shaped configuration; with perforated flanges and removable protective tape on plaster face of control joint.
7. Expansion Joints: Fabricated from zinc or zinc-coated (galvanized) steel; folded pair of unperforated screeds in M-shaped configuration; with expanded flanges.
8. Two-Piece Expansion Joints: Fabricated from zinc or zinc-coated (galvanized) steel; formed to produce slip-joint and square-edged reveal that is adjustable from 1/4-to-5/8-inch (6.34-to-16-mm) wide; with perforated flanges.

C. Plastic Trim: Fabricated from high-impact PVC.

1. Cornerbeads: With perforated flanges.

    a. Small-nose Bull-nose style; use unless otherwise indicated.

2. Casing Beads: With perforated flanges in depth required to suit plaster bases indicated and flange length required to suit applications indicated.

a. Square-edge style; use unless otherwise indicated.

3. Control Joints: One-piece-type, folded pair of unperforated screeds in M-shaped configuration; with perforated flanges and removable protective tape on plaster face of control joint.
4. Expansion Joints: Two-piece type, formed to produce slip-joint and square-edged 1/2-inch- (13-mm-) wide reveal; with perforated concealed flanges.

2.06 MISCELLANEOUS MATERIALS

A. Water for Mixing: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.

B. Fiber for Base Coat: Alkaline-resistant glass or polypropylene fibers, 1/2 inch (13 mm) long, free of contaminants, manufactured for use in portland cement plaster.

C. Bonding Compound: ASTM C 932.

D. Steel Drill Screws: For metal-to-metal fastening, ASTM C 1002 or ASTM C 954, as required by thickness of metal being fastened; with pan head that is suitable for application; in lengths required to achieve penetration through joined materials of not fewer than three exposed threads.

E. Fasteners for Attaching Metal Lath to Substrates: Complying with ASTM C 1063.

F. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing), produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

G. Isolation Strip at Exterior Walls:

1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), unperforated.
2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch (3.1 mm) thick, in width to suit steel stud size.

H. Acoustical Sealant for Exposed and Concealed Joints: Nonsag, paintable, nonstaining, latex sealant complying with ASTM C 834 that effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Products:

a. OSI Sealants, Inc.; Pro-Series, SC 175 Acoustical Sound Sealant Non-Flammable - Latex.
b. Pecora Corporation; AC-20 + Silicone.
c. Tremco Incorporated; Tremflex 834.
d. United States Gypsum Co.; SHEETROCK Acoustical Sealant.

I. Acoustical Sealant for Concealed Joints: Nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce airborne sound transmission.

1. Products:

    a. OSI Sealants, Inc.; Pro-Series SC 170 Acoustical Sound Sealant - Solvent.
    b. Pecora Corporation; BA-98.
    c. Tremco, Inc.; Tremco Acoustical Sealant.

2.07 PLASTER MATERIALS

A. Portland Cement: ASTM C 150, Type I.

1. Color for Finish Coats: Omega #1836-1 or as required to match color and finish on Building 21. Contact Steve Taylor @ Omega Products for color match, product information and submittal assistance, ph. (714) 240-5756, email: staylor@omega-products.com.

B. Colorants for Job-Mixed Finish-Coats: Colorfast mineral pigments that produce finish plaster color to match Architect's sample.

C. Lime: ASTM C 206, Type S; or ASTM C 207, Type S.

D. Sand Aggregate: ASTM C 897.

1. As required for Omega products Malibu 20 finish.

E. Acrylic-Based Finish Coating System: Factory-mixed acrylic-emulsion coating systems, formulated with colorfast mineral pigments and fine aggregates; for use over portland cement plaster base coats. Include manufacturer's recommended primers and sealing topcoats for acrylic-based finishes. System shall be applied in such a manner as to provide a uniform finish result on both existing and new installed plaster applications.

1. System Products:

    a. Skim/ Leveling Coat: OMEGA Products StyroGlue DryBond polymer modified.
    b. Fiberglass Mesh: OMEGA 4.5 oz. Reinforcing Mesh.
    c. Base Primer: OMEGA Products AkroFlex base primer.
    d. Acrylic Finish: OMEGA Products AkroFlex Malibu 20.
    e. Architectural Foam Panels: Expanded polystyrene designed and approved for applications shown in dimensions shown as approved by finish coating system manufacturer.

2.08 PLASTER MIXES

A. General: Comply with ASTM C 926 for applications indicated.

1. Fiber Content: Add fiber to base-coat mixes after ingredients have mixed at least two minutes. Comply with fiber manufacturer's written instructions for fiber quantities in mixes, but do not exceed 1 lb of fiber/cu. yd. (0.6 kg of fiber/cu. m) of cementitious materials. Reduce aggregate quantities accordingly to maintain workability.

B. Portland Cement Base-Coat Mixes:

1. Over Metal Lath: Scratch and brown coats for three-coat plasterwork as follows:

a. Scratch Coat: For cementitious material, mix 1 part portland cement and 0 to 3/4 parts lime. Use 2-1/2 to 4 parts aggregate per part of cementitious material (sum of separate volumes of each component material).
b. Brown Coat: For cementitious material, mix 1 part portland cement and 0 to 3/4 parts lime. Use 3 to 5 parts aggregate per part of cementitious material (sum of separate volumes of each component material).

C. Portland Cement Job-Mixed Finish-Coat Mixes: For cementitious materials, mix 1 part portland cement and 3/4 to 1-1/2 parts lime. Use 1-1/2 to 3 parts aggregate per part of cementitious material (sum of separate volumes of each component material).

D. Factory-Prepared Finish-Coat Mixes: For acrylic-based finish coatings, comply with manufacturer's written instructions.

PART 3 - EXECUTION

3.01 PREPARATION

A. Protect adjacent work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering.

B. Prepare solid-plaster bases that are smooth or that do not have the suction capability required to bond with plaster according to ASTM C 926.

3.02 INSTALLATION, GENERAL

A. Sound Attenuation Blankets: Where required, install blankets before installing lath unless blankets are readily installed after lath has been installed on one side.

B. Acoustical Sealant: Where required, seal joints between edges of plasterwork and abutting construction with acoustical sealant.

3.03 INSTALLING NONSTRUCTURAL STEEL FRAMING, GENERAL

A. General: Comply with requirements in ASTM C 1063 for applications indicated.

1. Comply with ASTM C 754 for installation of items not addressed in ASTM C 1063.

B. Install supplementary framing, blocking, and bracing at terminations in plaster assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.

C. Isolate steel framing from building structure to prevent transfer of loading imposed by structural movement.

D. Do not bridge building control and expansion joints with steel framing or furring members. Frame both sides of joints independently.

E. Soffits: Unless otherwise detailed on Drawings, install furred or suspended soffits to comply with requirements for ceiling installation; install framed soffits to comply with requirements for partition installation.

3.04 INSTALLING STEEL FRAMING FOR CEILINGS

A. Suspend ceiling hangers from building structure as follows:

1. Install hangers plumb and free of contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to limit deflection to 1/360 of span while supporting ceiling loads.
3. Wire Hangers: Secure by looping and tying, either directly to structure or directly to fasteners that are secure and appropriate for substrate, in a manner that will not cause them to deteriorate or otherwise fail.
4. Do not support ceilings directly from permanent metal forms. Secure to fastener devices that extend through forms.
5. Do not attach hangers to steel deck tabs.
6. Do not attach hangers to steel roof deck. Attach hangers to structural members.
7. Do not connect steel framing to or suspend it from ducts, pipes, or conduit.

B. Sway-brace suspended steel framing with hangers used for support.

C. Install steel framing components for ceilings in sizes and spacings indicated but not less than that required by the referenced steel framing and installation standards.

3.05 INSTALLING METAL LATH

A. Expanded-Metal Lath: Install according to ASTM C 1063.

1. Partition Framing and Vertical Furring: Install flat diamond-mesh or flat rib welded-wire lath.
2. Flat-Ceiling and Horizontal Framing: Install flat diamond-mesh or flat rib woven-wire lath.

3.06 INSTALLING ACCESSORIES

A. Install according to ASTM C 1063 and at locations indicated on Drawings.

B. Reinforcement for External Corners:

1. Install lath-type external-corner reinforcement at exterior locations.
2. Install cornerbead at interior and exterior locations.

C. Control Joints: Install control joints in specific locations approved by Architect for visual effect**:**

1. As required to delineate plasterwork into areas (panels) of the following maximum sizes:

a. Vertical Surfaces: 144 sq. ft. (13.4 sq. m).
b. Horizontal and other Nonvertical Surfaces: 100 sq. ft. (9.3 sq. m).

2. At distances between control joints of not greater than 18 feet (5.5 m) o.c.

3. As required to delineate plasterwork into areas (panels) with length-to-width ratios of not greater than 2-1/2:1.
4. Where control joints occur in surface of construction directly behind plaster.
5. Where plasterwork areas change dimensions, to delineate rectangular-shaped areas (panels) and to relieve the stress that occurs at the corner formed by the dimension change.

3.07 PLASTER APPLICATION

A. General: Comply with ASTM C 926.

B. Bonding Compound: Apply on plaster bases.

C. Architectural Foam Panels: Apply on plaster basis per finish coating manufacturer's written instructions.

D. Plaster Finish Coats: Apply to provide float finish to match Architect's sample.

E. Acrylic-Based Finish Coatings: Apply coating system, including primers, finish coats, and sealing topcoats, according to manufacturer's written instructions. Contact Steve Taylor @ Omega Products International, Inc. for application related inquires ph. (714) 240-5756.

3.08 CUTTING AND PATCHING

A. Cut, patch, replace, and repair plaster as necessary to accommodate other work and to restore cracks, dents, and imperfections. Repair or replace work to eliminate blisters, buckles, crazing (check cracking), dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.

END OF SECTION 09220

SECTION 09910 - PAINTING

PARTS 1 - GENERAL

1.01 SUMMARY:

A. Section Includes: Painting and finishing of all interior and exterior items and surfaces, unless otherwise indicated or listed under exclusions below:

1. Paint all exposed surfaces of roof accessories, roof access hatches, roof ladders and all previously painted items at roof tops, except as otherwise indicated, whether or not colors are designated.
2. Include field painting of previously painted exposed exterior and interior plumbing, mechanical and electrical work located within work areas and roof tops.
3. Paint exterior stucco to match color seamlessly with adjacent surfaces where indicated to be patched on Drawings.

B. Work Included:

1. The intent and requirements of this section is that all work, items and surfaces which are normally painted and finished in a building of this type and quality, shall be so included in this contract, whether or not said work, item or surface is specifically called out and included in the schedules and notes on the drawings, or is, or is not, specifically mentioned in these specifications.

C. The following general categories of work and items that are included under other sections, shall not be a part of this section:

1. Shop prime painting of structural and miscellaneous iron or steel.
2. Shop prime painting of hollow metal work.
2. Shop finished work and items.

D. The notes indicated on the drawings, indicate the location surfaces to be painted or finished. The note indications are general and do not necessarily define the detail requirements. Include all detailed refinements and further instructions as may be given for the required complete finishing of all spaces and rooms.

1.02 SUBMITTALS:

A. Product Data: Submit complete manufacturer's descriptive literature and specifications in accordance with the provisions of submittal Section.

1. Materials List: Submit complete lists of materials proposed for use, giving the manufacturer's name, catalog number, and catalog cut for each item when applicable. When required, provide a list of paint and coating materials proposed for use, which equates such materials with the design-basis products specified.

B. Samples: In accordance with provisions of submittal Section, submit, on 8-1/2 inch by 11 inch hardboard, samples of each color, gloss, texture and material selected by the Architect from standard colors available for the coatings required.

1. For natural and stained finishes, provide sample on each type and quality of wood used on the project.

C. Manufacturer's Instructions: Submit the manufacturer's current recommended methods of installation, including relevant limitations, safety and environmental cautions, application rates, and composition analysis.

1.03 QUALITY ASSURANCE:

A. Regulatory Requirements: Comply with applicable codes and regulations of governmental agencies having jurisdiction including those having jurisdiction over airborne emissions and industrial waste disposal. Where those requirements conflict with this Specification, comply with the more stringent provisions.

Regulatory changes may affect the formulation, availability, or use of specified coatings. Confirm availability of coatings to be used prior to job going out to bid and before start of painting project.

1. Comply with the current applicable regulations of the California Air Resources Board (CARB) and the Environmental Protection Agency (EPA).

B. Field Sample: When and as directed by the Architect, apply one complete coating system for each color, gloss and texture required. When approved, the sample panel areas will be deemed incorporated into the Work and will serve as the standards by which the subsequent Work of this Section will be judged.

1.04 DELIVERY, STORAGE, AND HANDLING:

A. Storage and Protection: Use all means necessary to protect the materials of this Section before, during, and after installation.

B. Deliver materials to job site in new, original, and unopened containers bearing manufacturer's name and trade name. Store where directed in accordance with manufacturer's instructions.

1.05 PROJECT CONDITIONS:

A. Do not apply exterior materials during fog, rain or mist, or when inclement weather is expected within the dry time specified by the manufacturer. No exterior or interior painting shall be done until the surfaces are thoroughly dry and cured. Do not apply paint when temperature is below 50^{O} F. Avoid painting surfaces when exposed to direct sunlight.

PART 2 - PRODUCTS

2.01 MANUFACTURERS:

A. Manufacturer's catalog names and number of paint types in this Section herein are based on products of Dunn-Edwards Corporation and is the standard of quality against which the Architect will judge equivalency. The quantity of titanium dioxide, the use of clays, aluminum silicate, talc and the purity of acrylic materials are a few of the criteria which will be used by the Architect in determining equivalency of materials.

2.02 MATERIALS:

A. Paints: Provide Ready-Mixed, except field catalyzed coatings. Pigments shall be fully ground maintaining soft paste consistency, capable of being readily and uniformly dispersed to complete homogeneous mixture. Paints shall have good flowing and brushing properties and be capable of drying or curing free of streaks and sags.

B. Accessory Materials: Linseed oil, shellac, solvents, and other materials not specified but required to achieve required finishes shall be of high quality and approved by manufacturer.

C. Colors shall be selected from color chip samples provided by manufacturer of paint system approved for use. Match approved samples for color, texture and coverage.

2.04 MIXES:

A. Mix, prepare, and store painting and finishing materials in accordance with manufacturer's directions.

PART 3-EXECUTION

3.01 EXAMINATION:

A. Examine surfaces to be painted before beginning painting work. Work of other trades that has been left or installed in a condition not suitable to receive paint, stain, other specified finish shall be repaired or corrected by the applicable trade before painting. Painting of defective or unsuitable surface implies acceptance of the surfaces.

B. Beware of a condition known as "critical lighting". This condition causes shadows that accentuate even the slightest surface variations. A pigmented sealer will provide tooth for succeeding decorative coating, but "does not" equalize smoothness or surface texture. Any corrective action to drywall must be done by the drywall contractor prior to decorating.

3.02 PROTECTION:

A. Protect previously installed work and materials, which may be affected by Work of this Section.

1. Protect prefinished surfaces, lawns, shrubbery and adjacent surfaces against paint and damage.
2. Furnish sufficient drop cloths, shields, and protective equipment to prevent spray or splatter from fouling surfaces not being painted.
3. Protect surfaces, equipment, and fixtures from damage resulting from use of fixed, movable and hanging scaffolding, planking, and staging.

B. Provide WET PAINT signs, barricades, and other devices required to protect newly finished surfaces. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.

3.03 PREPARATION:

A. Perform preparation and cleaning procedures in strict accordance with coating manufacturer’s instructions for each substrate condition.

B. Concrete and masonry surfaces shall be dry, clean, and free of dirt, efflorescence, encrustation, and other foreign matter. Glazed surfaces on concrete shall be roughened or etched to uniform texture.

C. Ferrous metal shall be cleaned of oil, grease, and foreign matter with solvent. Prime within 3 hours after preparation.

D. Sand and scrape metal to remove loose primer and rust.

E. Galvanized metal shall be chemically or solvent cleaned and then retreated with an etching-type solution if recommended by the finish manufacturer. Cleaned and retreated galvanized metal shall be primed the same day that cleaning has been performed.

F. Remove dust, grit and foreign matter from wood surfaces. Sand surfaces and dust clean. Spot coat knots, pitch streaks, and sappy section with pigmented stain sealer when surfaces are to be painted. Fill nail holes, cracks and other defects after priming and spot prime repairs when fully cured.

G. Remove hardware and accessories, machined surfaces, plates, lighting fixtures and similar items in place and not-to-be-finish painted, or provide surface-applied protection. Reinstall removed items upon completion of work in each area.

H. Existing surfaces to be recoated shall be thoroughly cleaned and deglossed by sanding or other means prior to painting. Patched and bare areas shall be spot primed with same primer as specified for new work.

I. Thoroughly backpaint all surfaces of exterior and interior finish lumber and millwork, including doors and window frames, trim, cabinetwork, etc., which will be concealed after installation. Backpaint items to be painted or enameled with the priming coat. Use a clear sealer for backpriming where transparent finish is required.

J. Bar and covered pipes, ducts, hangers, exposed steel and ironwork, and primed metal surfaces of equipment installed under mechanical and electrical work shall be cleaned prior to priming.

K. Preparation of other surfaces shall be performed following specific recommendations of the coatings manufacturer.

L. Bond breakers and curing agents must be removed and the surface cleaned before primers, sealers or finish paints can be applied.

M. All drywall surfaces must be completely dry and dust free before painting. Skim coated drywall must be sealed with an alkyd based sealer or a waterborne sealer recommended by the paint manufacturer for this surface. Use the appropriate light or medium tack masking tape.

3.04 APPLICATION:

A. Apply painting and finishing materials in accordance with the manufacturer's submittals, as approved. Use applicators and techniques best suited for the material and surfaces to which applied.

1. The number of coats specified is the minimum that shall be applied. Apply additional coats when undercoats, stains or other conditions show through final paint coat, until paint film is of uniform finish, color and appearance.
2. All undercoats shall be tinted slightly to approximate the color of the finish coat.

B. Apply each material at not less than the manufacturer's recommended spreading rate:

1. Provide a total dry film thickness of not less than 1.2 mils for each required coat.

C. Apply prime coat to surface which is required to be painted or finished.

D. Finish exterior doors on tops, bottoms, and edges same as exterior faces, after fitting.

E. Sand lightly and dust clean between succeeding coats.

3.05 CLEANING, TOUCH-UP AND REFINISHING:

A. Carefully remove all spattering, spots and blemishes caused by work under this section from surfaces throughout the project.

B. Upon completion of painting work remove all rubbish, paint cans, and accumulated materials resulting from work in each space or room. All areas shall be left in a clean, orderly condition.

C. Runs, sags, misses, holidays, stains and other defects in the painted surfaces, including inadequate coverage and mil thickness shall be satisfactorily touched up, or refinished, or repainted as necessary.

3.06 FINISH SCHEDULE

A. Apply the following finishes to the surfaces specified and/or as on the finish schedule on the Drawings. Apply all materials in accordance with manufacturer's instructions on properly prepared surfaces and foundation coats. All intermediate undercoats must be tinted to approximate the final color.

1. Architect will issue a color schedule prior to start of painting to designate the various colors and locations required for the work.

