TECHNICAL SPECIFICATIONS

FOR

MOORPARK COLLEGE
TECHNOLOGY/BUSINESS TB
REPAIR EXTERIOR

VENTURA COUNTY COMMUNITY COLLEGE DISTRICT
Bid No.

FOR

MOORPARK COLLEGE
7075 CAMPUS ROAD
MOORPARK, CA 93021

William J. Amador, ARCHITECT
AMADOR WHITTLE ARCHITECTS, INC.

TECHNICAL SPECIFICATIONS
FOR
MOORPARK COLLEGE - TB REPAIR EXTERIOR

END OF TABLE OF CONTENTS

SECTION 01 1100

SUMMARY OF WORK

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. The furnishing of all labor, materials, equipment, services, and incidentals necessary for Work of the **TECHNOLOGY/BUSINESS TB EXTERIOR REPAIR** located at **7075 Campus Road, Moorpark,** California **93021,** as set forth in the Construction Documents which include, but are not limited to, the Drawings, Addenda and Specifications.

1.02 RELATED REQUIREMENTS:

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

3.01 USE OF PREMISES

A. CONTRACTOR shall coordinate Work of all trades, Subcontractors, utility service providers, with OWNER and/or Separate Work Contract. CONTRACTOR shall sequence, coordinate, and perform the Work to impose minimum hardship on the operation and use of the existing facilities and/or Project site. CONTRACTOR shall install all necessary protection for existing improvements, Project site, property, and new Work against dust, dirt, weather, damage, vandalism, and maintain and relocate all protection to accommodate progression of the Work.

B. CONTRACTOR shall confine entrance and exiting to the Project site and/or facilities to routes designated by the OWNER.

C. Within existing facilities, OWNER will remove portable equipment, furniture, and supplies from Work areas prior to the start of Work. CONTRACTOR shall cover and protect remaining items in areas of the Work.

D. CONTRACTOR is advised school may be in session during performance of the Work. CONTRACTOR shall utilize all available means to prevent generation of unnecessary noise and maintain noise levels to a minimum. When required by the OWNER, CONTRACTOR shall immediately discontinue noise-generating activities and/or provide alternative methods to minimize noise generation. CONTRACTOR shall

install and maintain air compressors, tractors, cranes, hoists, vehicles, and other internal combustion engine equipment with mufflers, including unloading cycle of compressors. CONTRACTOR shall discontinue operation of equipment producing objectionable noise as required by the OWNER.

E. CONTRACTOR shall furnish, install, and maintain adequate supports, shoring, and bracing to preserve structural integrity and prevent collapse of existing improvements and/or Work modified and/or altered as part of the Work.

F. CONTRACTOR shall secure building entrances, exits, and Work areas with locking devices as required by the OWNER.

G. CONTRACTOR assumes custody and control of OWNER property, both fixed and portable, remaining in existing facilities vacated during the Work.

H CONTRACTOR shall cover and protect surfaces of rooms and spaces in existing facilities turned over for the Work, including OWNER property remaining within as required to prevent soiling or damage from dust, dirt, water, and/or fumes. CONTRACTOR shall protect areas adjacent to the Work in a similar manner. Prior to OWNER occupancy, CONTRACTOR shall clean all surfaces including OWNER property.

I. CONTRACTOR shall not use or allow anyone other than OWNER employees to use facility telephones and/or other equipment, except in an emergency. CONTRACTOR shall reimburse OWNER for telephone toll charges originating from the facility except those arising from emergencies or use by OWNER employees.

J. CONTRACTOR shall protect all surfaces, coverings, materials, and finished Work from damage. Mobile equipment shall be provided with pneumatic tires.

K. CONTRACTOR is advised OWNER may award Separate Work Contracts at this Project site.

L. CONTRACTOR shall not permit the use of portable and/or fixed radio’s or other types of sound producing devices including walkmans and similar devices.

3.02 PROPERTY INVENTORY

A. Property, OWNER intends to remove; will be removed by OWNER before a room or space is vacated for the Work. Before performing Work in each room or space, OWNER and CONTRACTOR shall prepare a detailed initial written inventory of OWNER property remaining within, including equipment and telephone instruments and the condition thereof. OWNER and CONTRACTOR shall retain a signed copy of the inventory dated and signed by both parties. Prior to subsequent OWNER occupancy of each such room or space, OWNER and CONTRACTOR shall perform a

final inventory of OWNER property and all discrepancies between the initial inventory and final inventory shall be the responsibility of CONTRACTOR.

3.03 FURNITURE, FIXTURES AND EQUIPMENT (MATERIALS) OWNER FURNISHED CONTRACTOR INSTALLED (OFCI)

A. Certain materials identified in the Contract Documents as OWNER Furnished CONTRACTOR Installed, OFCI, will be delivered to the Project site by the OWNER.

B. If designated in the Contract Documents to be OWNER furnished CONTRACTOR installed, (OFCI), CONTRACTOR shall unload, store, uncrate, assemble, install, and connect OWNER supplied materials.

C. Sixty days before the date the CONTRACTOR needs to have the OFCI materials on site, CONTRACTOR shall notify OWNER of the scheduled date for needed OFCI materials. Upon delivery to Project site, CONTRACTOR shall store OFCI materials inside rooms and/or protected spaces and will be responsible for security of OFCI materials until Substantial Completion. OWNER will sign receipt or bill of lading as applicable.

D. CONTRACTOR shall, within ten days after delivery, uncrate and/or unpack OFCI materials in presence of OWNER who shall inspect delivered items. OWNER shall prepare an inspection report listing damaged or missing parts and accessories. OWNER shall transmit one copy of the report to CONTRACTOR. OWNER will procure and/or replace missing and or damaged OFCI materials, as indicated in inspection report.

E. CONTRACTOR shall install OFCI materials in the locations and orientation as indicated in the Contract Documents. CONTRACTOR shall verify exact locations with OAR before final installation of OFCI materials.

F. If required, ONWER will furnish setting and or placement drawings for OFCI materials.

G. CONTRACTOR shall install OFCI materials by proper means and methods to ensure an installation as recommended by the manufacturer. CONTRACTOR shall furnish and install all necessary fasteners and required blocking to properly install OFCI materials.

H. CONTRACTOR shall install OFCI materials with manufacturer recommended fasteners for the type of construction to which the OFCI materials are being fastened and/or anchored.

I. CONTRACTOR shall provide final connections of any electrical, signal, gas, water, waste, venting and/or similar items to OFCI materials. CONTRACTOR shall, prior to

final connection, verify the operating characteristics of OFCI materials are consistent with the designated supply.

3.04 FURNITURE, FIXTURES AND EQUIPMENT (Materials) - OWNER furnished, OWNER installed (OFOI)

A. Certain materials are identified in the Contract Documents as OWNER Furnished, OWNER Installed (OFOI)

B. On dates and during times designated by OWNER, CONTRACTOR shall provide clear off-loading, receiving, protected storage, and OWNER'S dumpster space areas for the use of OWNER or OWNER'S third party OFOI installation contractors. At such times, CONTRACTOR shall also make clear routes and access available to all rooms and spaces to receive OFOI materials.

C. On dates and during times designated by OWNER, CONTRACTOR shall provide access to the elevators for use of OWNER or OWNER'S third party OFOI installation contractors.

D. CONTRACTOR shall cooperate fully with OWNER or OWNER'S third part OFOI installation contractors.

E. CONTRACTOR may be requested by OWNER to provide supplemental labor and equipment to support OFOI activities. Such requests must be submitted in accordance with the change order clauses of Contract.

F. Immediately prior to mobilization of OWNER or OWNER'S third party OFOI installation contractors, OWNER shall document the condition of the Work in areas to be utilized for OFOI activities.

G. CONTRACTOR shall not be responsible for damage caused by OWNER or OWNER'S forces. OWNER shall document the condition of the Work and report to CONTRACTOR any damage in areas utilized for OFOI activities.

