Project Manual

Tuerk House Phase IV

730 Ashburton Street
Baltimore, MD 21216
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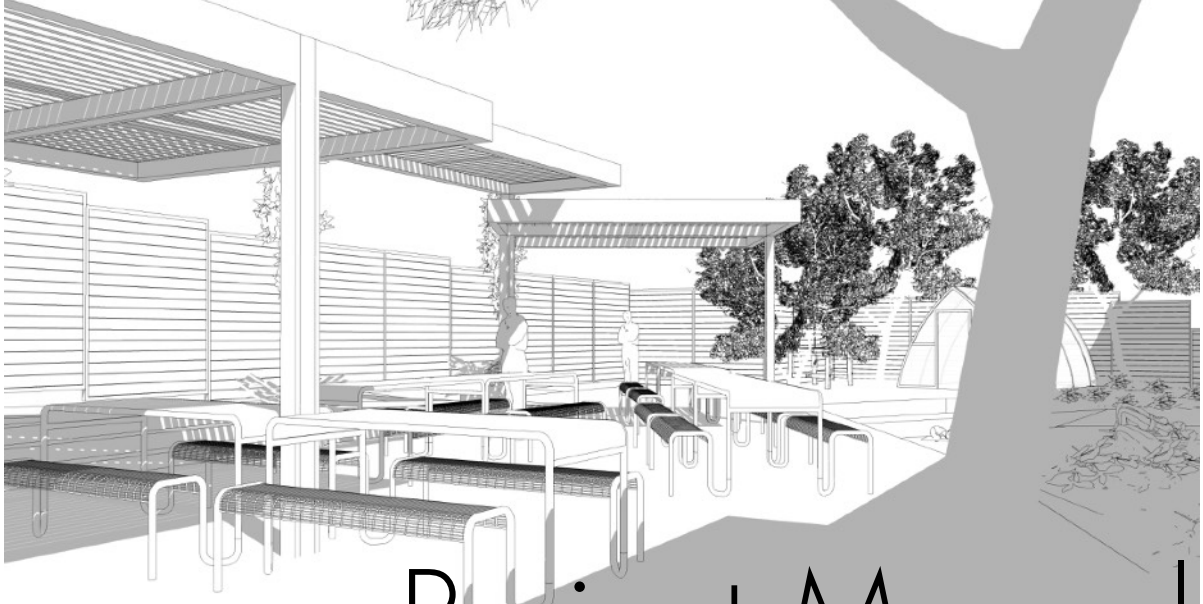
Architect's Project No: #22010



Project Manual

Tuerk House Phase IV

730 Ashburton Street
Baltimore, MD 21216

Architect's Project No: #22010

Architect:
RM Sovich Architecture
1 Village Square
Suite 175
Baltimore, MD 21210

Civil Engineer:
CMR
2835 Smith Avenue, Suite G
Baltimore, MD 21209

Landscape Design
Neighborhood Design Center
4318 Gallatin Street
Hyattsville, MD 20781

Structural Engineer:
Skarda and Associates, Inc
2439 North Charles Street,
Baltimore, MD 21218

MEP
CECA, LLC
9901 Business Parkway Suite H
Lanham, MD 20706

DOCUMENT 00 60 00 - PROJECT FORMS

1. FORM OF AGREEMENT AND GENERAL CONDITIONS

A. The following form of Owner/Contractor Agreement and form of the General Conditions shall be used for Project:

1. AIA Document A102- 2017 Standard Form of Agreement Between Owner and Contractor where the basis of payment is the Cost of the Work Plus a Fee with a Guaranteed Maximum Price

a. The General Conditions for Project are AIA Document A201, "General Conditions of the Contract for Construction.

2. The General Conditions are incorporated by reference.

2. ADMINISTRATIVE FORMS

A. Administrative Forms: Additional administrative forms are specified in Division 01 General Requirements Sections.

B. Copies of AIA standard forms may be obtained from the following:

1. The American Institute of Architects:

www.aia.org/contractdocs/purchase/index.htm; docspurchases@aia.org; (800) 942-7732.

C. Preconstruction Forms:

1. Form of Performance Bond and Labor and Material Bond: AIA Document A312, "Performance Bond and Payment Bond."
2. Form of Certificate of Insurance: AIA Document G715, "Supplemental Attachment for ACORD Certificate of Insurance 25-S."

D. Information and Modification Forms:

1. Form for Requests for Information (RFIs): AIA Document G716, "Request for Information (RFI)."
2. Form of Request for Proposal: AIA Document G709, "Work Changes Proposal Request."
3. Change Order Form: AIA Document G701, "Change Order."
4. Form of Architect's Memorandum for Minor Changes in the Work: AIA Document G707, "Architect's Supplemental Instructions."
5. Form of Change Directive: AIA Document G714, "Construction Change Directive."

E. Payment Forms:

1. Schedule of Values Form: AIA Document G703, "Continuation Sheet."
2. Payment Application: AIA Document G702/703, "Application and Certificate for Payment and Continuation Sheet."
3. Form of Contractor's Affidavit: AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
4. Form of Affidavit of Release of Liens: AIA Document G706A, "Contractor's Affidavit of Payment of Release of Liens."
5. Form of Consent of Surety: AIA Document G707, "Consent of Surety to Final Payment."

END OF DOCUMENT 00 60 00

SECTION 01 10 00 - SUMMARY

1.GENERAL

1. PROJECT INFORMATION

A. Project Identification: THE TUERK HOUSE PHASE IV

1. Project Location:

The Tuerk House

730 Ashburton Street

Baltimore, MD 21216

B. Owner: The Tuerk House

730 Ashburton Street

Baltimore, MD 21216

C. Architect: RM Sovich Architecture

D. Architect's Consultants: Architect has retained the following design professionals who have prepared designated portions of the Contract Documents:

Civil Engineer: CMR

Landscape Design: The Neighborhood Design Center

Structural Engineer: SKARDA, Inc

MEP Engineer: CECA, LLC

E. Owner's Representative: Finney/Lynn John Lynn 301.219.9118

F. This project is located at 730 N. Ashburton Street, Baltimore, Maryland 21216. The building has a current use and occupancy permit for patient and outpatient treatment and clinic use. The zoning designation of this property is R6.

G. The Scope of Work primarily includes work on the exterior of the existing building. The Areas of Work are as follows:

1. Cleaning of the brick masonry and repointing where needed on all sides of the structure.

2. Ashburton Street Work: includes repair of the stone door surround, new steel and cedar entrance canopies, new, illuminated Tuerk House sign pylon, relocation of the illuminated Andre Kennedy sign, four (4) new illuminated wall mounted flagpoles, restoration of concrete platform at the ADA ramp, restoration of the concrete paving and stairs from Ashburton up to the entrance, and new guard rails. New landscape planting.

3. Rear Courtyard Work : The rear courtyard includes demolition of existing shed and retaining wall, demolition of concrete and asphalt pavement, new site grading, construction new paved and landscaped therapeutic space, pressed concrete paving space, area; new concrete masonry shed; new entrance canopy to be installed at the existing 2nd floor exit; three (3) new steel and cedar trellis structures and one new prefabricated green house per drawings. A six-foot (6'-0") high fence is to be provided at side and rear property boundaries per drawings. Work includes new dumpster enclosure, bollards, and gates.

4. Provide a new mud slab system throughout the crawl space below the first floor- Deduct Alternate #1.

5. Site grading, sediment control, silt fence per civil engineering drawings. Mechanical, plumbing and electrical requirements for outdoor appliances and shed will be provided per MEP drawings. Landscape planting per the Landscape drawings.

H. Work by Owner:

1. N/A

I. Work Under Separate Contracts:

1. N/A

J. Owner-Furnished Products: The following products will be furnished by Owner and shall be installed by Contractor as part of the Work:

1. Owner will provide the prefabricated greenhouse, GC to coordinate and install.

2. WORK RESTRICTIONS

A. Contractor's Use of Premises: During construction, Contractor will have limited use of site and area indicated. Contractor's use of premises is limited only by Owner's right to perform work or employ other contractors on portions of Project and as follows:

1. Owner will occupy premises during construction. Perform construction only during normal working hours (7:30 AM to 5 PM) Monday thru Friday, other than holidays, unless otherwise agreed to in advance by Owner. Clean up work areas and return to usable condition at the end of each work period.

2. Limits: Limit site disturbance, including earthwork and clearing of vegetation, to 40 feet (12.2 m) beyond building perimeter; 10 feet (3 m) beyond surface walkways, patios, surface parking, and utilities less than 12 inches (300 mm) in diameter; 15 feet (4.5 m) beyond primary roadway curbs and main utility branch trenches; and 25 feet (7.6 m) beyond constructed areas with permeable surfaces (such as pervious paving areas and stormwater detention facilities) that require additional staging areas to limit compaction in the constructed area.

3. Driveways, Walkways, and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:30 a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated.

C. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet (8 m) of entrances, operable windows, or outdoor-air intakes.

D. PRODUCTS (Not Used)

E. EXECUTION (Not Used)

END OF SECTION 01 10 00

SECTION 01 14 00 - WORK RESTRICTIONS

1.GENERAL

1. RELATED DOCUMENTS

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

2. USE OF PREMISES

A. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.

1. Limits: Confine constructions operations to areas indicated in the scope of Work.
2. Owner Occupancy: Allow for Owner occupancy of site and use by the public.
3. Coordinate construction schedule of Work with Owner's representation on site.

    a. Unless noted otherwise or other wise approved in advance by the Owner, no work is to commence prior to 7:00 am.

4. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

    a. Schedule deliveries to minimize use of driveways and entrances.
    b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

B. Use of Existing Building: Maintain existing building in a weathertight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

3. OCCUPANCY REQUIREMENTS

A. Architect will prepare a Certificate of Substantial Completion for the Work before Owner occupancy.

B. Contractor to obtain a Certificate of Occupancy from authorities having jurisdiction before Owner occupancy.

C. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of building.

2.PRODUCTS (Not Used)

3.EXECUTION (Not Used)

END OF SECTION 01 14 00

SECTION 01 20 00 - PRICE AND PAYMENT PROCEDURES

GENERAL

ALLOWANCES

There are no allowances identified.

Purchase products and systems selected by Architect from the designated supplier.

Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include taxes, freight, and delivery to Project site.

Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials under allowance shall be included as part of the Contract Sum and not part of the allowance.

UNIT PRICES

Unit price is an amount incorporated in the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.

Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

ALTERNATES

Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the Base Bid amount if Owner

decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

Notification: Immediately following award of the Contract, notify each party involved, in writing, whether alternates have been accepted, rejected, or deferred for later consideration.

PAYMENT PROCEDURES

Submit a Schedule of Values at least seven (7) days before the initial Application for Payment. Break down the Contract Sum into at least one line item for each Specification Section in the Project Manual table of contents. Coordinate the schedule of values with Contractor's construction schedule.

Arrange schedule of values consistent with format of AIA Document G703.

Round amounts to nearest whole dollar; total shall equal the Contract Sum.

Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

Provide separate line items in the schedule of values for initial cost of materials and for total installed value of that part of the Work.

Provide a separate line item in the schedule of values for each allowance.

Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.

Submit three (3) copies of each application for payment according to the schedule established in Owner/Contractor Agreement.

Notarize and execute by a person authorized to sign legal documents on behalf of Contractor.

With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.

Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.

Include insurance certificates, proof that taxes, fees, and similar obligations were paid, and evidence that claims have been settled.

Include affidavit of payment of debts and claims on AIA Document G706.

Include affidavit of release of liens on AIA Document G706.

Include consent of surety to final payment on AIA Document G707.

Submit final meter readings for utilities, a record of stored fuel, and similar data as of the date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.

PRODUCTS (Not Used)

EXECUTION

SCHEDULE OF ALLOWANCES

Refer to Section 01 21 00 ALLOWANCES

SCHEDULE OF UNIT PRICES

1. Provide a Unit Price for additional excavation and fill due to unforeseen soil conditions.

SCHEDULE OF ALTERNATES

Refer to Section 00 43 23 - ALTERNATES

END OF SECTION 01 20 00

SECTION 01230 - ALTERNATES

1.GENERAL

1. SUMMARY

A. This Section includes administrative and procedural requirements for alternates.

2. DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

3. PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

2.PRODUCTS (Not Used)

3.EXECUTION

1. SCHEDULE OF ALTERNATES

A. Deduct Alternate No. 1: Provide a price to deduct the Mud Slab beneath the entire existing structure as described in the plan drawing set.

END OF SECTION 01230

SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

1.GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

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

B. Related Sections include the following:

1. Division 1 Section "Allowances" for procedural requirements for handling and processing allowances.
2. Division 1 Section "Unit Prices" for administrative requirements for using unit prices.
3. Division 1 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

3. MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions.".

4. PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
2. Within 21 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
c. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish

times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to the Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
5. Comply with requirements in Division 1 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: For Change Order proposals, use the AIA forms identified in Section 00 60 00 - PROJECT FORMS—- AIA Document G701, "Change Order."

5. ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.

3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.

4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit claims within 21 days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than 21 days after such authorization.

1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

6. CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

7. CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

2.PRODUCTS (Not Used)

3.EXECUTION (Not Used)

END OF SECTION 01 26 00

SECTION 01 30 00 - ADMINISTRATIVE REQUIREMENTS

1.GENERAL

1. PROJECT MANAGEMENT AND COORDINATION

A. Subcontract List: Submit a written summary identifying individuals or firms proposed for each portion of the Work.

B. Key Personnel Names: Within Fifteen (15) days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. List e-mail addresses and telephone numbers.

C. Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work.

D. Requests for Information (RFIs): On discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI. Use forms acceptable to Architect and Owner.

E. Project Web Site: Use Architect's Drop-Box for the purposes of hosting and managing project communication and documentation until Final Completion.

F. Schedule and conduct progress meetings at Project site at biweekly intervals. Notify Owner and Architect of meeting dates and times. Require attendance of each subcontractor or other entity concerned with current progress or involved in planning, coordination, or performance of future activities.

1. Record minutes and distribute to everyone concerned, including Owner and Architect.

2. SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals.

1. Architect will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings.

a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
b. Contractor shall execute a data licensing agreement in the form of AIA Document C106, Digital Data Licensing Agreement.

B. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

1. Processing Time: Allow enough time for submittal review, including time for re-submittals, as follows. Time for review shall commence on Architect's receipt of submittal.
2. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including re-submittals.
3. Submit three copies of each action submittal. Architect will return two copies.
4. Submit two copies of each informational submittal. Architect will not return copies.
5. Architect will return submittals, without review, received from sources other than Contractor.
6. Initial Review: Contractor must indicate he has reviewed the submittal with a stamp prior to submitting to Architect. Allow 10 business days for Architect's initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
7. Direct Transmittal to Consultant: Where agreed in advance that submittals may be transmitted directly to Architect's consultants, provide duplicate copy of transmittal to Architect. Submittal will be returned to Architect before being returned to Contractor.
8. If intermediate submittal is necessary, process it in same manner as initial submittal. Allow 7 business days for processing each re-submittal.

C. Paper Submittals: Place a permanent label or title block on each submittal for identification. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Architect. Include the following information on the label:

1. Project name.
2. Date.
3. Name and address of Contractor.
4. Name and address of subcontractor or supplier.
5. Number and title of appropriate Specification Section.

D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with unique identifier, including project identifier, Specification Section number, and revision identifier.
3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.

E. Identify options requiring selection by Architect.

F. Identify deviations from the Contract Documents on submittals.

G. Contractor's Construction Schedule Submittal Procedure:

1. Submit required submittals in the following format:

    a. Working electronic copy of schedule file, where indicated.
    b. PDF electronic file.

c. One paper copy.

2. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

a. Submit a working electronic copy of schedule, using software indicated, and labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.

3. Coordinate Contractor's construction schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.

2.PRODUCTS

1. SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections.

1. Post electronic submittals as PDF electronic files directly to Architect's Drop-Box site specifically established for Project.

a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

2. Submit electronic submittals via email as PDF electronic files.

a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

2. ACTION SUBMITTALS

A. Submit one (1) paper copies of each submittal over 10 pages unless otherwise indicated.

B. Product Data: Mark each copy to show applicable products and options. Include the following:

1. Manufacturer's written recommendations, product specifications, and installation instructions.
2. Wiring diagrams showing factory-installed wiring.
3. Printed performance curves and operational range diagrams.
4. Testing by recognized testing agency.
5. Compliance with specified standards and requirements.

3. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data. Submit on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 42 inches (762 by 1067 mm). Include the following:

A. Dimensions and identification of products.
B. Fabrication and installation drawings and roughing-in and setting diagrams.
C. Wiring diagrams showing field-installed wiring.
D. Notation of coordination requirements.
E. Notation of dimensions established by field measurement.