B. Exterior Systems:

1. Stucco & Plaster

Flat – 100% Acrylic

First Coat	ACRI-LOC, Acrylic Masonry Primer, Sealer (W 6232)
Second Coat	ACRI-FLAT, Exterior 100% Acrylic Flat Finish (W 704)
Third Coat	ACRI-FLAT, Exterior 100% Acrylic Flat Finish (W 704)

2. Concrete

Flat – 100% Acrylic

First Coat	ACRI-LOC, Acrylic Masonry Primer/Sealer (W 6232)
Second Coat	ACRI-FLAT, Exterior 100% Acrylic Flat Finish (W 704)
Third Coat	ACRI-FLAT, Exterior 100% Acrylic Flat Finish (W 704)

3. Concrete Masonry Units (CMU)

Flat – 100% Acrylic

First Coat:	CONCRETE BLOCK FILLER, Smooth (W6329)
Second Coat:	ACRI-FLAT, Exterior 100% Acrylic Flat Finish (W704)
Third Coat:	ACRI-FLAT, Exterior 100% Acrylic Flat Finish (W704)

4. Ferrous Metal

a. Flat – 100 % Acrylic

First Coat	SYN-LUSTRO, Rust-Preventative Acrylic Primer (W8)
Second Coat:	ACRI-FLAT, Exterior 100% Acrylic Flat Finish (W704)
Third Coat:	ACRI-FLAT, Exterior 100% Acrylic Flat Finish (W704)

b. Semi-Gloss Acrylic

First Coat	SYN-LUSTRO, Rust-Preventative Acrylic Primer (W8)
Second Coat	SYN-LUSTRO, Rust-Preventative Acrylic Semi-Gloss Paint (W9)
Third Coat	SYN-LUSTRO, Rust-Preventative Acrylic Semi-Gloss Paint (W9)

c. Gloss – Acrylic

First Coat	SYN-LUSTRO, Rust-Preventative Acrylic Primer (W8)
Second Coat	SYN-LUSTRO, Rust-Preventative Acrylic Gloss Paint (W10)
Third Coat	SYN-LUSTRO, Rust-Preventative Acrylic Gloss Paint (W10)

d. Matte, Industrial High Performance –Epoxy/Acrylic

First Coat	SIERRA, Rust-Oleum's Industrial Epoxy Primer (S70)
Second Coat	SIERRA BEYOND, Rust-Oleum's Satin Acrylic Enamel (S38)
Third Coat	SIERRA BEYOND, Rust-Oleum's Satin Acrylic Enamel (S38)

e. High Gloss, Industrial High Performance –Epoxy Primer/Urethane

First Coat	CARBOGUARD 890 VOC, Carboline's Cycloaliphatic Amine Epoxy
Second Coat	CARBOTHANE 134 VOC, Carboline's Aliphatic Acrylic Polyurethane
Third Coat	CARBOTHANE 134 VOC, Carboline's Aliphatic Acrylic Polyurethane

4. Galvanized Metal

a. Flat – 100% Acrylic

Pretreatment	KRUD-KUTTER, Clean and Etch
First Coat	SYN-LUSTRO, Rust-Preventative Acrylic Primer (W8)
Second Coat	ACRI-FLAT, Exterior 100% Acrylic Flat Finish (W704)
Third Coat	ACRI-FLAT, Exterior 100% Acrylic Flat Finish (W704))

b. Semi-Gloss – Acrylic

Pretreatment	KRUD-KUTTER, Clean and Etch
First Coat	SYN-LUSTRO, Rust-Preventative Acrylic Primer (W8)
Second Coat	SYN-LUSTRO, Rust-Preventative Acrylic Semi-Gloss Paint (W9)
Third Coat	SYN-LUSTRO, Rust-Preventative Acrylic Semi-Gloss Paint (W9

c. Gloss – Acrylic

Pretreatment	KRUD-KUTTER, Clean and Etch
First Coat	SYN-LUSTRO, Rust-Preventative Acrylic Primer (W8)
Second Coat	SYN-LUSTRO, Rust-Preventative Acrylic Gloss Paint (W10)
Third Coat	SYN-LUSTRO, Rust-Preventative Acrylic Gloss Paint (W10)

d. Matte, Industrial High Performance – Epoxy Primer/Acrylic

First Coat	SIERRA, Rust-Oleum's Industrial Epoxy Primer (S70)
Second Coat	SIERRA BEYOND, Rust-Oleum's Satin Acrylic Enamel (S38)

e. High Gloss, Industrial High Performance – Epoxy Primer/Urethane

First Coat	CARBOGUARD 890 VOC, Carboline's Cycloaliphatic Amine Epoxy
Second Coat	CARBOTHANE 134 VOC, Carboline's Aliphatic Acrylic Polyurethane

5. Wood – Paint Finish

a. Semi-Gloss – Acrylic

First Coat	E-Z PRIME, Ext. 100% Acrylic Wood Primer (W 708)
Second Coat	SPARTAGLO, Interior/Exterior Semi-Gloss Paint (W7500)
Third Coat	SPARTAGLO, Interior/Exterior Semi-Gloss Paint (W7500)

b. Gloss – Acrylic

First Coat	E-Z PRIME, Ext. 100% Acrylic Wood Primer (W 708)
Second Coat	SPARTAGLOSS, Interior/Exterior Acrylic Gloss Paint
Third Coat	SPARTAGLOSS, Interior/Exterior Acrylic Gloss Paint

6. Wood – Stain Finish – Opaque:

Two Coats	ACRI-FLAT, Exterior 100% Acrylic Flat Finish (W 704)

7. Wood – Stain Finish – Semi-Transparent:

One Coat	OKON Weather Pro Tinted (WPT-3)

C. Interior Systems:

1. Gypsum Board

a. Flat - Acrylic

First Coat	PREP-SEAL, Interior Latex Wall Sealer (W 6324)
Second Coat	WALLTONE, Interior Latex Wall Flat (W420)
Third Coat	WALLTONE, Interior Latex Wall Flat (W420)

b. Low Sheen –

First Coat	PREP-SEAL, Interior Latex Wall Sealer (W 6324)
Second Coat	VERSASATIN, Interior Latex Low Sheen Paint (W6250)
Third Coat	VERSASATIN, Interior Latex Low Sheen Paint (W6250)

c. Eggshell –

First Coat	PREP-SEAL, Interior Latex Wall Sealer (W 6324)
Second Coat	SPARTASHELL, Int. Eggshell Enamel (W7400)
Third Coat	SPARTASHELL, Int. Eggshell Enamel (W7400)

d. Semi-Gloss - Acrylic

First Coat	PREP-SEAL, Interior Latex Wall Sealer (W 6324)
Second Coat	VERSAGLO, Interior Latex Semi-Gloss Paint (W6160)
Third Coat	VERSAGLO, Interior Latex Semi-Gloss Paint (W6160)

e. Gloss – Acrylic

First Coat	PREP-SEAL, Interior Latex Wall Sealer (W 6324)
Second Coat:	VERSAGLOSS, Interior Latex Gloss Paint (W6220V)
Third Coat:	VERSAGLOSS, Interior Latex Gloss Paint (W6220V)

f.. Gloss– Industrial High Performance – Waterborne Epoxy

First Coat	GRIPTEC S-30, Rust-Oleum's Multi-Surface Primer
Second Coat	SIERRA S 50/51, Rust-Oleum's Industrial Water-based Epoxy Enamel

j. High Gloss – Industrial High Performance – Acrylic Urethane

First Coat	GRIPTEC S-30, Rust-Oleum's Multi-Surface Primer
Second Coat	BEYOND S-39, Rust-Oleum's Acrylic Urethane Gloss Enamel

2. Concrete & Plaster: (continued)

a. Flat – Acrylic Copolymer

First Coat	ACRI-LOC, Acrylic Masonry Primer/Sealer (W 6232)
Second Coat	WALLTONE, Interior Latex Flat Paint (W420)
Third Coat	WALLTONE, Interior Latex Flat Paint (W420)

b. Low Sheen – Acrylic Copolymer

First Coat	ACRI-LOC, Acrylic Masonry Primer/Sealer (W 6232)
Second Coat	VERSASATIN, Interior Latex Low Sheen Paint (W6250)
Third Coat	VERSASATIN, Interior Latex Low Sheen Paint (W6250)

c. Eggshell – Acrylic Co-Polymer

First Coat	ACRI-LOC, Acrylic Masonry Primer/Sealer (W 6232)
Second Coat	SPARTASHELL, Interior/Exterior Latex Eggshell Paint (W7400)
Third Coat	SPARTASHELL, Interior/Exterior Latex Eggshell Paint (W7400)

d. Semi-Gloss – Acrylic Co-Polymer

First Coat	ACRI-LOC, Acrylic Masonry Primer/Sealer (W 6232)
Second Coat	VERSAGLO, Interior Latex Semi-Gloss Paint (W7500)
Third Coat	VERSAGLO, Interior Latex Semi-Gloss Paint (W7500)

e. Gloss – Acrylic Co-Polymer

First Coat	ACRI-LOC, Acrylic Masonry Primer/Sealer (W 6232)
Second Coat	VERSAGLOSS, Acrylic, Int. Gloss Enamel (W7600)
Third Coat	VERSAGLOSS, Acrylic, Int. Gloss Enamel (W7600)

f. Gloss – Industrial High Performance - Waterborne Epoxy

First Coat	GRIPTEC S-30, Rust-Oleum's Multi-Surface Primer
Second Coat	SIERRA S 50/51, Rust-Oleum's Industrial Water-based Epoxy Enamel

g. High Gloss- Industrial High Performance - Epoxy/Urethane

First Coat	GRIPTEC S-30, Rust-Oleum's Multi-Surface Primer
Second Coat	BEYOND S-39, Rust-Oleum's Acrylic Urethane Gloss Enamel

Third Coat BEYOND S-39, Rust-Oleum's Acrylic Urethane Gloss Enamel

3. Ferrous Metal

a. Flat – Acrylic Copolymer

First Coat SYN-LUSTRO, Rust-Preventative Acrylic Primer (W8)
Second Coat WALLTONE, Interior Latex Flat Paint (W420)
Third Coat WALLTONE, Interior Latex Flat Paint (W420)

b. Low Sheen – Acrylic Copolymer

First Coat SYN-LUSTRO, Rust-Preventative Acrylic Primer (W8)
Second Coat VERSASATIN, Interior Latex Low Sheen Paint (W6250)
Third Coat VERSASATIN, Interior Latex Low Sheen Paint (W6250)

c. Eggshell – Acrylic Co-Polymer

First Coat SYN-LUSTRO, Rust-Preventative Acrylic Primer (W8)
Second Coat SPARTASHELL, Interior/Exterior Latex Eggshell Paint (W7400)
Third Coat SPARTASHELL, Interior/Exterior Latex Eggshell Paint (W7400

d. Semi-Gloss – Acrylic Co-Polymer

First Coat SYN-LUSTRO, Rust-Preventative Acrylic Primer (W8)
Second Coat VERSAGLO, Interior Latex Semi-Gloss Paint (W7500)
Third Coat VERSAGLO, Interior Latex Semi-Gloss Paint (W7500

e. Gloss – Acrylic Co-Polymer

First Coat SYN-LUSTRO, Rust-Preventative Acrylic Primer (W8)
Second Coat VERSAGLOSS, Acrylic, Int. Gloss Enamel (W7600)
Third Coat VERSAGLOSS, Acrylic, Int. Gloss Enamel (W7600

f. Gloss – Industrial High Performance - Waterborne Epoxy

First Coat GRIPTEC S-30, Rust-Oleum's Multi-Surface Primer
Second Coat SIERRA S 50/51, Rust-Oleum's Industrial Water-based Epoxy Ename

g. High Gloss- Industrial High Performance – Acrylic Urethane

First Coat GRIPTEC S-30, Rust-Oleum's Multi-Surface Primer
Second Coat BEYOND S-39, Rust-Oleum's Acrylic Urethane Gloss Enamel
Third Coat BEYOND S-39, Rust-Oleum's Acrylic Urethane Gloss Enamel

4. Wood – Paint Finish

a. Flat – Acrylic Copolymer

First Coat INTERIOR LATEX UNDERCOATER (W2400)
Second Coat WALLTONE, Interior Latex Flat Paint (W420)
Third Coat WALLTONE, Interior Latex Flat Paint (W420)

b. Low Sheen –Acrylic Copolymer

First Coat	INTERIOR LATEX UNDERCOATER (W2400)
Second Coat	VERSASATIN, Interior Latex Low Sheen Paint (W6250)
Third Coat	VERSASATIN, Interior Latex Low Sheen Paint (W6250)

c. Eggshell – Acrylic Copolymer

First Coat	INTERIOR LATEX UNDERCOATER (W2400)
Second Coat	SPARTASHELL, Interior/Exterior Latex Eggshell Paint (W7400)
Third Coat	SPARTASHELL, Interior/Exterior Latex Eggshell Paint (W7400)

d. Semi-Gloss – 100% Acrylic

First Coat	INTERIOR LATEX UNDERCOATER (W2400)
Second Coat	VERSAGLO, Interior Latex Semi-Gloss Paint (W7500)
Third Coat	VERSAGLO, Interior Latex Semi-Gloss Paint (W7500)

e. Gloss – Acrylic Co-Polymer

First Coat	INTERIOR LATEX UNDERCOATER (W2400)
Second Coat	VERSAGLOSS, Acrylic Gloss Enamel (W7600)
Third Coat	VERSAGLOSS, Acrylic Gloss Enamel (W7600)

5. Wood – Stain & Lacquer

a. Flat

First Coat	STAINSEAL, Interior Wiping Oil Stain (V 109)
Filler	PASTE WOOD FILLER (PWF 2703)
Second Coat	CONTRACTOR'S EDGE Pro Sealer, CE-275 ProSS-1
Third Coat	CONTRACTOR'S EDGE Satin Lacquer Pro Clear 20S 275, CE-275 Pro 20-1
Fourth Coat	CONTRACTOR'S EDGE Satin Lacquer, Pro Clear 20S 275, CE-275 Pro 20-1

b. Semi-Gloss

First Coat	STAINSEAL, Interior Wiping Oil Stain (V 109)
Filler	PASTE WOOD FILLER (PWF 2703)
Second Coat	CONTRACTOR'S EDGE Pro Sealer, CE-275 ProSS-1
Third Coat	CONTRACTOR'S EDGE Semi-Gloss Lacquer Pro Clear 60S 275, CE-275 Pro 20-1
Fourth Coat	CONTRACTOR'S EDGE Semi-Gloss Lacquer Pro Clear 60S 275, CE-275 Pro 20-1

c. Gloss

First Coat	STAINSEAL, Interior Wiping Oil Stain (V 109)
Filler	PASTE WOOD FILLER (PWF 2703)
Second Coat	CONTRACTOR'S EDGE Pro Sealer, CE-275 ProSS-1
Third Coat	CONTRACTOR'S EDGE, Gloss Lacquer Pro Clear 90S 275, CE-275 Pro90-1
Fourth Coat	CONTRACTOR'S EDGE, Gloss Lacquer Pro Clear 90S 275, CE-275 Pro 90-1

END OF SECTION 09910

SECTION 10200 - LOUVERS AND VENTS

PART 1 - GENERAL

1.01 SUMMARY

A. Provide louvers and vents:

1. Steel louvers for exterior walls.

1.02 SUBMITTALS

A. Submit for approval product data.

1.03 QUALITY ASSURANCE

A. Comply with governing codes and regulations. Provide products of acceptable manufacturers which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Formed sheet metal louvers: Stationary, horizontal drainable louvers, 16 gage galvanized steel minimum, insect screen; Airolite Co or approved equal. Provide the following finish:

1. Baked enamel Kynar based paint finish color as selected by Architect from manufacturer’s standard colors.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Comply with SMACNA Architectural Sheet Metal Manual except as otherwise indicated.

B. Take field measurements prior to fabrication. Install units plumb and level; isolate dissimilar materials to prevent corrosion. Touch-up damaged coatings.

C. Provide separate continuous sills where needed to prevent water penetration. Maintain equal blade-to-blade and blade-to-frame spacing for uniform appearance. Provide concealed vertical mullions and reinforcement as needed.

D. Provide anchors, supports and accessories as needed. Provide gaskets, flashings and fillers as necessary to make installation water tight.

END OF SECTION 10200

SECTION 10705 - EXTERIOR SUN CONTROL DEVICES & CANOPIES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Metal sunscreens and canopies exposed to view in finish work.

B. Extent: Extent of exterior sunshades and canopies is shown on architectural drawings.

C. Related Sections: Section(s) related to this section include:

1. Section 06100 Rough Carpentry.
2. Section 08515 Aluminum Replacement Windows.

1.02 SUBMITTALS

A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures section.

B. Product Data: Submit product data sheet for specified products including specifications and installation instructions form the manufacturer.

C. Shop Drawings: Submit shop drawings showing layout, profiles and product components, including anchorage, accessories, finish colors, patterns and textures.

1. Include information necessary for fabrication and installation. Indicate materials, sizes, thickness, fastenings and profiles.
2. Submit two samples of color selected, applied to specified material.

D. Quality Assurance Submittals: Submit the following:

1. Warranty - provide written warranty to owner that all products will be free of defective materials or workmanship for a period of two years from date of installation.
2. Performance requirements - Provide products, which have been manufactured, fabricated and installed to withstand loads from 2010 California Building Code and to maintain performance criteria stated by manufacturer without defects, damage, or failure.
3. Provide engineering calculations for the sunshade and canopy system and mounting brackets(s), prepared by an engineer registered in the state the project is located.

1.03 DELIVERY, STORAGE & HANDLING

A. General: Comply with Division 1 Product Requirements Sections.

B. Ordering: Comply with manufacturer’s ordering instructions and lead-time requirements to avoid construction delays.

C. Delivery: Deliver materials in manufacturer’s original, unopened, undamaged containers with identification labels intact.

1. Deliver, store and handle products to avoid any distortion or damage due to moisture, physical abuse or other cause Louvers shall be free from nicks, scratches and blemishes. Replace defective or damaged materials with new.

1.04 PROJECT CONDITIONS

A. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

PART II PRODUCTS

2.01 SUN CONTROL DEVICES & CANPOIES

A. Design basis: Model SA Series manufactured by Industrial Louvers Inc. (ILI).

1. Contact: 511 South 7th Street, Delano, MN 55328; Telephone: (763) 972-2981; Fax: (763) 972-2911.

B. Other Available Manufacturers – subject to compliance with requirements stated within.

2.02 MATERIALS

A. Blades – Blades shall be of airfoil tube design, fabricated from a minimum .081” wall thickness extruded aluminum.

B. Fascia – material shall be fabricated from a minimum .081” wall thickness extruded as detailed.

C. Outriggers – shall be flat bar .375” (3/8”) thick aluminum or tube design .081” wall thickness as detailed.

D. Mounting brackets shall be fabricated from minimum .375” (3/8”) aluminum, designed to receive and anchor the outrigger to the substructure.

E. Aluminum Extrusions: ASTM B221, Alloy 6063 or 6061

2.03 FABRICATION

A. Provide fixed units in maximum panel length or as required for optimal performance, with respect to strength, span ability and uniform appearance.

B. Blades shall be mechanically fastened with stainless steel screws to the outriggers. Spot welds only to be used where mechanical fasteneing of parts is prohibitive. No exposed perimeter welds acceptable.

C. Blades shall be radius curved at the areas indicated on drawings.

D. Include supports, anchorage and accessories required for complete assembly.

2.04 FINISHES

A. Shop Finishing: Factory finish products and accessories with an organic coating.

B. Organic Coating: Clean and prime exposed aluminum surfaces and apply a Kynar 500/Hylar 500 2-coat finish conforming to AAMA 2605 in custom color. Minimum dry film thickness shall be 1.2 mil.

C. Finish Protection: Provide finish protection as recommended by louver manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.

3.02 INSTALLATION

A. Anchor products to building sub-structure as indicated on drawings.

B. Corners: Miter product units at corners as shown on drawings.

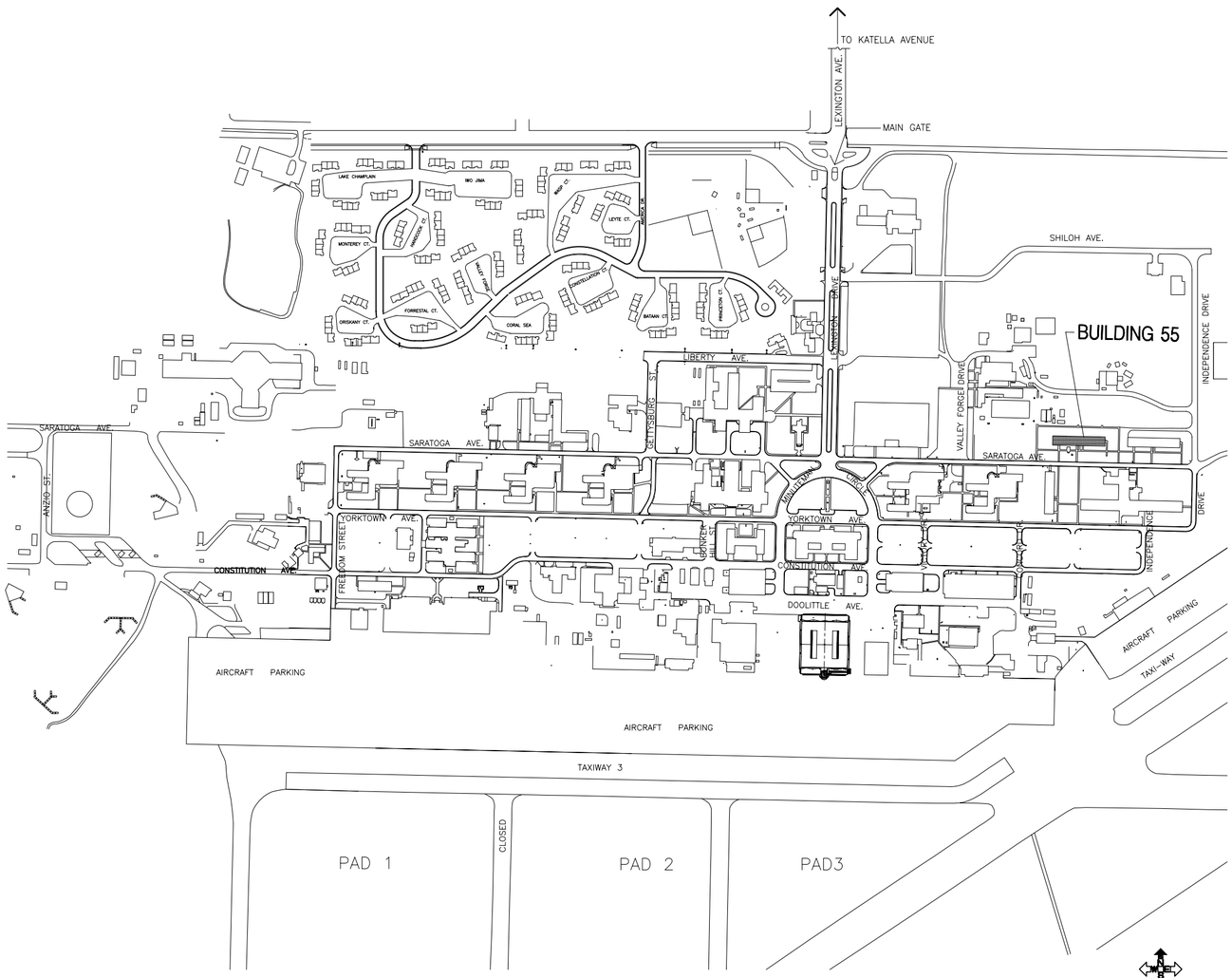
C. Cut and trim units during erection only with the approval of the manufacturer and in accordance with their recommendations. Restore finish completely.

END OF SECTION 10705

MATOC PROTOTYPICAL PROJECT

JFTB Building 55 Renovations

VICINITY MAP



DRAWING SHEET INDEX

PROJECT DATA

BUILDING CODE: 2010 CBC

USE: BARRACKS (R-1 OR R-2)

OCCUPANCY GROUP(S) (CBC SECT 310): R-1 OR R-2

TYPE OF CONSTRUCTION (CBC TABLE 503): V-B

ALLOWABLE AREA:

BASIC ALLOWABLE (CBC TABLE 503):	7,000 S.F.
FRONTAGE INCREASE (CBC SECT 506.2):	12,250 S.F.
MULTI-STORY INCREASE (CBC SEC. 506.4):	12,250 S.F.
TOTAL ALLOWABLE	24,500 S.F.
TOTAL ACTUAL	17,118 S.F.