END OF SECTION

SECTION 01 3113

PROJECT COORDINATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section specifies administrative and procedural requirements necessary for coordinating Work operations including, but not limited to, the following:

1. General coordination procedures.

2. Coordination drawings.

1.02. RELATED REQUIREMENTS

A. Section 01 3300: Submittal Procedures.

B. Section 01 7700: Contract Closeout.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

3.01 COORDINATION

A. CONTRACTOR shall coordinate operations included in various sections of Contract Documents to assure efficient and orderly installation of each part of Work. Coordinate Work operations included under related sections of Contract Documents that depend on each other for proper installation, connection, and operation of Work, including but not limited to:

1. Schedule construction operations in sequence required where installation of one part of Work depends on installation of other components, before or after its own installation.

2. Coordinate installation of different components to assure maximum accessibility for required maintenance, service, and repair.

3. Provide provisions to accommodate items scheduled for later installation.

4. Prepare and administer provisions for coordination drawings.

B. Where necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required in notices, reports, attendance at meetings, and:

1. Prepare similar memoranda for OWNER and Separate Work Contract where coordination of their Work is required.

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

1. Preparation of schedules.

2. Installation, relocation, and removal of temporary facilities.

3. Delivery and processing of submittals.

4. Progress meetings.

5. Project closeout activities.

D. Conservation: Coordinate Work operations to assure operations are carried out with consideration given to conservation of energy, water, materials, and:

1. Salvage materials and equipment involved in performance of, but not actually incorporated into Work.

3.02 SUBMITTALS

A. Coordination Drawings: CONTRACTOR shall prepare coordination drawings to coordinate the installation of products and materials fabricated, furnished and installed by separate entities, under different parts of the Contract. CONTRACTOR shall notify OAR and ARCHITECT of all major conflicts in writing in a timely manner so that the design team can respond without construction delays. Coordination drawings shall address the following at a minimum:

1. Limitations in available space for installation or service. CONTRACTOR shall overlay plans of each trade and verify space requirements and conflicts between trades. Minor changes and adjustments that do not affect design intent shall be made by CONTRACTOR and shall be highlighted for ARCHITECT'S review.

2. Incompatibility between items provided under different trades (such as difference in voltage between equipment specified under Divisions 22 and 23 and electrical power provided under Division 26.)

3. Inconsistencies between drawings, specifications and codes (between trades and within each trade).

4. Additional items required for existing facilities construction projects shall be designed and prepared from available as-built drawings that are verified through non-invasive and non-destructive, visual observation only. CONTRACTOR shall field verify actual existing conditions during and upon completion of demolition work and incorporate findings into preparation of co-ordination drawings. Minor changes and adjustments that do not affect design intent shall be made by Sub-Contractor and shall be highlighted for OAR and ARCHITECT'S reviews.

END OF SECTION

SECTION 01 3300

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Administrative and procedural requirements for submittals required for the Work, including but not limited to; Shop Drawings, Product Data, Samples, material lists, and quality control items.

B. Throughout the Contract Documents, the minimum acceptable quality of materials, fabrication, and execution have been defined by the name and catalog number of a manufacturer and by reference of recognized industry standards.

C. To ensure that specified products are furnished and installed in accordance with the design intent, procedures have been established for submittal of design data and for its review by ARCHITECT, OWNER and others.

1.02 RELATED REQUIREMENTS

A. Section 01 3113: Project Coordination.

B. Section 01 7700: Contract Closeout.

PART 2 – PRODUCTS (Not used)

PART 3 - EXECUTION

3.01 PROCEDURES

A. CONTRACTOR is required to review and approve every submittal and shop drawing prior to transmittal and delivery to ARCHITECT. Should CONTRACTOR determine a submittal contains errors, or does not meet the requirements of the contract, CONTRACTOR shall immediately return the submittals and shop drawings to the producer and expedite the corrections prior to transmitting the submittal to ARCHITECT. Submittals shall not be used by CONTRACTOR to request clarifications or submit questions. CONTRACTOR will affix stamp to each submittal certifying CONTRACTOR has performed, at minimum, the following:

1. Verified the submittal is complete in all respects and follows the requirements of the Contract Documents without variance.

2. Confirmed that no substitutions have been included. If substitutions are included, CONTRACTOR shall eliminate them from the submittal and process them in accordance with Section 00 7000 General Conditions Article 6.14.

3. Identified any variances from the requirements of the Contract Documents and confirmed that the identified variance meets, but does not exceed the allowable limitations or tolerances as defined in these specifications.

4. Verified that all submitted materials, dimensions and tolerances are compatible with existing or planned conditions of the Work in order to erect, fabricate, or install the submitted assembly in conformance with the requirements of the Contract Documents.

5. Coordinated and verified that the dimensions match CONTRACTOR measured field or installation conditions.

6. Coordinated and verified that the products of separate manufacturers required within any field produced assembly are compatible in all respects for such assembly.

7. Packaged together all related submittals or shop drawings where such is necessary for a comprehensive ARCHITECT review.

B. CONTRACTOR shall package each submittal appropriately for transmittal and handling. Transmittal format shall be as required by OWNER. CONTRACTOR shall transmit one PDF format set of each submittal or re-submittal to ARCHITECT, which shall be returned to CONTRACTOR. CONTRACTOR shall provide the OWNER additional copies as specified or as requested by OWNER. ARCHITECT will not accept submittals received from sources other than from CONTRACTOR.

C. After ARCHITECT'S review, ARCHITECT will transmit submittals to OWNER, CONTRACTOR, INSPECTOR and others as required. Work shall not commence, unless otherwise approved by OWNER, until approved submittals are transmitted to CONTRACTOR.

D. CONTRACTOR shall clearly identify any deviations from the Contract Documents on each submittal. Any deviation not so noted even though stamped reviewed is not acceptable.

E. CONTRACTOR shall coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities requiring sequential activity.

F. Timing of Submittals:

1. In accordance with General Conditions, CONTRACTOR shall submit to ARCHITECT, with copy of transmittal to the OWNER, those Shop Drawings, Product Data, diagrams, materials lists, Samples and other submittals required by the Contract Documents.

2. The scheduling of submittals shall be sequenced to support the progress of the Work, and shall be:

    a. Submitted sufficiently in advance of construction, fabrication or installation in order to allow time for transmittal, review, modification, correction, (and resubmission and re-review when required.)

    b. Phased with adequate time between submittals in order to allow for proper review by the ARCHITECT without negative impact to the Milestones Schedule.

3. CONTRACTOR shall coordinate submittal of related items and ARCHITECT reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received by ARCHITECT.

4. CONTRACTOR shall revise, update and submit submittal schedule to ARCHITECT and OWNER on the first of each month, or as required by OWNER.

5. CONTRACTOR shall allow in the Construction Schedule, at least sixteen days for ARCHITECT review following ARCHITECT receipt of submittal. For mechanical, plumbing, electrical, low voltage, fire sprinklers, door and hardware, and other submittals requiring joint review with OAR, CONTRACTOR shall allow a minimum of eighteen days following ARCHITECT receipt of submittal.

6. No adjustments to the Contract Time or Milestones will be authorized because of a failure to transmit submittals to ARCHITECT sufficiently in advance of the Work to permit review and processing or where CONTRACTOR fails to provide ARCHITECT submittals on related items.

7. In case of product substitution, Shop Drawing preparation shall not commence until such time as OWNER accepts or rejects the proposed substitution in accordance with the procedures described in the General Conditions.

G. If required, resubmit submittals in a timely manner. Resubmit as specified for initial submittal but identify as such. Review times for re-submitted items shall be as per the time frames for initial submittal review.

H. Shop Drawing preparation shall not commence until such time as CONTRACTOR receives Product Data acceptance.

I. ARCHITECT will stamp each submittal with a uniform, action stamp. ARCHITECT will mark the stamp appropriately to indicate the action taken, as follows:

1. Final Unrestricted Release: When ARCHITECT marks a submittal "Reviewed" the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents. Final payment depends on that compliance.

2. Final-But-Restricted Release: When ARCHITECT, or authorized agent, marks a submittal "Reviewed as Noted," the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents. Final payment depends on that compliance.