4. Samples: Submit Samples for review of kind, color, pattern, and texture and for a comparison of these characteristics between submittal and actual component as delivered and installed. Include name of manufacturer and product name on label.

   A. If variation is inherent in material or product, submit at least [three] <Insert number> sets of paired units that show variations.

2.INFORMATIONAL SUBMITTALS

1. Informational Submittals: Submit two paper copies of each submittal unless otherwise indicated. Architect will not return copies.

2. Qualification Data: Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

3. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

3.DELEGATED DESIGN SERVICES

1. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

   A. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

2. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit [three] <Insert number> copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

   A. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

4.CONTRACTOR'S CONSTRUCTION SCHEDULE

1. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type schedule within 10 days of date established for commencement of the Work.

2. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

3. Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.

4. Recovery Schedule: When periodic update indicates the Work is fourteen (14) or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and indicate date by which recovery will be accomplished.

3.EXECUTION

1. SUBMITTAL REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Architect will review each action submittal, make marks to indicate corrections or modifications required, will stamp each submittal with an action stamp, and will mark stamp appropriately to indicate action.

C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

2. CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Construction schedule must link issuance of submittals with construction schedule.

B. Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule at regularly scheduled progress meeting.

1. As the Work progresses, indicate Actual Completion percentage for each activity.

C. Distribute copies of approved schedule to Owner, Architect, subcontractors, testing and inspecting agencies, and parties identified by Contractor with a need-to-know schedule responsibility. When revisions are made, distribute updated schedules to the same parties.

END OF SECTION 01 30 00

SECTION 014000 - QUALITY REQUIREMENTS

1.GENERAL

1. SECTION REQUIREMENTS

A. 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.

B. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements, comply with the most stringent requirement. Refer uncertainties to Architect for a decision.

C. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum. The actual installation may exceed the minimum within reasonable limits. Indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision.

D. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:

1. Seismic-force-resisting system, designated seismic system, or component listed in the designated seismic system quality-assurance plan prepared by Architect.
2. Main wind-force-resisting system or a wind-resisting component listed in the wind-force-resisting system quality-assurance plan prepared by Architect.

E. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. 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 reinspecting.

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

G. 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.

H. Testing Agency Qualifications: An independent agency with the experience and capability to conduct testing and inspecting indicated; and where required by authorities having jurisdiction, that is acceptable to authorities.

I. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

J. 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 of irregularities or deficiencies in the Work observed during performance of its services.
2. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
3. Do not perform any duties of Contractor.

K. Associated Services: Cooperate with testing agencies and provide reasonable auxiliary services as requested. 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. Security and protection for samples and for testing and inspecting equipment.

L. 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.

M. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction.

N. Special Tests and Inspections: Conducted by a qualified testing agency as required by authorities having jurisdiction, as indicated in individual Specification Sections and on the Documents.

2.PRODUCTS (Not Used)

3.EXECUTION

1. REPAIR AND PROTECTION

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

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

END OF SECTION 01 40 00

SECTION 01 42 00 - REFERENCES

1.GENERAL

1. GENERAL REQUIREMENTS

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

B. Abbreviations and Acronyms: 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. Names are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AA	Aluminum Association, Inc. (The)
AAADM	American Association of Automatic Door Manufacturers
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists
ABAA	Air Barrier Association of America
ABMA	American Bearing Manufacturers Association
ACI	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
AHAM	Association of Home Appliance Manufacturers
AHRI	Air-Conditioning, Heating, and Refrigeration Institute, The
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
AOSA	Association of Official Seed Analysts, Inc.
APA	Architectural Precast Association
APA	APA - The Engineered Wood Association
API	American Petroleum Institute
ARI	Air-Conditioning & Refrigeration Institute
ARMA	Asphalt Roofing Manufacturers Association
ASCE	American Society of Civil Engineers
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)

ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	ASME International (American Society of Mechanical Engineers International)
ASSE	American Society of Sanitary Engineering
ASTM	ASTM International (American Society for Testing and Materials International)
AWCI	Association of the Wall and Ceiling Industry
AWCMA	American Window Covering Manufacturers Association (Now WCMA)
AWI	Architectural Woodwork Institute
AWPA	American Wood Protection Association (Formerly: American Wood Preservers' Association)
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association (The)
BICSI	BICSI, Inc.
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International)
BISSC	Baking Industry Sanitation Standards Committee
CCC	Carpet Cushion Council

CDA	Copper Development Association
CEA	Canadian Electricity Association
CEA	Consumer Electronics 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
CPA	Composite Panel Association
CPPA	Corrugated Polyethylene Pipe Association
CRI	Carpet and Rug Institute (The)
CRRC	Cool Roof Rating Council
CRSI	Concrete Reinforcing Steel Institute
CSA	Canadian Standards Association
CSA	CSA International (Formerly: IAS - International Approval Services)
CSI	Cast Stone Institute
CSI	Construction Specifications Institute (The)
CSSB	Cedar Shake & Shingle Bureau

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 (Electrostatic Discharge Association)
ETL SEMCO	Intertek ETL SEMCO (Formerly: ITS - Intertek Testing Service NA)
FM Approvals	FM Approvals LLC
FM Global	FM Global (Formerly: FMG - FM Global)
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.
FSA	Fluid Sealing Association
FSC	Forest Stewardship Council
GA	Gypsum Association
GANA	Glass Association of North America
GRI	(Part of GSI)
GS	Green Seal

GSI	Geosynthetic Institute
HI	Hydronics Institute
HI/GAMA	Hydronics Institute/Gas Appliance Manufacturers Association Division of Air-Conditioning, Heating, and Refrigeration Institute (AHRI)
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)
HPVA	Hardwood Plywood & Veneer Association
IAPSC	International Association of Professional Security Consultants
ICBO	International Conference of Building Officials
ICEA	Insulated Cable Engineers Association, Inc.
ICPA	International Cast Polymer Association
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
IGMA	Insulating Glass Manufacturers Alliance
ILI	Indiana Limestone Institute of America, Inc.
ISA	Instrumentation, Systems, and Automation Society, The
ISO	International Organization for Standardization

	Available from ANSI
ISSFA	International Solid Surface Fabricators Association
ITS	Intertek Testing Service NA (Now ETL SEMCO)
ITU	International Telecommunication Union
KCMA	Kitchen Cabinet Manufacturers Association
LGSEA	Light Gauge Steel Engineers Association
LPI	Lightning Protection Institute
MBMA	Metal Building Manufacturers Association
MCA	Metal Construction Association
MFMA	Maple Flooring Manufacturers Association, Inc.
MFMA	Metal Framing Manufacturers Association, Inc.
MH	Material Handling (Now MHIA)
MHIA	Material Handling Industry of America
MIA	Marble Institute of America
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
NAGWS	National Association for Girls and Women in Sport
NAIMA	North American Insulation Manufacturers Association
NBGQA	National Building Granite Quarries Association, Inc.
NCMA	National Concrete Masonry Association
NCTA	National Cable & Telecommunications Association
NEBB	National Environmental Balancing Bureau
NECA	National Electrical Contractors Association
NeLMA	Northeastern Lumber Manufacturers' 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)
NOMMA	National Ornamental & Miscellaneous Metals 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)
PCI	Precast/Prestressed Concrete Institute
PDI	Plumbing & Drainage Institute
PGI	PVC Geomembrane Institute
PTI	Post-Tensioning Institute
RCSC	Research Council on Structural Connections
RFCI	Resilient Floor Covering Institute
RIS	Redwood Inspection Service
SAE	SAE International
SCAQMD	South Coast Air Quality Management District
SCTE	Society of Cable Telecommunications Engineers
SDI	Steel Deck Institute
SDI	Steel Door Institute
SEFA	Scientific Equipment and Furniture Association

SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers (See ASCE)
SIA	Security Industry Association
SJI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SMPTE	Society of Motion Picture and Television Engineers
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
STI	Steel Tank Institute
SWI	Steel Window Institute
TCNA	Tile Council of North America, Inc.
TEMA	Tubular Exchanger Manufacturers Association
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
TMS	The Masonry Society

TPI	Truss Plate Institute, Inc.
TPI	Turfgrass Producers International
TRI	Tile Roofing Institute
UL	Underwriters Laboratories Inc.
UNI	Uni-Bell PVC Pipe Association
USGBC	U.S. Green Building Council
USITT	United States Institute for Theatre Technology, Inc.
WASTEC	Waste Equipment Technology Association
WCLIB	West Coast Lumber Inspection Bureau
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 Moulding & 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. Names, are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

DIN Deutsches Institut fur Normung

IAPMO International Association of Plumbing and Mechanical Officials

ICC International Code Council

ICC-ES ICC Evaluation Service, Inc.

DIN Deutsches Institut fur Normung e.V.

IAPMO International Association of Plumbing and Mechanical Officials

ICC International Code Council

ICC-ES ICC Evaluation Service, Inc.

2.PRODUCTS (Not Used)

3.EXECUTION (Not Used)

END OF SECTION 01 42 00

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

1.GENERAL

1. SECTION REQUIREMENTS

A. Use Charges: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated.

B. Water and Electric Power: Available from Owner's existing system without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

C. Erosion- and Sedimentation-Control Plan: Submit plan showing compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

D. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

E. Accessible Temporary Egress: Comply with applicable provisions in ICC A117.1.

2.PRODUCTS

1. MATERIALS

A. Chain-Link Fencing: Minimum 2-inch (50-mm), 0.148-inch- (3.8-mm-) thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized-steel pipe posts and top and bottom rails.

B. Wood Enclosure Fence: Plywood, [6 feet (1.8 m)] [8 feet (2.4 m)] high, framed with four 2-by-4-inch (50-by-100-mm) rails, with preservative-treated wood posts spaced not more than 8 feet (2.4 m) apart.

2. TEMPORARY FACILITIES

A. Provide field offices, storage and fabrication sheds, and other support facilities as necessary for construction operations. Store combustible materials apart from building.

3. EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
2. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of [8] <Insert number> at each return-air grille in system and remove at end of construction.

3.EXECUTION

1. TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

C. Heating and Cooling: Provide temporary heating/cooling required for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

D. Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

2. SUPPORT FACILITIES INSTALLATION

A. Install project identification and other signs in locations approved by Owner to inform the public and persons seeking entrance to Project.

B. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.

C. Temporary Elevator Use: Use of existing elevators is not permitted; see Section 142400 "Hydraulic Elevators" for temporary use of new elevators.

D. Use of Owner's existing elevators will be permitted, provided elevators are cleaned and maintained in a condition acceptable to Owner. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame. At Substantial Completion, restore elevators to condition existing before initial use, including replacing worn cables, guide shoes, and similar items of limited life.

3. SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

B. Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to [erosion- and sedimentation-control Drawings] [requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent].

C. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

D. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.

E. Furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.

F. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

G. Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

H. Provide floor-to-ceiling dust proof partitions to limit dust and dirt migration and to separate areas occupied by staff and tenants from fumes and noise.

I. Install and maintain temporary fire-protection facilities. Comply with NFPA 241.

4. MOISTURE AND MOLD CONTROL

A. Before installation of weather barriers, protect materials from water damage and keep porous and organic materials from coming into prolonged contact with concrete.

1. Protect stored and installed material from flowing or standing water.
2. Remove standing water from decks.
3. Keep deck openings covered or dammed.

B. After installation of weather barriers but before full enclosure and conditioning of building, protect as follows:

1. Do not load or install drywall or porous materials into partially enclosed building.
2. Discard water-damaged material.
3. Do not install material that is wet.

4. Discard, replace, or clean stored or installed material that begins to grow mold.
5. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.

5. OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion.

C. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period.

END OF SECTION 01 50 00

SECTION 01 60 00 - PRODUCT REQUIREMENTS

1.GENERAL

1. SECTION REQUIREMENTS

A. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

B. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced.

1. Show compliance with requirements for comparable product requests.
2. Architect will review the proposed product and notify Contractor of its acceptance or rejection.

C. Basis-of-Design Product Specification Submittal: Show compliance with requirements.

D. Compatibility of Options: If Contractor is given option of selecting between two or more products, select product compatible with products previously selected.

E. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Deliver products to Project site in manufacturer's original sealed container or packaging, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
3. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
4. Store materials in a manner that will not endanger Project structure.
5. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.

F. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

2.PRODUCTS

1. PRODUCT SELECTION PROCEDURES

A. Provide products that comply with the Contract Documents, are undamaged, and, unless otherwise indicated, are new at the time of installation.

1. Provide products complete with accessories, trim, finish, and other devices and components needed for a complete installation and the intended use and effect.
2. Where products are accompanied by the term "as selected," Architect will make selection.
3. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.

B. Where the following headings are used to list products or manufacturers, the Contractor's options for product selection are as follows:

1. Products:

a. Where requirements include "one of the following," provide one of the products listed that complies with requirements.
b. Where requirements do not include "one of the following," provide one of the products listed that complies with requirements or a comparable product.

2. Manufacturers:

a. Where requirements include "one of the following," provide a product that complies with requirements by one of the listed manufacturers.
b. Where requirements do not include "one of the following," provide a product that complies with requirements by one of the listed manufacturers or another manufacturer.

3. Basis-of-Design Product: Provide the product named, or indicated on the Drawings, or a comparable product by one of the listed manufacturers.

C. Where Specifications require "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

D. Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2. COMPARABLE PRODUCTS

A. Architect will consider Contractor's request for comparable product when the following conditions are satisfied:

1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications.
3. List of similar installations for completed projects, if requested.
4. Samples, if requested.

3.EXECUTION (Not Used)

END OF SECTION 01 60 00

SECTION 01 70 00 - EXECUTION AND CLOSEOUT REQUIREMENTS

1.GENERAL

1. EXECUTION REQUIREMENTS

A. Certificates: Submit certificate signed by professional engineer, licensed in the State of Maryland, certifying that location and elevation of improvements comply with requirements.

B. Cutting and Patching:

1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching.
2. 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.
3. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities.

C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

2. CLOSEOUT SUBMITTALS

A. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

B. Certified List of Incomplete Items: Final submittal at Final Completion.

C. Operation and Maintenance Data: Submit two copies of manual.

D. PDF Electronic File: Assemble manual into a composite electronically indexed file. Submit on digital media.

E. Record Drawings: Submit one (1) set of marked-up record prints.

F. Record Digital Data Files: Submit data file and one (1) set(s) of plots.

G. Record Product Data: Submit one paper copy and annotated PDF electronic files and directories of each submittal.

3. SUBSTANTIAL COMPLETION PROCEDURES

A. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.

B. Submittals Prior to Substantial Completion: Before requesting Substantial Completion inspection, complete the following:

1. Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other sections, including project record documents, operation and maintenance manuals, property surveys, similar final record information, warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
3. Submit maintenance material submittals specified in other sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect.
4. Submit test/adjust/balance records.
5. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Before requesting Substantial Completion inspection, complete the following:

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.
5. Advise Owner of changeover in heat and other utilities.
6. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
7. Remove temporary facilities and controls.
8. Complete final cleaning requirements, including touchup painting.
9. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will proceed with inspection or advise Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will advise Contractor of items that must be completed or corrected before certificate will be issued.

4. FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting inspection for determining final completion, complete the following:

1. Submit a final Application for Payment.

2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.

B. Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare final Certificate for Payment after inspection or will advise Contractor of items that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

2.PRODUCTS

1. MATERIALS

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

B. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

2. OPERATION AND MAINTENANCE DOCUMENTATION

A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information.

B. Organization: Unless otherwise indicated, organize manual into separate sections for each system and subsystem, and separate sections for each piece of equipment not part of a system.

C. Organize data into three-ring binders with identification on front and spine of each binder, and envelopes for folded drawings. Include the following:

1. Manufacturer's operation and maintenance documentation.
2. Maintenance and service schedules.
3. Maintenance service contracts. Include name and telephone number of service agent.
4. Emergency instructions.
5. Spare parts list and local sources of maintenance materials.
6. Wiring diagrams.

7. Copies of warranties. Include procedures to follow and required notifications for warranty claims.

3. RECORD DRAWINGS

A. Record Prints: Maintain a set of prints of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued. Mark to show actual installation where installation varies from that shown originally. Accurately record information in an acceptable drawing technique.

1. Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings.

1. Format: Annotated PDF electronic file.

3.EXECUTION

1. EXAMINATION AND PREPARATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning site work, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

B. Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance.

1. Verify compatibility with and suitability of substrates.
2. Examine roughing-in for mechanical and electrical systems.
3. Examine walls, floors, and roofs for suitable conditions.

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

D. Take field measurements as required to fit the Work properly. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication.