MAXIMUM HEIGHT ALLOWED (CBC TABLE 503): 2 STORIES

MINIMUM ROOF ASSEMBLY (CBC TABLE 1505.1) CLASS 'C'

PROVIDED ROOF ASSEMBLY: CLASS 'B'

BID OPTION

BID OPTION : OMIT ALL WORK ASSOCIATED WITH PROVIDING SUNSHADES AT REPLACEMENT WINDOWS AS DESCRIBED IN DETAIL 5, SHT. A7 AND NOTE 11, SHT. A6.

NOT FOR CONSTUCTION

Revisions				
Sym.	Descrip.	Date	By	
	ISSUED FOR CONSTRUCTION	06/12/12	PM	

Date 06/01/12
Chkd.

Sht Title TITLE SHEET 1
Project BUILDING 55 RENOVATIONS
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MATOC PROTOTYPICAL PROJECT

ABBREVIATIONS

A

A.B.	ANCHOR BOLT
A.C.	ASPHALT CONCRETE
ACOUS.	ACOUSTICAL
ADA	AMERICANS WITH DISABILITIES ACT
ADJ.	ADJACENT
ALUM.	ALUMINUM
&	AND
ARCH.	ARCHITECTURAL
@	AT

B

B.O.	BOTTOM OF
BD.	BOARD
BLDG.	BUILDING
BLK'(G)	BLOCK(ING)
BM.(S)	BEAM(S)
BOT.	BOTTOM

C

C.J.	CONSTRUCTION JOINT
CL. J.	CONTROL JOINT
CL.,℄	CENTERLINE
CLG.	CEILING
CLR.	CLEAR
C.M.U.	CONC. MASONRY UNIT
COL.	COLUMN
CONC.	CONCRETE
CONT.	CONTINUOUS

D

DIA.,Ø	DIAMETER
DBL.	DOUBLE
DET.	DETAIL
DIM.	DIMENSION
DR.	DOOR
DS	DOWNSPOUT
DWG.	DRAWING

E

E.	EAST
EA.	EACH
E.J.	EXPANSION JOINT
EQ.	EQUAL
ELEV.	ELEVATION
EQPT.	EQUIPMENT
EXIST.	EXISTING
EXT.	EXTERIOR
E.W.	EACH WAY

F

F.A.U.	FORCED AIR UNIT
F.F.	FINISH FLOOR
F.G.	FINISH GRADE
F.H.C.S.	FLAT HEAD COUNTER-SUNK
F.J.	FLOOR JOIST
F.O.	FACE OF
FDN.	FOUNDATION
FIN.	FINISH
FLR.	FLOOR
FT.,(')	FOOT, FEET
FTG.	FOOTING

G

GA.	GAUGE
GALV.,G.I.	GALVANIZED
GL.	GLASS
GR.	GRADE
GYP.BD.	GYPSUM WALLBOARD

H

H.B.	HOSE BIBB
HC	HANDICAP
H.C.	HOLLOW CORE
HDR.	HEADER
HDW.	HARDWARE
H.M.	HEAVY METAL
HORIZ.	HORIZONTAL
H.P.	HIGH POINT
HT.	HEIGHT
HR.	HOUR

I

IN.,(")	INCH
INSUL.	INSULATION
INT.	INTERIOR

J/K/L

JT.	JOINT
JST.	JOIST
LP	LOW POINT

M

MATL.	MATERIAL
MAX.	MAXIMUM
MECH.	MECHANICAL
M.B.	MACHINE BOLT
MFR.	MANUFACTURER
MIN.	MINIMUM
MISC.	MISCELLANEOUS

N

N.	NORTH
N.I.C.	NOT IN CONTRACT
NO.,(#)	NUMBER
N.T.S.	NOT TO SCALE

O

O.C.	ON CENTER
OHG.	OVERHANG
OPNG.	OPENING

P/Q

P.S.F.	POUNDS / SQUARE FOOT
PERP.	PERPENDICULAR
PL.	PLATE
PLYWD.	PLYWOOD
PREFAB.	PREFABRICATED

R

R.,RAD.	RADIUS
R.D.	ROOF DRAIN
RECT.	RECTANGLE, RECTANGULAR
REINF.	REINFORCE
REQD.	REQUIRED
REV.	REVISION
RM.	ROOM
R.O.	ROUGH OPENING

S

S.	SOUTH OR SLOPE
S.C.	SOLID CORE
S.ST.	STAINLESS STEEL
SCHED.	SCHEDULE, SCHEDULED
SDG.	SIDING
SECT.	SECTION
SEL.	SELECT
SHT.	SHEET
SHTG.	SHEATHING
SIM.	SIMILAR
SPEC.	SPECIFICATIONS
SQ.	SQUARE
ST.	STREET
STD.	STANDARD
STL.	STEEL
STOR.	STORAGE
STR.	STRUCTURAL
S4S	SURFACED FOUR SIDES

T

T.	TOP
T.O.	TOP OF
T&B	TOP AND BOTTOM
THK.	THICK
THRU	THROUGH
TYP.	TYPICAL

U/V

UBC	UNIFORM BUILDING CODE
UGND.	UNDERGROUND
VERT.	VERTICAL

W/X/Y/Z

W.	WEST
WD.	WOOD
WDW.	WINDOW
W/	WITH
W/O	WITHOUT
WSHR.	WASHER
WT.	WEIGHT
WWF	WELDED WIRE FABRIC
(X)	REMOVE EXISTING

SYMBOL LEGEND

1. TITLE AND REFERENCE MARKS

1.1 MAIN TITLE — 2 / A-3 — MAIN TITLE REFERENCE NUMBER; DRAWING NUMBER WHERE SHOWN

1.2 SUBTITLE — 2A — MAIN TITLE REFERENCE NUMBER; SUBTITLE REFERENCE LETTER

1.3 TITLE, SUBTITLE OR DETAIL REFERENCE — 2A / A-3 — REFERENCE NUMBER OR LETTER; DRAWING NUMBER WHERE SHOWN

1.4 SECTION REFERENCE — 2 / A-3 — MAIN TITLE REFERENCE NUMBER; DRAWING NUMBER WHERE SHOWN

1.5 ELEVATION REFERENCE — 3 / A-3 — ELEVATION VIEW DIRECTION(S); ELEVATION NUMBER; DRAWING NUMBER WHERE SHOWN

1.6 DOOR REFERENCE — A / 01 — DOOR TYPE; DOOR NUMBER

1.6 WINDOW REFERENCE — A

2. GENERAL IDENTIFICATION AND DESCRIPTIVE SYMBOLS

2.1 CONSTRUCTION NOTE — 2

2.2 GRIDS — A

2.2.1 PRIME

2.2.2 SUBORDINATE — A-1

2.3 REVISION MARK — 2

2.4 VERTICAL CONTROL ELEVATION — 24.75 OR 24.75

2.5 HORIZONTAL CONTROL COORDINATE — N. 20.34 / E. 136.72

2.6 MATCH LINE

2.7 SLOPES

2.7.1 PLAN — SLOPE DN 2%

2.7.2 SECTION OR ELEVATION — 0.25 / 1.00

2.8 EXISTING CONSTRUCTION — (E)

2.9 EXISTING CONSTRUCTION WHICH SHALL BE REMOVED

2.10 EXISTING CONSTRUCTION WHICH SHALL REMAIN — OR — OR (E)

2.11 PIPE OR CONDUIT

2.11.1 SECTION

2.11.2 PLAN

2.12 NEW WALL (SECTION)

3. MATERIAL IDENTIFICATION AND DESCRIPTIVE SYMBOLS

3.1 SOILS (SECTION)

3.1.1 FIRM, UNDISTURBED NATURAL SOILS (EXCEPT SILTSTONE) OR COMPACTED FILL

3.1.2 UNDISTURBED SILTSTONE

3.1.3 GRAVEL

3.1.4 SAND

3.2 CONCRETE (SECTION)

3.2.1 CAST-IN-PLACE

3.2.2 PRECAST

3.2.3 GROUT OR DRYPACK

3.3 REINFORCING STEEL

3.3.1 RST LAYER WITH BARS EACH WAY

3.3.2 ANY BEND PERP. TO DWG PLANE, EXCEPT TYP 90° HOOK

3.3.3 TYP LAP SPLICE, UOS

3.3.4 WELDED WIRE FABRIC

3.4 MASONRY

3.4.1 CMU WALL (PLAN OR SECTION)

3.4.1.1 SMALL SCALE

3.4.1.2 LARGE SCALE

3.5 STRUCTURAL STEEL

3.5.1 SHAPE (SMALL SCALE CROSS SECTION) ⊏, I, L, ○

3.5.2 STEEL (LARGE SCALE SECTION)

3.6 METAL DECKING (SECTION)

3.6.1 PERPENDICULAR TO SPAN

3.6.2 PARALLEL TO SPAN

3.7 INSULATION

3.7.1 SMALL SCALE (SECTION)

3.7.2 LARGE SCALE (SECTION)

3.7.3 RIGID FOAM (SECTION)

3.8 A.C. PAVEMENT (SECTION)

3.9 GLASS

3.9.1 SECTION

3.9.2 ELEVATION

3.10 GYPSUM BOARD (SECTION) — GYP. BOARD

GENERAL NOTES

1. VERIFICATION: CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND CONDITIONS AT THE SITE. ANY DEVIATIONS BETWEEN THESE AND THE CONTRACT DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT BEFORE COMMENCING WORK.

2. A. ALL DIMENSIONS SHALL HAVE PRECEDENCE OVER SCALE.
   B. ALL DIMENSIONS ARE TO ROUGH UNLESS OTHERWISE INDICATED.
   C. ALL DIMENSIONS OF STUD PARTITIONS ARE TO CENTER UNLESS OTHERWISE INDICATED.
   D. EXTERIOR DIMENSIONS ARE GIVEN TO FINISHED FACE OF BUILDING UNLESS OTHERWISE INDICATED.
   E. FINISH FLOOR ELEVATIONS ARE TO TOP OF CONCRETE UNLESS OTHERWISE INDICATED.

3. THE PROJECT IS LOCATED IN AN OCCUPIED SECURITY AREA. ACCESS REQUIRES PRIOR ARRANGEMENTS WITH OWNER'S REPRESENTATIVE.

4. ALL WORK, INCLUDING MATERIALS AND WORKMANSHIP, SHALL MEET OR EXCEED THE REQUIREMENTS OF LOCAL CODES, LAWS AND ORDINANCES, THE LATEST EDITION OF THE CALIFORNIA BUILDING CODE, NEC, UMC AND UPC. IN THE EVENT OF A CONFLICT WITH CODE REQUIREMENTS AND ITEMS CALLED OUT ON THE DRAWINGS, THE CODE OR CALL-OUT WHICH ESTABLISHES THE HIGHER STANDARD SHALL TAKE PRECEDENCE.

5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO SUBMITTING A BID AND SHALL VERIFY THAT ALL EXISTING CONDITIONS ARE AS INDICATED BY CONTRACT DOCUMENTS. SHOULD ANY CONDITION ARISE WHERE THE INTENT OF THE DRAWINGS IS IN DOUBT OR WHERE THERE IS A DISCREPANCY BETWEEN THE CONTRACT DOCUMENTS AND EXISTING FIELD CONDITIONS, THE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY FOR CLARIFICATION. SUBMISSION OF A BID SHALL INDICATE COMPLIANCE WITH THESE CONDITIONS.

6. OFFSET STUDS WHERE REQUIRED SO THAT FINISH WALL SURFACE WILL BE FLUSH.

7. CUT AND PATCH EXISTING WALLS, FLOORS OR CEILINGS AS INDICATED OR REQUIRED FOR NEW MECHANICAL OR ELECTRICAL INSTALLATIONS IN THE EXISTING BUILDING. PATCHING SHALL MATCH EXISTING ADJACENT FINISHES UNLESS OTHERWISE NOTED OR INDICATED.

8. WHEN PIPES OR DUCTS PENETRATE FIRE RATED CONSTRUCTION AND DO NOT COMPLETELY FILL THE FRAMED OPENING PROVIDED (HORIZONTAL OR VERTICAL), PROVIDE CONSTRUCTION OF EQUIVALENT RATING AND MATERIAL TO CLOSE OPENING.

9. ALL INTERIOR MECHANICAL DUCTS, PIPES, ELECTRICAL, ALARM, TELEPHONE OR COMPUTER CONDUIT SHALL BE CONCEALED IN PARTITIONS, BELOW FLOORS, ABOVE CEILINGS OR FURRED IN WITH METAL FRAMING AND GYPSUM BOARD UNLESS NOTED OTHERWISE.

10. CONTRACTOR SHALL PROVIDE AND INSTALL ALL STIFFENERS, BRACINGS, BACK-UP PLATES AND SUPPORTING BRACKETS REQUIRED FOR THE INSTALLATION OF ALL EQUIPMENT AND OF ALL FLOOR MOUNTED OR SUSPENDED MECHANICAL AND ELECTRICAL EQUIPMENT.

11. BROKEN LINES INDICATE: (A) DROP CEILINGS OR SOFFITS; (B) EQUIPMENT AND FURNITURE NOT IN CONTRACT; OR (C) EXISTING WALLS, CURBS, EQUIPMENT ETC., FOR REMOVAL AS INDICATED ON DEMOLITION PLAN.

12. STORAGE, DISPENSING OR USE OF ANY FLAMMABLE AND COMBUSTABLE LIQUIDS, FLAMMABLE AND COMPRESSED GASES AND OTHER HAZARDOUS MATERIALS SHALL COMPLY WITH U.F.C. REGULATIONS.

13. PORTIONS OF WORK AREAS ARE KNOWN TO CONTAIN ASBESTOS, LEAD AND OTHER HAZARDOUS MATERIALS. ASBESTOS ABATEMENT, CONTAINMENT AND MONITORING SHALL BE PERFORMED PER SPECIFICATIONS AND ALL CURRENT REQUIREMENTS OF GOVERNING AUTHORITIES. ALL PAINTED WOOD AND METAL SURFACES CONTAIN LEAD. STUCCO CONTAINS ASBESTOS.

NPDES NOTES

1. IN CASE OF EMERGENCY, CALL TOM TANDOC AT WORK PHONE (562) 795-2114 OR CELL PHONE (562) 307-0657.
2. SEDIMENT FROM AREAS DISTURBED BY CONSTRUCTION SHALL BE RETAINED ON SITE USING STRUCTURAL CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE.
3. STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO MINIMIZE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING, OR WIND.
4. APPROPRIATE BMP'S FOR CONSTRUCTION-RELATED MATERIALS, WASTES AND SPILLS SHALL BE IMPLEMENTED TO MINIMIZE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OR ADJOINING PROPERTIES BY WIND OR RUNOFF.
5. RUNOFF FROM EQUIPMENT AND VEHICLE WASHING SHALL BE CONTAINED AT CONSTRUCTION SITES UNLESS TREATED TO REDUCE OR REMOVE SEDIMENT AND OTHER POLLUTANTS.
6. ALL CONSTRUCTION CONTRACTOR AND SUBCONTRACTOR PERSONNEL ARE TO BE MADE AWARE OF THE REQUIRED BEST MANAGEMENT PRACTICES AND GOOD HOUSEKEEPING MEASURES FOR THE PROJECT SITE AND ANY ASSOCIATED CONSTRUCTION STAGING AREAS.
7. AT THE END OF EACH DAY OF CONSTRUCTION ACTIVITY ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND PROPERLY DISPOSED OF IN TRASH OR RECYCLE BINS.
8. CONSTRUCTION SITES SHALL BE MAINTAINED IN SUCH A CONDITION THAT AN ANTICIPATED STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. DISCHARGES OF MATERIAL OTHER THAN STORM WATER ONLY WHEN NECESSARY FOR PERFORMANCE AND COMPLETION OF CONSTRUCTION PRACTICES AND WHERE THEY DO NOT: CAUSE OR CONTRIBUTE TO A VIOLATION OF ANY WATER QUALITY STANDARD; CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION OR NUISANCE; OR CONTAIN A HAZARDOUS SUBSTANCE IN A QUANTITY REPORTABLE UNDER FEDERAL REGULATIONS 40 CFR PARTS 117 AND 302.
9. POTENTIAL POLLUTANTS INCLUDE BUT ARE NOT LIMITED TO: SOLID OR LIQUID CHEMICAL SPILLS; WASTES FROM PAINTS, STAINS, SEALANTS, GLUES, LIMES, PESTICIDES, HERBICIDES, WOOD PRESERVATIVES AND SOLVENTS; ASBESTOS FIBERS, PAINT FLAKES OR STUCCO FRAGMENTS; FUELS, OILS, LUBRICANTS AND HYDRAULIC, RADIATOR OR BATTERY FLUIDS; FERTILIZER, VEHICLE/EQUIPMENT WASH WATER AND CONCRETE WASH WATER; CONCRETE, DETERGENT OR FLOATABLE WASTES; WASTES FROM ANY ENGINE/EQUIPMENT STEAM CLEANING OR CHEMICAL DEGREASING AND SUPERCHLORINATED POTABLE WATER LINE FLUSHING.

   DURING CONSTRUCTION PERMITTEE SHALL DISPOSE OF SUCH MATERIALS IN A SPECIFIED AND CONTROLLED TEMPORARY AREA ON-SITE, PHYSICALLY SEPARATED FROM POTENTIAL STORMWATER RUNOFF, WITH ULTIMATE DISPOSAL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS.
10. DEWATERING OF CONTAMINATED GROUNDWATER, OR DISCHARGING CONTAMINATED SOILS VIA SURFACE EROSION IS PROHIBITED. DEWATERING OF NON-CONTAMINATED GROUNDWATER REQUIRES A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FROM THE RESPECTIVE STATE REGIONAL WATER QUALITY CONTROL BOARD.
11. GRADED AREAS ON THE PERMITTED AREA PERIMETER MUST DRAIN AWAY FROM THE FACE OF SLOPES AT THE CONCLUSION OF EACH WORKING DAY. DRAINAGE IS TO BE DIRECTED TOWARD DESILTING FACILITIES.
12. THE PERMITTEE AND CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATER CREATES A HAZARDOUS CONDITION.
13. THE PERMITTEE AND CONTRACTOR SHALL INSPECT THE EROSION CONTROL WORK AND INSURE THAT THE WORK IS IN ACCORDANCE WITH THE APPROVED PLANS.
14. THE PERMITTEE SHALL NOTIFY ALL GENERAL CONTRACTORS, SUBCONTRACTORS, MATERIAL SUPPLIERS, LESSEES AND PROPERTY OWNERS THAT THE DUMPING OF CHEMICALS INTO THE STORM DRAIN SYSTEM OR THE WATERSHED IS PROHIBITED.
15. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON. NECESSARY MATERIALS SHALL BE AVAILABLE ON SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS IMMINENT.
16. ALL REMOVABLE EROSION PROTECTIVE DEVICES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE 5-DAY RAIN PROBABILITY FORECAST EXCEEDS 40%.
17. SEDIMENTS FROM AREAS DISTURBED BY CONSTRUCTION SHALL BE RETAINED ON SITE USING AN EFFECTIVE COMBINATION OF OF EROSION AND SEDIMENT CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE, AND STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO MINIMIZE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OF ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING OR WIND.
18. APPROPRIATE BMP'S FOR CONSTRUCTION-RELATED MATERIALS, WASTES, SPILLS OR RESIDUES SHALL BE IMPLEMENTED AND RETAINED ON SITE TO MINIMIZE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OR ADJOINING PROPERTY BY WIND OR RUNOFF.