3. Returned for Re-submittal: When ARCHITECT, or authorized agent, marks a submittal "Rejected, Revise and Resubmit," do not proceed with Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal according to the notations; resubmit without delay. Repeat as necessary to obtain different action mark. In case of multiple submittals covering same items of Work, CONTRACTOR is responsible for any time delays, schedule disruptions, out of sequence Work, or additional costs due to multiple submissions of the same submittal item. Do not use, or allow others to use, submittals marked "Rejected, Revise and Resubmit" at the Project site or elsewhere where Work is in progress.

4. Other Action: Where a submittal is for information or record purposes or special processing or other activity, ARCHITECT, or authorized agent, will return the submittal marked "Action Not Required ".

3.02 SHOP DRAWINGS

A. Shop Drawings are original drawings prepared by CONTRACTOR, Sub-contractor, supplier, or distributor illustrating some portion of Work by showing fabrication, layout, setting, or erection and shall not be based on reproduced Contract Documents or copied standard information.

B. Produce Shop Drawings to an accurate scale that is large enough to indicate all pertinent features and methods. Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 24 by 36 inches.

C. Shop Drawings shall include fabrication and installation drawings, setting diagrams, schedules, patterns, templates, and similar drawings. Include the following information:

1. Dimensions.

2. Identification of products and materials included by sheet and detail number.

3. Compliance with specified standards.

4. Notation of coordination requirements.

5. Notation of dimensions established by field measurement.

D. Each submittal shall bear the following information:

1. Project name and VCCD Bid Number.

2. Date.

3. Name and address of ARCHITECT.

4. Name and address of CONTRACTOR.

5. Name and address of Subcontractor.

6. Name and address of supplier.

7. Name and address of manufacturer.

8. Name and title of appropriate Specification section.

9. Drawing number and detail references, as appropriate.

3.03 PRODUCT DATA

A. Collect Product Data into a single submittal for each element of Work or system. Product Data includes printed information, such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, wiring diagrams, schedules, illustrations, or performance curves.

1. Mark each copy to show or delineate pertinent materials, products, models, applicable choices, or options. Where Product Data includes information on several products that are not required, clearly mark copies to indicate the applicable information. Include the following information:

a. Manufacturer's printed recommendations.

b. Compliance with trade association standards.

c. Compliance with recognized testing agency standards.

d. Application of testing agency labels and seals.

e. Notation of dimensions verified by field measurement.

f. Notation of coordination requirements.

g. Notation of dimensions and required clearances.

h. Indicate performance characteristics and capacities.

i. Indicate wiring diagrams and controls.

2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed by CONTRACTOR.

3.04 SAMPLES

A. Procedure:

1. Submit Samples of sufficient size, quantity, cured and finished and physically identical to the proposed product or material. Samples include partial or full sections or range of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches denoting color, texture, and/or pattern.

a. Mount or display Samples in the manner to facilitate review of qualities indicated. Include the following:

1) Specification section number and reference.

2) Generic description of the Sample.

3) Sampling source.

4) Product name or name of manufacturer.

5) Compliance with recognized standards.

6) Availability and delivery time.

2. Submit Samples for review of size, kind, color, pattern, and texture. Submit Samples for a final check of these characteristics with other elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.

   a. Where variations in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least three (3) multiple units that show the approximate limits of the variations.

   b. Refer to other Specification sections for requirements for Samples that illustrate materials, fabrication techniques, assembly details, connections, operation, and similar construction characteristics.

   c. Refer to other sections for Samples to be returned to CONTRACTOR for incorporation into the Work. Such Samples must be undamaged at time of installation. On the transmittal indicate special requests regarding disposition of Sample submittals.

   d. Samples not incorporated into the Work, or otherwise not designated as Owner property, remain the property of CONTRACTOR and shall be removed from the Project site prior to Substantial Completion.

3. Color and Pattern: Whenever a choice of color or pattern is available in a specified product, submit accurate color chips and pattern charts to OWNER for review and selection.

4. Number Required: Submit six, minimum, of each. Two will be returned to CONTRACTOR.

B. When specified, erect field Samples and mock-ups at the Project site to illustrate products, materials, fabrications, or execution and to establish standards by which completed Work shall be judged.

C. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of the Work. Sample sets may be used to obtain final acceptance of the Work associated with each set.

3.05 QUALITY CONTROL SUBMITTALS

A. Submit quality control submittals, including design data, certifications, manufacturer's field reports, and other quality control submittals as required under other sections of the Contract Documents.

B. When other sections of the Contract Documents require manufacturer's certification of a product, material, or installation complies with specified requirements, submit a notarized certification from the manufacturer certifying compliance with specified requirements.

C. Certification shall be signed by an officer of the manufacturer or other individual authorized to sign documents on behalf of the represented company.

D. Requirements for submittal of inspection and test reports are specified in other sections of the Contract Documents.

END OF SECTION

SECTION 01 7700

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section includes administrative and procedural requirements for Contract Closeout, including but not limited to, the following:

1. Inspection procedures.

2. Project record documents submittal.

3. Operation and maintenance manual submittal.

4. OWNER orientation and instruction.

5. Final cleaning.

1.02 RELATED REQUIREMENTS:

1. Section 01 3300 - Submittal Procedures.

2. Section 01 7836 - Warranties.

PART 2 – PRODUCTS (Not used)

PART 3 - EXECUTION

3.01 SUBSTANTIAL COMPLETION

A. Inspection Procedures: On receipt of the Request For Certificate of Substantial Completion, OWNER will authorize commencement of inspection. INSPECTOR, OWNER, CONTRACTOR and ARCHITECT will inspect the Work.

1. If after inspection of the Work, OWNER does not consider the Work substantially complete, OWNER will notify CONTRACTOR.

2. If after inspection, OWNER considers the Work substantially complete, INSPECTOR shall prepare a comprehensive Punch List of items to be corrected.

   a. INSPECTOR may repeat inspection to assure the Work is corrected.

   b. Results of the completed inspection will form a partial basis of the requirements for Release of Retention.

3.02 ADMINISTRATIVE CLOSEOUT

A. Re-inspection Procedures: INSPECTOR, OWNER, CONTRACTOR and ARCHITECT may inspect the Work upon notice, including final inspection of Punch List items from earlier inspections, has been corrected, except for items whose completion is delayed under circumstances acceptable to OWNER.

   1. OWNER has the right to preclude CONTRACTOR from Punch List correction and documents submittals after the Contract Completion date; unless OWNER elects to authorize CONTRACTOR to extend Administrative Contract duration. CONTRACTOR will be assessed actual cost for the unsettled items. Withholds amounts exceeding actual costs to correct or to obtain deliverable will be released.

   2. If allowed by the OWNER, re-inspection will be repeated, but may be assessed against CONTRACTOR if OWNER is subject to additional professional service and or additional costs of inspection.

3.03 PROJECT RECORD DOCUMENT SUBMITTAL

A. General: Do not use project record documents for construction purposes. Protect record documents from deterioration and loss. Provide access to record documents for ARCHITECT, INSPECTOR and OWNER reference during normal working hours. Project record document shall be updated on a weekly basis. Prior to submitting each application for payment, secure INSPECTOR and ARCHITECT approval of project record documents.

B. Record Drawings: Maintain a clean, undamaged set of prints of Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark the Drawing that is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Drawings. Provide detailed and accurate field dimensions for concealed elements that would be difficult to measure and record at a later date.

   1. Mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work. Date and number

entries in the same format as submitted. Call attention to entry by a "cloud" around the affected areas.

2. Mark new information important to OWNER but was not shown on Drawings or Shop Drawings.

3. Utility location and depth below finished grade and above ceilings and attic spaces shall be fully dimensioned and indicated on record drawings. Dimensions shall be measured from building lines or permanent landmarks and shall be triangulated to those features.

4. Note related Change Order or Construction Directive numbers where applicable. RFC submissions shall be referenced on each affected sheet, Drawing and Shop Drawing.