E. Verify space requirements and dimensions of items shown diagrammatically on Drawings.

2. CONSTRUCTION LAYOUT AND FIELD ENGINEERING

A. Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks.

B. Engage a professional engineer to lay out the Work using accepted surveying practices.

C. Engage a professional engineer to prepare a final property survey showing significant features (real property) for Project.

1. At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3. INSTALLATION

A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
3. Maintain minimum headroom clearance of 96 inches (2440 mm) in occupied spaces and 90 inches (2300 mm) in unoccupied spaces.

B. Comply with manufacturer's written instructions and recommendations.

C. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

D. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed.

E. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place. Where size and type of attachments are not indicated, verify size and type required for load conditions.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.

F. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

G. Use products, cleaners, and installation materials that are not considered hazardous.

4. CUTTING AND PATCHING

A. 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. Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

D. Cutting: Cut in-place construction using methods least likely to damage elements retained or adjoining construction.

1. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

E. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.

1. Restore exposed finishes of patched areas and extend finish restoration into adjoining construction in a manner that will minimize evidence of patching and refinishing.
2. 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.
3. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

5. CLEANING

A. Clean Project site and work areas daily, including common areas. Dispose of materials lawfully.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
3. Remove debris from concealed spaces before enclosing the space.

B. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion:

1. Clean Project site, yard, and grounds, in areas disturbed by construction activities. Sweep paved areas; remove stains, spills, and foreign deposits. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
2. Sweep paved areas broom clean. Remove spills, stains, and other foreign deposits.
3. Remove labels that are not permanent.
4. Clean transparent materials, including mirrors. Remove excess glazing compounds.
5. Clean exposed finishes to a dust-free condition, free of stains, films, and foreign substances. Sweep concrete floors broom clean.
6. Vacuum carpeted surfaces and wax resilient flooring.

7. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and foreign substances. Clean plumbing fixtures. Clean light fixtures, lamps, globes, and reflectors.
8. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

6. OPERATION AND MAINTENANCE MANUAL PREPARATION

A. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

B. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

1. Prepare supplementary text if manufacturers' standard printed data are unavailable and where the information is necessary for proper operation and maintenance of equipment or systems.

C. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams.

7. DEMONSTRATION AND TRAINING

A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system. Include a detailed review of the following:

1. Include instruction for basis of system design and operational requirements, review of documentation, emergency procedures, operations, adjustments, troubleshooting, maintenance, and repairs.

END OF SECTION 01 70 00

SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

1.GENERAL

1. SECTION REQUIREMENTS

A. Action Submittals:

1. Waste Management Plan: Submit plan within 30 (thirty) days of date established for commencement of the Work.

B. Informational Submittals:

1. Waste Reduction Progress Reports: Submit concurrent with each Application for Payment. Include total quantity of waste, total quantity of waste salvaged and recycled, and percentage of total waste salvaged and recycled.
2. Records of Donations and Sales: Receipts for salvageable waste donated or sold to individuals and organizations. . Indicate whether organization is tax exempt.
3. Recycling and Processing Facility Records: Manifests, weight tickets, receipts, and invoices.
4. Landfill and Incinerator Disposal Records: Manifests, weight tickets, receipts, and invoices.
5. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations.

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

D. Waste Management Conference: Conduct conference at Project site to comply with requirements in Section 013000 "Administrative Requirements." Review methods and procedures related to waste management.

E. Waste Management Plan: Develop a waste management plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

1. Site Construction Waste: 75% of the construction site waste to be diverted from landfills.

2. Salvaged Materials for Reuse: Identify materials that will be salvaged and reused.
3. Salvaged Materials for Sale: Identify materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
4. Salvaged Materials for Donation: Identify materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
5. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
6. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing waste management plan.

2.PRODUCTS

1. PERFORMANCE REQUIREMENTS

A. Achieve end-of-Project rates for salvage/recycling of 50 percent by weight of total nonhazardous solid waste generated by the Work.

3.EXECUTION

1. PLAN IMPLEMENTATION

A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.

1. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

2. SALVAGING DEMOLITION WASTE

A. Salvaged Items for Reuse in the Work: Clean salvaged items and install salvaged items to comply with installation requirements for new materials and equipment.

B. Salvaged Items for Sale and Donation: Not permitted on Project site.

C. Salvaged Items for Owner's Use: Clean salvaged items and store in a secure area until delivery to Owner.

D. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.

E. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs.

F. Plumbing Fixtures: Separate by type and size.

G. Lighting Fixtures: Separate lamps by type and protect from breakage.

3. RECYCLING WASTE

A. General: Recycle paper and beverage containers used by on-site workers.

B. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

C. Asphaltic Concrete Paving: Grind asphalt to maximum 4-inch (100-mm) size.

D. Asphaltic Concrete Paving: Break up and transport paving to asphalt-recycling facility.

E. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.

1. Pulverize concrete to maximum 4-inch (100-mm) size.

F. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.

1. Pulverize masonry to maximum 4-inch (100-mm) size.
2. Clean and stack undamaged, whole masonry units on wood pallets.

G. Wood Materials:

1. Sort and stack reusable members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.
2. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
3. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

H. Metals: Separate metals by type.

I. Roofing: Remove and dispose of membrane, nails, staples, and accessories.

J. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.

K. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.

L. Metal Suspension System: Separate metal members including trim, and other metals from acoustical panels and tile and sort with other metals.

M. Carpet: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.

1. Store clean, dry carpet in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.

N. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.

O. Conduit: Reduce conduit to straight lengths and store by type and size.

4. DISPOSAL OF WASTE

A. Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

B. Do not burn waste materials.

END OF SECTION 01 74 19

SECTION 018113 - SUSTAINABLE DESIGN REQUIREMENTS

1.GENERAL

1. SECTION REQUIREMENTS

A. Definitions:

1. Regional Materials: Materials that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles (800 km) of Project site. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value.
2. Recycled Content: The recycled content shall be determined by weight.

    a. "Post-consumer" material is defined as waste material generated by end users of the product, which can no longer be used for its intended purpose.
    b. "Pre-consumer" material is defined as material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials such as scrap generated in a process that is reclaimed in the same process that generated it.

B. Submittals:

1. Project Materials Cost Data: Provide statement indicating total cost for materials used for Project. Costs exclude labor, overhead, and profit. Include breakout of costs for plumbing, mechanical, electrical, elevators and equipment, and wood-based construction materials. Submit within 60 (sixty) days of date established for commencement of the Work.

2.PRODUCTS

1. MATERIALS

A. Provide products and procedures necessary to meet requirements of this Section. Although other Sections may specify similar requirements, the Contractor shall determine additional materials and procedures necessary to comply with this Section.

2. LOW-EMITTING MATERIALS

A. Adhesives and sealants shall comply with the following limits for VOC content:

1. Wood Glues: 30 g/L.
2. Metal-to-Metal Adhesives: 30 g/L.
3. Adhesives for Porous Materials (Except Wood): 50 g/L.
4. Subfloor Adhesives: 50 g/L.

5. Plastic Foam Adhesives: 50 g/L.
6. Carpet Adhesives: 50 g/L.
7. Carpet Pad Adhesives: 50 g/L.
8. VCT and Asphalt Tile Adhesives: 50 g/L.
9. Cove Base Adhesives: 50 g/L.
10. Gypsum Board and Panel Adhesives: 50 g/L.
11. Rubber Floor Adhesives: 60 g/L.
12. Ceramic Tile Adhesives: 65 g/L.
13. Multipurpose Construction Adhesives: 70 g/L.
14. Fiberglass Adhesives: 80 g/L.
15. Contact Adhesive: 80 g/L.
16. Structural Glazing Adhesives: 100 g/L.
17. Wood Flooring Adhesive: 100 g/L.
18. Structural Wood Member Adhesive: 140 g/L.
19. Single-Ply Roof Membrane Adhesive: 250 g/L.
20. Special-Purpose Contact Adhesive (contact adhesive that is used to bond melamine covered board, metal, unsupported vinyl, PTFE, ultra-high molecular weight polyethylene, rubber or wood veneer 1/16 inch or less in thickness to any surface): 250 g/L.
21. Top and Trim Adhesive: 250 g/L.
22. Plastic Cement Welding Compounds: 250 g/L.
23. ABS Welding Compounds: 325 g/L.
24. CPVC Welding Compounds: 490 g/L.
25. PVC Welding Compounds: 510 g/L.
26. Adhesive Primer for Plastic: 550 g/L.
27. Sheet-Applied Rubber Lining Adhesive: 850 g/L.
28. Aerosol Adhesive, General-Purpose Mist Spray: 65 percent by weight.
29. Aerosol Adhesive, General-Purpose Web Spray: 55 percent by weight.
30. Special-Purpose Aerosol Adhesive (All Types): 70 percent by weight.
31. Other Adhesives: 250 g/L.
32. Architectural Sealants: 250 g/L.
33. Nonmembrane Roof Sealants: 300 g/L.
34. Single-Ply Roof Membrane Sealants: 450 g/L.
35. Other Sealants: 420 g/L.
36. Sealant Primers for Nonporous Substrates: 250 g/L.
37. Sealant Primers for Porous Substrates: 775 g/L.
38. Modified Bituminous Sealant Primers: 500 g/L.
39. Other Sealant Primers: 750 g/L.

B. Exterior adhesives and sealants shall comply with Green Seal's GS-36 and the following limits for VOC content:

1. Construction Adhesives: 75 g/L.
2. Reactive sealants: 50 g/L.
3. Other Caulks and Sealants: 30 g/L.
4. Contact Adhesives: 480 g/L.

C. Interior adhesives and sealants shall comply with Green Seal's GS-36 and with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

D. Paints and coatings shall comply with the following limits for VOC content:

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints, Coatings: 150 g/L.
3. Dry-Fog Coatings: 400 g/L.
4. Primers, Sealers, and Undercoaters: 200g/L.
5. Anticorrosive and Antirust Paints Applied to Ferrous Metals: g/L.
6. Zinc-Rich Industrial Maintenance Primers: 340 g/L.
7. Pretreatment Wash Primers: 420 g/L.
8. Clear Wood Finishes, Varnishes: 350 g/L.
9. Clear Wood Finishes, Lacquers: 550 g/L.
10. Floor Coatings: 100 g/L.
11. Shellacs, Clear: 730 g/L.
12. Shellacs, Pigmented: 550 g/L.
13. Stains: 250 g/L.

E. Composite wood and agrifiber products and adhesives shall not contain urea-formaldehyde resin.

3.EXECUTION

1. REFRIGERANT REMOVAL

A. Remove CFC-based refrigerants from existing HVAC&R equipment indicated to remain and replace with refrigerants that are not CFC based. Replace or adjust existing equipment to accommodate new refrigerant.

2. CONSTRUCTION INDOOR-AIR-QUALITY MANAGEMENT

A. Comply with SMACNA's "SMACNA IAQ Guideline for Occupied Buildings under Construction."

1. If Owner authorizes use of permanent heating, cooling, and ventilating systems during construction period as specified in Section 015000 "Temporary Facilities and Controls," install filter media having a MERV 8 according to ASHRAE 52.2 at each return-air inlet for the air-handling system used during construction.
2. Replace all air filters immediately prior to occupancy.

B. After construction ends, prior to occupancy and with all interior finishes installed, perform a building flush-out by supplying a total volume of 14000 cu. ft. (4 300 000 L) of outdoor air per sq. ft. (sq. m) of floor area while maintaining an internal temperature of at least 60 deg F (16 deg C) and a relative humidity no higher than 60 percent.

END OF SECTION 01 81 13

01 86 00 PERFORMANCE REQUIREMENTS

1.GENERAL

1. SECTION REQUIREMENTS

A. Building Envelope Requirements, Comply with:

1. IgCC 2018

2. ASHRAE/ANSI/IESNA 90.1

a. Roof : Existing No Change

b. Exterior Wall: R-20

c. Floor: N/A

d. Operable Fenestration: Assembly Max U value: 0.45/ Assembly Max SHGC 0.33

e. Exterior Doors: U-0.370

3. IBC 2018

B. Energy Star® Appliances Required per IgCC:

END OF SECTION 01 86 00

SECTION 02 41 00 - SELECTIVE DEMOLITION

1.GENERAL

1. SECTION REQUIREMENTS

A. Items indicated to be removed and salvaged remain Owner's property. Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner[ready for reuse]. Include fasteners or brackets needed for reattachment elsewhere.

B. Pre-demolition Photographs: Show existing conditions of adjoining construction and site improvements. Submit before Work begins.

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

D. It is not expected that hazardous materials will be encountered in the Work. If hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

2.PRODUCTS

1. PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with EPA regulations and with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

3.EXECUTION

1. DEMOLITION

A. Maintain services/systems indicated to remain and protect them against damage during selective demolition operations. Before proceeding with demolition, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of the building.

B. Locate, identify, shut off, disconnect, and seal or cap off indicated utility services and mechanical/ electrical systems serving areas to be selectively demolished.

C. Refrigerant: Remove refrigerant from mechanical equipment to be selectively demolished according to 40 CFR 82 and regulations of authorities having jurisdiction.

D. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

E. Protect walls, ceilings, floors, and other existing finish work that are to remain. Erect and maintain dustproof partitions. Cover and protect furniture, furnishings, and equipment that have not been removed.

F. 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.

G. Provide temporary weather protection to prevent water leakage and damage to structure and interior areas.

H. Requirements for Building Reuse:

1. Maintain existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing, excluding window assemblies and nonstructural roofing material) not indicated to be demolished; do not demolish such existing construction beyond indicated limits.
2. Maintain existing interior nonstructural elements (interior walls, doors, floor coverings, and ceiling systems) not indicated to be demolished; do not demolish such existing construction beyond indicated limits.

I. 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.

J. Remove demolition waste materials from Project site[and legally dispose of them in an EPA-approved landfill]. Do not burn demolished materials.

K. 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 02 41 00

SECTION 02 41 20 CUTTING AND PATCHING

1.GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

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

B. Related Sections include the following:

1. Division 2 Section "Selective Demolition" for demolition of selected portions of the building for alterations.
2. Division 7 Section "Through-Penetration Fire-stop Systems" for patching fire-rated construction.
3. Divisions Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

a. Requirements in this Section apply to mechanical and electrical installations. Refer to mechanical and electrical sections and the Documents for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

3. DEFINITIONS

A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

4. SUBMITTALS

A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 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 Existing 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. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service 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.

5. 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.

1. Primary operational systems and equipment.
2. Air or smoke barriers.
3. Fire-protection systems.
4. Control systems.
5. Communication systems.
6. Conveying systems.
7. Electrical wiring systems.
8. Operating systems of special construction in Division 13 Sections.

C. Miscellaneous Elements: Do not cut and patch the following 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.

1. Water, moisture, or vapor barriers.
2. Membranes and flashings.
3. Exterior curtain-wall construction.
4. Equipment supports.
5. Piping, ductwork, vessels, and equipment.
6. Noise- and vibration-control elements and systems.

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. If possible, retain original Installer or fabricator to cut and patch exposed Work listed below. If it is impossible to engage original Installer or fabricator, engage another recognized, experienced, and specialized firm.

a. Processed concrete finishes.
b. Ornamental metal.
c. Matched-veneer woodwork.
d. Preformed metal panels.
e. Roofing.
f. Fire-stopping.
g. Wall covering.
h. HVAC enclosures, cabinets, or covers.

E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

6. 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.

2.PRODUCTS

1. MATERIALS

A. General: Comply with requirements specified in other Sections of these Specifications.

B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing 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 existing materials.

3.EXECUTION

1. 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 existing finishes or primers.
2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

2. PREPARATION

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

B. Protection: Protect existing 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 Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to avoid interruption of services to occupied areas.

3. 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 existing 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 existing 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. Existing 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 of these Specifications.

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 existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

    a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang existing 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.

END OF SECTION 02 41 20

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 GENERAL 1.01

REFERENCES

A. American Concrete Institute:
   1. ACI 301 - Specifications for Structural Concrete for Buildings.
   2. ACI 303 - Guide to Cast-in-Place Architectural Concrete Practice.

1.03 SUBMITTALS

A. Product Data: Submit manufacturer's product data, installation (application) instructions and Material Safety Data Sheet for release agents. Retain following for precast/ prestressed concrete.
B. Shop Drawings: Indicate surfaces to receive Architectural Grade specifications.
C. References: Submit copies of Cresset Concrete Standards.
D. Qualifications: Submit copy of producer's certification.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Release Agents: Deliver in original, sealed containers. Prevent water or ice from collecting on drum tops; if outside, store drums horizontally. Store water-based release agents at 35°F to 100°F (2°C to 38°C).