Revisions				
Sym.	Descrip.	Date	By	
1	ISSUED FOR CONSTRUCTION	06/12/12	PM	

Chkd. ___ Date 06/01/12

Sht Title TITLE SHEET 2

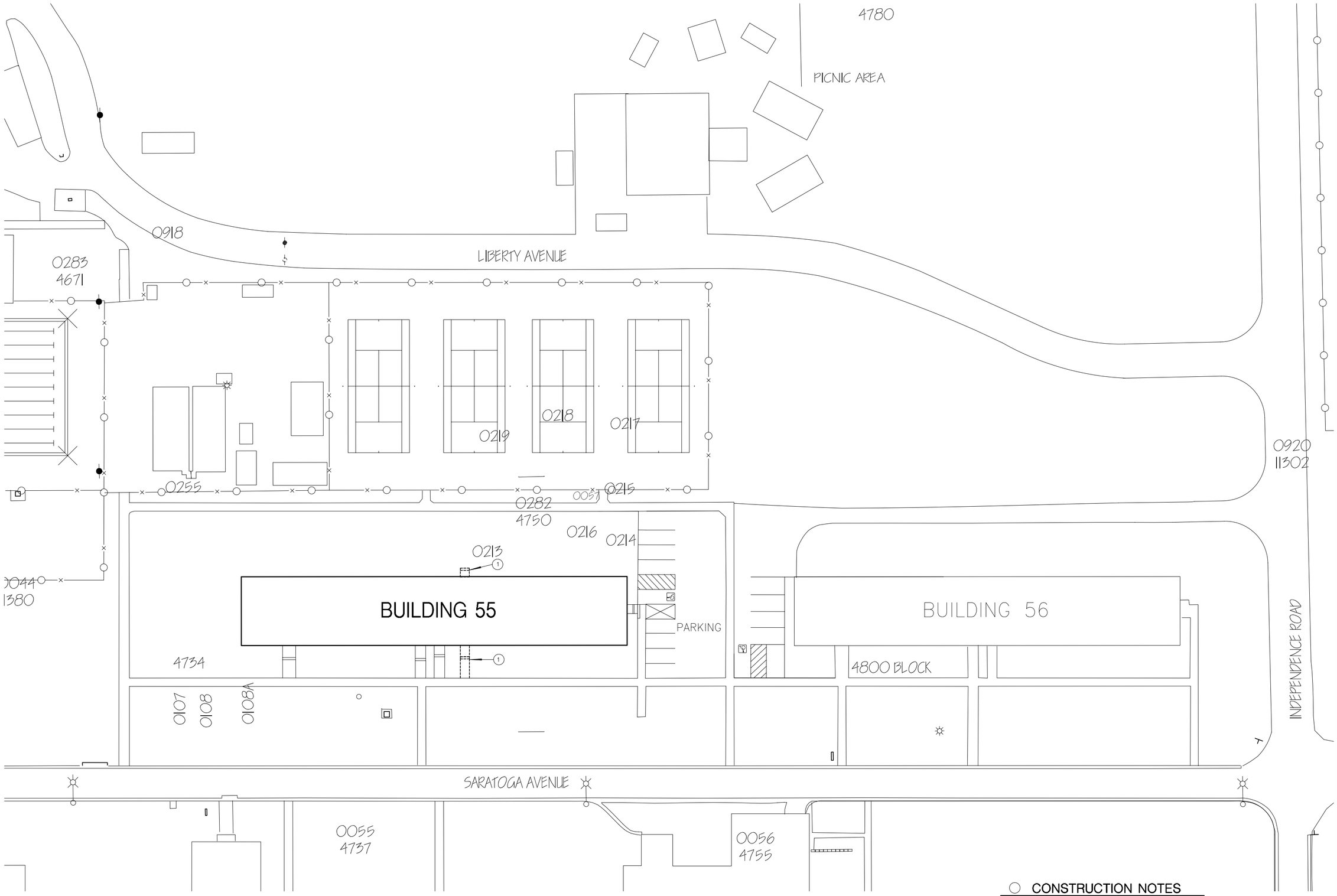
Project BUILDING 55 RENOVATIONS

PROJ. NO. -

Sheet T-2 of

NOT FOR CONSTUCTION

MATOC PROTOTYPICAL PROJECT



CONSTRUCTION NOTES

1. REMOVE (E) CONCRETE STOOP, STEPS & WALKWAY WHERE SHOWN.

EXISTING SITE PLAN

NOT FOR CONSTUCTION

SCALE: NO SCALE

1

Revisions				
Sym.	Descrip.	Date	By
1	ISSUED FOR CONSTRUCTION	06/12/12	PM

Consultant

Drawn JHE | Chkd. PM | Date 05/31/12

Date 06/01/12

Chkd.

Sht Title EXISTING SITE PLAN

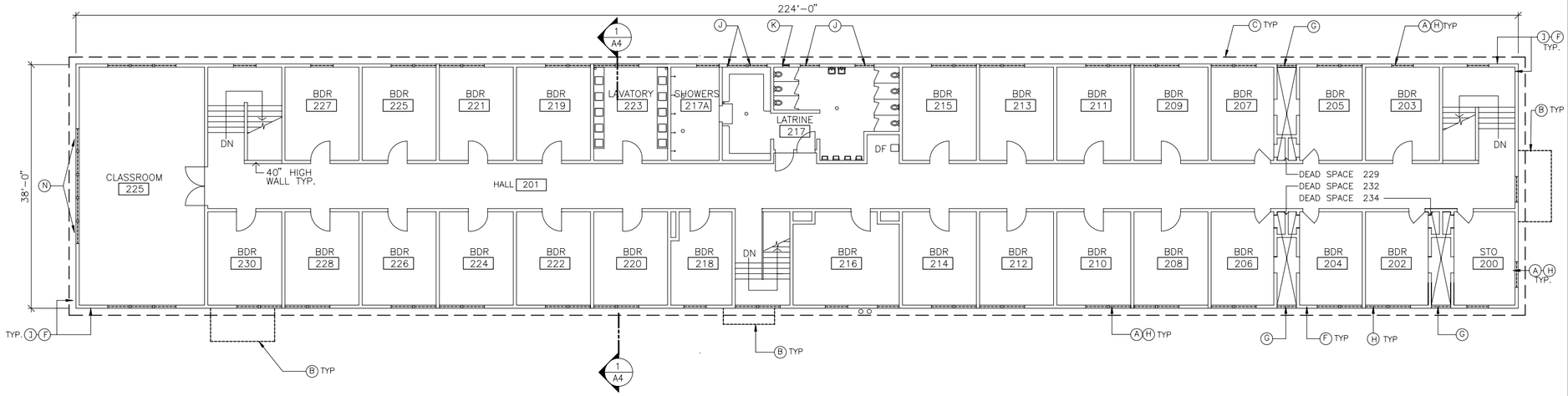
Project BUILDING 55 RENOVATIONS

PROJ. NO. -

Sheet A-1

of

MATOC PROTOTYPICAL PROJECT

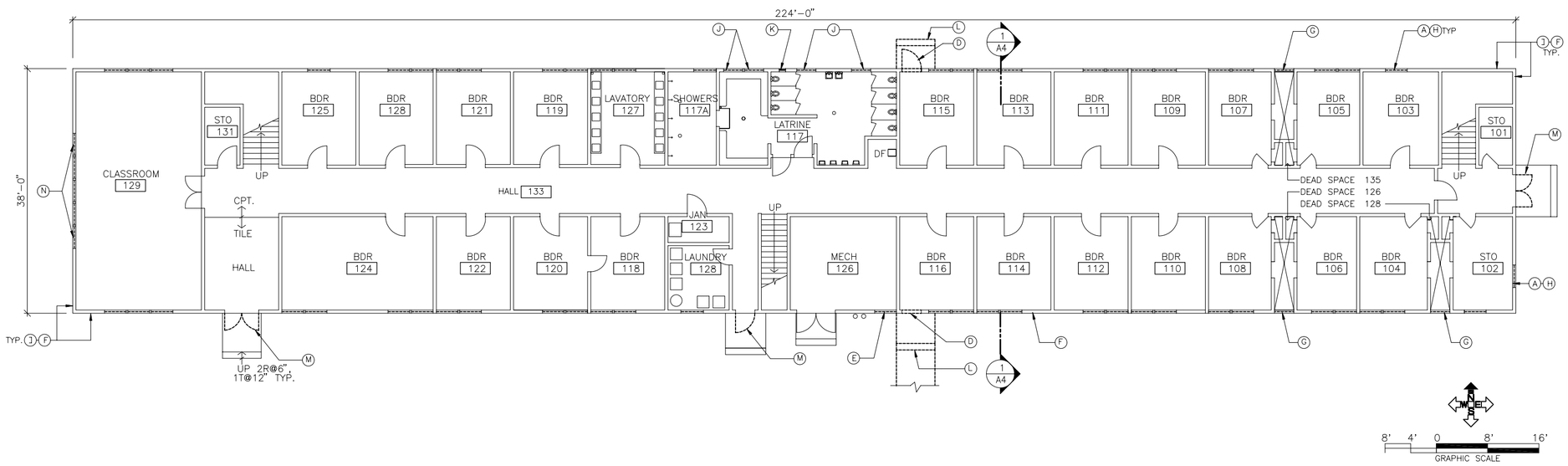


DEMOLITION SECOND FLOOR PLAN

GROSS AREA ; 8559 SF

SCALE: 1/8"=1'-0"

2



DEMOLITION FIRST FLOOR PLAN

GROSS AREA ; 8559 SF

SCALE: 1/8"=1'-0"

1

○ DEMOLITION NOTES

A REMOVE ALL (E) PAINTED WOOD WINDOW SASH. DO NOT REMOVE WD. CASING & SILL. PAINT CONTAINS LEAD. SEE DET.3/A-4 AND SHT. A-3.

B REMOVE (E) PAINTED WOOD CANOPY STRUCTURE ABOVE ENTRY.

C REMOVE (E) ROOFING, FLASHING, 1" FIBER BOARD INSULATION PLYW'D ROOF DECKING & WD. OVERHANG, SEE 5/A4.

D REMOVE (E) DOOR AND FRAME.

E REMOVE (E) PAINTED WOOD LOUVER.

F (E) EXT. PLASTER TO REMAIN, CONTAINS ASBESTOS. PREP AS REQUIRED FOR NEW ACRYLIC COLOR COAT AT ALL EXTERIOR STUCCO SURFACES.

G REMOVE (E) 3'-5" x 3'-6" WOOD SASH DOUBLE HUNG WINDOW.

H REMOVE (E) 3'-5" x 5'-6" WOOD SASH DOUBLE HUNG WINDOW.

I REMOVE (E) COMM. RACEWAY SYSTEM – SEE ELEV.

J REMOVE (E) 3'-0" x 1'-6" ALUMINUM SLIDING WINDOW.

K REMOVE (E) 12" SQ. EXHAUST FANS.

L REMOVE (E) CONC. STOOP & WALKWAY.

M REMOVE (E) HOLLOW METAL DOORS.

N REMOVE (E) 3'-5" x 5'-6" ALUMINUM SINGLE HUNG WINDOWS @ 10 PLCS. SEE 3/A-3.

GENERAL DEMOLITION NOTES

- ALL PAINTED EXTERIOR SURFACES CONTAIN LEAD. SEE SPECIFICATIONS.
- EXTERIOR STUCCO CONTAINS ASBESTOS. DO NOT SANDBLAST, SAND, OR OTHERWISE MAKE FRIABLE. DISPOSE OF (E)STUCCO PER SPECIFICATIONS IF DISPOSAL IS REQUIRED.

NOT FOR CONSTUCTION

Revisions					
Sym.	Descrip.	Date	By		
1	ISSUED FOR CONSTRUCTION	06/12/12	PM		

Consultant

Drawn JHE | Chkd. PM | Date 12/31/11

Chkd. | Date 06/01/12

Snt Title DEMOLITION FLOOR PLANS

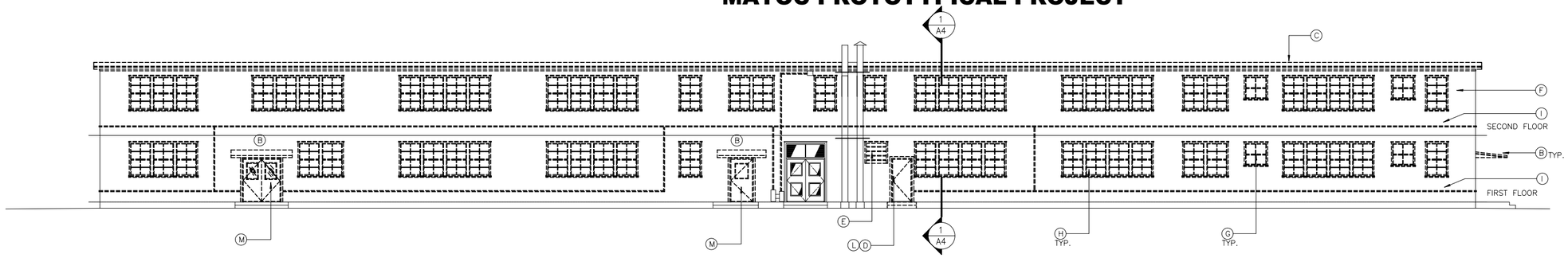
Project BUILDING 55 RENOVATIONS

PROJ. NO. -

Sheet A-2

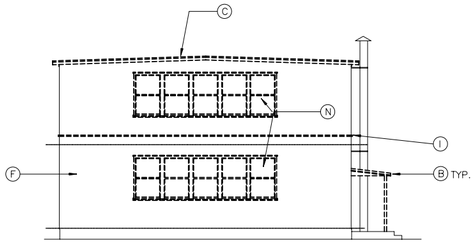
of

MATOC PROTOTYPICAL PROJECT



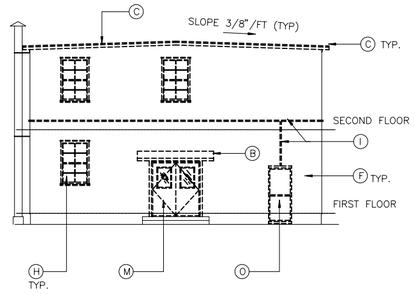
DEMOLITION SOUTH ELEVATION

SCALE: 1/8"=1'-0" | 1



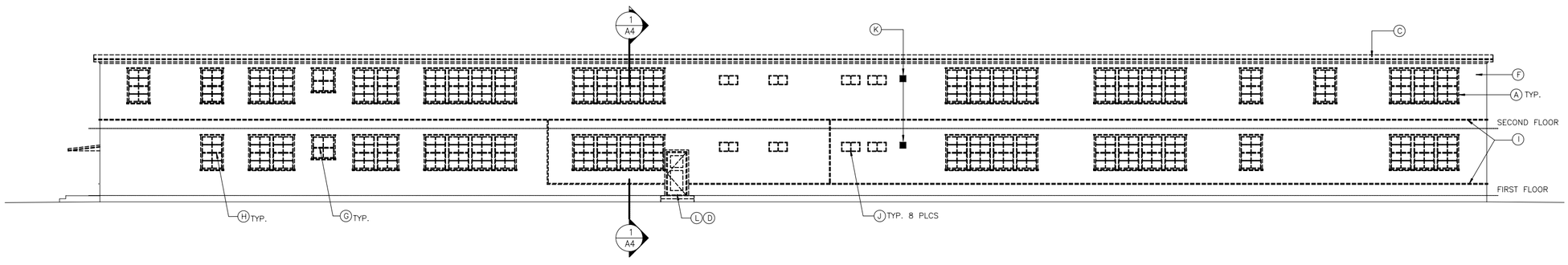
DEMOLITION WEST ELEVATION

SCALE: 1/8"=1'-0" | 3



DEMOLITION EAST ELEVATION

SCALE: 1/8"=1'-0" | 2



DEMOLITION NORTH ELEVATION

SCALE: 1/8"=1'-0" | 4

GENERAL DEMOLITION NOTES

- ALL PAINTED EXTERIOR SURFACES CONTAIN LEAD. SEE SPECIFICATIONS.
- EXTERIOR STUCCO CONTAINS ASBESTOS. DO NOT SANDBLAST, SAND, OR OTHERWISE MAKE FRIABLE. DISPOSE OF (E) STUCCO PER SPECIFICATIONS IF DISPOSAL IS REQUIRED.

○ DEMOLITION NOTES

A REMOVE ALL (E) PAINTED WOOD WINDOW SASH. DO NOT REMOVE WD. CASING & SILL. SEE DET.3/A-4.

B REMOVE (E) PAINTED WOOD CANOPY STRUCTURE, METAL FLASHING AND LIGHT FIXTURE ABOVE ENTRY. PROTECT (E) BLDG. PAPER IN PLACE.

C REMOVE (E) ROOFING, FLASHING, 1" FIBER BOARD INSULATION PLYW'D ROOF DECKING & WD. OVERHANG, SEE 5/A4.

D REMOVE (E) DOOR, FRAME, WOOD TRIM AND PLY'WD. OVER DOOR.

E REMOVE (E) PAINTED WOOD LOUVER AND PAINTED WOOD TRIM.

F (E) EXT. PLASTER TO REMAIN, CONTAINS ASBESTOS.

G REMOVE (E) 3'-5" x 3'-6" WOOD SASH DOUBLE HUNG WINDOW.

H REMOVE (E) 3'-5" x 5'-6" WOOD SASH DOUBLE HUNG WINDOW.

I REMOVE (E) COMMUNICATION RACEWAY SYSTEM AND ALL CABLES. CO-ORDINATE WITH JFTB FACILITIES FOR DISPOSITION.

J REMOVE (E) 3'-0" x 1'-6" ALUMINUM SLIDING WINDOW @ 8 PLACES.

K REMOVE (E) 12" SQ. EXHAUST FAN LOUVERS.

L REMOVE (E) CONC. STOOP & WALKWAY.

M REMOVE (E) H.M. DOORS, FRAMES AND PAINTED WOOD TRIM. SEE 3/A-4.

N REMOVE (E) 3'-5" x 5'-6" ALUMINUM SINGLE HUNG WINDOWS @ 10 PLACES.

O REMOVE (E) TELEPHONE BOOTH & CONDUIT. CO-ORDINATE WITH JFTB FACILITIES FOR DISPOSITION.

NOT FOR CONSTUCTION

Revisions				
Sym.	Descrip.	Date	By	
1	ISSUED FOR CONSTRUCTION	06/12/12	PM	

Consultant

Drawn JHE | Chkd. PM | Date 05/31/12

Chkd. | Date 06/01/12

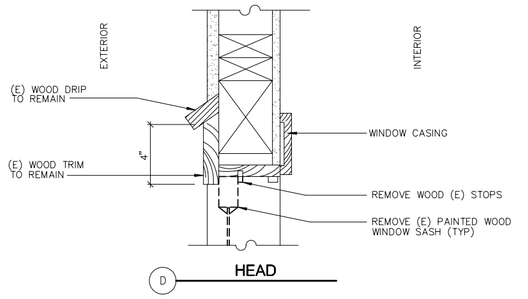
Sht Title DEMO. EXTERIOR ELEVATIONS

Project BUILDING 55 RENOVATIONS

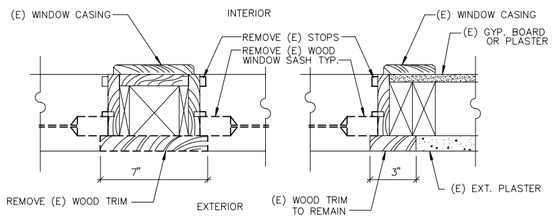
PROJ. NO. -

Sheet A-3 of

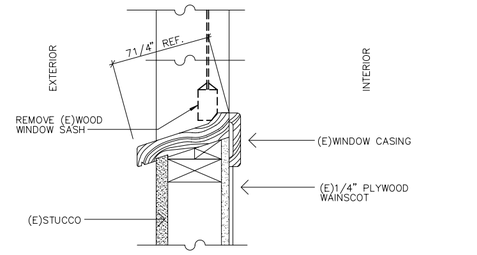
MATOC PROTOTYPICAL PROJECT



D HEAD



B MULLION C JAMB



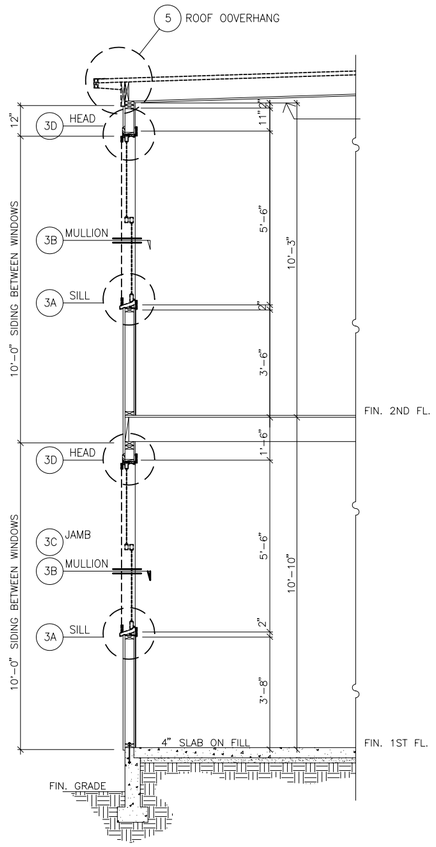
A SILL

NOTE : ALL WOOD SURFACES ARE PAINTED WITH LEAD PAINT.