5. Organize record drawing sheets into manageable sets. Bind sets with durable-paper cover sheets; print suitable titles, dates, and other identification on the cover of each set.

6. Prior to Contract Completion of the Work, review of the project record drawings by ARCHITECT; prepare a final set of project record drawings using reproducible vellum. Submit final set of transparencies to ARCHITECT.

C. Record Specifications: Maintain two complete copies of the Specifications, including Addenda. Include with the Specifications two copies of other written Contract Documents, such as Change Orders or Construction Directives issued during construction.

1. Mark these record documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications.

2. Give particular attention to substitutions and selection of options and information on concealed Work that cannot otherwise be readily discerned later by direct observation.

3. Note related record document information with Product Data.

4. Prior to Contract Completion of the Work, submit record Specifications to ARCHITECT for OWNER records.

D. Record Product Data: Maintain two copies of each Product Data submittal. Note related Change Orders and Construction Directives and mark-up of record drawings and Specifications.

1. Mark these documents to illustrate significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the Project site and from the manufacturer's installation instructions and recommendations.

2. Provide detailed and accurate information regarding concealed products and portions of Work that cannot otherwise be readily discerned later by direct observation.

3. Prior to Contract Completion, submit complete set of record Product Data to ARCHITECT for OWNER records.

E. Record Samples: Immediately prior to Substantial Completion, CONTRACTOR shall meet with ARCHITECT and OWNER at the Project site to determine which Samples are to be transmitted to OWNER for record purposes. Comply with OAR instructions regarding delivery to OWNER storage area.

F. Miscellaneous Records: Refer to other Specification sections for requirements of miscellaneous record keeping and submittals in connection with actual performance of the Work. Prior to the date of Contract Completion, complete and compile miscellaneous records and place in good order. Identify miscellaneous records properly and bind or file, ready for continued use and reference. Submit to Architect for OWNER records.

G. Maintenance Manuals: Prior to Substantial Completion, organize operation and maintenance data into suitable two sets of manageable size. Bind properly indexed data in individual, heavy-duty, two to three-inch 3-ring, vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder. Submit to ARCHITECT for OWNER records. Include the following types of information.

1. Emergency instructions.

2. Spare parts list.

3. Copies of warranties.

4. Wiring diagrams.

5. Recommended "turn-around" cycles.

6. Inspection procedures.

7. Shop Drawings and Product Data.

8. Fixture lamping schedule.

H. Verified Reports: Construction progress of the Work shall be reported to DSA via a duly verified report as per Title 24, Part 1, Sections 4-336 and 4-343.c of the California Building Standards Commission's, California Administrative Code.

3.04 OPERATION AND MAINTENANCE:

A. Operation and Maintenance Instructions: Prior to Substantial Completion, arrange for each installer of equipment that requires regular operation and maintenance to meet with designated OWNER personnel to provide instruction in proper operation and maintenance. Provide instruction by manufacturer's representatives if installers are not experienced in operation and maintenance procedures. Include a detailed review of the following items:

1. Maintenance manuals.

2. Spare parts and materials.

3. Tools.

4. Lubricants.

5. Fuels.

6. Identification systems.

7. Control sequences.

8. Hazards.

9. Cleaning.

10. Warranties and bonds.

11. Maintenance agreements and similar continuing commitments.

B. As part of instruction for operating equipment, demonstrate the following procedures:

1. Start-up.

2. Shutdown.

3. Emergency operations.

4. Noise and vibration adjustments.

5. Safety procedures.

6. Economy and efficiency adjustments.

7. Effective energy utilization.

3.05 FINAL CLEANING

A. General: Related sections of the Contract Documents specify general cleaning during performance of the Work. General cleaning is included in Division 01 Section "Construction Facilities and Temporary Controls".

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.

1. Complete the following cleaning operations before requesting inspection for a certificate of Substantial Completion.

a. Remove labels that are not permanent labels.

b. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.

c. Clean exposed exterior and interior hard-surfaced finished to a dust-free condition, free of stains, films, and similar foreign substances. Restore reflective surfaces to their original condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.

d. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.

e. Clean the Project site, including landscape development areas, of rubbish, litter, and other foreign substances. Sweep paved areas broom clean; remove stains, spills, and other foreign deposits. Rake grounds that are neither paved nor planted to a smooth, even-textured surface.

END OF SECTION

SECTION 01 7836

WARRANTIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section includes administrative and procedural requirements for warranties, including manufacturers and installer's standard warranties on products and special product warranties.

1. Refer to the General Conditions for terms of the guarantee period for the Work.

1.02 RELATED REQUIREMENTS

A. Section 01 7700 - Contract Closeout.

PART 2 - PRODUCTS (Not applicable)

PART 3 - EXECUTION

3.01 WARRANTY REQUIREMENTS

A. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties shall not relieve CONTACTOR of the warranty of the Work incorporating such materials, products, and equipment. Manufacturer's disclaimers and limitations on warranties do not relieve suppliers, manufacturers, installers, and Subcontractors of the requirement to countersign special warranties with CONTRACTOR.

B. Standard warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to OWNER.

C. Special warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for OWNER.

D. Related Damages and Losses: When correcting failed or defective warranted Work, remove and replace Work that has been damaged as a result of such failure or which must be removed and replaced to provide access for correction of warranted Work.

E. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement with the reinstated warranty equal to the original warranty.

F. Replacement Cost: Upon determination the Work covered by a warranty has failed and/or is defective, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. CONTRACTOR is responsible for the cost of replacing or rebuilding defective Work regardless of whether OWNER has benefited from use of the Work through a portion of its anticipated useful service life.

G. OWNER Recourse: Expressed warranties made to OWNER are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which OWNER can enforce such other duties, obligations, rights, or remedies.

H. Rejection of Warranties: OWNER reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

I. Where the Contract Documents require a special warranty, or similar commitment on the Work or part of the Work, OWNER reserves the right to refuse to accept the Work until CONTRACTOR presents evidence the entities required to countersign such commitments have done so.

3.02 SUBMITTALS

A. Submit written preliminary warranties prior to Substantial Completion and final warranties prior to Contract Completion. If the certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, submit written warranties as set forth in the certificate of Substantial Completion.

1. When a designated portion of the Work is partially used and/or occupied by OWNER, submit properly executed warranties to ARCHITECT within fifteen days of the Partial Use or Occupancy of the designated portion of the Work.

B. When the Contract Documents require CONTRACTOR, or CONTRACTOR and a Subcontractor, installer, supplier or manufacturer to execute a special warranty, prepare a written document containing appropriate terms and identification, ready for execution by the required parties. Submit a draft to OWNER, and ARCHITECT, for approval prior to final execution.

1. Refer to Divisions 02 through 49 for specific content requirements and particular requirements for submitting special warranties.

C. Form of Submittal: Prior to Contract Completion, compile two copies of each required final warranty properly executed by CONTRACTOR, or by CONTRACTOR and Subcontractor, installer, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the Specifications.

D. Bind warranties and bonds in heavy-duty, commercial-quality, durable three ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8½ by 11 paper.

1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the item or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the installer.

2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project title and/or name, and name of CONTRACTOR.

3. When warranted Work requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

END OF SECTION

SECTION 03 0130

RESTORATION AND CLEANING OF CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes epoxy resin adhesive for:

1. Epoxy injection of cracks.

2. Grouting of cracks by gravity flow.

3. Repair of spalling concrete.

B. Related Requirements

1. Division 01 - General Requirements.

1.02 SUBMITTALS

A. Shop Drawings: Submit Shop Drawings indicating areas to receive restoration.

B. Product Data:

1. Submit manufacturer's product literature and installation procedures.

2. Submit laboratory test reports indicating compliance with the Specifications.

1.03 QUALITY ASSURANCE

A. Continuous inspection of epoxy repair procedures shall be performed by the Project Inspector in accordance with CBC.

B. Inspection shall be performed by a representative of a testing laboratory selected by the Owner. The Owner will pay for inspection costs. Notify the laboratory 24 hours in advance of time concrete is to be mixed and notify the laboratory within 24 hours of postponement or cancellation of mixing.