1.05 QUALITY ASSURANCE

A. Cast-in-Place Concrete: Comply with ACI 301 and ACI 303 except where otherwise indicated.

B. Mock-Up:

1. Construct wall not less that 4 x 4 feet (1.5 x 1.5 m) at location selected by Architect. Use materials and workmanship proposed for Architectural Grade surfaces.
2. Accepted mock-up establishes a range of acceptable visual performance for Architectural Grade concrete.
3. At conclusion of Work, mock-up [shall be removed from Site.] [may remain as part of Work.] D. Pre-Installation Conference: Conduct conference to review scheduling and methods employed to assure quality of Architectural Grade concrete. Discuss coordination of release agent application, formwork and steel erection, inspection, placing of concrete, protection of forms and protection of hardened concrete to avoid contamination of release agent and damaging hardened concrete.

PART 2 PRODUCTS

2.01 FORMWORK MATERIALS

For CCS-1 or CCS-2 Architectural Grade surfaces, form surface must b 1e non-porous material such as exterior grade plywood coated with 5 layers of epoxy or urethane paint, HDO plywood, steel, fiberglass, most plastic coverings and form liners; do not use B-B plywood or aluminum.

2.02 RELEASE AGENT

A. Basis of Design:

1. Crete-Lease Release Agents manufactured by Cresset Chemical Company; One Cresset Center, Box 367,Weston, OH 43569; fax 419·669·2200; phone 800-367-2020 (http://www.cresset.com, e-mail: cresset@cresset.com).
2. Substitutions: Submit substitution requests in accordance with Instructions to Bidders. Include installation instructions and test reports documenting that proposed release agent can provide Architectural Grade surface.
3. Crete-Lease 20-VOC-Xtra Release Agent is water-based (an emulsion) and can be used for CCS-1, CCS-2 and CCS-3 surfaces. It produces these good looking surfaces despite over application, and it is compatible with extruded or expanded polystyrene foam and natural rubber latex form liners. It is water-based, biodegradable, non-flammable and non-combustible and it cannot be applied to forms at temperatures below freezing.
4. Concrete Solutions That Go Beyond The Surface. See Cresset product literature for additional information.

B. PRODUCT:

1. Release agent shall be capable of releasing forms from hardened concrete without staining concrete or forming bugholes and other surface defects in excess of specified Architectural Grade surface, compatible with concrete and form materials, non-toxic, and in compliance with applicable VOC and other environmental standards. Release agent shall react chemically with concrete surface to facilitate release. Products containing diesel oil are not acceptable.
2. Provide Crete-Lease 20-VOC Release Agent as selected by Contractor in accordance with manufacturer's recommendations for conditions of use] Flat spray tips produce droplets 75% smaller than ordinary cone spray tips and make it easier to apply ultra-thin films of release agent required for Architectural Grade surfaces. Sprayers designed for applying concrete curing compounds apply ten times too much release agent and should not be permitted for producing high visual impact surfaces.
3. Application Equipment: For Architectural Grade surface, use spray equipment complying with release agent manufacturer's instructions and spray tips that produce flat spray pattern.

PART 3 EXECUTION

Cast-in-Place Concrete:

1. Install forms for sides of walls not receiving Architectural Grade surface first. After reinforcing steel, etc. is erected, then install architectural grade formwork.
2. Form joints shall be water tight. Joints can be sealed with tape or with caulk. Consider using rustication or reveal strips to hide form ties and taped joints between sections of forms.
3. Apply form release as specified below.
4. If a CCS-1 or CCS-2 surface is required, cover treated forms with plastic sheets to protect from precipitation, dust, and debris.

5. If architectural grade formwork must be installed first, then protect treated side (with plastic sheets) so that the process of erecting the reinforcing steel does not damage the treated surfaces.
6. After reinforcing steel, etc. is erected, apply release agent to forms for opposite (architectural grade) side of wall before installing form sections into wall. Handle sections in such a way as to minimize contamination of form release.
7. If additional form release has to be installed after forms are in place, avoid overspraying form release onto reinforcement.
8. Remove plastic sheet from Architectural Grade face, and apply protection to top of forms until ready to place concrete.
9. Specify patching of form-tie holes and removal of fins caused by improperly sealed form joints consistent with desired Architectural Grade surfaces. Precast Concrete: At Specifier's option, application of release agent can be moved to Part 2 and included in Fabrication.

3.01 RELEASE AGENT

A. Architectural Grade Surface:
   1. Form Preparation: Form surfaces shall be clean and dry. Remove traces of concrete build-up from form surfaces before applying release agent. 2.
   2. Spray apply continuous uniform film free from runs.
   3. Appearance: Comply with CCS to provide: Concrete Solutions That Go Beyond The Surface.
      a. CCS-1: Apply film thickness less than 0.0005 inch. (0.013 mm). Wipe off excess release agent with clean, soft flannel cloth moistened (not wet) with release agent.]
      b. [CCS-2: Apply 0.0005 to 0.0010 inch (0.013 to 0.025 mm) film thickness.]
      c. [CCS-3: Apply 0.0010 to 0.0025 inch (0.025 to 0.064 mm) film thickness.]
   4. Avoid overspray on reinforcing materials. Remove overspray on reinforcing materials within 24 hours using degreasing solvent recommended by release agent manufacturer.
   5. Do not apply more than 14 days before placing concrete. Do not apply water-based release agents when ambient or material temperatures are below freezing.
   6. Touch up forms, if necessary, using clean, soft flannel cloth moistened (not wet) with release agent.
   7. Protect treated forms from dust, debris and precipitation. Before placing concrete, inspect in-place, erected and treated forms; remove contamination and touch-up forms as required.

C. Schedule of Concrete Surfaces:
   1. Architectural Grade: Exposed to view concrete surfaces

SECTION 04 20 00 - UNIT MASONRY

1.GENERAL

1. SECTION REQUIREMENTS

A. Furnish face brick to match the existing brick water table and special shaped water table brick.

B. See Structural Drawings for furnishing steel lintels and shelf angles for unit masonry.

C. Submittals:

1. Samples for face brick, special shaped brick, and colored mortar.
2. Material Certificates: For each type of product indicated. Include statements of material properties indicating compliance with requirements.

2.PRODUCTS

1. UNIT MASONRY

A. Comply with ACI 530.1/ASCE 6/TMS 602.

2. MASONRY UNITS

A. Concrete Masonry Units: Refer to Structural Drawings.

B. Face Brick: To Match building

1. Products:

a. Watsontown: Pennsylvania Molded ALVERTON

b. Size: Match Existing and provide sample.

2. Special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.
   a. Special shaped water table brick cap and brick for outside and inside corners, Height to match.

3. MORTAR AND GROUT

A. Mortar: ASTM C 270, proportion specification.

1. Colored Mortar: For face brick, use colored cement or cement-lime mix of color to match existing brick mortar. MORTAR COLOR: WR 2320

B. Grout: ASTM C 476 with a slump of 8 to 11 inches (200 to 280 mm)

C. Refractory Mortar: Ground fireclay mortar or other refractory mortar that passes ASTM C 199 test and is acceptable to authorities having jurisdiction.

4. REINFORCEMENT, TIES, AND ANCHORS

1. Refer to Structural Drawings.

5. EMBEDDED FLASHING MATERIALS

A. Laminated Flashing: Copper sheet 7 oz./sq. ft. (2 kg/sq. m), bonded with asphalt between two layers of glass-fiber cloth. Use only where flashing is fully concealed.

1. Products One of the following:

a. Advanced Building Products Inc.; Copper Fabric Flashing
b. Dayton Superior Corporation, Dur-O-Wal Division; Copper Fabric Thru-Wall Flashing.
c. Hohmann & Barnard, Inc.; H & B C-Fab Flashing.
d. Phoenix Building Products; Type FCC-Fabric Covered Copper.
e. Sandell Manufacturing Co., Inc.; Copper Fabric Flashing.
f. York Manufacturing, Inc.; Multi-Flash 500.

6. MISCELLANEOUS MASONRY ACCESSORIES

A. Compressible Filler: Pre-molded strips complying with ASTM D 1056, Grade 2A1.

B. Preformed Control-Joint Gaskets: Designed to fit standard sash block and to maintain lateral stability in masonry wall; made from styrene-butadiene rubber or PVC.

C. Weep Holes: Free-draining polyethylene mesh, full height and width of head joint.

D. Cavity Drainage Material: Free-draining polymer mesh, full depth of cavity with dovetail shaped notches that prevent mortar clogging.

1. Products: One of the following:

a. Advanced Building Products Inc.; Mortar Break II.
b. Archovations, Inc.; CavClear Masonry Mat.
c. Dayton Superior Corporation, Dur-O-Wal Division; Polytite MortarStop.

d. Mortar Net USA, Ltd.; Mortar Net.

E. Proprietary Acidic Masonry Cleaner: Product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units.

1. Manufacturers:[One of the following:]

a. Diedrich Technologies, Inc.
b. EaCo Chem, Inc.
c. ProSoCo, Inc.

3.EXECUTION

1. INSTALLATION, GENERAL

A. Cut masonry units with saw. Install with cut surfaces and, where possible, cut edges concealed.

B. Mix units for exposed unit masonry from several pallets or cubes as they are placed to produce uniform blend of colors and textures.

C. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

D. Stopping and Resuming Work: Rack back units; do not tooth.

E. Fill cores in hollow concrete masonry units with grout 24 inches (600 mm) under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

F. Build non-load-bearing interior partitions full height and install compressible filler in joint between top of partition and underside of structure above.

G. Tool exposed joints slightly concave when thumbprint hard unless otherwise indicated.

H. Keep cavities clean of mortar droppings and other materials during construction.

I. Set firebox brick in full bed of refractory mortar with full head joints. Make joints approximately 1/8 inch (3 mm) wide and tool smooth.

J. Set clay flue liners in full beds of refractory mortar to comply with ASTM C 1283.

2. LINTELS

A. Install lintels where indicated.

B. Minimum bearing of 8 inches (200 mm) at each jamb unless otherwise indicated.

3. FLASHING AND WEEP HOLES

A. Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to the downward flow of water in the wall, and where indicated.

B. Place through-wall flashing on sloping bed of mortar and cover with mortar. Seal penetrations in flashing before covering with mortar.

1. Extend flashing 4 inches (100 mm) into masonry at each end and turn up 2 inches (50 mm) to form a pan.

C. Trim wicking material used in weep holes flush with outside face of wall after mortar has set.

4. PARGING

A. Parge masonry walls, where indicated, in two uniform coats with a steel-trowel finish. Form a wash at top of parging and a cove at bottom. Damp cure parging for at least 24 hours.

5. FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections required by authorities having jurisdiction.

1. Inspections: [Level 1] [Level 2] special inspections according to the IBC.
2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.

6. CLEANING

A. Clean masonry as work progresses. Remove mortar fins and smears before tooling joints.

B. Final Cleaning: After mortar is thoroughly cured, clean exposed masonry.

1. Wet wall surfaces with water before applying acidic cleaner, then remove cleaner promptly by rinsing thoroughly with clear water.
2. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.

END OF SECTION 04 20 00

SECTION 04 20 99 -BRICK CLEANING

Test a 10 ft by 10 ft area of the building using method A. If the brick is not satisfactorily clean, then apply method B first using the lowest pressure indicated in B.

A. **Bucket and Brush Hand Cleaning**.

This cleaning method is the least aggressive of the methods listed here and is applicable to virtually all brick types. Hot water (temperature of 120 °F [49 °C]) can be used to improve effectiveness of cleaning with water.

B. **Pressurized Water Cleaning.** Cleaning contractors often use pressurized water because it is less labor intensive than bucket and brush cleaning and permits large areas to be cleaned much more quickly. Pressurized water cleaning permits the operator to spray clean water on a wall over 100 ft (30 m) from the tank and compressor. However, the method requires more skill than the bucket and brush method, because effective results depend on maintaining a consistent, appropriate pressure, water flow rate, distance from the wall, and angle between the nozzle and the wall. It is also important to use uniform horizontal strokes. The effects of pressurized water cleaning on each project or type of brick should be carefully considered, because excessive pressure may damage brick surfaces, erode mortar joints, and remove finishes or other surface coatings, resulting in a different appearance.

The following definitions apply for pressurized water cleaning:

- Very low pressure: Less than 100 psi (700 kPa); 4 to 6 gal per minute (15 to 23 L per minute).
- Low pressure: 100 to 400 psi (700 to 2800 kPa); 4 to 6 gal per minute (15 to 23 L per minute).
- Medium pressure: 400 to 800 psi (2800 to 5600 kPa); 4 to 6 gal per minute (15 to 23 L per minute). Medium pressure water cleaning may be appropriate in some cases, with certain types of brick. Use only if permitted by the brick manufacturer.
- High pressure: Greater than 800 psi (5600 kPa). High-pressure water cleaning is not appropriate for brick and may damage the brickwork.

Pressures should be measured at the tip of the nozzle to determine conformance.
Use a 25 to 50 deg. fan-shaped stainless steel nozzle tip, and maintain a distance of 12 in. (305 mm) minimum between the nozzle tip and the brick surface. Hot water can also be used in pressurized water cleaning. However, note that some pressure-washing equipment may not be capable of providing or using hot water.

General Cleaning Procedure The following general cleaning procedure is applicable to a variety of cleaning methods and is commonly used for new brickwork, as well as for existing masonry.

1. Timing. Identify the appropriate time frame to begin cleaning. Mortar must be hardened prior to cleaning. It is generally best to schedule cleaning at least seven days after brickwork is completed. In some cases, it may be possible to clean earlier; however, effects on the masonry and influencing factors such as weather conditions and the type of brick and mortar should be carefully considered. If cleaning with water only (no chemicals added), cleaning may begin 24 to 36 hours after completion of brickwork. Avoid waiting too long between the completion of the masonry and cleaning. After one month, mortar smears and splatters left on brickwork become increasingly difficult to remove.

2. Remove Mortar Clumps. Remove larger clumps of mortar using wooden paddles or nonmetallic tools. Metal tools may damage the brickwork or leave behind fragments that oxidize and cause rust stains. Remove smaller particles using a fiber bristle brush.

3. Select Cleaning Solution. Select the proper cleaning solution for the condition/application. There are many types of proprietary cleaners available that are formulated to remove specific stains or are for use with a particular type of brick. Be careful to select cleaning products suitable for the brick, mortar and adjacent materials. Strictly follow the cleaner manufacturer's recommended instructions, including recommendations for cleaning procedure direction (top-down or bottom-up) during all stages of the project, such as saturating the wall, applying the cleaning solution and rinsing. Verify compatibility of the cleaning solution with the application equipment to be used. The cleaning solution should be approved by the architect/engineer and/or brick manufacturer. Each product being considered should be evaluated as discussed in "Trial Cleaning."

It is recommended to evaluate the effectiveness of cleaning solutions for overall cleaning, starting from the gentlest solution and method, in the following order:

a. Water only
b. Mild detergents/surfactants
c. One-step chemical cleaners
d. Two-step chemical cleaners

Treatment of specific stains does not necessarily need to follow this order of cleaning solution application, but the overall premise of starting with gentler cleaning methods still applies. If overall cleaning will be performed on the project, then complete it prior to treatment of the specific stains. The overall cleaning may reduce the intensity or area of the specific stain, allowing the stronger chemicals to be used on a smaller area.

Do not use unbuffered muriatic (hydrochloric) or hydrofluoric acid. Use of unbuffered high-strength acid solutions such as these tends to cause further stains and damage mortar joints. Many proprietary cleaners contain acids; however, their formulations include other chemicals that make them safer, easier to use properly and more environmentally responsible. Be aware that some cleaning solutions use compounds that will convert to these acids when combined with water. Review product safety data sheets to determine whether these compounds are present.

4. Protect Surroundings. Protect adjacent materials and nearby plants. Mask or otherwise protect windows; doors; and materials such as sealants, metal, glass, wood, limestone, cast stone, concrete masonry and ornamental trim from cleaning solutions. Cleaning chemicals may also damage plants and grass. It may be necessary to prevent the cleaning solution and runoff from contacting plants or the surrounding soil. Use protective clothing, equipment and accessories, in addition to proper ventilation and safe handling procedures in accordance with OSHA requirements to protect applicators.

5. Saturate with Water. Thoroughly saturate the area to be cleaned with water to keep it from absorbing the cleaning solution or dissolved mortar particles to a depth where they will be difficult to remove. When using pressurized water, a very low pressure (no more than 100 psi [700 kPa]) is recommended. Surfaces below the area being cleaned should also be saturated and kept wet until after the final rinse to prevent streaking and absorption of the runoff from above. If the wall surface appears to be drying, then reapply water until ready to apply the cleaning solution. Cleaning solutions containing dissolved mortar particles can be drawn into dry masonry and cause staining.