0 2" 4" 8"
GRAPHIC SCALE

DEMO WINDOW DETAILS

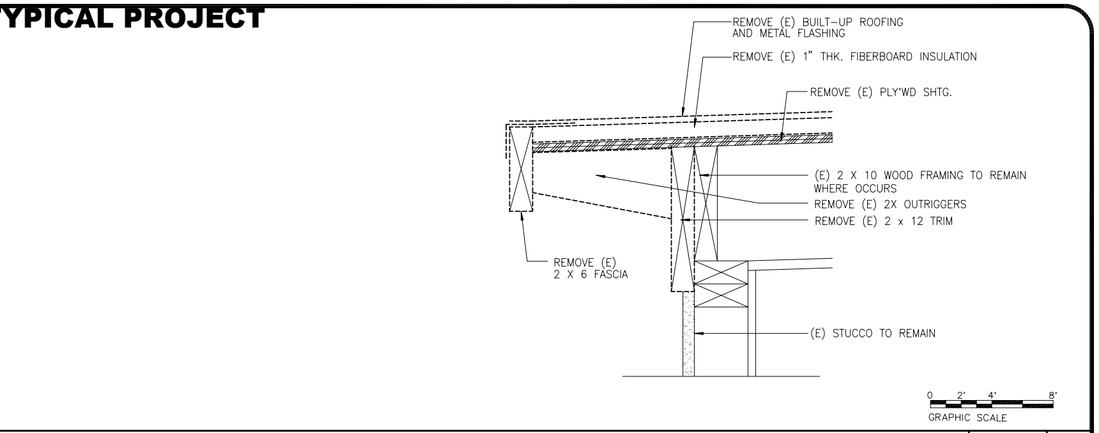
SCALE: 3'-0"=1'-0" | 3



0 2' 4'
GRAPHIC SCALE

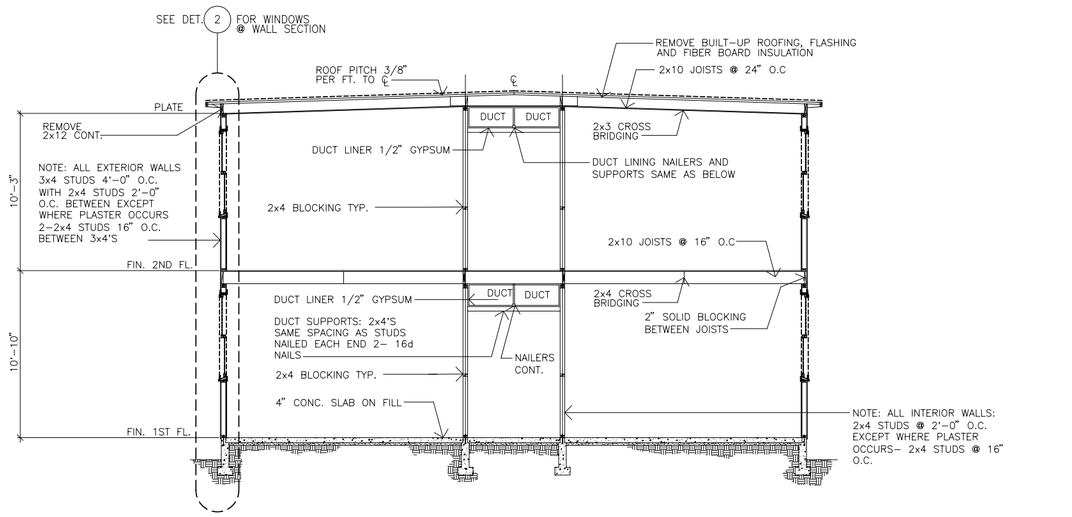
DEMO WALL SECTION

SCALE: 1/2"=1'-0" | 2



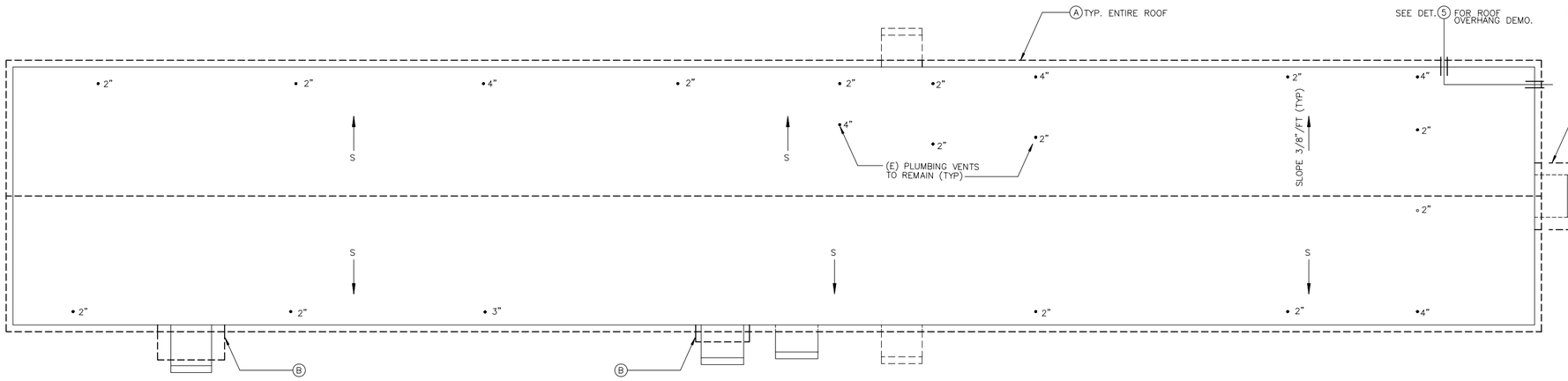
DEMO DETAIL AT ROOF OVERHANG

SCALE: 3'-0"=1'-0" | 5



DEMO BUILDING CROSS-SECTION

SCALE: 1/4"=1'-0" | 1



○ DEMOLITION NOTES

A REMOVE (E) BUILT-UP ROOFING, METAL FLASHING 1" THK FIBERBOARD INSULATION & PLYW'D ROOF DECKING

B REMOVE (E) WD. CANOPY STRUCTURE W/ ROOFING AND FLASHING

GENERAL DEMOLITION NOTES

- ALL PAINTED EXTERIOR SURFACES CONTAIN LEAD. SEE SPECIFICATIONS.
- EXTERIOR STUCCO CONTAINS ASBESTOS. DO NOT SANDBLAST, SAND, OR OTHERWISE MAKE FRIABLE. DISPOSE OF (E) STUCCO PER SPECIFICATIONS IF DISPOSAL IS REQUIRED.

N

0 2' 4' 6' 8' 16'
GRAPHIC SCALE

DEMO ROOF PLAN

SCALE: 1/8"=1'-0" | 4

NOT FOR CONSTUCTION

Revisions

Sym.	Descrip.	Date	By
1	ISSUED FOR CONSTRUCTION	06/12/12	PM

Consultant

Drawn JHE | Chkd. PM | Date 05/31/12

Sht Title DEMO. SECTIONS, ROOF PLAN

Project BUILDING 55 RENOVATIONS

PROJ. NO. -

Date 06/01/12

Chkd.

Sheet A-4 of

MATOC PROTOTYPICAL PROJECT

DOOR SCHEDULE

SEE FINISH HARDWARE SCHEDULE FOR HARDWARE SCHEDULE

NO.	TYPE	SIZE WIDTH x HEIGHT x THICKNESS	MATERIAL	DETAIL	NOTES
01	A	3'-0" + 2'-4" x 7'-0" x 1 3/4"	HM	2, 3, 4 /A-9	
02	A	3'-0" + 2'-4" x 7'-0" x 1 3/4"	HM	2, 3, 4 /A-9	
03	B	3'-6" x 7'-0" x 1 3/4"	HM	2, 3, 4 /A-9	

HM = HOLLOW METAL
– PAINT ALL DOORS AND FRAMES
– SEE SPECS. FOR HARDWARE
– FIELD VERIFY EXACT DIMENSIONS

WINDOW SCHEDULE

FIELD VERIFY ALL WINDOW SIZES FOR FIT

DES.	SIZE VERIFY OPENING	TYPE	FRAME MATERIAL	GLASS	DETAILS HEAD	JAMB	SILL	NOTES
A	3'-5" x 3'-6"	SLD.	ALUM.	GT	7,8/A8	7,8/A8	7,8/A8	
B	3'-5" x 5'-6"	S.H.	ALUM.	GT	7,8/A8	7,8/A8	7,8/A8	
C	3'-0" x 1'-6"	SLD.	ALUM.	GT	8/A8	8/A8	8/A8	

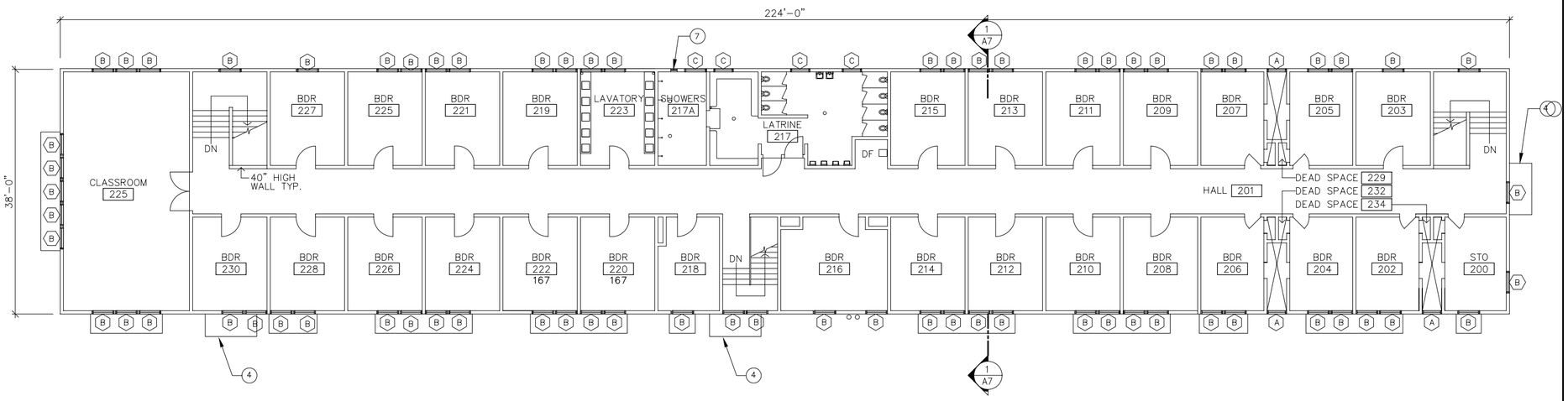
ABBREVIATIONS
FXD. – FIXED
SLD. – SLIDING
ALUM. – ALUMINUM
S.H. – SINGLE HUNG
CLR. – CLEAR
GT – DOUBLE GLAZED

NOTE : ALL EXTERIOR WINDOWS SHALL BE DOUBLE GLAZED WITH LOW E GLASS @ INTERIOR & SOLARGREY GLASS @ EXTERIOR.

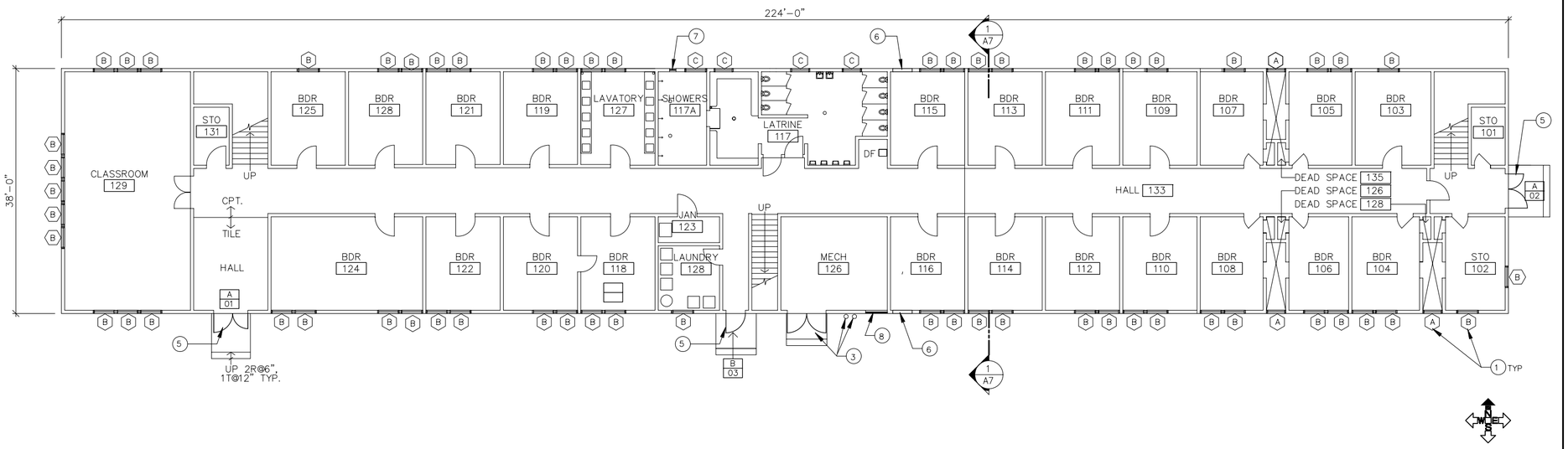
PROVIDE CLEAR 7 MIL. MYLAR POLYESTER BLAST MITIGATION FILM WITH SCRATCH RESISTANT COATING AT INTERIOR SIDE OF ALL WINDOW GLAZING ATTACHED WITH WET GLAZED METHOD. BEKAERT ARMORCOAT FILMS CO. OR EQUAL.

CONSTRUCTION NOTES

1. PROVIDE NEW REPLACEMENT WINDOWS & TRIM IN (E) PREPARED WD CASING SEE WINDOW SCHEDULE.
2. PROVIDE SBS TORCH DOWN ROOFING SYSTEM OVER NEW PLYWD, WD. SOFFITS & FASCIA.
3. STABILIZE (E)LEAD PAINT. ENCAPSULATE AND PAINT (E)CHIMNEY STACKS, METAL DOORS, LOUVERS AND WOOD TRIM.
4. PROVIDE OVERHEAD CANOPIES CENTERED @ ENTRANCE DOORS. REPLACE (E) ELECT. CONDUIT & LIGHTING W/NEW WALL PACK LIGHTS CENTERED UNDER CANOPIES. PATCH AND REPAIR (E)STUCCO & BLDG. PAPER BACKING. MATCH FINISH. SEE 6/A8.
5. PROVIDE HM DOORS, FRAMES AND 3/4" x 3 1/2" CEMENT BOARD TRIM TO REPLACE (E). PAINT DOORS,, FRAMES AND TRIM. SEE 4/A9.
6. PROVIDE 2 x 4 WOOD STUDS @ 16" O.C. INFILL FRAMING, GYP. BD., STUCCO & PAINT @ (E) OPENING. STUCCO CONTAINS ASBESTOS FIBERS.
7. REPLACE (E) VENT FAN WITH EQUAL.
8. REPLACE (E) W/ NEW PAINTED ALUM. LOUVERS. SEE 1/A9.



SECOND FLOOR PLAN — GROSS AREA ; 8559 SF — SCALE: 1/8"=1'-0" — 2



NOT FOR CONSTUCTION

Revisions

Sym.	Descrip.	Date	By
1	ISSUED FOR CONSTRUCTION	06/12/12	PM

Consultant

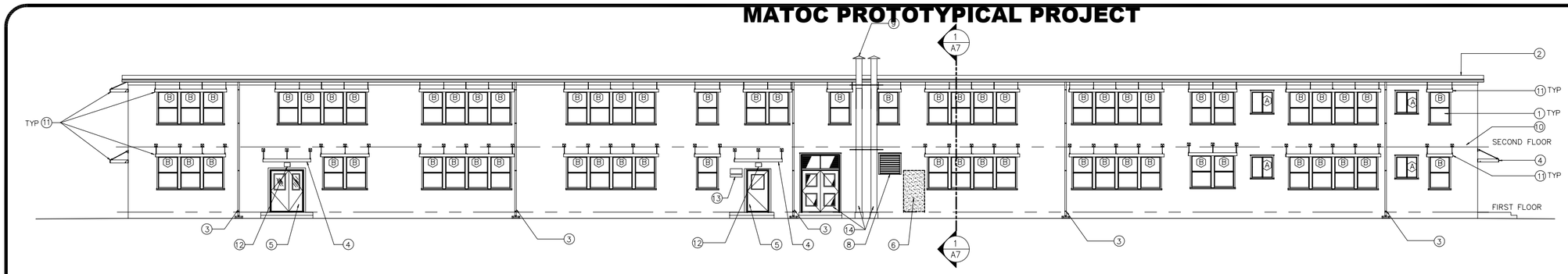
Drawn JHE — Chkd. PM — Date 05/31/12

Sht Title FLOOR PLANS
Project BUILDING 55 RENOVATIONS
PROJ. NO. -

Chkd. — Date 06/01/12

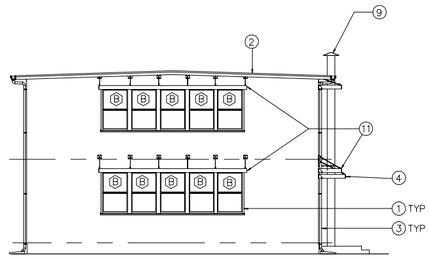
Sheet A-5 of

MATOC PROTOTYPICAL PROJECT



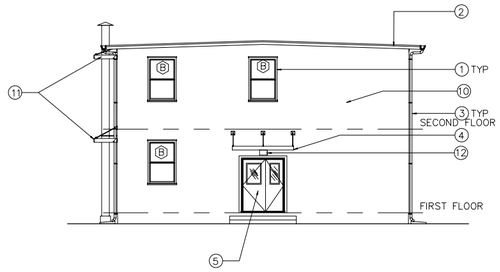
SOUTH ELEVATION

SCALE: 1/8"=1'-0" | 1



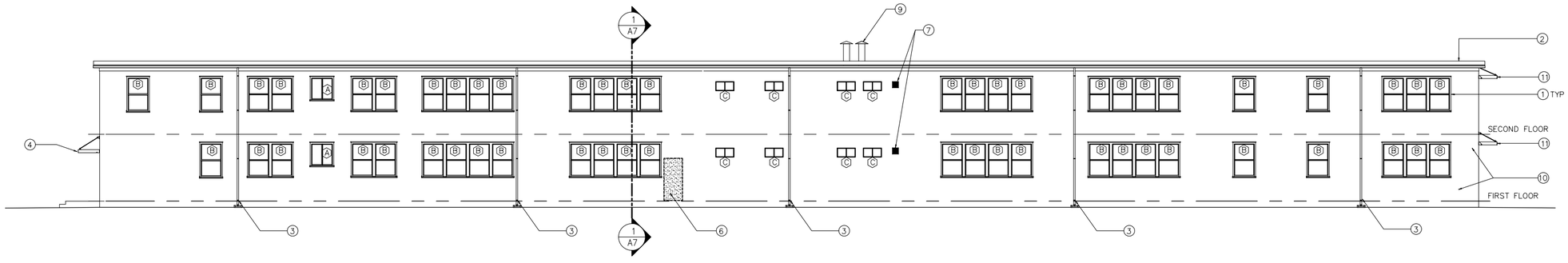
WEST ELEVATION

SCALE: 1/8"=1'-0" | 3



EAST ELEVATION

SCALE: 1/8"=1'-0" | 2



0 2' 4' 6' 8' 16'
GRAPHIC SCALE

NORTH ELEVATION

SCALE: 1/8"=1'-0" | 4

GENERAL CONSTRUCTION NOTES

- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR WINDOWS, DOORS, FRAMES AND LOUVER INSTALLATIONS FOR APPROVAL PRIOR TO ORDERING OR FABRICATING ANY MATERIALS.

○ CONSTRUCTION NOTES

1. PROVIDE NEW REPLACEMENT WINDOWS & TRIM IN (E) PREPARED WD CASING. SEE WINDOW SCHEDULE, SHT. A5.
2. PROVIDE SBS TORCH DOWN ROOFING SYSTEM OVER DENSDECK & NEW PLYWD, WD. SOFFITS & FASCIA. SEE 1, 2, 3/A7.
3. PROVIDE PAINTED GUTTERS, DOWNSPOUTS & SPLASH BLOCK. SEE 3, 4, 5/A8. PROVIDE EXPANSION JOINTS @ 50' MAX. O.C.
4. PROVIDE OVERHEAD CANOPIES CENTERED @ ENTRANCE DOORS. REPLACE (E) ELECT. CONDUIT & LIGHTING W/NEW WALL PACK LIGHTS. CENTERED UNDER CANOPIES. PATCH AND REPAIR (E)STUCCO AND BLDG. PAPER BACKING. MATCH FINISH. SEE 6/A8.
5. PROVIDE HM DOORS, FRAMES AND 3/4" x 3 1/2" CEMENT BOARD TRIM TO REPLACE (E). PAINT DOORS,, FRAMES AND TRIM. SEE 4/A9.
6. PROVIDE 2 x 4 WOOD STUDS @ 16" O.C. INFILL FRAMING, GYP. BD., STUCCO & PAINT @ (E) OPENING. (E) STUCCO CONTAINS ASBESTOS FIBERS.
7. REPLACE (E) VENT FAN WITH EQUAL.
8. REPLACE (E) W/ NEW PAINTED ALUM. LOUVERS. SEE 1/A9.
9. PROVIDE 22 GA PAINTED HOT DIP GALVNIZED CHIMNEY CAP TO MATCH (E) DESIGN & ATTACHMENT.
10. PROVIDE NEW ACRYLIC STUCCO FINISH ON ALL (E) EXTERIOR STUCCO SURFACES. (E) STUCCO CONTAINS ASBESTOS.
11. PROVIDE A BID OPTION FOR ALUMINUM SUNSHADES, SEE 5/A7.
12. PROVIDE NEW LIGHT FIXTURE CENTERED ABOVE DOORS. SEE 6/A8.
13. TEMPORARILY REMOVE AND REPLACE (E) ADDRESS SIGNAGE TO BE REPLACED OVER NEW STUCCO FINISH.
14. STABILIZE (E)LEAD PAINT. ENCAPSULATE AND PAINT (E)METAL CHIMNEY STACKS, DOORS, LOUVERS AND WOOD TRIM.

NOT FOR CONSTUCTION

Revisions				
Sym.	Descrip.	Date	By
1	ISSUED FOR CONSTRUCTION	06/12/12	PM

Consultant

Drawn JHE | Chkd. PM | Date 12/31/12

Date 06/01/12

Chkd.

Sht Title EXTERIOR ELEVATIONS

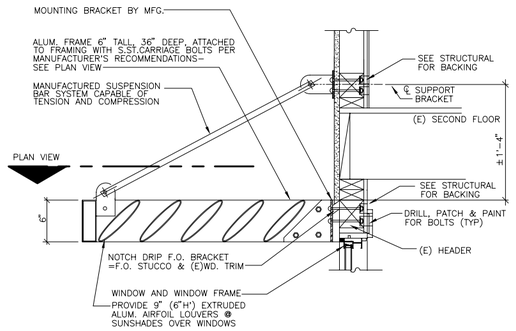
Project BUILDING 55 RENOVATIONS

PROJ. NO. -

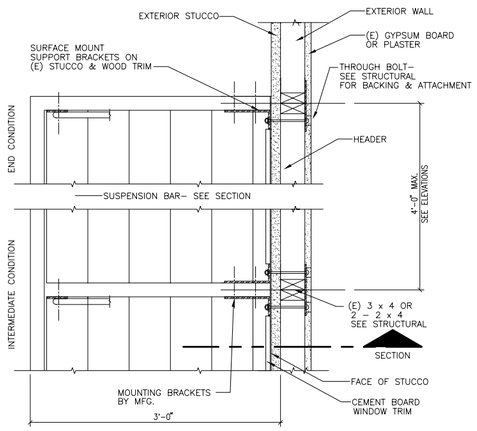
Sheet A-6

of

MATOC PROTOTYPICAL PROJECT



SECTION @ SUNSHADE

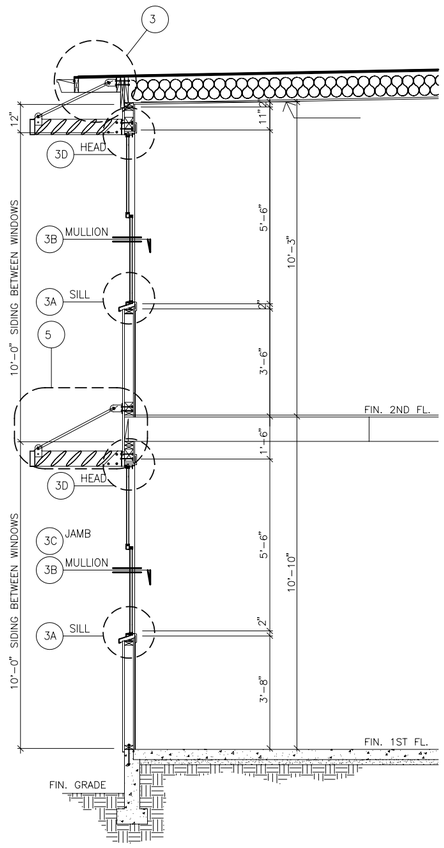


TYPICAL PLAN VIEW

PRE–PAINT ALL VISIBLE COMPONENTS COLOR = DUNN EDWARDS "BISON BEIGE" #DEC 750, SEMI GLOSS. DESIGN IS BASED ON INDUSTRIAL LOUVERS INC. MODEL SA600.