C. Installer of epoxy resin adhesive and concrete repair shall be certified by the manufacturer.

D. Manufacturer: Regularly engaged in manufacture of epoxy resin products for at least 10 years. Provide references of at least five projects for which epoxy resin adhesive treatment was installed.

1.04 PROJECT CONDITIONS

A. Materials shall not be installed during existing or forecasted freezing or inclement weather.

B. Protect adjacent surfaces from damage by equipment, tools, or materials.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the Project site in manufacturer's unopened containers bearing manufacturer's name and product identification.

B. Store and condition materials as recommended by product manufacturer.

PART 2 - PRODUCTS

2.01 MANUFACTURER

A. Provide products by one of the following manufacturers:

1. Sika Corporation.

2. Fosroc Inc.

3. The Euclid Chemical Co.

4. Equal.

2.02 NOT USED

2.03 MATERIALS

A. Epoxy Resin Adhesive for Pressure Injection and Gravity Flow Grouting of Cracks:

1. Modified epoxy resin containing suitable viscosity control agents and accelerators.

2. Material shall not contain asbestos.

B. Epoxy Resin Adhesives: per plans and SIKA manufacturer’s recommendations

C. Materials for Repairing Spalling Concrete: per plans and SIKA manufacturer’s recommendations

PART 3 - EXECUTION

3.01 PREPARATION

A. Surfaces adjacent to cracks and spalled concrete shall be cleaned with all dust, grease, foreign particles and disintegrated materials removed by sandblasting, high-pressure water blasting, grinding, chipping or abrasive wheel. Cracks shall be free of standing water and/or frost.

B. Installation of gravity flow grouting shall be performed by removing a V-notch portion of the crack to a maximum width of 1/4 inch and for the required length. Remove dust and loose debris. Where the underside of the concrete slab is accessible,

seal visible cracks with epoxy resin adhesive paste or Portland cement based quick-setting compound to retain installed adhesive until cured.

C. Remove broken and spalled concrete down to sound material and to a minimum depth of one inch around steel reinforcing bars. Clean steel bars by sand blasting.

3.02 APPLICATION OF EPOXY

A. Manual application of epoxy resin shall be performed by mixing only that quantity of material that can be installed in 20 to 30 minutes at 73 degrees F. Automated application of high pressure injection shall be performed with a portable unit, equipped with positive displacement type pumps, air-powered or electric, with interlock for positive ratio control of exact material proportioning at the nozzle. Pumps shall provide in-line mixing and metering system and contain drain-back plugs.

B. Placement Procedure:

1. High Pressure Injection:

a. Provide porting devices as required by manufacturer, do not exceed maximum spacing. Spacing shall not exceed thickness of substrate and shall be calibrated to provide travel of material for grouting between ports. Fill cracks to maximum.

b. On structures where both sides are accessible, provide porting devices on both sides at staggered elevations. Install mixed epoxy resin sealing adhesive over cracks and around each porting device, to provide an adequate adhesive seal during injection grouting.

c. Where required, install sealing adhesive to provide minimal defacing or discoloration of substrate.

d. Inject epoxy from bottom-most port. Install until epoxy appears out of next higher port. Plug lower port and start injecting into the port above. Repeat procedure until crack is grouted.

2. Low Pressure Injection: Material installation shall be performed by a manufacturer certified applicator in accordance with the manufacturer's written recommendations.

3. Gravity Flow Grouting: Furnish mixed material into V-notches and install until cracks are completely filled.

C. If penetration of a crack is not feasible, notify the Architect before discontinuing injection or grouting procedures. If modification of procedure is required to fill cracks, submit proposed modification to the Architect for review before proceeding.

D. Install materials for repair of spalling concrete in accordance with the manufacturer's written recommendations.

3.03 NOT USED

3.04 PROTECTION

A. Protect the Work of this section until Substantial Completion.

3.05 CLEANING

A. Remove rubbish, debris, and waste materials and legally dispose of off the Project site.

END OF SECTION

SECTION 06 1813

GLUED LAMINATED BEAMS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Structural glued laminated wood members.

B. Related Requirements:

1. Division 01 - General Requirements.

1.02 REGULATORY REQUIREMENTS

A. Manufacture and fabrication of structural glued laminated timber shall be in accordance with CBC Chapter 23.

1.03 SUBMITTALS

A. Shop Drawings: Submit Shop Drawings for glued laminated members.

1.04 QUALITY ASSURANCE

A. Comply with the following as a minimum requirement:

1. AITC 117 - Structural Glued laminated Timber of Softwood Species.

2. ASTM D3737 - Design and Manufacture of Structural Glued Laminated Timber.

3. NSI/ATC A190.1 - Standard Specifications for Glued Laminated Timber.

4. WCLIB - Standard Grading and Dressing Rules.

1.05 DELIVERY, STORAGE AND HANDLING

A. After fabrication and prior to shipping, seal surfaces of each member, including ends, with two coats of sealer primer, installed in accordance with manufacturer's written recommendations.

B. Each member shall be separately wrapped in heavy waterproof paper for protection against weather and damage in shipping and handling. Do not remove wrapping until after members have been installed. Protect all members from damage, whether concealed or exposed in the finished Work.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Lumber for Laminating: Conforming to the structural requirements and laminating specifications of AITC 117.

B. Glue: Exterior type; waterproof.

2.02 FABRICATION

A. Appearance grade of members shall be Architectural Grade where exposed.

B Joints: End joints in adjacent laminations shall be separated in accordance with CBC requirements. Joints in adjacent laminations of arched members shall be separated as required for bending members.

C. Maximum moisture content of the wood at time of gluing shall not exceed 12 percent. Moisture content of wood for members that will be exposed to direct sunlight in finished structure shall not exceed 10 percent at time of gluing. Range of moisture content of laminations assembled into a single member shall not exceed 5 percent at time of gluing.

D. Notches: Notched glued laminated members shall be designed as required for sawn lumber using allowable stress of a combination, with outer lamination being grade of laminations exposed by notch. Where a notch is located on tension face of a member, at least one fully-threaded lag bolt, or equal, shall be provided on each side of notch to prevent splitting.

E. Fabricate and assemble components for laminations in combinations in accordance with requirements of AITC 117 and ASTM D3737.

PART 3 - EXECUTION

3.01 ERECTION

A. Maintain members straight and plumb. Deliver and erect each member in one piece. Field splicing is not permitted unless reviewed by the Architect.

3.02 CLEANUP

A. Remove debris, rubbish and waste material and legally dispose of off the Project site.

3.03 PROTECTION

A. Protect the Work of this section until Substantial Completion.

END OF SECTION

SECTION 06 2501
WOOD REPAIR AND RESTORATION

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. General Conditions, Supplementary Conditions, Instructions to Bidders and Division One General Requirements shall be read in conjunction with and govern this section.

B. This Specification shall be read as a whole by parties concerned. The Contractor is solely responsible to make clear to the Subcontractors the extent of their Work.

1.02 DESCRIPTION

A. Supply labor, materials and equipment to complete the Work as shown on the Drawings and as specified herein to remove, replace or repair rot and decayed or deteriorated wood with epoxy consolidants and wood replacement compound system:

1. Restore existing to mirror the original wood in appearance and operability.
2. Contractor is to be familiar with existing conditions prior to bid.
3. Apply penetrating pesticide in a Powder or Solution form to prepared wood.
4. Install Borate preservative rods.
5. Apply two-part epoxy wood consolidant.
6. Replace rot and decayed or deteriorated wood with two-part non-structural putty.

B. Materials, accessories and installation methods of the wood repair system shall be in accordance with manufacturers printed instructions and application guide.