6. Apply Cleaning Solution. Mix and apply the cleaning solution in strict accordance with the cleaner manufacturer's instructions. Clean 20 sq ft (2 m^2) of wall area at a time. The solution may be applied using a masonry cleaning brush or chemical pump/tank sprayer. Brushes should be long handled with stiff bristle fibers. Do not use metal brushes, which may damage mortar joints or result in further staining. If spraying, use a wide-angle fan-shaped sprayer nozzle tip and a pressure of 30 to 50 psi (200 to 350 kPa). No more than 50 psi (350 kPa) of pressure should be used, because higher pressure can force the cleaning solution

deep into the masonry to become a source of future staining. For proprietary compounds, follow the cleaner manufacturer's instructions for application, dwell time and cleaning technique. Depend on the chemical reaction of the cleaner rather than the scrubbing action of the brush or pressure of the sprayer. If stubborn mortar smears are not removed, reapplication is often more effective than harder scrubbing or applying more pressure.

7. Rinse Thoroughly with Water. Flush walls with large amounts of clean water, in strict accordance with the cleaner manufacturer's instructions, before cleaned surfaces can dry (approximately 5 to 10 minutes after application). For pressurized water cleaning, low pressure (less than 400 psi [2800 kPa]) is recommended to flush the cleaning solution from the brickwork. If trial cleaning or prior experience with the selected brick has established that no damage will result, then higher pressures may be used. No matter what method is used, a thorough and uniform rinse is critical. Failure to completely flush the wall of cleaning solution and dissolved matter may result in the formation of "white scum." During rinsing, monitor the appearance of the runoff. Clear runoff at the base of the wall indicates adequate rinsing. In addition, the pH of the wall surface and the water runoff should be checked periodically with pH paper to confirm that both are returned to neutral (pH 6.5 to 7.5). Additional rinsing is needed if the pH is outside these values in either direction (too acidic or too basic). Measure the pH of the wall surface again 48 hours after cleaning has been completed, when the wall is dry. If the pH is not neutral, then rinse the surface until neutral pH is achieved.

SECTION 05 50 00 NON-PENETRATING ROOFTOP SUPPORTS AND WALKWAYS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Portable, non-penetrating, rooftop support system for:

1. Walkways, Crossovers & Platform Systems.

1.2 REFERENCES

A. ASTM A 123/A – Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

B. ASTM A 653 – Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

1.3 SYSTEM DESCRIPTION

A. Support elevated walkway systems routed across the roof with an engineered prefabricated Rooftop Support Systems Walkway System designed for installation without roof penetrations, flashing, or damage to the roofing material where possible. The system shall consist of bases, made of recycled rubber, a galvanized structural steel frame, walkway planking, and handrail if required. Nuts, threaded rods, washers, spring nuts, and bolts will be electro-plated. System shall be custom designed to fit the job requirements, but not to exceed 2 psi per at each base. Walkway Systems shall be manufactured by Rooftop Support Systems.

B. Seismic and High Wind applications are available for all categories listed above.

1.5 SUBMITTALS

A. Product Data: Submit for all products proposed for use, describing physical characteristics and method of installation.

B. Shop Drawings: Show installation layout, sizes of units, and details of installation.

C. Verification Samples: Actual samples of bases, each type of support, hanger, and fasteners, and not less than 12 inches of framing members.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing support systems, with a minimum of eight years of documented experience.

B. Installer Qualifications: Company with not less than five years of experience in installation of piping support systems.

C. References: Submit list of references comprising not less than 10 installations that have been in use for a minimum of five years. Include contact name and phone numbers for each reference.

D. Pre-Installation Meeting: After approval of submittals, but before beginning installation, conduct a meeting at the project site attended by Architect, Contractor.

i. Purpose of meeting is to describe in detail the installation process and to establish agreement, coordination, and responsibilities.
ii. Prepare detailed meeting report and distribute copies to the Architect and all attendees.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver all materials to project site in manufacturer's original packaging, marked with manufacturer's name, and other related information.

B. Store materials under cover until needed for installation.

1.6 WARRANTY

A. Warranty: Rooftop Support Systems 10-year limited warranty on pregalvanized and 20-year limited warranty on HDG to repair or replace, at our option, any products we find to be structurally defective in material or workmanship. Warranty is not valid if System was modified, installed incorrectly, or not designed by Rooftop Support Systems.

B. Terms and Conditions (View/Download)

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

2.2 APPLICATIONS

A. Walkway, Crossover & Equipment Platform Access: Elevated walkway systems
shall be manufactured by Rooftop Support Systems.

Support Spacing: Indicated on diagram
Bases Recycled Rubber
Substructure: 12-gauge back-to-back channel P1001,or approved equal supported directly from the bases.
Grating: Mill-galvanized carbon steel in accordance with ASTM A525:
a. Gauge 12-ga. steel.
b. Section Width: 11-3/4 inches (standard),
c. Surface Condition: Serrated Anti-Slip
Handrail: 12-gauge, 1-5/8 inch channel P1000, or approved equal.
All substructures and handrails shall be galvanized steel. Channel nuts and bolts will be electro-plated.

B. Attachment of Base to Roof Surface when required for Seismic and High Wind Application:

1. No attachment to roof surface.
2. Mechanically fastened to roof deck.

2.3 MATERIALS

A. Rooftop Support System: Engineered, portable system specifically designed for installation without the need for roof penetrations or flashings, and without causing damage to the roofing membrane where possible.

Design system using recycled rubber, and steel framing for support is 1-5/8 inch P1000H3

Walkways and Platforms: Provide galvanized slotted metal grating, in configurations as indicated, and tubular handrails where indicated.

B. Bases: compression molded recycled rubber, conforming to the following:

Moisture Content: Negligible.
Shrinkage/Swelling Due to Moisture: Negligible.
Insect Resistance: No known insect damage potential.
Chemical Resistance (oil, brake fluid, gasoline, diesel, antifreeze, battery acid, and sulfuric acid) No visual or physical change apparent.
Sized as required by loading conditions and as indicated on the drawings.
Shop fabricated with inserts for square tubing or threaded rods as required.
Color: Integral black color as molded.
Bases for Mechanical Attachment: Solid Steel

C. Stainless Steel Framing:

Channel Types: 1-5/8 inch, or as required for loading conditions.
Thickness: 12 gauge.
Form: Roll-formed 3-sided or tubular channel.
Finish: Mill finish.
Do not use tubing or tube steel.

D. Pipe Supports and Hangers: Conform to MSS SP-58 and MSS SP-69 and as follows:

Fabricate of carbon steel where framing is carbon steel; fabricate of stainless steel where framing is stainless steel; finished same as framing.
Sizes 2-1/2 inch and smaller: Single roller supports for piping subject to expansion and contraction; 3-sided channels and pipe clamps.
Sizes 3 inch and larger: Rollers, clevis hangers, or band hangers, to allow for expansion and contraction without movement of the bases or framing.

E. Accessories: Clamps, bolts, nuts, washers, and other devices as required for a complete system.

Carbon Steel: Pregalvanized in accordance with ASTM A653
Carbon Steel: Hot-dip galvanized in accordance with ASTM A123.
Stainless Steel: Mill finish.
For Mechanical Fastening to Deck: On wood and steel decks, use bolts with steel plate to attach to deck; on concrete decks use anchors that adhere to loading requirements.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that roofing system is complete and that roof surfaces are smooth, flat, and ready to receive work of this section.

3.2 PREPARATION

A. Clean surfaces of roof in areas to receive support bases.

Sweep loose gravel from gravel surfaced roofs.
Remove dirt, dust, oils, and other foreign materials.

B. Use care in handling support system components during installation, to avoid damage to roofing, flashing, equipment, or related materials.

3.3 INSTALLATION

A. Walkway, Crossover & Equipment Platform Access:

1. Install substructures at spacing indicated, but not greater than 5 feet on center.
2. Locate bases and support framing as indicated on drawings and as specified herein.
   Provide complete and adequate support of all structures.
3. Accurately locate and align bases.
   a. Consult manufacturer of existing or new roofing system as to the type of isolation pads required between the roof and base
   b. Place or mechanically attach if required by code.
   c. Where applicable, replace gravel around bases.
4. Set legs of substructures into bases as indicated.
5. Use galvanized fasteners for galvanized framing and stainless steel fasteners for stainless steel framing.
6. Layout and fasten planking to substructures.
7. Where handrails are required, install as follows:
   d. Install intermediate rails without tightening.
   e. Make minor adjustments as needed, such as spacing of substructures to accommodate intermediate handrails, and install hold-downs.
   c. Secure intermediate handrails and install top handrails.

3.4 FIELD QUALITY CONTROL

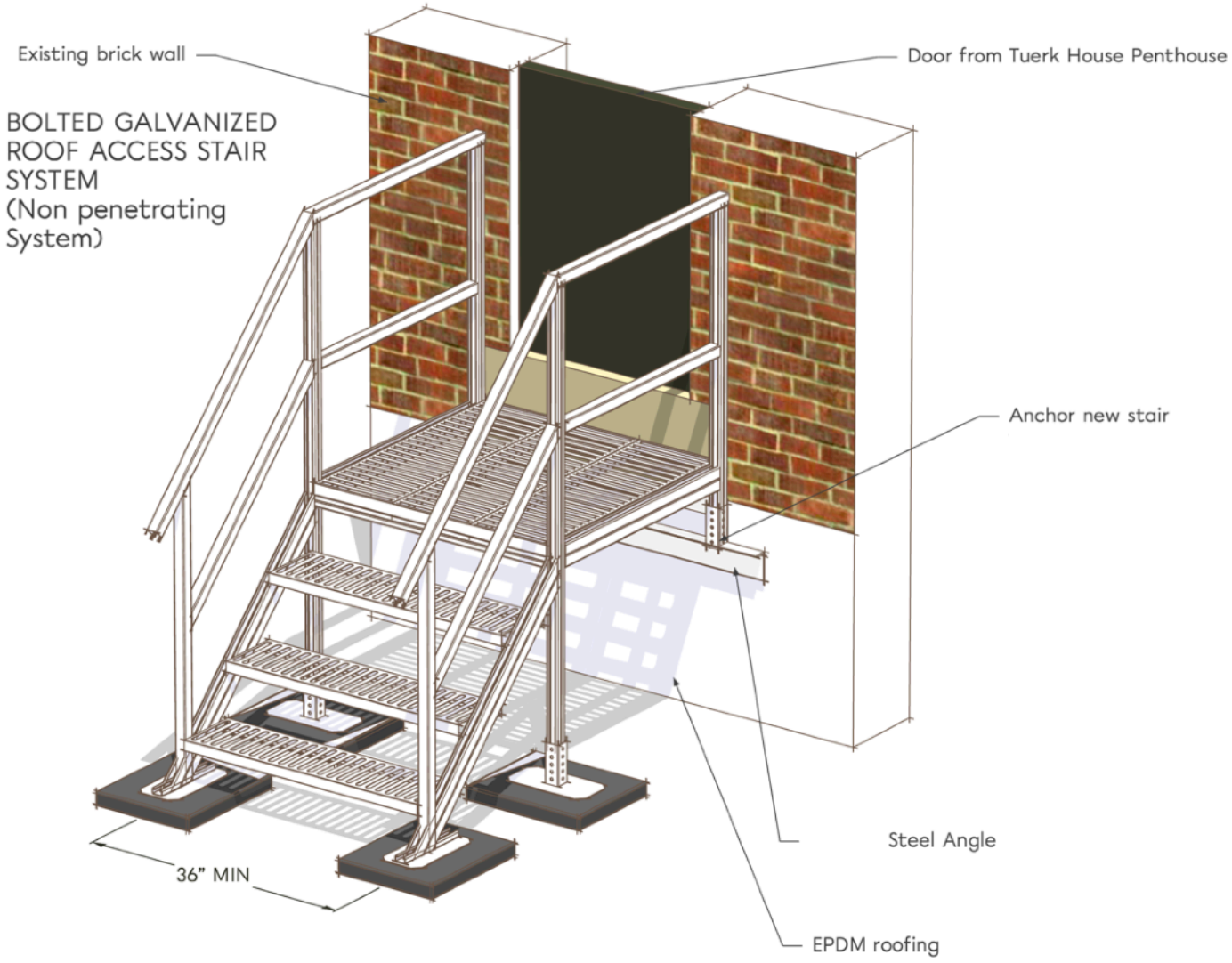
A. When requested by the Architect, provide a factory-trained representative of the manufacturer to visit the site while the work is in progress to assure that the installation conforms to the design requirements and the manufacturer's installation requirements.

1.2 CLEANING AND PROTECTION

A. Remove all packaging, unused fasteners, and other installation materials from the project site.

B. Provide protection as required to leave the work area in undamaged condition at the time of completion of work.

SK.01 Provide new stair at Tuerk House Penthouse



SECTION 07 21 00 - THERMAL INSULATION

1.GENERAL

1. SECTION REQUIREMENTS

A. Submittals: Product Data and ICC-ES evaluation reports for foam-plastic insulation.

B. Surface-Burning Characteristics: According to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

2.PRODUCTS

1. INSULATION PRODUCTS

A. Extruded-Polystyrene Board Insulation: ASTM C 578, with flame-spread and smoke-developed indexes of 75 and 450, respectively.

1. Manufacturers: One of the following:

a. DiversiFoam Products.
b. Dow Chemical Company (The).
c. Owens Corning.
d. Pactiv Building Products.

B. Foil-Faced Polyisocyanurate Board Insulation: ASTM C 1289, Type I, Class 1, with flame-spread and smoke-developed indexes of 75 and 450, respectively.

1. Manufacturers: One of the following:

a. Atlas Roofing Corporation.
b. Dow Chemical Company (The).
c. Rmax, Inc.

C. Glass-Fiber-Blanket Insulation: ASTM C 665, Type III, Class A, foil faced on one side with flame-spread and smoke-developed indexes of 25 and 450, respectively.

1. Manufacturers: One of the following:

a. CertainTeed Corporation.
b. Guardian Building Products, Inc.
c. Johns Manville.
d. Knauf Insulation.
e. Owens Corning.

D. Mineral-Fiber-Blanket Insulation: ASTM C 665, Type I, unfaced with flame-spread index of 25 or less.

E. Closed-Cell Polyurethane Foam Insulation: ASTM C 1029, Type II, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, and minimum density of 1.5 lb/cu. ft. (24 kg/cu. m).

1. Manufacturers: One of the following:

a. BASF Corporation.
b. BaySystems NorthAmerica, LLC.
c. Dow Chemical Company (The).
d. ERSystems, Inc.
e. Gaco Western Inc.
f. Henry Company.
g. NCFI; Division of Barnhardt Mfg. Co.
h. SWD Urethane Company.
i. Volatile Free, Inc.

2. ACCESSORIES

A. Vapor Retarder: Fire-retardant, reinforced polyethylene 6 mils (0.15 mm) thick.

1. Products: One of the following:

a. Raven Industries Inc.; DURA-SKRIM 6WW.
b. Reef Industries, Inc.; Griffolyn T-65.

B. Eave Ventilation Troughs: Preformed, rigid fiberboard or plastic sheets designed to fit between roof framing members and to provide cross-ventilation between insulated attic spaces and vented eaves.

3.EXECUTION

1. INSTALLATION

A. Install insulation in areas and in thicknesses indicated or required to produce R-values indicated. Cut and fit tightly around obstructions and fill voids with insulation.

B. Maintain 3-inch (76-mm) clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.

C. Install eave ventilation troughs between roof framing members in insulated attic spaces at vented eaves.

D. Except for loose-fill insulation and insulation that is friction fitted in stud cavities, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

E. Place loose-fill insulation to comply with ASTM C 1015.

1. Comply with the CIMA's Special Report #3, "Standard Practice for Installing Cellulose Insulation."

F. Spray-Applied Insulation: Apply insulation according to manufacturer's written instructions. Do not apply insulation until installation of pipes, ducts, conduits, wiring, and electrical outlets in walls is completed and items not indicated to receive insulation are masked. After insulation is applied, make flush with face of studs.

G. Install sheet radiant barriers according to ASTM C 1158.

H. Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage. Locate seams at framing members, overlap, and seal with tape. Seal joints caused by pipes, conduits, electrical boxes, and similar items with tape.