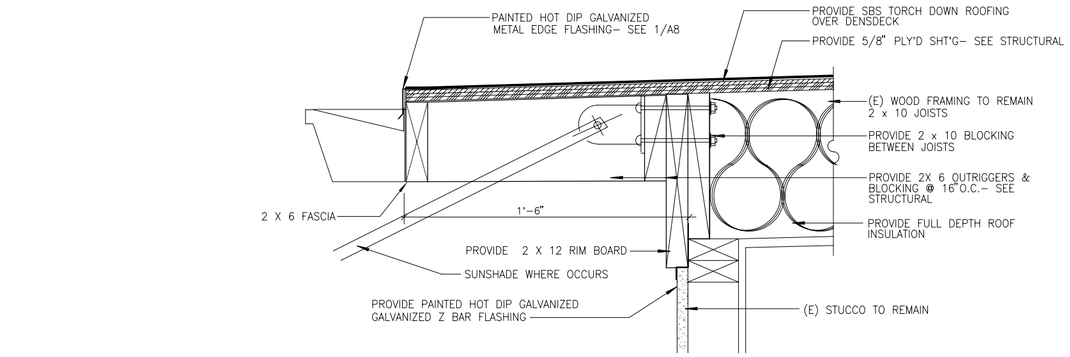
SUNSHADE DETAIL (BID OPTION)

SCALE: 1 1/2"=1'–0" | 5



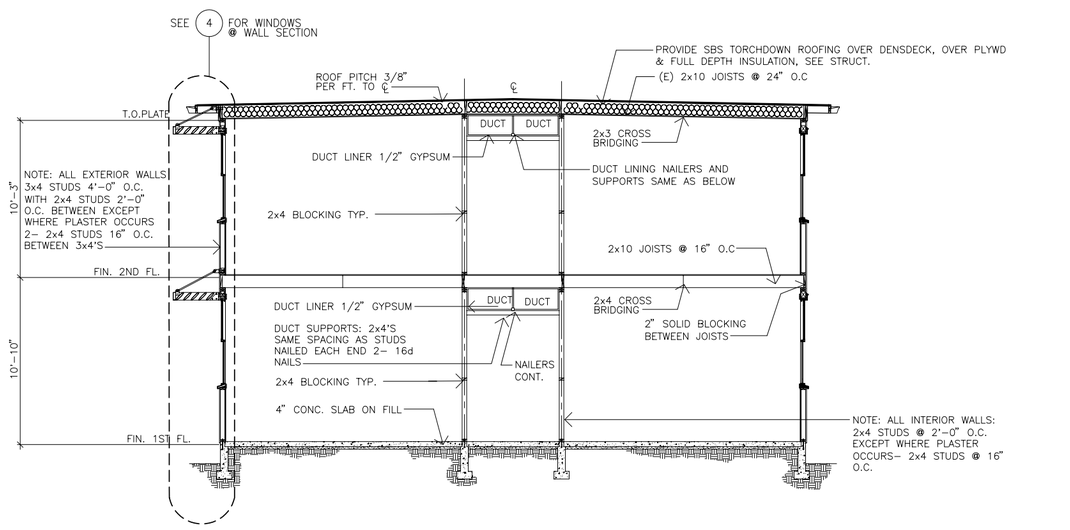
WALL SECTION

SCALE: 1/2"=1'–0" | 4



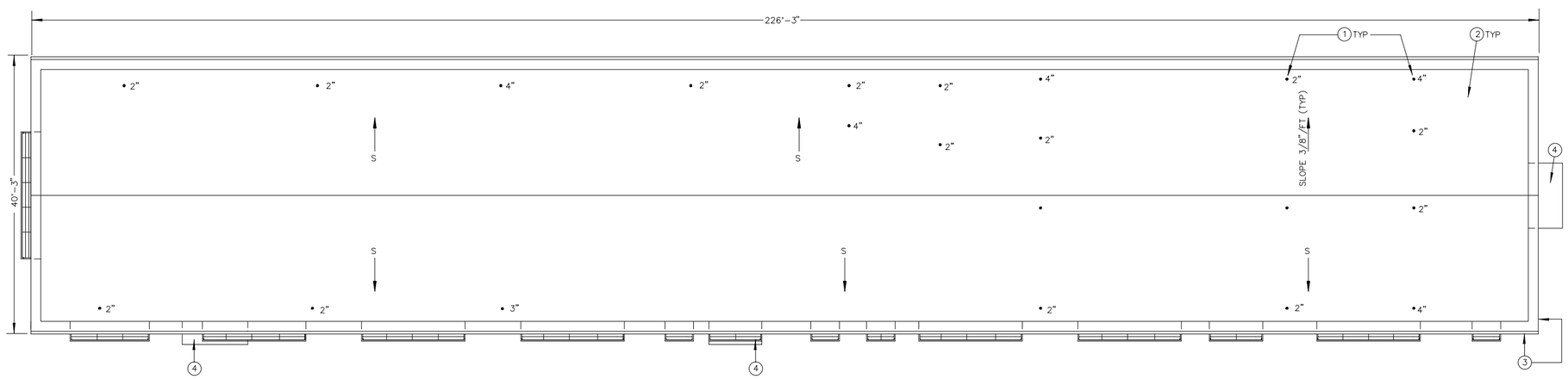
DETAIL AT ROOF OVERHANGS

SCALE: NO SCALE | 3



BUILDING CROSS-SECTION

SCALE: 1/4"=1'–0" | 2

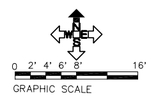


ROOF PLAN

SCALE: 1/8"=1'–0" | 1

○ CONSTRUCTION NOTES

1. (E) PLUMBING VENT ROOF PENETRATION
2. PROVIDE SBS ROOFING OVER DENSDECK, OVER PLYW'D, OVER FULL DEPTH INSULATION,@ (E) 2 x 10 CEILING JOISTS –SEE STRUCTURAL
3. PROVIDE 2 x 6 WD OUTRIGGERS @ 16" O.C., SEE DET. 2, 3 & STRUCT.
4. PROVIDE OVERHEAD CANOPIES CENTERED @ ENTRANCE DOORS. REPLACE (E) ELECT. CONDUIT & LIGHTING W/NEW WALL PACK LIGHTS. CENTERED UNDER CANOPIES.



NOT FOR CONSTUCTION

Revisions				
Sym.	Descrip.	Date	By
1	ISSUED FOR CONSTRUCTION	06/12/12	PM

Consultant

Drawn JHE | Chkd. PM | Date 05/31/12

Date 06/01/12

Chkd.

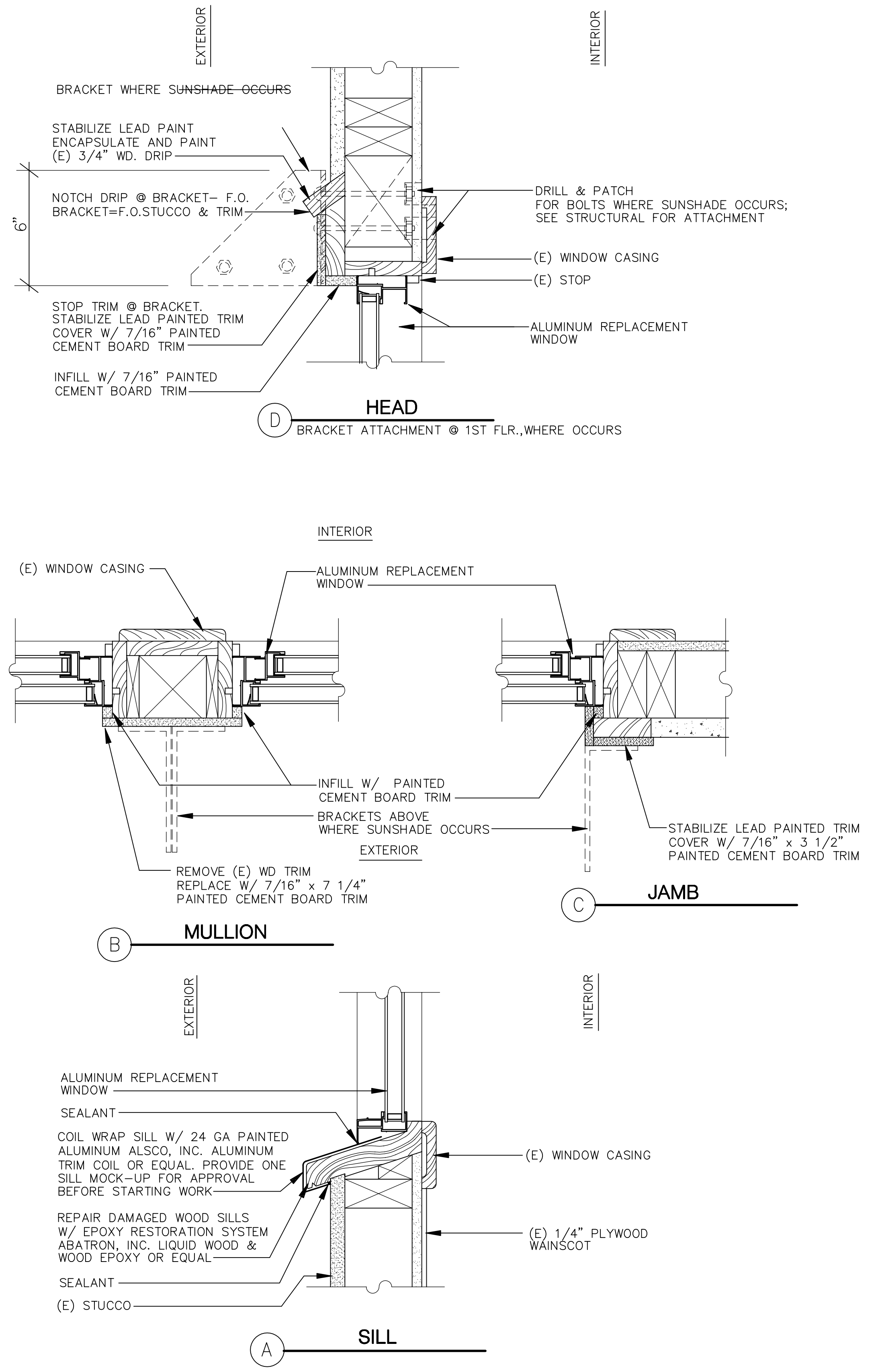
Sht Title NEW SECTIONS, ROOF PLAN

Project BUILDING 55 RENOVATIONS

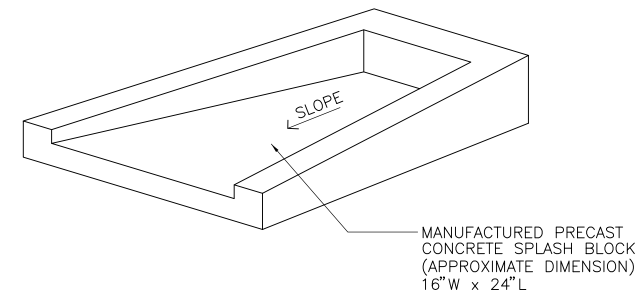
PROJ. NO. -

Sheet A-7 of

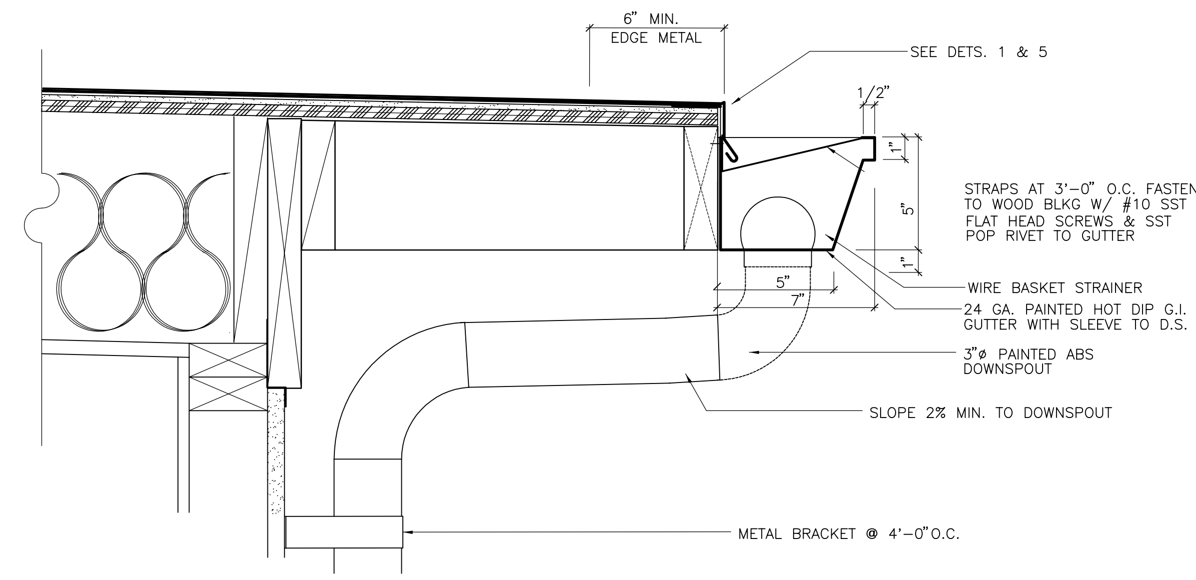
MATOC PROTOTYPICAL PROJECT



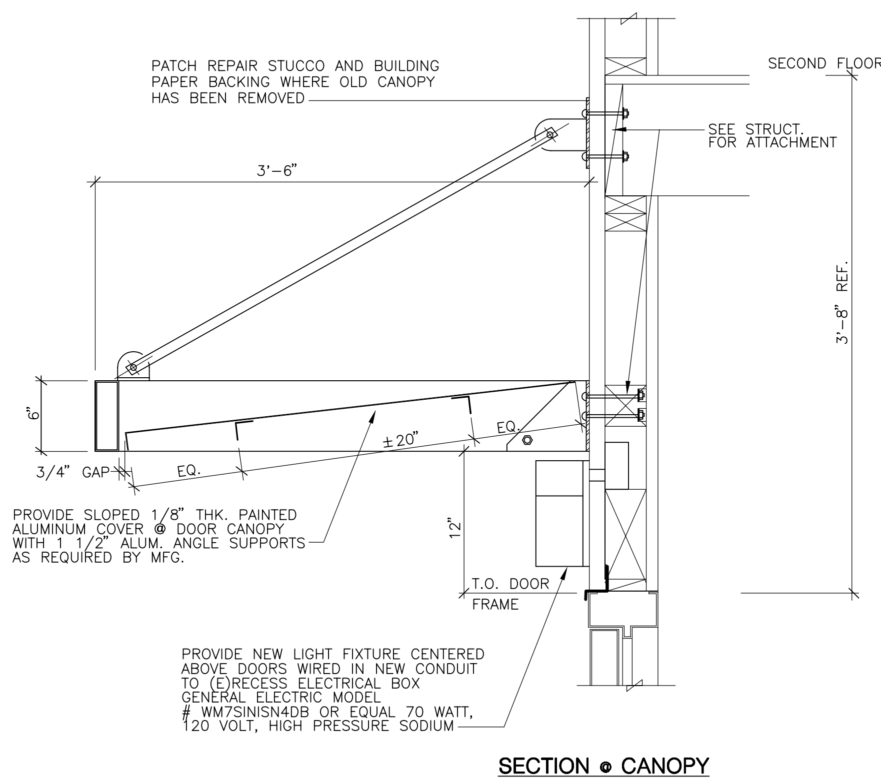
WINDOW DETAILS — SCALE: NONE — 7



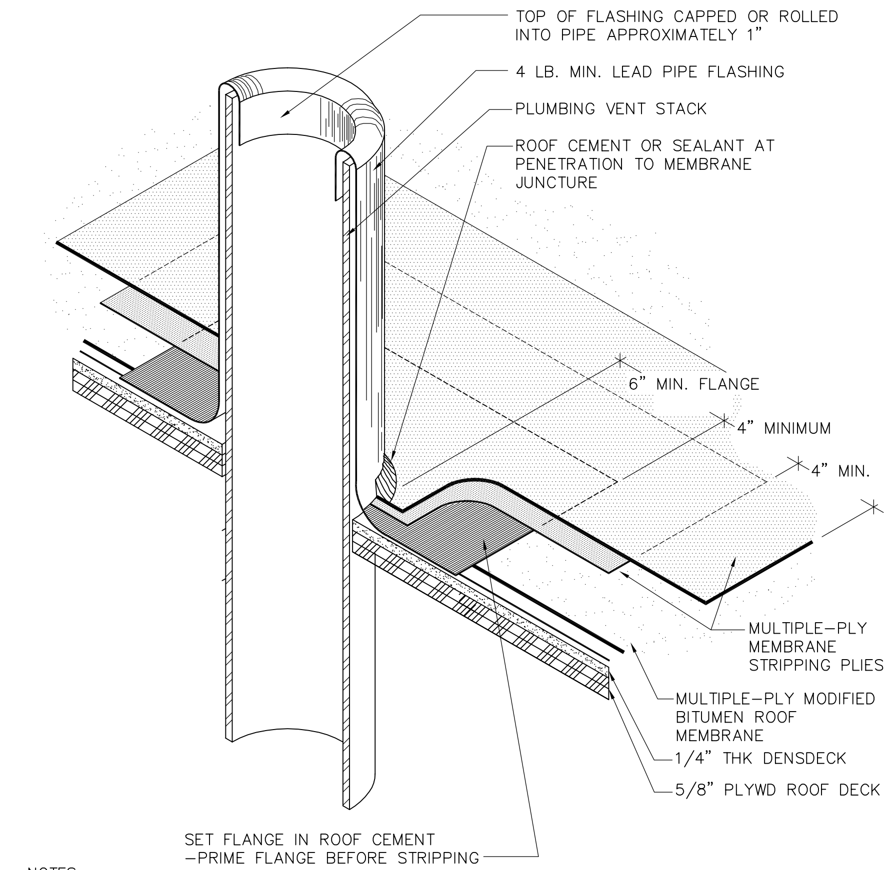
SPLASH BLOCK — SCALE: NO SCALE — 4



GUTTER — SCALE: NONE — 3



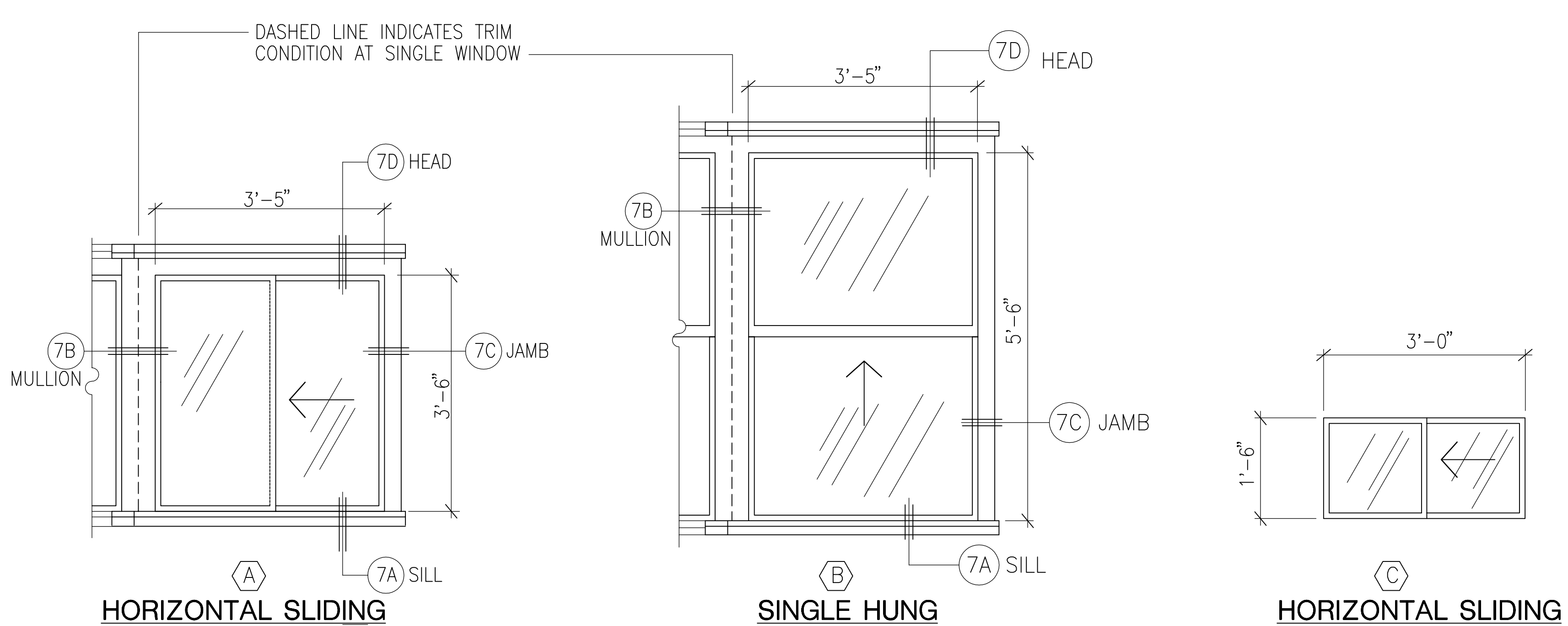
DOOR CANOPY — SCALE: 1 1/2"= 1'–0" — 6



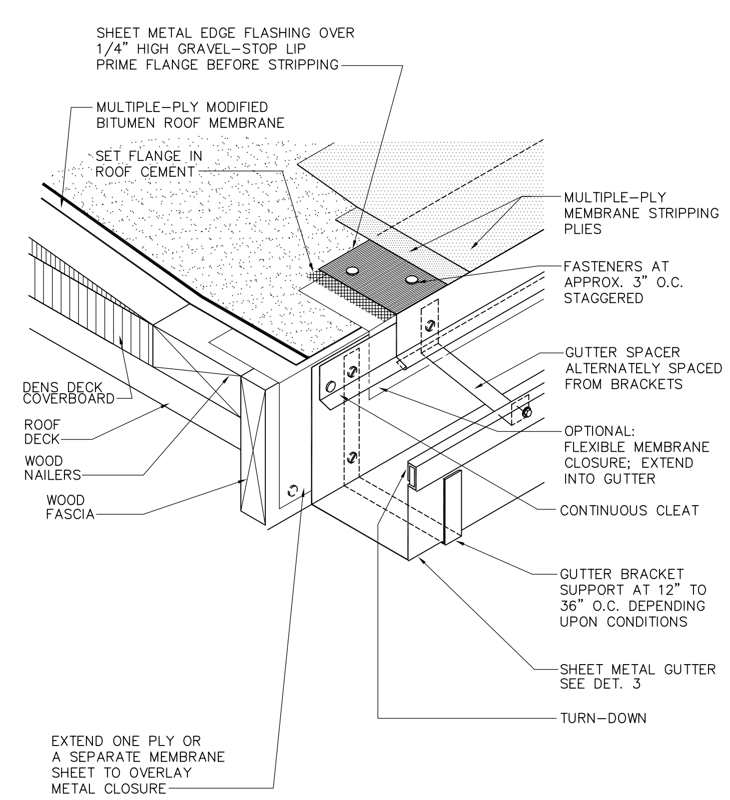
NOTES:

1. METAL PIPE FLASHING:
   – SHEET LEAD: MINIMUM OF 2 1/2 LB. PER SQUARE FOOT .
2. VENT STACKS AND OTHER PIPES SHOULD HAVE A MINIMUM OF 12 INCHES OF CLEARANCE ON ALL SIDES FROM WALLS, CURBS, AND OTHER PROJECTIONS TO FACILITATE PROPER FLASHING.
3. NRCA SUGGESTS THAT THE TOP STRIPPING PLY BE A HEAVY–WEIGHT POLYMER MODIFIED BITUMEN SHEET.

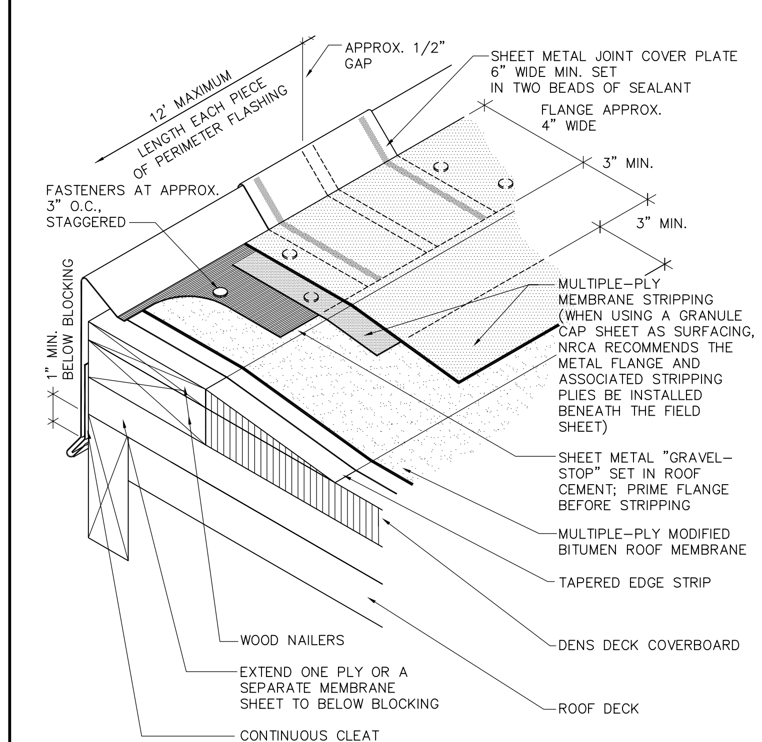
PLUMBING VENT @ ROOF — SCALE: NO SCALE — 2



WINDOW TYPES — SCALE: — 8



GUTTER TO ROOF — SCALE: NO SCALE — 5



EDGE METAL FLASHING — SCALE: NO SCALE — 1

NOT FOR CONSTUCTION

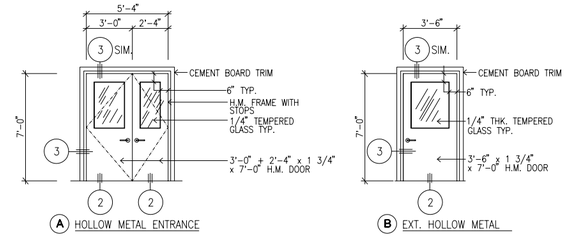
Revisions			
Sym.	Descrip.	Date	By
1	ISSUED FOR CONSTRUCTION	06/12/12	PM

Consultant
Drawn JHE — Chkd. PM — Date 05/31/12

Chkd. — Date 06/01/12

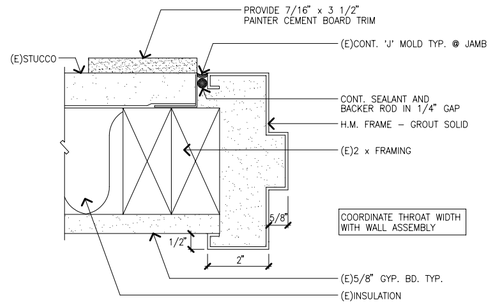
Sht Title: DETAILS
Project: BUILDING 55 RENOVATIONS
PROJ. NO. -

Sheet A-8 of



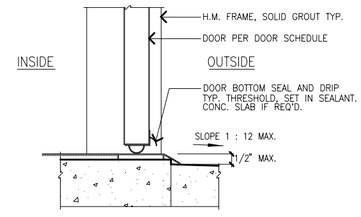
DOOR TYPES

SCALE: 1/4"=1'-0" | 4



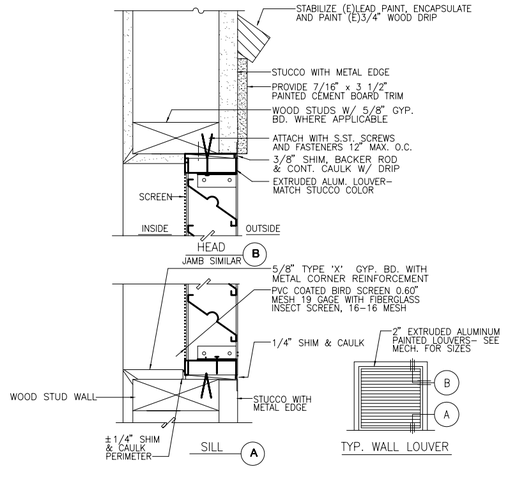
EXTERIOR DOOR JAMB (HEAD SIM.)

SCALE: 6"=1'-0" | 3



EXTERIOR DOOR THRESHOLD

SCALE: 1 1/2"=1'-0" | 2



EXTERIOR WALL LOUVER

SCALE: NONE | 1

Revisions				
Sym.	Descrip.	Date	By	
1	ISSUED FOR CONSTRUCTION	06/01/12	PM	

Consultant

Drawn JHE | Chkd. PM | Date 05/31/12

Chkd. | Date 05/30/12

Sht Title DETAILS

Project BUILDING 55 RENOVATIONS

PROJ. NO. -

Sheet A-9 of

BUILDING 55 RENOVATIONS

TYPICAL NAILING SCHEDULE

2010 CBC (2009 IBC) TABLE 2304.9.1 -- NAILING SCHEDULE *[modified]*

CONNECTION	NAILING[1,12]
1. Joist to sill or girder, toenail	3-8d
2. Bridging to joist, toenail each end	2-8d
3. 1" x 6" subfloor or less to each joist, face nail	2-8d
4. Wider than 1" x 6" subfloor to each joist, face nail	3-8d
5. 2" subfloor to joist or girder, blind and face nail	2-16d
6. Sole plate to joist or blocking, typical face nail Sole plate to joist or blocking, at braced wall panels	16d at 16" o.c. 3-16d per 16'
7. Top plate to stud, end nail	2-16d
8. Stud to sole plate	4-8d, toenail or 2-16d, end nail
9. Double studs, face nail	16d at 24" o.c.
10. Doubled top plates, typical face nail (UNO) Doubled top plates, lap splice (UNO)	16d at 16" o.c. 8-16d
11. Blocking between joists or rafters to top plate, toenail	3-8d
12. Rim joist to top plate, toenail	8d at 6" o.c.
13. Top plates, laps and intersections, face nail	2-16d
14. Continuous header, two pieces	16d at 16" o.c. along each edge
15. Ceiling joists to plate, toenail	3-8d
16. Continuous header to stud, toenail	4-8d
17. Ceiling joists, laps over partitions, face nail	3-16d
18. Ceiling joists to parallel rafters, face nail	3-16d
19. Rafter to plate, toenail	3-8d
20. 1" brace to each stud and plate, face nail	2-8d
21. 1" x 8" sheathing or less to each bearing, face nail	2-8d
22. Wider than 1" x 8" sheathing to each bearing, face nail	3-8d
23. Built-up corner studs	16d @ 24" o.c.
24. Built-up girder and beams	20d at 32" o.c. at top and bottom and staggered 2-20d at ends and at each splice
25. 2" planks	2-16d at each bearing
26. Wood structural panels and particleboard (except where noted otherwise):[2]	
Subfloor and wall sheathing (to framing):	
1/2" and less	6d[3]
19/32" to 3/4"	8d[4] or 6d[5]
7/8" to 1"	8d[5]
1 1/8" to 1 1/4"	10d[4] or 8d[5]
Combination subfloor-underlayment (to framing):	
3/4" and less	6d[5]
7/8" to 1"	8d[5]
1 1/8" to 1 1/4"	10d[4] or 8d[5]
27. Panel siding (to framing):[2]	
1/2" or less	6d[6]
5/8"	8d[6]
28. Fiberboard sheathing:[7]	
1/2"	No. 11 ga.[8] 6d[4] No. 16 ga.[9]
25/32"	No. 11 ga.[8] 6d[4] No. 16 ga.[9]
29. Interior paneling	
1/4"	4d[10]
3/8"	6d[11]

[1]Common or galvanized box nails may be used except where otherwise stated.
[2]Nails spaced at 6 inches on center at edges, 12 inches at intermediate suports except 6 inches at all supports where spans are 48 inches or more. For nailing of wood structural panel and particleboard diaphragms and shearwalls, refer to Sections 2315.3.3 and 2315.4. Nails for wall sheathing may be common or galv. box.
[3]Common or deformed shank.
[4]Common.
[5]Deformed shank.
[6]Corrosion-resistant siding or casing nails conforming to the requirements of Section 2304.3.
[7]Fasteners spaced 3 inches on center at exterior edges and 6 inches on center at intermediate supports.
[8]Corrosion-resistant roofing nails with 7/16" diameter head and 1 1/2" length for 1/2" sheathing and 1 3/4" length for 25/32" sheathing conforming to the requirements of Section 2304.3.
[9]Corrosion-resistant staples with nominal 7/16" crown and 1 1/8" length for 1/2" sheathing and 1 1/2" length for 25/32" sheathing conforming to the requirements of Section 2304.3.
[10]Panel supports at 16" (20 inches if strength axis in the long direction of the panel, unless otherwise marked). Casing or finish nails spaced 6" on panel edges, 12" at intermediate supports.
[11]**Panel supports** at 24". Casing or finish nails spaced 6" on panel edges, 12" at intermediate supports.
[12]Refer to the plans and specs. for typical attachment/anchorage/nailing. Use this nailing # not specified elsewhere.

STRUCTURAL OBSERVATION NOTES

The Structural Engineer, or another Engineer or Architect designated by the Structural Engineer, will perform periodic Structural Observations of construction in accordance with *CBC Section 1702.1 [For BSC]*, designated as the "Structural Observer."

The Owner or Owner's representative and the Contractor shall coordinate a pre-construction meeting between the Structural Engineer, Structural Observer (if different than the Structural Engineer), Contractor, affected subcontractor(s) and inspector(s), to identify major structural elements and to review scheduling of the required observations. Notes from the meeting shall be included in the Structural Observation Report submitted to the Contracting Officer's Representative.

Observed deficiencies shall be reported in writing to the Owner or Owner's representative, inspector(s), contractor and the Contracting Officer's Representative. The Structural Observer shall submit to the building official a written statement at significant construction stages stating that the site visits have been made and identifying any reported deficiencies which, to the best of the Structural Observer's knowledge, have not been resolved. A final report by the Structural Observer which states that all observed deficiencies have been resolved is required before acceptance of the work by the Owner or Owner's representative and the Contracting Officer's Representative.

"Structural Observation" means the visual observation of the structural system, for general conformance to the approved plans and specifications. Structural observation does not include or waive the responsibility for the inspections required by the code. Additionally, Structural observation does not waive the responsibility of the contractor to conform to all the requirements of the approved plans and specifications.

The Contractor shall coordinate the scheduling of site visits to be made by the Structural Observer. Requests for structural observations should be made no less than two business days prior to the desired time, preferably one week prior. The Structual Observer shall make a good faith effort to accommodate the Contractor's request, however consideration must be given for office scheduling. Typical Structural Observation Reports shall be submitted one to seven days following structural observations, however if significant corrections or supplemental details or drawings are required, then report submittal may be delayed.

Structural Observation shall consist of site visits at various stages of construction. Depending upon sequencing of the construction throughout the project, more than one structural observation may be required for each 'stage' in order to adequately observe the work throughout the project. Stages of construction requiring structural observation, at a minimum, are as follows (but not necessarily in this order):

1. Structural Component Framing:
   Observe framing members (e.g. eave rafters and blocking) and connections, prior to covering.
2. Lateral System Framing:
   Observe framing, blocking, connections, sheathing and nailing, prior to covering.
3. Completion of the Structural System:
   Observe completion of the structural system, after all deficiencies have been corrected, prior to covering.

GENERAL NOTES

THE FOLLOWING NOTES APPLY UNLESS NOTED OTHERWISE ON THE PLANS:

1. Use of "Contracting Officer's Representative," or similar, in the General Notes, Specifications and Plans refers to the government building enforcement agency (or "regulatory agency" or "building department" or "building enforcement agency") with jurisdiction over design and construction of this project.
2. Do not scale drawings. Use written dimensions. Refer to the Architectural plans for dimensional layout. The contractor shall verify all dimensions and conditions in the field (at the site) and report any discrepancies to the Architect and Structural Engineer before proceeding with the work. All existing conditions have not been determined or verified. Existing framing members and/or connections may be damaged in some areas. The contractor shall inspect and evaluate all framing, connections, and conditions prior to construction. The type of damage and/or extent of damage may vary from location to location. Subsequent to the contractor's inspection and evaluation of the existing conditions, the contractor shall meet with the Owner or Owner's representative to discuss the conditions.
3. Construction and materials shall comply with and be installed in accordance with the requirements of all legally constituted public authorities having jurisdiction, including all county and local ordinances, the State Industrial Accident Commission, and OSHA. Receive all required approvals prior to commencement of construction.
4. The contractor shall be responsible for all shoring and providing bracing during construction and/or erection to support all loads to which the structure may be subjected.
5. The Structural Engineer (Taylor & Syfan Consulting Engineers, Inc. (also "Taylor & Syfan")) will not be responsible for and will not have control or charge of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the construction delineated by these plans. It should be understood that the contractor or his/her agent(s) shall supervise and direct all work and shall be solely and completely responsible for all construction means, methods, techniques, sequences, procedures and conditions on the job site, including safety of all persons and property during the entire period of construction. Periodic observations by the Structural Engineer or representatives thereof are not intended to include verfication of conditions or review of the adequacy of the contractor's safety measures on or near the construction site. Shoring shall be per OSHA and the California Code of Regulations; design and inspection of shoring is by others.
6. Substitutions of specified products (such as Simpson Strong-Tie) for equivalent products are not recommended. Substitutions shall be considered, provided that the contractor follows these steps prior to any substitutions being made: (a) Contractor shall provide Taylor & Syfan with satisfactory evidence of product equivalence; (b) If satisfactory, Taylor & Syfan shall revise plans and reprint at the contractors expense; and (c) Contractor shall resubmit plans to the Contracting Officer's Representative for approval.
7. See the notes and specifications of the Architect, Mechanical Engineer, Electrical Engineer and Civil Engineer for additional requirements. Conform to recommendations of the Soils/Geotechnical Report.
8. Non-structural issues shall be evalutated & designed by the appropriate professionals (i.e. "by others"). These issues include but are not limited to: access & exiting requirements, fire suppression, fire separations, acoustics, lighting, electrical, mechanical, plumbing, ventilation, emergency systems, waterproofing, grading, drainage, pest remediation, environmental hazards (e.g. mold, fungus, asbestos, etc.), and finishes.
9. No deviations are allowed from the structural details without the written approval of the Structural Engineer. Approval by Contracting Officer's Representative, Building Inspector, Special Inspector, or any other party does not constitute authority to deviate from plans or specifications. All plan changes or addenda are subject to approval of the Contracting Officer's Representative. The processing of changes, assembly of permit documents, and acquisition of permits is the responsibility of the contractor.
10. The specifications and notes on this sheet shall apply to and be in effect for all parts of the project, unless specifically noted otherwise.
11. Where special inspection is required, the Special Inspector is to obtain clearance from the Contracting Officer's Representative prior to any work commencement. Copies of the inspection report(s) shall be furnished in accordance with CBC Section 1701.3, including a copy to the Structural Engineer. The contractor is responsible for scheduling, coordination, and expenses involved in any and all inspections.
12. In addition to the shop drawings and submittals required per the Structural Specifications, the Contractor shall provide product and material submittals for all hardware, lumber, steel, anchors, and other elements being used, to the Structural Engineer and the Project Manager for approval prior to construction of the elements in question.
13. Live Loads Posted: per CBC1607.3.5, the live loads for which each floor or portion thereof of a commercial or industrial building is or has been designed shall have such design live loads conspicuously posted by the owner in that part of each story in which they apply, using durable metal signs, and it shall be unlawful to remove or deface such notices. The occupant of the building shall be responsible for keeping the actual load below the allowable limits. The contractor shall inform the owner of the requirements and post the live loads under the owner's direction, unless instructed otherwise by the owner.
14. The Documents (including drawings, calculations, specifications, data and reports) provided by Taylor & Syfan are instruments of professional service. The use of the Documents shall be restricted to the original site for which they were prepared and publication thereof is expressly limited to such use. Taylor & Syfan shall not be held responsible for modifications made to the Documents, or any products derived from them, without prior written approval by Taylor & Syfan.
15. The contractor is responsible for initiating a resolution to any conflicts within or between drawings and specifications by issuing an RFI. The most restrictive and most costly will apply unless otherwise stated in response to an RFI.
16. All construction projects require inspection and maintenance following completion. Operation, inspection, and maintenance are the sole responsibility of the Owner. Taylor & Syfan shall have no responsibility for any failures by the Owner or others to properly operate, inspect, or maintain the project shown in these plans.
17. THE DRAWINGS HEREIN ARE FOR BUILDING 55, JFTB, LOS ALAMITOS, CALIFORNIA.

SCOPE OF SEISMIC BRACING

SEISMIC BRACING IS LIMITED TO INSTALLATION OF A ROOF DIAPHRAGM WITH APPROPRIATE CONNECTIONS TO EXISTING FRAMING IN CONJUNCTION WITH THE REPLACEMENT OF THE ROOFING SYSTEM. THE ROOF DIAPHRAGM IS DESIGNED TO ACCOMMODATE BOTH THE EXISTING SEISMIC SYSTEM OF THE BUILDING AND THE POTENTIAL FOR A FUTURE FULL SEISMIC RETROFIT OF THE BUILDING.