1.03 RELATED SECTIONS

A. Quality Control: Section 01 40 00
B. Rough Carpentry: Section 06 10 00
C. Finish Carpentry: Section 06 20 00
D. Architectural Woodwork: Section 06 40 00
E. Joint Protection: Section 07 90 00
F. Door Frames: Section 08 10 00
G. Window Frames: Section 08 50 00
H. Glass and Glazing: Section 08 80 00
I. Hardware: Section 08 70 00
J. Painting and Paint Rest.: Section 09 99 00

1.04 REFERENCES

A. The following standards are applicable to this section:

1. US Dept. of the Interior, National Park Service, Preservation Briefs: 9 The Repair of Historic Windows
2. ASTM- American Society for the Testing of Materials
3. AWI Quality Standard- Comply with American Woodwork Quality Standards, Section 1000

4. Practical Restoration Reports Compendium by John Leeke, Preservation Consultant

1.05 SUBMITTALS

A. Submit documentation from an approved testing laboratory certifying the specified system performances, including compressive strength, tensile strength in accordance with the specified referenced standards.
   1. Test report submittals shall include test results on rotted, decayed or deteriorated wood substrate.
B. Submit manufacturers' current product data sheets for complete sole source wood restoration system. Product submittal format will reflect the specification format.
C. Restoration Schedule: submit schedule for each item to be restored. Outline in detail proposed restoration work to be performed on each component. Obtain Owners representative approval prior to commencement of work.
D. Provide details of each wood component to be restored.
E. Provide EndRot wood restoration system application guide by System Three Resins, Inc.

1.06 QUALITY ASSURANCE

A. Submit document stating applicator of specified wood restoration system is acceptable by manufacturer for execution of the Work. Maintain one worker onsite for entire wood restoration process.
B. Perform Work in accordance with manufacturer's written instructions, industry standards and this specification. Where these may be in conflict the more stringent will apply.
C. Maintain one copy of manufacturer's written instructions on site. Include details of areas requiring repair.
D. Allow access to Work site by the wood restoration manufacturer's representative and inspectors. In the acceptance or rejection of wood restoration work, no allowance will be made for lack of skill on the part of the workers.
E. Components used shall be sourced from one manufacturer, including powder or solution insecticide, borate rods preservative, two-part epoxy consolidant, two-part non-shrinking, non-structural putty and two part non-shrinking, epoxy paste.
F. Single-Source Responsibility:
   1. Obtain wood restoration system from a single manufacturer regularly engaged in manufacturing the system for minimum of ten (10) years.
   2. Provide products complying with federal, state and local regulations controlling use of volatile organic compounds (VOCs).

1.07 MOCK-UP

A. Construct mock-up in accordance with Section 01 43 39 – Mock-ups.
B. Provide mock-up of wood repair and restoration system under provisions of Section 01 33 23 - Shop Drawings, Product Data and Samples.
C. Allow 48 hours for inspection of mock-up by Owners Representative before proceeding with wood repair or restoration work. Mock-up may remain as part of the Work.
D. Evaluate mock-up for aesthetics, adhesion and compressive strength.

1.08 PRE-INSTALLATION CONFERENCE

A. After mock up approval, Contractor shall convene preconstruction meeting one week prior to commencing Work of this section.
B. Ensure Contractors responsible for wood repair are provided one-week notice to schedule meeting attendance.

1.09 DELIVERY, STORAGE AND HANDLING

A. Refer to current Product data and SDS for proper storage and handling.
B. Deliver materials to the job site in undamaged and original packaging indicating the name of the manufacturer, product model, and expiration date and batch number.
C. Store material in original packaging. Protect materials from elements and store above 55 degrees F until ready for use. Optimal product application temperature is listed on product data sheet.
D. Waste Management and Disposal
    1. Dispose of waste materials in accordance with local, State and federal regulations.
E. Contractor to verify product compliance with federal, state and local regulations controlling volatile organic compounds (VOC's).

1.10 CO-ORDINATION

A. Protect adjacent surfaces from Work of this section. Protect the restoration work in progress to prevent further deterioration of exposed wood surfaces. Protect completed work until accepted by Owners representative.
B. Provide safe wood restoration working conditions. Comply with applicable laws, codes and regulations.
C. Co-ordinate wood restoration work with Owner's Representative to provide a secure building at the end of each workday. Review security procedures with Owner prior to starting of work in this section.
D. Co-ordinate with Painting and paint stripper. Paint may contain Lead. Take necessary precaution to ensure the safety of persons engaged in removing and disposal of lead-based paint and lead-based paint residue. Dispose of lead-based paint and residue generated from work in accordance with local, state and federal codes.

1.11 ALTERNATES AND SUBSTITUTIONS

A. Submit request for alternates and substitutions in accordance with Substitutions and Options Procedures.
B. Submit requests for alternates and substitutions a minimum of ten (10) working days prior to bid date
C. Alternate or substitution request to include:
    1. Evidence that alternate materials are within a system that meets or exceeds performance characteristics of specified requirements. Provide documentation from an approved independent testing laboratory certifying the wood restoration system meets or exceeds performance character of the specified system. (Pending)
    2. Copies of the manufacturer's current ISO certification.
    3. Ten (10) references clearly indicating the wood restoration system manufacturer has successfully completed projects of similar scope and nature for a minimum of ten (10) years
    4. Manufacturer's complete set of details for wood repair and restoration system showing a continuous plane at transitions from existing wood and restored wood. Details shall represent project conditions.
D. Acceptable alternates will be confirmed by addendum. Substitute materials not approved in writing prior to bid date shall not be permitted for use on this project.

1.12 WARRANTY

A. Provide manufacturer's standard three 3-year limited material warranty.
B. Provide Contractor standard 1-year warranty for labor and workmanship.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Wood insecticide, preservation, restoration and repair components and accessories must be obtained as a single-source from one manufacturer to ensure total system compatibility and integrity.

1. Basis of Design: SYSTEM THREE RESINS, INC.

P.O. Box 399
Auburn, WA 98071-0399
(800) 333-5514
Web Site: www.systemthree.com

2.02 WOOD PRESERVATIVE, RESTORATION AND REPAIR SYSTEM IS MANUFACTURED BY SYSTEM THREE RESINS. SYSTEM THREE RESINS ENDROT WOOD RESTORATION SYSTEM IS THE BASIS-OF-DESIGN. SYSTEM COMPONENTS

A. Powder or Solution Wood Preservative: Termiticide, insecticide and fungicide: EndRot Borate Powder marketed by SYSTEM THREE RESINS. EndRot Borate Powder is an EPA registered water-soluble white powder. It can be applied dry or in solution prior to EndRot Borate rods.

B. Solid Wood Preservative: EndRot Borate Rods marketed by SYSTEM THREE RESINS are EPA approved solid borate wood preservative rods inserted in wood substrate at key locations.

C. Wood Sealant and Consolidant: RotFix manufactured by SYSTEM THREE RESINS; a two component, 100% solids by volume epoxy, penetrating consolidant applied over solid, powder and solution wood preservatives and wood substrates.

Wood Sealant and Consolidant: minimum physical characteristics

1. Solids by Volume: 100 percent solids by volume:
2. Wet Film Thickness: 10 mils
3. Mix ratio: 2 to 1, 2 parts A to 1 part B
4. Viscosity: 325 cps

D. Moldable Epoxy Putty: SculpWood Putty manufactured by SYSTEM THREE RESINS. A moldable, water resistant, interior, exterior, non-shrinking, non-structural, sandable putty that kneads like clay and cures to a permanent wood-like state.

Moldable Epoxy Putty: minimum physical characteristics

1. Solids by Volume: 100 percent solids by volume
2. Mix ratio: 1 to 1, 1-part A mixed with 1-part B
3. Working time: 60 minutes at 77 degrees F
4. Time to Sand at room temperature
    a. Hand sand- 8 hours
    b. Machine sand- 10 hours
5. Low temperature application: 40 degree F

E. Spreadable Epoxy Paste: SculpWood Paste manufactured by SYSTEM THREE RESINS. A spreadable, water resistant, interior, exterior, non-shrinking, sandable paste that cures to a permanent wood-like state.