END OF SECTION 07 21 00

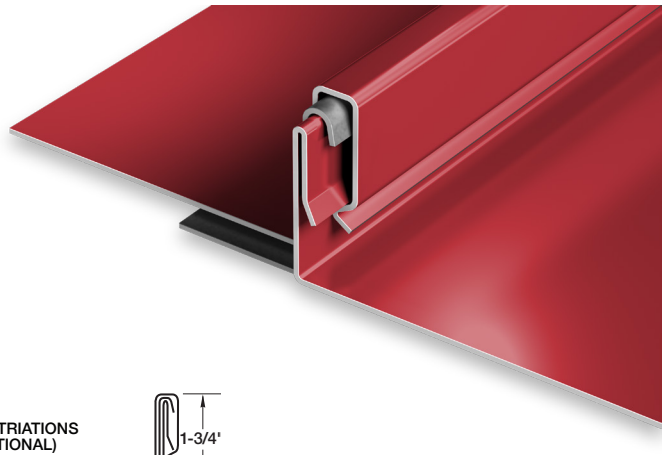
SNAP-CLAD PANEL

MATERIALS

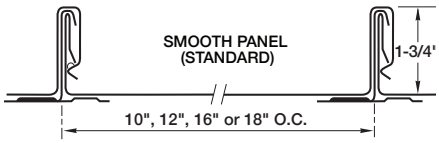
.032 aluminum 24 gauge steel
.040 aluminum 22 gauge steel

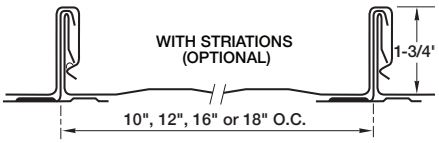
SPECS

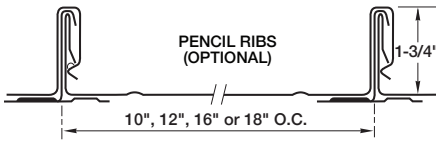
10", 12", 16" or 18" O.C. 1-3/4" High



UL-90







PRODUCT FEATURES

- Architectural/structural panel
- Factory-applied sealant available
- Continuous interlock
- Labor-saving one-piece design
- Pencil ribs upon request
- Striations upon request
- Factory eave notching available
- 30-year-non-prorated finish warranty
- Maximum factory-produced panel length is 64' (check w/factory for longer lengths)
- Weathertightness warranty available
- 43 stocked colors (24 gauge steel)
- 16 Stocked colors (22 gauge steel)
- 36 stocked colors (.032 aluminum)
- 22 stocked colors (.040 aluminum)
- Panels available in Galvalume Plus

UL CLASSIFICATION

- UL-580 Class 90 wind uplift
- UL-1897 wind uplift
- UL-790 Class A fire rated
- UL-263 fire resistance rated
- UL-2218 impact resistance rated
- UL-90 rated aluminum panel up to 16" O.C.
- UL-90 rated steel panel up to 18" O.C.

ASTM TESTS

- ASTM E1592 tested
- ASTM E283/1680 tested
- ASTM E331/1646 tested

FLORIDA BUILDING & MIAMI-DADE PRODUCT APPROVALS

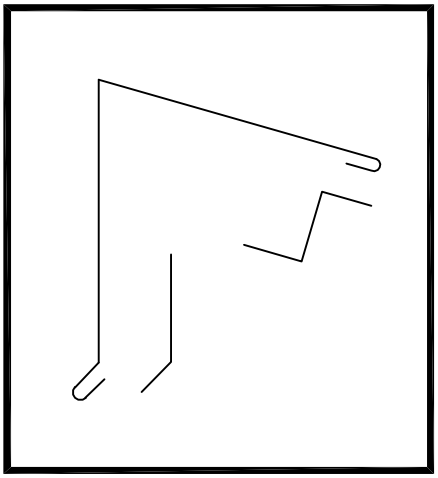
Please refer to pac-clad.com or your local factory for specific product approval numbers for Snap-Clad.

Note: UL 90 is available on steel panels up to 18" on center, and on aluminum panels up to 16" on center.

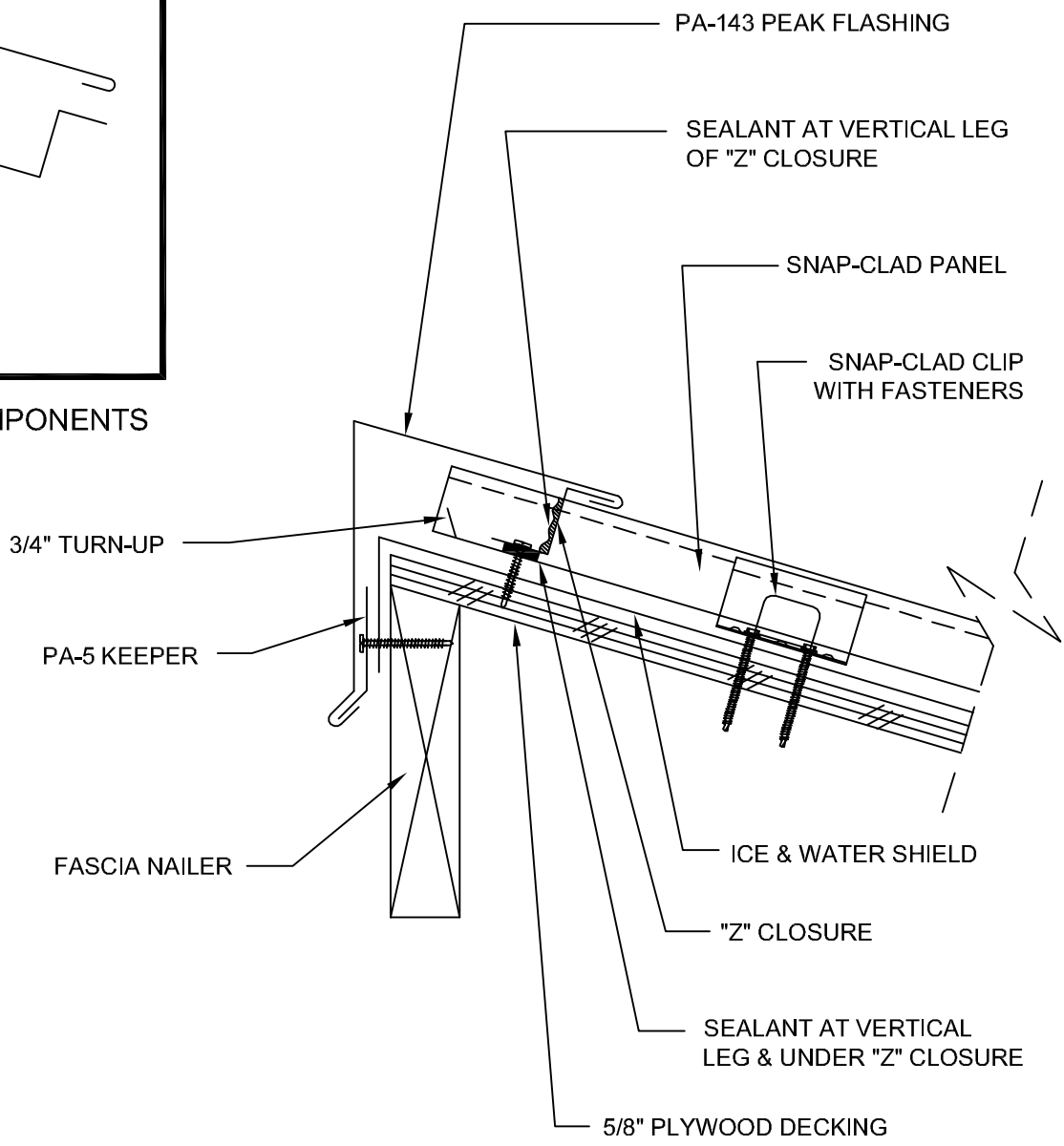
PAC-CLAD

SNAP-CLAD - PLYWOOD DECK

PEAK DETAIL



FLASHING COMPONENTS



Job Name _____ Contractor _____

Date _____ Notes _____

PETERSEN ALUMINUM CORPORATION PAC-CLAD.COM SALES@PETERSENMAIL.COM

HQ: 1005 Tonne Road
Elk Grove Village, IL 60007
P: 800-PAC-CLAD
F: 800-722-7150

9060 Junction Drive
Annapolis Junction, MD 20701
P: 800-344-1400
F: 301-953-7627

10551 PAC Road
Tyler, TX 75707
P: 800-441-8661
F: 903-581-8592

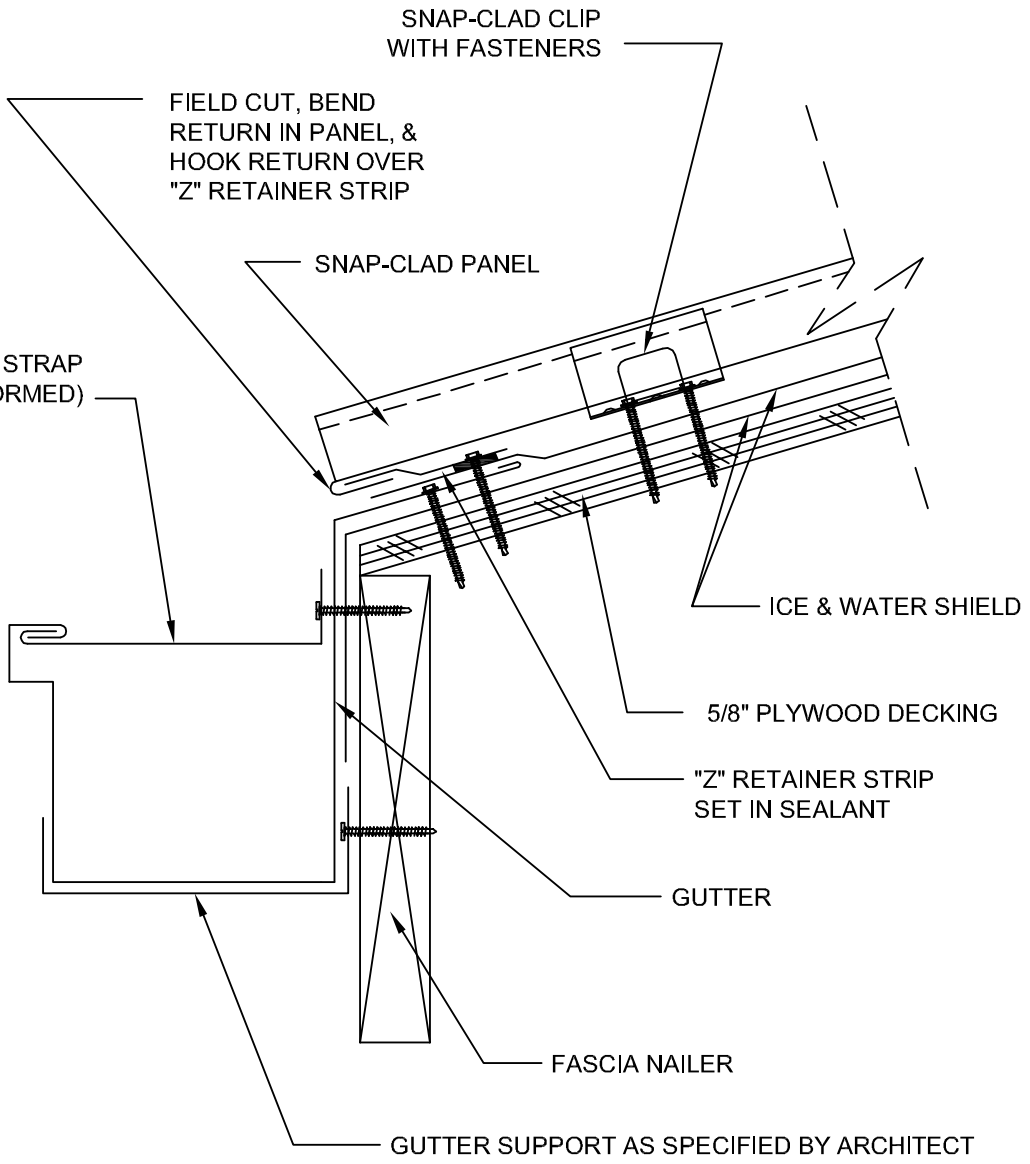
102 Northpoint Parkway
Acworth, GA 30102
P: 800-272-4482
F: 770-420-2533

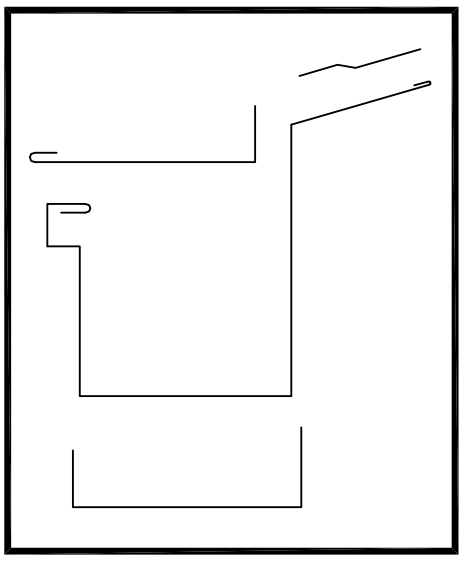
1800 S. 7th Ave., Suite 130
Phoenix, AZ 85007
P: 833-750-1935
F: 602-254-6504

1885 Station Parkway NW, Suite B
Andover, MN 55304
P: 877-571-2025
F: 866-901-2935

PAC-CLAD

SNAP-CLAD - PLYWOOD DECK
GUTTER DETAIL 1





FLASHING COMPONENTS

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SECTION 220000

GENERAL PLUMBING REQUIREMENTS

1.GENERAL

1.1. SUMMARY

A. Section includes administrative and procedural requirements for work under Division 220500.

B. Coordinate the work of this Section with the requirements of the Project.

1.2. REFERENCES

A. 2015 International Building Code

B. 2015 International Plumbing Code

C. Baltimore City Building Code

1.3. GENERAL DESCRIPTION

A. The following is a general description of the work included in the Plumbing Division and as shown on the Mechanical Drawings.

B. The work shall include, but not be limited to the following:

1. PLUMBING
   a. Sanitary piping shall be extended from fixtures, appliances and equipment requiring connection to the existing building sanitary connections.
   b. Domestic water piping shall be extended from fixtures and equipment requiring connection to the existing cold water connection.
   c. Condensate drains shall be extended from HVAC equipment to discharge indirectly into the existing storm water system. Condensate pumps shall be provided for HVAC equipment in division 23.
   d. Hot water shall be provided by existing gas fired hot water heaters located in the mechanical room.

1.4. DEFINITIONS

A. Following are definitions of terms and expressions used in the Mechanical Sections in addition to definitions found in the Contract Conditions:

1. "Piping" includes pipe, fittings, valves, hangers, and other accessories that comprise a system.

1.5. QUALITY ASSURANCE

A. Regulatory Requirements

1. Work shall conform to the requirements of the codes, laws and ordinances of Baltimore City, Maryland, National Fire Protection Association, American Society of Mechanical Engineers and other authorities having jurisdiction.
2. Comply with applicable codes, laws, standard practices.
3. The requirements of the authorities having jurisdiction shall take precedence over the Drawings and Specifications and changes required by the authorities shall be made after review by the Architect.

1.6. SUBMITTALS

A. Shop drawings are required for the following:

1. Plumbing
   a. Drains.

b. Insulation systems.
c. Plumbing Fixtures.
d. Piping.
e. Piping Specialties.
f. Piping Insulation.

B. Review of shop drawings does not relieve the Contractor of responsibility for complying with the contract documents.

1.7. PROTECTION

A. Protect material and equipment from damage.

B. Post notices prohibiting the use of water closets.

C. Provide plastic protection inserts, specifically manufactured for shower stalls.

D. Cap or plug openings in equipment and piping with proper caps and plugs.

1.8. VARIANCES

A. Where conflicts exist within the contract documents, request clarification prior to the submission of a bid. If clarification is not requested, provide the work representing the higher cost and quality.

1.9. WARRANTY

A. During the warranty period, make the proper adjustments of systems, equipment and devices installed and perform work necessary to ensure the efficient and proper operation of the systems, equipment and devices.

B. Certain items of equipment shall be warranted for a longer time than the general warranty period. Provide for service or replacement required in connection with the warranty of these items.

2.PRODUCTS

2.1. PRODUCTS TO BE USED

A. Items are specified by designations such as trade name, manufacturer's name, catalog number and indicate the capacity and quality of the products or materials to be used on this project.

B. Only products indicated on Contract Documents by name and model numbers have been coordinated with other trades. Coordinate items of other manufacturer with other trades.

2.2. MATERIALS AND WORKMANSHIP

A. Items shown and not specifically called for, or items specified and not specifically indicated or detailed on the Drawings, or items neither specified nor shown, but which are reasonably incidental to and commonly required to make a complete job, shall be provided.

2.3. FOUNDATIONS AND EQUIPMENT SUPPORTS

A. Provide foundations, supports, curbs and bases for equipment, as indicated or necessary for satisfactory installation and operation of equipment. Furnish and set anchor bolts.