STRUCTURAL DESIGN PARAMETERS

GENERAL PARAMETERS

Construction Type	Type V
Building Code	2010 CBC / 2009 IBC
Number of Stories	2
Max. Height (abv.grade)	24 ft
Roof DL/LL (psf) ***	19/20

WIND DESIGN BASIS

Basic Wind Speed	85 mph
Exposure	C
Importance Factor	1.00
Velocity Wind Pressure at Mean Roof Height	14.6 psf

OVERHANG DESIGN LOADING

Uniform Wind Load (Zone 2)	29 psf (negative)
Uniform Wind Load (Zone 3)	44 psf (negative)

SUN SHADE DESIGN LOADING

Uniform Dead Load	15 psf
Uniform Wind Load	28 psf (positive and negative)

SEISMIC DESIGN BASIS

Seismic Importance Factor, I	1.00*
Site Class	D
Spectral Response Accelerations	S_s = 1.470 S_1 = 0.532
Spectral Response Coefficients	S_{DS} = 0.980 S_{D1} = 0.532
Seismic Design Category	D
Seismic Force Resisting System(s)	A.14**
Response Modification Factor, R	2.0
Seismic Response Coefficient, C_s	0.490
Design Base Shear (ASD ~ 0.7C_sW)	0.343W
Redundancy Factor, ρ	1.0
Analysis Procedure Used	Equiv. Lat. Force

* Design is not based on this being an "Essential Services" or "Mission Essential" facility.
** Light framed walls sheathed with all other materials; See ASCE 7-05 Table 12.2-1
*** M/E/P dead load of at least 1 psf included in each of the design dead loads.

STANDARD ABBREVIATIONS

AB	anchor bolt
ACE	Army Corps of Engineers
ADJ	adjacent, adjustable
APA	American Plywood Association
ALT	alternate
APPROX	approximate
ARCH	architect (ural)
ASTM	American Society of Testing & Materials
ASD	allowable stress design
ATR	all thread rod
AVG	average
BLDG	building
BLK(G)	block (ing)
BM	beam
BN	boundary nailing
BOT	bottom
BP	Bid Package, baseplate
BTWN	between
B-25	Building 25
CA ARNG	California Army National Guard
CANT	cantilever (ed), canted
CBC	California Building Code
CJ	control joint, ceiling joist (s)
CJP	complete joint penetration
CL	center line
CLG	ceiling
CLR	clear(ance)
CM	centimeter(s)
CMU	concrete masonry unit
COL	column
COMBO	combination
CONC	concrete
CONST	construction
CONT	continuous, continue
COR	Contracting Officer's Representative
CU	cubic
d	penny *(re: nail size)*
DBL	double
DEG	degree
DEMO	demolish, demolition
DF	Douglas-Fir
DIA (M)	diameter
DIAG	diagonal
DIM	dimension (s)
DIST	distance
DL	dead load
DN	down
DWG	drawing
(E)	existing
EA	each
EJ	expansion joint
ELEC	electric(al)
ELEV	elevation
ENCL	enclose(d),(ure)
ENGR	engineer
EQ	equal
EQUIP	equipment
EQUIV	equivalent
EST	estimate(d)
ETC	et cetera
EW	each way
EXIST	existing
EXP	expand, expansion
EXT	exterior
FDN	foundation
FF	finish(ed) floor
FIN	finish(ed)
FJ	floor joist (s)
FG	finish grade
FOC	face of concrete
FOS	face of studs
FOUND	foundation
FT	foot, feet
FTG	footing
GA	gage, gauge
GALV	galvanized
GC	general contractor
GEN	general
GI	galvanized iron
GLB	glued laminated beam
GYP	gypsum
HD	holdown
HDR	header
HORIZ	horizontal
HT	height
HVAC	Heating/Ventilation/A.C.
IBC	International Building Code
ICC	International Code Council
ICBO	International Conference of Bldg. Officials
ID	inside diameter
IN	inch(es)
INCL	include (d), (s), (ing)
INSP	inspect (ion), (or)
INT	interior
INV	invert (ed)
JFTB	Joint Forces Training Base
JST	joist
K	kip [1000 pounds]
KLF	kips per linear foot
KSF	kips per square foot
KSI	kips per square inch
LAM	laminate(d),(tion)
LB(S)	pound(s)
LG	large
LF	linear foot
LL	live load
LT (G)	light (ing)
LTWT	lightweight
MAX	maximum
MB	machine bolt
MECH	mechanic (al)
MEP	mech., elec., plumbing
M/E/P	mech., elec., plumbing
MEZZ	mezzanine
MIN	minimum, minute (s)
MISC	miscellaneous
MM	millimeter
(N)	new
N	north
N/A	not applicable
NIC	not in contract
NEG	negative
NO	number
NOM	nominal
NTS	not to scale
OC	on center (s)
OD	outside diameter
OMIT	not part of const. docs.
OSB	oriented strand board
OT	overturning
PCF	pounds per cubic foot
PEN	penetrate (ion)
PERF	perforate (d), (tion)
PERIM	perimeter
PERP	perpendicular
PL	plate, properrty line
PLF	pounds per linear foot
PLT	plate, plot
PLY	plywood
PREFAB	prefabricated (ion)
PRELIM	preliminary
PROJ	project
PROP	property
PSF	pounds per square foot
PSI	pounds per square inch
PT	pressure treated, point
QTY	quantity
RDWD	redwood
REBAR	reinforcing bar (s)
RECT	rectangular
REF	reference
REINF	reinforce (d), (ing), (ment)
REQD	required
REV	revision (s), revised
RJ	roof joist (s)
RM	room
RR	roof rafter (s)
SIM	similar
SE	structural engineer
SPEC(S)	specification(s)
STD(S)	standard(s)
STL	steel
STRUCT	structural, structure
SUBFL	subfloor
SW	shearwall
T&B	top and bottom
T&G	tongue and groove
TEMP	temporary, tempered
THRU	through
TOB	top of beam
TOG	top of grade
TOP	top of plate
TOS	top of slab
TOW	top of wall
TYP	typical
UBC	Uniform Building Code
UCBC	Uniform Code for Building Conservation
UNO	unless noted otherwise
USACE	US Army Corps of Engineers
VENT	ventilate (ion), (or)
VERT	vertical
VIF	verify in field
VOL	volume
W	width, wide, water
W/	with
WIN	window
W/O	without
WP	waterproof (ing)
WT	weight
WWF	welded wire fabric
YCP	Youth Challenge Program
YD	yard
<	angle
@	at
△	delta
#	number / pound
/	per
+/-	plus or minus

SPECIFICATIONS

REFER TO THE PROJECT **SPECIFICATIONS** FOR ADDITIONAL REQUIREMENTS, NOTES AND INFORMATION. The following is a partial list of specification sections especially required by the work indicated in these structural plans (or structural "drawings"), provided for convenience, however also refer to all other sections of the Specifications.

Rough Carpentry: ---------- Section 06100

Sym.	Descrip.	Date	By
0	ISSUED FOR CONSTRUCTION	06/12/12	GWM

12

7

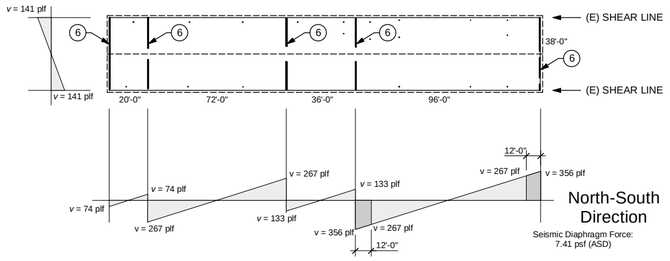
06/01/2012

STRUCTURAL NOTES

S-1

MATOC PROTOTYPICAL PROJECT

East-West Direction Seismic Diaphragm Force: 7.41 psf (ASD)

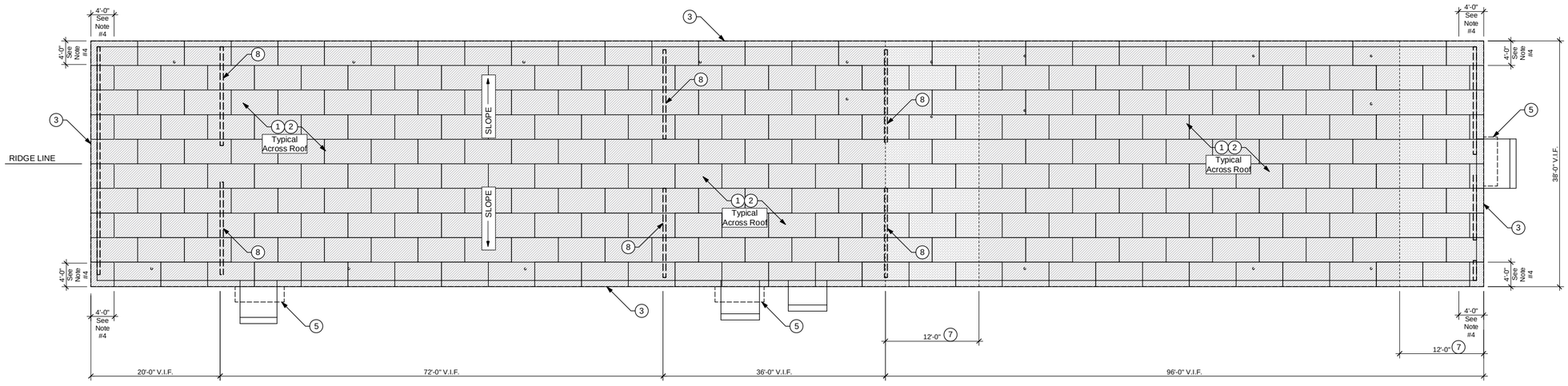


ROOF DIAPHRAGM SHEAR DIAGRAM

SCALE: 1/32"=1'-0"

○ CONSTRUCTION/DEMO NOTES

1. REMOVE AND REPLACE (E) DAMAGED FRAMING LUMBER (RAFTERS, BLOCKING, AND ACCESSORIES) IN-KIND.
2. REMOVE (E) PLYWOOD OR 1x ROOF SHEATHING AND REPLACE WITH NEW 5/8" CDX PLYWOOD (OR "OSB") PI 24/0 W/ 10d COMMON NAILS @ 6", 6", 12" (NOTE THAT SHEATHING LAYOUT SHOWN ON THE ROOF PLAN IS DIAGRAMMATIC ONLY AND NOT TO SCALE.)
3. REMOVE (E) SHAPED WOOD LOOKOUTS AT OVERHANGS. PROVIDE NEW OVERHANG MATERIALS AND CONNECTION PER DETAIL 3 / S-4.
4. REMOVE (E) SHAPED WOOD LOOKOUTS AT OVERHANGS. PROVIDE NEW OVERHANG MATERIALS AND CONNECTION WITHIN 4'-0" OF BUILDING CORNERS PER DETAIL 8 / S-4.
5. REMOVE (E) WOOD FRAMED DOOR ENTRY CANOPIES AND SUPPORTING POSTS. REPLACE WITH NEW ALUMINUM CANOPIES PER DETAILS 2 / S-4 & 11 / S-4.
6. (E) SHEARWALL LOCATIONS IN NORTH-SOUTH DIRECTION
7. REMOVE (E) PLYWOOD OR 1x ROOF SHEATHING AND REPLACE WITH NEW 5/8" CDX PLYWOOD (OR "OSB") PI 24/0 OVER 2x BLOCKING FOR EXTENT SHOWN W/ 10d COMMON NAILS @ 4", 4", 12"
8. INSTALL TWO LINES OF ROOF NAILING OVER EXISTING SHEARWALLS. SEE DETAIL 10/S-4.



N W E S

0 2' 4' 6' 8' 16'
GRAPHIC SCALE

ROOF FRAMING PLAN

SCALE: 1/8"=1'-0"

NOT FOR CONSTUCTION

Revisions			
Descrip.	Date	By	Sym.
ISSUED FOR CONSTRUCTION	06/12/12	GWM	0

Consultant:

Drawn ELM | Chkd. GWM | Date 06/01/2012

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Date 06/01/2012

Chkd.

Sht Title ROOF FRAMING PLAN

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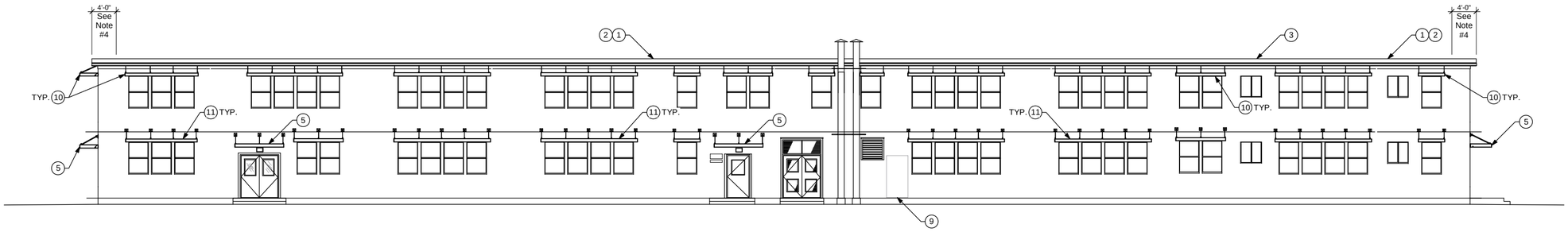
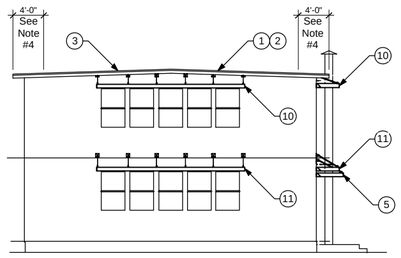
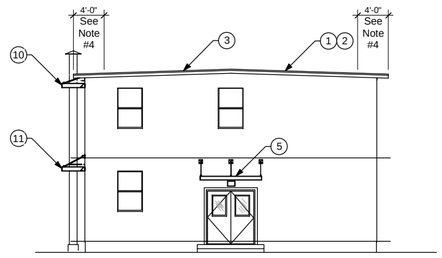
MATOC PROTOTYPICAL PROJECT



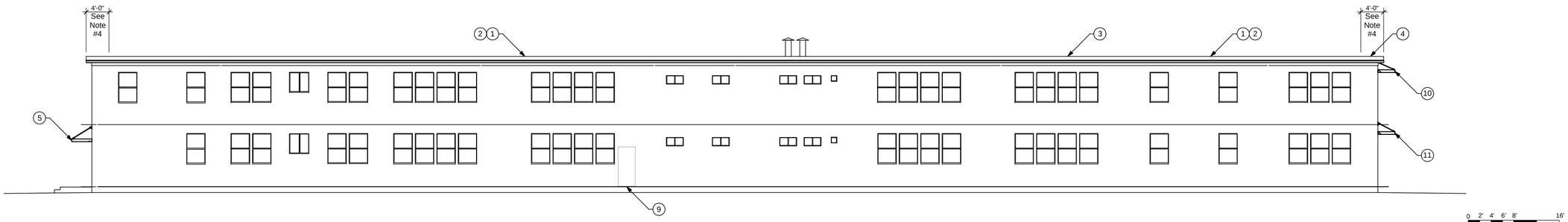
SOUTH ELEVATION — SCALE: 1/8"=1'-0" — 1



WEST ELEVATION — SCALE: 1/8"=1'-0" — 3



EAST ELEVATION — SCALE: 1/8"=1'-0" — 2



NORTH ELEVATION — SCALE: 1/8"=1'-0" — 4

CONSTRUCTION NOTES

1. REMOVE AND REPLACE (E) DAMAGED FRAMING LUMBER (RAFTERS, BLOCKING, AND ACCESSORIES) IN-KIND.
2. REMOVE (E) PLYWOOD OR 1x ROOF SHEATHING AND REPLACE WITH NEW 5/8" CDX PLYWOOD (OR "OSB") PI 24/0 W/ 10d COMMON NAILS @ 6", 6", 12" EXCEPT WHERE SHOWN OTHERWISE (NOTE THAT SHEATHING LAYOUT SHOWN ON THE ROOF PLAN IS DIAGRAMMATIC ONLY AND NOT TO SCALE.)
3. REMOVE (E) SHAPED WOOD LOOKOUTS AT OVERHANGS. PROVIDE NEW OVERHANG MATERIALS AND CONNECTION PER DETAIL 3 / S-4.
4. REMOVE (E) SHAPED WOOD LOOKOUTS AT OVERHANGS. PROVIDE NEW OVERHANG MATERIALS AND CONNECTION WITHIN 4'-0" OF BUILDING CORNERS PER DETAIL 8 / S-4.
5. REMOVE (E) WOOD FRAMED DOOR ENTRY CANOPIES AND SUPPORTING POSTS. REPLACE WITH NEW ALUMINUM CANOPIES PER DETAILS 2 / S-4 & 11 / S-4.
9. PROVIDE INFILL FRAMING AT (E) OPENING PER DETAIL 5/S-4
10. PROVIDE A BID OPTION FOR MANUFACTURED ALUMINUM SUN SHADES OVER (E) WINDOW OPENINGS AT SECOND STORY PER DETAIL 7/S-4.
11. PROVIDE A BID OPTION FOR MANUFACTURED ALUMINUM SUN SHADES OVER (E) WINDOW OPENINGS AT FIRST STORY PER DETAIL 8/S-4.

NOT FOR CONSTUCTION

Revisions

Sym.	Descrip.	Date	By
0	ISSUED FOR CONSTRUCTION	06/12/12	GWM

Date 06/01/2012 | Chkd. GWM | Drawn ELM

Prime: | Date 06/01/2012 | Chkd.

Sht Title ELEVATIONS

Project BUILDING 55 RENOVATIONS

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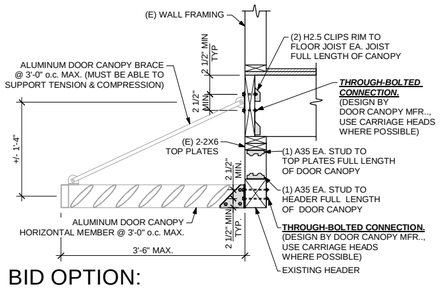
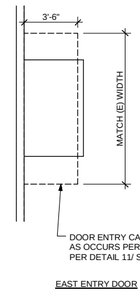
MATOC PROTOTYPICAL PROJECT

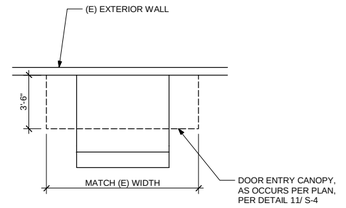


BID OPTION:

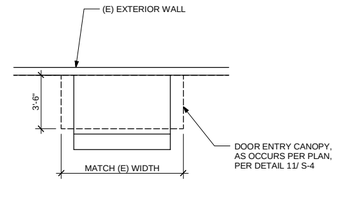
DOOR CANOPY — SCALE: 1"=1'-0" — **11**



EAST ENTRY DOOR

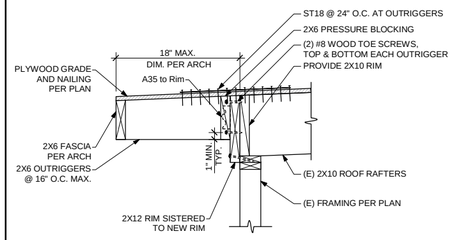


NORTH ENTRY DOOR

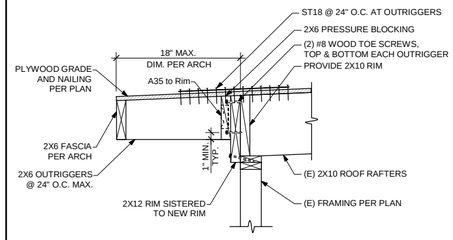


NORTH ENTRY DOOR

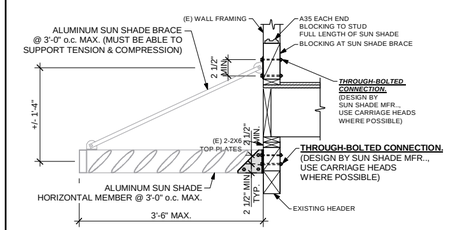
DOOR CANOPIES PLAN VIEW — SCALE: 1/4"=1'-0" — **2**



ROOF OVERHANGS AT CORNERS — SCALE: 1"=1'-0" — **8**

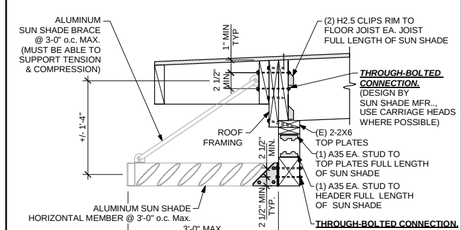


TYPICAL ROOF OVERHANG — SCALE: 1"=1'-0" — **3**



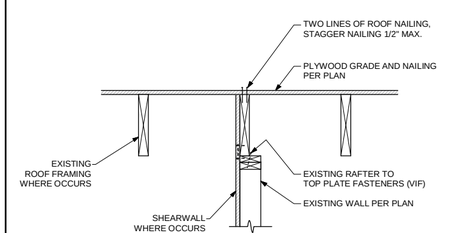
BID OPTION:

SUN SHADE AT FLOOR FRAMING — SCALE: 1"=1'-0" — **9**

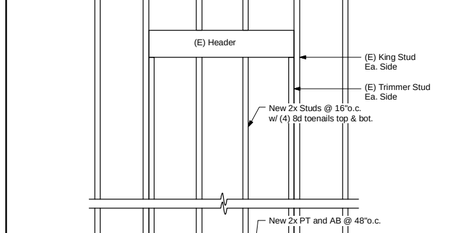


BID OPTION:

SUN SHADE AT ROOF FRAMING — SCALE: 1"=1'-0" — **4**



SHEARWALL TO ROOF FRAMING — SCALE: 1"=1'-0" — **10**



INFILL (E) DOOR — SCALE: NONE — **5**

NOT FOR CONSTUCTION

Revisions			
Sym.	Descrip.	Date	By
0	ISSUED FOR CONSTRUCTION	06/12/12	GWM

Drawn ELM | Chkd. GWM | Date 06/01/2012

Prime: | Chkd. | Date

Sht Title STRUCTURAL DETAILS

Project BUILDING 55 RENOVATIONS

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of