Spreadable Epoxy Paste minimum physical characteristics:

1. Solids by Volume: 100 percent solids by volume
2. Mix ratio: 1 to 1, 1-part A mixed with 1-part B
3. Working time: 60 minutes at 77 degrees F
4. Time to Sand at room temperature

a. Hand sand- 8 hours
b. Machine sand- 10 hours

5. Low temperature application: 50 degree F.

F. Accessories: Measuring, Mixing and Application Tools.
1. Graduated cups and mixing tubs: from one (1) ounce up to five (5) quarts
2. Plunger Pumps: fits top of 16 oz. 32 oz. ½ gal. gal. 2.5 gal. and 5gal. Industry term 'mustard pumps'
3. Digital scale: 1 gram to 500 gram
4. Syringes: 12cc to 60cc
5. Caulking Gun: for high viscosity epoxy adhesives
6. Mixing tips for u-TAH cartridge: Static mixers with intermittent flow inverters

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify type of wood substrate. Ensure surfaces and conditions are ready to accept the Work of this section. Notify Owners representative in writing of any discrepancies. Commencement of the work shall mean acceptance of the wood substrates.
B. Surfaces to be repaired must be sound, dry, clean and free of oil, grease, rotted wood or other contaminants. Remove rotted wood and repair areas in substrate to provide an even plane. Strike changes of plane and transitions flush.
C. Do not proceed with application until mock-ups are approved.
D. Condition restoration materials to minimum 55 degrees F prior to application to facilitate handling.
E. Remove and store hardware.
F. Probe wood for presence of wood decay.
G. Examine wood restoration with Owners representative to determine the extent of profile replication.
H. Examine joints, joinery and edges for open seams, moisture content and presence of decay.

3.02 SURFACE PREPARATION

A. Remove rotted wood using pick or wire brush until a sound substrate is achieved. Take care not to damage sound wood.
B. Preservation and sealing of seams and joints. Open or failed seams and checks shall be dilated to 3/16 wide and ½ inch deep. Sand bare wood to remove the following: loose fibres, paint and compounds. Remove sawdust and dirt. Thoroughly clean surface prior to system installation.
C. Ensure preparatory Work is complete prior to applying Powder or Solution Wood preservative and subsequent wood restoration system.
D. Test substrate for moisture content. Wood must be less then 18% moisture.
E. Work associated with this section is to be performed by installer of wood restoration system.
F. Wash and neutralize surfaces that have been stripped of paint and allowed to dry. Dispose of debris and waste in approved methods.

3.03 INSTALLATION OF WOOD RESTORATION SYSTEM

A. POWDER OR SOLUTION BORATE WOOD PRESERVATIVE INSECTICIDE. BASIS OF DESIGN: EndRot Borate Power by SYSTEM THREE RESINS

1. Drill holes for Borate rods in repaired wood substrate.
2. Locate holes near or around joints and key locations where moisture is at its highest concentration.
3. Apply EndRot Borate Powder or borate solution insecticide, termiticide and fungicide to prepared wood surface.
4. Insert borate rod solid wood preservative EndRot Borate Rods after installation of EndRot Borate Powder application.

B. SOLID BORATE WOOD PRESERVATIVE INSECTICIDE. BASIS OF DESIGN: EndRot Borate Rods by SYSTEM THREE RESINS
1. Apply EndRot Borate Powder to entire repaired wood surface including drill holes for EndRot Borate Rod placement.
2. Insert wood preservative EndRot Borate Rods after EndRot Borate Powder in solution has dried.
3. Follow manufacturers dose recommendations for dimensional lumber

C. WOOD SEALANT AND CONSOLIDANT. BASIS OF DESIGN: RotFix by SYSTEM THREE RESINS
1. Apply sealant and consolidant to areas repaired and treated with powder or solution preservative after wood has dried.
2. Apply in accordance with manufacturer's instructions and allow to cure.
3. Use measuring and mixing tools in accordance with manufacturer's instructions.
4. Abrade sealant and consolidant if it has cured for more then 48 hours.

D. WOOD PUTTY- MOLDABLE EPOXY. BASIS OF DESIGN: SculpWood Putty by SYSTEM THREE RESINS
1. Fill repaired and treated wood substrate with moldable epoxy wood putty.
    a. Apply putty over repaired, treated and consolidated wood in accordance with manufacturers' instructions and allow full cure.
    b. Over fill substrate cavity by 1/8 inch to allow for sculpting and sanding.
    c. Replicate existing profile.
    d. Sand after cure. Remove sawdust and dirt.
    e. Clean surface to receive subsequent finishes.

E. WOOD PASTE- SPREADABLE EPOXY. BASIS OF DESIGN: SculpWood Paste by SYSTEM THREE RESINS
1. Fill repaired and treated wood substrate with spreadable epoxy wood paste.
    a. Apply over repaired, treated and consolidated wood in accordance with manufacturer's instructions and allow full cure.
    b. Slightly over fill surface to allow for sanding.
    c. Replicate existing profile.
    d. Sand after cure. Remove sawdust and dirt.
    e. Clean surface to receive subsequent finishes.

D. TRANSITONS AND FINISHING
1. Transitions and changes of plane shall show no imperfections after sanding.
2. Prime restored wood surfaces and components once wood restoration system has fully cured AND as per manufacturers' instructions.
3. Painting and finishing of surfaces and components shall occur immediately after wood restoration system has cured.

3.05 FIELD QUALITY CONTROL

A. Make notification when sections of Work are complete to allow review prior to covering restored wood components.
B. Post Application Guide, Specification, details and Product data at wood restoration system application site.

3.06 ADJUSTMENTS

A. If required smooth remaining irregularities with an additional application of epoxy putty or paste.
B. Repair or replace defective work at no cost to the owner. There is no allowance for repairs of inadequate workmanship due to un-qualified, inexperienced personnel.

3.07 PROTECTION

A. Damp substrates must not be inhibited from drying out. Prevent to the best ability from exposing the substrates backside to moisture or rain.
B. Protect against wet weather conditions during and after application of wood restoration system. Protect wood restoration Work against wet weather conditions for a minimum of 24 hours.
C. Repair trade damage to wood restoration system.
D. Restored wood must be protected from UV exposure via painting or finishing to avoid degradation.

END OF SECTION

SECTION 07 9200

JOINT SEALANTS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Joint sealants.

2. Preparation for application of sealants.

B. Related Requirements:

1. Division 01 - General Requirements.

2. Section 06 4000 – Architectural Woodwork.

3. Section 07 6000 - Flashing and Sheet Metal.

4. Section 07 8413 - Penetration Firestopping.

5. Division 08 - Openings.

6. Division 09 - Finishes.

7. Section 10 2813 - Toilet Accessories.

1.02 SUBMITTALS

A. Shop Drawings: Submit Shop Drawings indicating sealant joint locations, with full-size sealant joint details.

B. Product Data: Submit manufacturer's literature for each sealant material.

C. Material Samples: Submit Samples indicating color range available for each sealant material intended for installation in exposed locations.

D. Certifications: Submit manufacturer’s certification materials comply with requirements specified.

E. Site Samples: At locations required, provide a Sample of sealant for each typical installation, approximately 24 inches long, including joint preparation, backing, sealant and tooling. Allow backing to extend 6 inches beyond end of sealant for inspection of substrate.

F. Test Reports: Submit manufacturer's adhesion compatibility test reports according to ASTM C794 for each substrate.

1.03 QUALITY ASSURANCE

A. Qualifications of Installer: The Work of this section shall be installed by a firm which has been in the business of installing similar materials for at least five consecutive years; and can show evidence of satisfactory completion of five projects of similar size and scope. Installer shall have applicators trained and approved by manufacturer for performing this Work.

1.04 DELIVERY, STORAGE AND HANDLING

A. Store in accordance with manufacturer's recommendations. Provide a uniform ambient temperature between 60 and 80 degrees F.

1.05 WARRANTY

A. Manufacturer: five year material warranty.

B. Installer: two year installation/application warranty.

PART 2 - PRODUCTS

2.01 GENERAL

A. Furnish sealants meeting following in-service requirements:

1. Normal curing schedules are permitted.

2. Non-staining, color fastness (resistance to color change), and durability when subjected to intense actinic (ultraviolet) radiation are required.