B. Floor mounted stands, rods or legs, where required, shall be constructed of structural steel shapes (angles, channels) of Kindorf or Unistrut or steel pipe and fittings securely braced and fastened to flanges bolted to the floor. Minimum rod size shall be 3/8-inch diameter. Paint steel with rust inhibiting primer.

2.4. HANGERS AND PIPE SUPPORTS

A. Provide pipe hangers and supports to maintain required slope and alignment for equipment and piping. Pipe hangers shall be as manufactured by Carpenter & Patterson, Fee & Mason, Modern Hanger or Grinnell.

B. Pipes may not be supported from other pipes. Trapeze hangers may be used for parallel runs of pipe with same slope.

C. Provide sway bracing at sufficient intervals to prevent lateral motion of horizontal or vertical piping.

D. For pipe and tubing, both horizontal and vertical, and regardless of the spacing of other supports, provide supports at or near changes in direction. Hangers shall be spaced at not over 6 feet apart for ½ inch pipe, not over 8 feet apart for 3/4 and 1-inch pipe and not over 10 feet for larger sizes.

E. For new concrete plank construction with a 2 inch thick or thicker concrete topping, hanger rods shall extend through concrete plank and shall be bolted through a 4 X 4 steel plate sitting on top of the plank.

F. Hangers for pipe shall be similar to Carpenter & Paterson "Clevis" figure 100. Hangers for insulated lines with vapor barrier and carrying fluids with temperatures below 70 degrees shall be large enough to permit continuous insulation. Hangers on vapor barrier insulated piping shall be provided with rigid protector saddles with rigid core of insulation to thickness of adjacent insulation. Saddles shall be 16 gauge galvanized steel and shall cover one half of the circumference of the pipe covering. Saddle shall be secured to insulation with adhesive.

G. Pipes upon or within close distance of walls shall be carried by wall brackets, Carpenter & Paterson, Fig. 221, 139, or 227 as approved.

H. Support vertical lines at floor level with extension pipe clamps. Support lowest level of riser with pipe hanger as specified above on horizontal pipe as close to riser as possible.

I. Special supports required shall be provided to suit the conditions.

J. Expansion bolts or wood plugs will not be permitted in slag block walls. Equipment hung on such walls shall be supported by through bolts or approved anchor bolts set into masonry as the wall is laid up.

2.5. OPENINGS, CHASES, LINTELS AND SLEEVES

A. Determine the location and size of chases, lintels and openings necessary for the proper installation of the work and provide them during the erection of the work in which such chases and openings occur.

B. Provide sleeves through walls and floors for pipes. Sleeves through walls shall be of sufficient size to permit the insulation, where specified, to continue through the sleeve. Sleeves through walls shall be flush with the walls.

C. In case cutting of building construction is necessary, including cutting of structural members, such cutting shall be done and repaired to match original condition of the work.

D. Where non-combustible pipes pass through sleeves in fire rated wall, floor-ceiling and ceiling-roof assemblies, seal openings with a Underwriters Laboratories classified firestop method. Firestop method shall be a one part, intumescent (expands with heat), latex elastomer capable of expanding a minimum of three times. Firestop materials shall be UL listed when tested in accordance with ASTM E814 for a two hour fire (F) and temperature (T) rating.

E. Escutcheon plates shall be used to conceal sleeve opening on exposed uninsulated piping. Floor plates shall be split chrome plated cast brass similar to Ritter No. 36A.

2.6. ACCESS PANELS

A. In general, valves and traps shall be accessible through the removable panels in the ceiling. Where ceilings are not removable and in walls where access is required for service, access panels shall be provided. Access panels shall be appropriate for the finish in which they are installed, with a fire rating to match the wall or ceiling in which they are installed.

B. Access panels in the toilet room areas shall be gasketed stainless steel panels.

C. Group valves together to keep the required number of access panels to a minimum.

2.7. FLASHING

A. Sanitary vent pipes passing through the roof shall be provided with conical neoprene boots for any pitch roof with base extending minimum of eight inches from vertical portion of boot. Provide clamp for securing boot to pipe.

B. Flashing assemblies specified above shall be set in place as part of the work under this Division of this Specification, but will be finally installed as specified in another Division of this Specification.

2.8. IDENTIFICATION

A. Equipment shall be identified with labels that have 5/16" black lettering on white phenolic plates. Label plates shall be attached with permanent double faced tape.

B. After piping has been installed, tested and insulated, it shall be identified with adhesive type labels at least 2 inches high. Labels indicating direction of flow shall be applied adjacent to the name identification and shall point away from the name in the direction of flow.

C. Labels shall identify the piping system. Labels shall be located where pipe enters and leaves a space and at 30 foot centers on normal runs.

D. On valves, except immediately adjacent to equipment, provide 1 inch diameter brass tag with embossed and painted black numbers to identify the valve. Tag numbers shall be coordinated between trades. Tags shall be attached to valve wheels with a brass link. Tags shall be manufactured by Brady, Seton Nameplate, or Wilmington Plastics.

3.EXECUTION

3.1. EXISTING CONDITIONS

A. Visit the site and become familiar with existing conditions. Modifications to work required to allow for existing conditions shall be provided. Submit proposed modifications to the Architect for approval prior to installation.

3.2. MANNER OF INSTALLATION

A. Piping shall be installed to preserve access to valves. Valves which require frequent service, adjustment or control and which cannot be located in a readily accessible and safe place, shall be provided with extension devices and remote operators, as necessary and as accepted for use by the Architect.

B. Piping shall be run to follow the lines of the building and to allow the maximum headroom consistent with proper pitch. Piping subject to thermal expansion shall be arranged to permit movement without damage to the piping and equipment.

C. The Drawings are generally indicative of the work to be installed, but they do not show all offsets, fittings and similar details required, which shall be provided to meet the job conditions. In areas where work is installed in close proximity to work of other trades or within trades covered by this Division of the Specifications, prepare larger scale drawings consisting of plans and sections to show how work is to be installed in relation to work of other trades.

3.3. RECORD DRAWINGS

A. Keep at the site two (2) sets of black and white prints for the express purpose of showing changes from the contract Drawings made during construction. Mark up the prints with red pencil during construction and deliver the prints, before final inspection, to the Architect as a final set of "Record Drawings". Refer to Division 1 for additional requirements.

3.4. TESTING

A. Before concealing piping and before insulating piping, test piping and prove tight.

B. Replace and retest to Architect's satisfaction pipe or fittings broken or damaged under test.

C. Before testing piping systems, remove or otherwise protect from damage, control devices, air vents, plumbing fixtures and other parts which are not designed to stand pressures used in testing piping.

D. New portions of sanitary and storm drain piping shall be tested by a standing water test so that the highest point of the system has no less than a 10 foot head of water. Fixtures shall be removed from system and piping capped or plugged. No drop in water level shall be allowed. Test systems for a period of four (4) hours.

E. New portions of domestic water systems shall be tested hydrostatically, pumping the system to 125 psi test pressure and holding the system at the test pressure for two hours without additional pumping. While under pressure, visually inspect joints, welds or other connections to determine leakage. If leaks are detected, repair leak and retest.

F. New portions of gas piping shall be air pressure tested at 50 psi test pressure for two hours without a drop in pressure during the test period.

3.5. CLEANING OF SYSTEMS

A. After satisfactory completion of pressure tests and before permanently connecting fixtures, equipment, strainers and other accessory items, clean systems. Remove burrs, cuttings and waste. Blow and flush piping until interiors are free of foreign matter.

B. Clean strainers and dirt pockets as often as required to guarantee no system stoppage by end of warranty period.

C. If systems become stopped with refuse, remove the obstruction and replace and repair work disturbed.

D. Clean plumbing fixtures using nonscratching cleaners. Polish chromium plated work. Stilson type wrenches shall not be used on chrome plated work.

E. Remove rust and clean surfaces to be insulated or painted.

F. Leave systems in clean condition and running order.

3.6. STERILIZATION

A. The domestic water piping systems shall be sterilized with a chlorine water solution so that the piping system contains water with a chlorine concentration of 100 ppm at the end of a three hour retention period. Systems shall be flushed before sterilization. After the chlorine water solution has remained in the piping system for the specified period and at the specified concentration, the system shall be drained, flushed with clear water until the chlorine concentration is less than 1.0 ppm. Obtain representative samples of the systems water for analysis by a recognized bacteriological laboratory. If samples are not acceptable, the process shall be repeated until the samples are acceptable.

B. The domestic water piping system may be sterilized by other methods approved by local plumbing codes or the Health Department.

C. As a condition of acceptance of the system, furnish a certificate under seal to certify that the system has been sterilized to meet the requirements of the Health Department and that the system is satisfactory for human consumption.

D. Chemicals and materials used for sterilization of the systems shall meet the requirements of the Department of Natural Resources and Water Pollution Control Division of the State of Maryland.

3.7. PAINTING

A. Remove rust, scale, grease, and dirt from equipment and material and leave ready for finish painting. Equipment specified with factory baked enamel finish shall be touched up as required to provide a surface visually free of scratches, nicks and blemishes.

B. Paint uninsulated ferrous piping, hangers and miscellaneous iron work in exposed spaces with one coat of RustOLeum dampproof red primer.

3.8. OPERATING AND MAINTENANCE MANUAL

A. Submit operating and maintenance instructions. The manual shall include the following:

1. A brief description of systems and their various components.
2. List of manufacturer's representatives with address and telephone numbers.
3. One copy of each shop drawing and Contractor's drawings.
4. Sterilization certificate for domestic water systems.

3.9. FIELD INSTRUCTION

A. Upon completion of work, furnish services of a competent representative to instruct Owner's representative in the proper operation and maintenance of elements of the plumbing systems. Submit instructor's name and credentials to the Architect for approval.

3.10. COORDINATION DRAWINGS

A. General: Prepare coordination drawings for all interior building systems with systems specified under this division. Drawings shall be ¼" = 1'-0" scale.

1. Show the relationship of components shown on separate Shop Drawings.
2. Indicate required installation sequences.
3. Comply with requirements contained in Division 1 Section "Submittals".

END OF SECTION 220000

SECTION 321316.23 - STAMPED CONCRETE PAVING

1.GENERAL

1. SUMMARY

A. Section includes:

1. Dry-shake colored hardener applied to exterior concrete paving surfaces as indicated on Drawings.
2. Stamping concrete patterns with special imprinting tools.
3. Curing of colored and imprinted concrete.

2. REFERENCES

A. American Concrete Institute (ACI):

1. ACI 301: Specification for Structural Concrete for Buildings.
2. ACI 302.1R: Recommended Practice for Concrete Floor and Slab Construction.
3. ACI 303.1: Standard Specification for Cast-in-Place Architectural Concrete.
4. ACI 304: Recommended Practice for Measuring, Mixing, Transporting and Placing of Concrete.
5. ACI 305R: Recommended Practice for Hot Weather Concreting.
6. ACI 306R: Recommended Practice for Cold Weather Concreting.

B. ASTM International (ASTM):

1. ASTM C 260: Standard Specification for Air Entraining Admixtures for Concrete.
2. ASTM C 309: Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
3. ASTM C 979: Standard Specification for Pigments for Integrally Colored Concrete.

C. Portland Cement Association (PCA):

1. PA124: Finishing Concrete with Color and Texture.

3. SUBMITTALS

A. Product Data: For the following products:

Edit to suit Project requirements.

1. Dry-shake colored hardener
2. Liquid release agent
3. Imprinting/Texturing tools

4. Curing compound and sealer

B. Design Mixes: For each type of concrete.

C. Samples for Initial Selection: Manufacturer's color charts showing full range of colors available.

D. Qualification Data: For manufacturer and Installer.

4. QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum 10 years of documented experience producing the specified products.

B. Installer Qualifications: Minimum 5 years of documented experience with work of similar scope and complexity required by this Project and acceptable to, or certified by, stamped concrete paving manufacturer.

C. Publications: Comply with applicable requirements of ACI 301 and PCA PA124.

D. Material Source: Obtain each specified material from the same source.

E. Notification: Give a minimum 7 calendar days' notice to manufacturer's authorized field representative before date established for commencement of work.

For large projects or where color and appearance are critical, include provisions for a mockup to demonstrate finished appearance and workmanship standards.

F. Stamped Concrete Paving Mockups:

1. Construct a 4 foot by 4 foot mockup at location selected by Architect.
2. Provide individual mockups for each color and pattern required.
3. Construct mockup using materials, processes, and techniques required for the work, including curing procedures. Incorporate representative control, construction, and expansion joints according to Project requiresments. Installer for the work to construct mockup.
4. Notify Architect and Owner a minimum of seven calendar days in advance of the date scheduled for each mockup construction.
5. Obtain the Architect's and Owner's acceptance of each mockup prior to commencement of the work.
6. Each mockup to remain until completion of the work to serve as a quality control standard for the work. Provide suitable protections to preclude damage to mockup.
7. Demolish and remove each mockup from site when directed.

5. DELIVERY, STORAGE, AND HANDLING

A. Deliver products in original factory unopened, undamaged packaging bearing identification of product, manufacturer, batch number, and expiration date as applicable.

B. Store products in a location protected from damage, construction activity, and adverse environmental conditions according to manufacturer's current recommendations.

1. Imprinting tools must be stored flat, textured face up, with no objects resting on top.

C. Handle products according to manufacturer's printed instructions.

6. PROJECT CONDITIONS

A. Schedule placement to minimize exposure to wind and hot sun before curing materials are applied.

B. Do not place concrete if rain, frost, or snow is forecast within 24 hours of placement. Protect fresh concrete from moisture and freezing conditions.

C. Compliance Standards: ACI 305R and ACI 306R.

7. PREINSTALLATION CONFERENCE

A. Seven calendar days prior to scheduled date of concrete placement, conduct a meeting at Project site to discuss requirements, including application methods. Attendees to include Architect, Owner, Contractor, Installer, concrete supplier, and manufacturer's authorized field representative.

2.PRODUCTS

1. ACCEPTABLE MANUFACTURERS

A. Basis of Design: Provide products specified herein manufactured by Sika Corporation.

2. MATERIALS

A. Dry-Shake Colored Hardener: Cementitious material containing special hard aggregates, formulated as a high opacity color hardening material for the top surface of freshly place concrete substrates. Highly UV-resistant. Factory proportioned, mixed and packaged, ready-to-use. Comply with ASTM C 979.

1. Product: "LITHOCHROME Color Hardener", Sika Corporation.
2. Colors: TBD from manufacturer's standard full range of integral colors.
3. Imprinting Tools: System of matched tools for imparting textures and patterns into freshly placed concrete surfaces.
4. Product: "LITHOTEX Pavecrafters", ,Sika Corporation.
5. Patterns: " European Fan"

B. Liquid Release Agent: Colorless, scented liquid formulated to break the bond between imprinting tools and surface of color-hardened concrete. Evaporates completely, leaving no residue.

1. Product: "SCOFIELD Liquid Release BG", Sika Corporation.

C. Waterborne Curing Compound and Sealer: Low VOC waterborne modified acrylic formulation. Complies with ASTM C 309.

1. Product: "SCOFIELD Cureseal-W", Sika Corporation.

D. Solvent-Borne Curing Compound and Sealer: Complies with ASTM C 309.

1. Product: "SCOFIELD Cureseal 700", Sika Corporation.

3. CONCRETE MIX DESIGN

Note: If the entire concrete paving work for Project is covered under this Section, it must be revised to include basic requirements in Part 2 and Part 3 that are contained in the referenced Section below.

A. General: Refer to Section 321313 "Concrete Paving" for basic concrete paving requirements, including formwork, reinforcement, concrete materials, and mixing.

B. Minimum Cement Content: 5-1/2 sacks per cubic yard of concrete.

C. Mix design must not permit segregation of concrete materials during pumping, placing, or consolidation of concrete. Slump not to exceed 4 inches.

D. Admixtures:

1. A normal or retarded-set, water-reducing admixture is permissible.
2. An air-entraining admixture complying with ASTM C 260 is acceptable where freeze/thaw durability is required.
3. A nonchloride accelerator is acceptable for cold weather concrete placement.
4. Do not add a high-range water reducing admixture (superplasticizer).

E. Do not add calcium chloride to concrete mix.

F. Use of fly ash as a cement replacement may be acceptable, subject to manufacturer's current recommendations.

G. Do not add water to the mix in the field.

3.EXECUTION

1. SUBGRADE PREPARATION

A. Subgrade to receive stamped concrete paving work must be well drained and have adequate, uniform loadbearing characteristics.

1. Verify grading will ensure a uniform concrete thickness during concrete placement.

B. At the time of concrete placement, subgrade must be moist, completely consolidated, and free from frost. If necessary, subgrade may be dampened with water prior to placement; however, freestanding water or soft, muddy, or frozen ground in not permissible.