B. Furnish the products of only one manufacturer unless otherwise required, sealant colors as selected to match the adjoining surfaces.

2.02 MATERIALS

A. Sealants:

1. Sealant 1: Acrylic latex, one-part, non-sag, mildew resistant acrylic emulsion compound complying with ASTM C834, Type S, Grade NS, formulated to be paintable.

a. Tremco Inc., Acrylic Latex Caulk.

b. Pecora Corporation, AC-20.

c. Equal.

2. Sealant 2: Butyl sealant, one-part, non-sag, solvent-release-curing sealant complying with ASTM C1311, gun grade and formulated with a minimum of 75 percent solids.

a. Tremco Inc., Tremco Butyl Sealant.

b. Pecora Corp., BC-158.

c. Equal.

3. Sealant 3: Silicone sealant, one-part non-acid-curing silicone sealant complying with ASTM C920, Type S, Grade NS, Class 25.

   a. Dow Corning Corp., Dow Corning 790, 791, 795.

   b. General Electric Co., Silpruf.

   c. Tremco, Inc., Spectrem 1.

   d. Pecora Corp., 864.

   e. Equal.

4. Sealant 4: One-part mildew-resistant silicone sealant, complying with ASTM C920, Type S, Grade NS, Class 25.

   a. Dow Corning Corp., Dow Corning 786.

   b. General Electric Co., Sanitary 1700.

   c. Tremco, Inc., Proglaze White.

   d. Equal.

5. Sealant 5: One-part non-sag urethane sealant, complying with ASTM C920, Type S, Grade NS, Class 25.

   a. Sika Corporation, Sikaflex -221e.

   b. Equal.

6. Sealant 6: Multi-part pouring urethane sealant, complying with ASTM C920, Type M, Grade P, Class 25.

   a. Sika Corporation, Sikaflex 2C NS/SL.

   b. Equal.

7. Sealant 7: Acoustical sealant, non-drying, non-hardening permanently flexible conforming to ASTM D217.

   a. Pecora Corp., BA-98 Acoustical Sealant.

   b. Equal.

B. See 07 8413 - Penetration Firestopping for rated sealants.

C. .Joint Backing: ASTM D1056; round, closed cell Polyethylene Foam Rod; oversized 30 to 50 percent larger than joint width, reticulated polyolefin foam.

D. Primer: Non-Staining Type. Provide primer as required and shall be product of manufacturer of installed sealant.

E. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer.

F. Sealants shall have normal curing schedules, shall be nonstaining, color fast and shall resist deterioration due to ultraviolet radiation.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that joint openings are ready to receive Work and field tolerances are within the guidelines recommended by sealant manufacturer.

3.02 SURFACE PREPARATION

A. Joints and spaces to be sealed shall be completely cleaned of all dirt, dust, mortar, oil, and other foreign materials which might adversely affect sealing Work. Where necessary, degrease with a solvent or commercial degreasing agent. Surfaces shall be thoroughly dry before application of sealants.

B. If recommended by manufacturer, remove paint and other protective coatings from surfaces to be sealed before priming and installation of sealants.

C. Preparation of surfaces to receive sealant shall conform to the sealant manufacturer's specifications. Provide air pressure or other methods to achieve required results. Provide masking tape to keep sealants off surfaces that will be exposed in finished Work.

D. Etch concrete or masonry surfaces to remove excess alkalinity, unless sealant manufacturer's printed instructions indicate that alkalinity does not interfere with sealant bond and performance. Etch with 5 percent solution of muriatic acid; neutralize with dilute ammonia solution, rinse thoroughly with water and allow to dry before sealant installation.

E. Perform preparation in accordance with ASTM C804 for solvent release sealants, and ASTM C962 for elastomeric sealants.

F. Protect elements surrounding Work of this section from damage or disfiguration.

3.03 SEALANT APPLICATION SCHEDULE

	Location	Type	Color
A.	Exterior and Interior joints in horizontal surfaces of concrete; between metal and concrete masonry and mortar.	Sealant 6	To match adjacent material
B.	Exterior door, entrance and window frames. Exterior and interior vertical joints in concrete and masonry metal flashing.	Sealant 3 or 5	To match adjacent material

C.	Joints within glazed curtain wall system. Skylight framing system. Aluminum entrance system glass and glazing.	Sealant 3	Translucent or Black
D.	Interior joints in ceramic tile and at plumbing fixtures.	Sealant 4	Translucent or White
E.	Under thresholds.	Sealant 2	Black
F.	All interior joints not otherwise scheduled	Sealant 1	To Match Adjacent Surfaces
G.	Heads and sills, perimeters of frames and other openings in insulated partitions	Sealant 7	Match Adjacent Surfaces

3.04 APPLICATION

A. Provide sealant around all openings in exterior walls, and any other locations indicated or required for structure weatherproofing and/or waterproofing.

B. Sealants shall be installed by experienced mechanics using specified materials and proper tools. Preparatory Work (cleaning, etc.) and installation of sealant shall be as specified and in accordance with manufacturer's printed instructions and recommendations.

C. Concrete, masonry, and other porous surfaces, and any other surfaces if recommended by manufacturer, shall be primed before installing sealants. Primer shall be installed with a brush that will reach all parts of joints to be filled with sealant.

D. Sealants shall be stored and installed at temperatures as recommended by manufacturer. Sealants shall not be installed when they become too jelled to be discharged in a continuous flow from gun. Modification of sealants by addition of liquids, solvents, or powders is not permitted.

E. Sealants shall be installed with guns furnished with proper size nozzles. Sufficient pressure shall be furnished to fill all voids and joints solid. In sealing around openings, include entire perimeter of each opening, unless indicated or specified otherwise. Where gun installation is impracticable, suitable hand tools shall be provided.

F. Sealed joints shall be neatly pointed on flush surfaces with beading tool, and internal corners with a special tool. Excess material shall be cleanly removed. Sealant, where exposed, shall be free of wrinkles and uniformly smooth. Sealing shall be complete before final coats of paint are installed.

G. Comply with sealant manufacturer's printed instructions except where more stringent requirements are indicated on Drawings or specified.

H. Partially fill joints with joint backing material, furnishing only compatible materials, until joint depth does not exceed 1/2 inch joint width. Minimum joint width for metal to metal joints shall be 1/4 inch. Joint depth, shall be not less than 1/4 inch and not greater than 1/2 inch.

I. Install sealant under sufficient pressure to completely fill voids. Finish exposed joints smooth, flush with surfaces or recessed as indicated. Install non-tracking sealant to concrete expansion joints subject to foot or vehicular traffic.

J. Where joint depth prevents installation of standard bond breaker backing rod, furnish non-adhering tape covering to prevent bonding of sealant to back of joint. Under no circumstances shall sealant depth exceed 1/2 inch maximum, unless specifically indicated on Drawings.

K. Prime porous surfaces after cleaning. Pack joints deeper than 3/4 inch with joint backing to within 3/4 inch of surface. Completely fill joints and spaces with gun applied compound, forming a neat, smooth bead.

3.05 MISCELLANEOUS WORK

A. Sealing shall be provided wherever required to prevent light leakage as well as moisture leakage. Refer to Drawings for condition and related parts of Work.

B. Install sealants to depths as indicated or, if not indicated, as recommended by sealant manufacturer but within following general limitations:

1. For joints in concrete walks, slab and paving subject to traffic, fill joints to a depth equal to 75 percent of joint width, but not more than 3/4 inch deep or less than 3/8 inch deep, depending on joint width.

2. For building joints, fill joints to a depth equal to 50 percent of joint width, but not more than 1/2 inch deep or less than 1/4 inch deep.

3.06 CLEANING

A. Remove rubbish, debris, and waste materials and legally dispose of off the Project site.

3.07 CURING

A. Sealants shall cure in accordance with manufacturer's printed recommendations. Do not disturb seal until completely cured.

3.08 PROTECTION

A. Protect the Work of this section until Substantial Completion.

END OF SECTION