2. CONCRETE PLACEMENT

A. General: Place and spread concrete to completely fill all space inside forms. Move concrete into place with square-tipped shovels or concrete rakes.

B. Consolidate concrete by tamping or vibrating to provide a suitable surface for finishing.

C. Prior to appearance of excess moisture or bleed water, screed concrete with wood or magnesium straight edge or mechanical vibrating screed.

D. Continue concrete surface leveling and consolidation with highway magnesium straight edge and (or) magnesium bull float.

E. Mechanically float concrete surfaces to required flatness and levelness as soon as concrete surface has taken its initial set and will support weight of a power float machine equipped with float shoes or combination blades and operator.

1. Comply with ACI 302.1R for acceptable tolerances.

F. Completed concrete placement to result in an open surface suitable to receive colored hardener.

3. STAMPED CONCRETE PAVING INSTALLATION

A. Apply 2/3 of dry-shake colored hardener at specified application rate to freshly floated concrete surface. Bleed water must not be present during or following application of first and second dry-shake applications.

B. Do not throw dry-shake colored hardener material; distribute evenly by hand or mechanical spreader designed to apply floor hardeners. Mechanical spreader manufacturer as acceptable to stamped concrete paving manufacturer.

C. As soon as dry-shake material has absorbed moisture, indicated by uniform darkening of surface, mechanically float concrete surface a second time, just enough to bring moisture from base slab through dry-shake color hardener.

D. Immediately following second floating, apply remaining 1/3 of dry-shake colored hardener at specified application rate. If applied by hand, broadcast in opposite direction of first application for a more uniform coverage. If a mechanical spreader is used, apply in same manner as previously described.

E. As soon as dry-shake material has absorbed moisture, mechanically float concrete surface a third time.

F. Do not add water to the surface.

G. Begin imprinting operations immediately after applying dry-shake colored hardener, according to manufacturer's written instructions, including application of powder antiquing release agent.

4. SEALING

A. Prior to sealing, the following conditions must be present:

1. Release agent has been removed.
2. Moisture content of concrete is low enough that alkali and other salts do not become trapped beneath sealer. This will require a minimum of 28 days subsequent to concrete placement, or longer if required.
3. No evidence of free water on concrete surfaces to receive curing and sealing compound.

B. Seal imprinted concrete with liquid membrane curing and sealing compounds as recommended by manufacturer.

C. Apply two coats of specified curing and sealing compound according to manufacturer's written instructions.

5. PROTECTION OF FINISHED WORK

A. Prohibit foot or vehicular traffic on the newly imprinted concrete surface.

B. Protect floor surface from damage throughout remainder of construction period until Final Acceptance of the work. If a covering material is necessary, surfaces must remain uncovered for a minimum of four days after which they may be covered with a new, smooth, nonstaining reinforced kraft curing paper. Plastic sheeting is unacceptable as a covering material.

6. SCHEDULE

A. Refer to Drawings for locations of stamped concrete paving applications.

END OF SECTION 321316.23

SikaColor®-140 SG POWDER INTEGRAL COLORS

BUILDING TRUST

Colors shown on this chart approximate the color of broom finished concrete flatwork made with a medium gray cement and sealed with solvent-based SikaCem®-100 Clear Guard®. If SikaCem®-100 Clear Guard® is not used, the concrete color will not be as vibrant as shown. Concrete should be batched and placed in accordance with Product Data Sheets. Concrete color is altered by many factors, including cement and aggregate color, slump, finishing practices, and curing method. Using the contemplated materials and construction techniques, representative samples should be cast for approval, especially when exact color matching is important. NOTE: When using lower color loadings, such as one bag per two yards, the color of the cement and sand have a more pronounced influence on the final color resulting in a greater chance of color variation.

1 BAG PER 2 YARDS	1 BAG PER 1 YARD	2 BAGS PER 1 YARD	3 BAGS PER 1 YARD
SG01-130 Brown	Earth Brown	Toasted Brown	Chinchilla Brown
SG02-117 Coral	Red Coral	Crimson Coral	Fiery Coral
SG03 Stone	River Stone	Quartz Stone	Cliff Stone
SG04-160 Clay	Arid Clay	Baked Clay	Utah Clay
SG05-677 Bark	Wisteria Bark	Hickory Bark	Mahogany Bark
SG06-447 Buff	Honey Buff	Golden Buff	Mustard Buff
SG07-860 Gray	Gauntlet Gray	Fox Gray	Hematite Gray
SG09-078 Taupe	Burnished Taupe	Walnut Taupe	Dark Taupe
SG11-641 Adobe	Adobe Tan	Fired Adobe	Raw Adobe
SG12 Drift	Driftwood Select	African Driftwood	Charred Driftwood
SG237 Sand Buff	Coronado Buff	Egyptian Dunes	Summer Dunes

SikaColor®-140 SG POWDER INTEGRAL COLORS

SikaColor®-140 SG Powder Integral Concrete Colorant is an economical pre-measured pigment for integrally coloring ready mixed concrete and all manufactured concrete products during batching. SikaColor®-140 SG Powder Integral Concrete Colorant is suitable for integrally colored concrete projects of all types: interior floors and exterior hardscapes, as well as, precast, tilt-up and cast-in-place applications. Conforming to ASTM Standard C979 (standard specification for pigments for integrally colored concrete), it is a blend of non-fading, synthetic iron oxides. SikaColor®-140 SG Powder Integral Concrete Colorant is available in 11 standard base colors. By varying the dose rate (bags/cubic yard), each base color can produce 4 different colors for a total of 44 colors. SikaColor®-140 SG integral colors produce a broad range of popular earth tone colors without an extensive inventory. Superior quality control during manufacturing and packaging help to ensure your jobs will have uniform color from load-to-load.

Limitations: The SikaColor®-140 SG Powder Integral Concrete Colorant color chart approximates colors using medium gray cement and sealed with solvent-based SikaCem®-100 Clear Guard®. Local materials, finishing techniques, texture, environmental conditions and method of curing and sealing will affect the final color. Utilize the same slump, cement, sand, and aggregates throughout the project. Any deviations will affect the final color. When a base color is used at its lowest dose rate, 1 bag/2 cubic yards, mix design variations may produce obvious color variations.

- **Uniform color load-to-load**
- **Blend of non-fading iron oxides**
- **11 base colors creates 44**
- **Pre-measured repulpable bags**

SikaColor®-140 SG Comparable Color Reference Table	
Integral Color SG Integral Colors*	**Select Grade® Integral Colors***
130 Latte	SG01 Brown
117 Spring Rose	SG02 Coral
160 Sunset Red	SG04 Clay
677 Soft Chestnut	SG05 Bark
447 Prairie Beige	SG06 Buff
860 Metallic Gray	SG07 Gray
078 Chaparral	SG09 Taupe
641 Taos Tan	SG11 Adobe

Please note that the represented SikaColor®-140 SG colors on the front of this chart are a direct crossover to the Select Grade® or Integral Color SG colors. Direct crossover colors are notated with the color number listed first (ex. SG01) followed by the color name. Comparable colors, as noted above, are notated with the second number listed after the dash.

SIKA CORPORATION
625 West Illinois Avenue
Aurora, IL 60506
Phone: 800 282 3388
usa.sika.com

Our most current General Sales Conditions shall apply.

Please consult the Product Data Sheets prior to any use and processing.

BUILDING TRUST

SECTION 32 31 00 FENCE TRAC SYSTEM

PART 1 - GENERAL
1.01 WORK INCLUDED
The contractor shall provide all labor, materials and appurtenances necessary for installation of the privacy metal fence system defined herein.

1.02 RELATED WORK
Earthwork
Concrete

1.03 SYSTEM DESCRIPTION
The manufacturer shall supply a steel framework Trac system design manufactured by FenceTrac™. The system shall include all components (i.e., all necessary Trac components, posts, gates and hardware) required. Privacy filler materials will be supplied by Perimtec®,

1.04 QUALITY ASSURANCE
The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

1.05 REFERENCES
- ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
- ASTM B117 - Practice for Operating Salt-Spray (Fog) Apparatus.
- ASTM D523 - Test Method for Specular Gloss.
- ASTM D714 - Test Method for Evaluating Degree of Blistering in Paint.
- ASTM D822 - Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus.
- ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
- ASTM D2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
- ASTM D2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
- ASTM D3359 - Test Method for Measuring Adhesion by Tape Test.

1.06 SUBMITTAL
The manufacturer's submittal package shall be provided prior to installation.

1.07 PRODUCT HANDLING AND STORAGE
Upon receipt at the job site, all materials shall be checked to ensure that no damages occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism and theft.

PART 2 - MATERIALS
2.01 MANUFACTURER
The commercial ornamental steel fence system shall conform to FenceTrac standard system with **Silver Grey high-density core Wood Plastic Composite (WPC)** filler materials supplied by Perimtec®. Perimtec LLC , 12810 South Memorial Dr. #301
Bixby, OK 74008

FenceTrac is manufactured in Tulsa, OK. Contact: 918-794-8722; info@fencetrac.com

2.02 MATERIAL

A. Steel material for fence framework and posts, when galvanized prior to forming, shall conform to the requirements of ASTM A924/A924M, with a minimum yield strength of 45,000 psi (310 MPa). The steel shall be hot-dip galvanized to meet the requirements of ASTM A653/A653M with a minimum zinc coating weight of 0.90 oz/ft^2 (276 g/m^2), Coating Designation G-90.

B. Material for the Top and Bottom Tracs shall be 18 Ga. steel. Material for the Post Mount and Vertical-H Tracs shall be 18 Ga. steel. The cross-sectional shape of the rails shall conform to the manufacturer's roll-formed U-channel design. Fence posts and gate posts shall meet the minimum size requirements of Table 1.

2.03 FABRICATION

A. All fence framework shall be pre-cut to specified lengths. The Post Mount Tracs shall be pre-drilled for attachment to the posts.

B. The manufactured steel framework shall be subjected to a thermal stratification coating process. Starting with the initial pre-rinse and cleaning, then adding a zinc phosphate protective coating, epoxy primer coating and heating process, and a separate electrostatic spray application of a TGIC polyester powder coat finish. The total coating shall be a minimum thickness of 4 mils (0.1016mm). The color shall be **Black** The stratification-coated framework shall be capable of meeting the performance requirements for each quality characteristic shown in Table 2.

C. Completed sections shall be capable of supporting appropriate wind speeds according to ASCE 7-05 for Commercial/ Industrial designed systems only. Residential applications will vary and wind speed testing can be calculated for an additional cost if necessary. Panels without special ornamentation or custom additions on top shall be biasable up to a 45% change in grade.

PART 3 - EXECUTION

3.01 PREPARATION

All new installation shall be laid out by the contractor in accordance with the construction plans.

3.02 FENCE INSTALLATION

Fence post shall be spaced according to FenceTrac installation instructions or Submittal drawings. For installations that must be raked to follow sloping grades, the post spacing dimension must be measured along the grade. Fence sections shall be attached to posts with self-tapping screws supplied by the manufacturer. Posts shall be set in concrete footers having a minimum depth of 36" (Note: In some cases, local restrictions of freezing weather conditions may require a greater depth). The "Earthwork" and "Concrete" sections of this specification shall govern material requirements for the concrete footer. Posts setting by other methods such as plated posts or grouted core-drilled footers are permissible only if shown by engineering analysis to be sufficient in strength for the intended application. Alternative materials on posts are also possible with the FenceTrac system, additional contact may be necessary to complete special post installations.

3.03 FENCE INSTALLATION MAINTENANCE

When cutting/drilling rails or posts adhere to the following steps to seal the exposed steel surfaces; 1) remove all metal shavings from cut area. 2) Apply zinc-rich primer to thoroughly cover cut edge and/or drilled hole; let dry. 3) Apply 2 coats of custom finish paint matching fence color. Failure to seal exposed surfaces per steps 1-3 above will negate warranty. FenceTrac spray cans or paint pens shall be used to prime and finish exposed surfaces; it is recommended that paint pens be used to prevent overspray. Use of non-FenceTrac parts or components will negate the manufactures' warranty.

3.04 GATE INSTALLATION

Gate posts shall be spaced according to the manufacturers' gate drawings, dependent on standard out-to-out gate leaf dimensions and gate hardware selected. Type and quantity of gate hinges shall be based on the application; weight, height, and number of

gate cycles. The manufacturers' gate drawings shall identify the necessary gate hardware required for the application. Gate hardware shall be provided by the manufacture of the gate and shall be installed per manufacturer's recommendations.

3.05 CLEANING

The contractor shall clean the jobsite of excess materials; post-hole excavations shall be scattered uniformly away from posts.

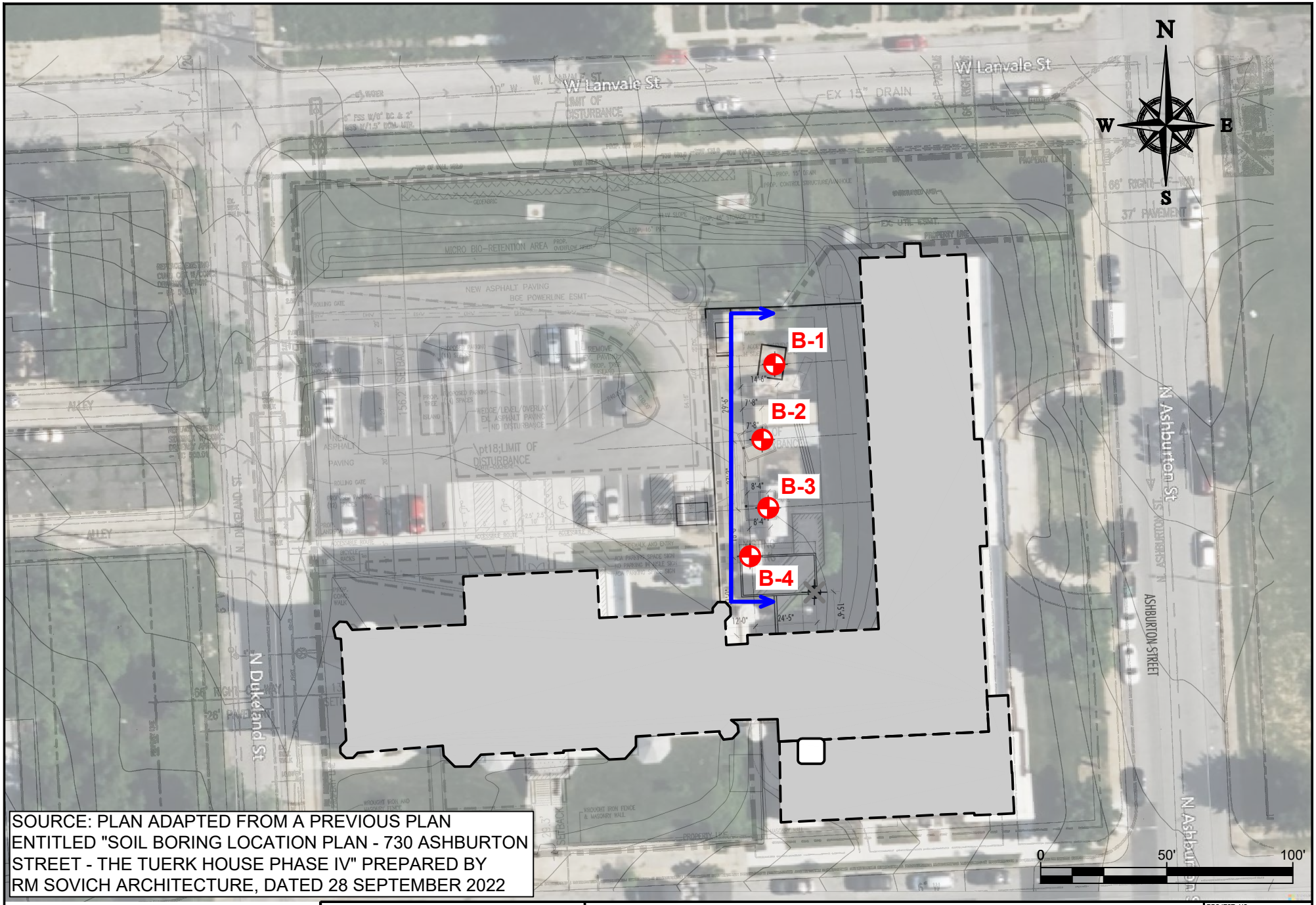
Table 1 – Minimum Sizes for FenceTrac Posts

Fence Posts (Steel)	Panel Height
2-1/2" x 16 Ga.	Up to & Including 6' Height for Residential Applications
2-1/2" x 14 Ga.	Up to & Including 6' Height for Residential Applications
2-1/2" x 12 Ga.	Up to & Including 8' Height for Residential Applications
3" x 12 Ga.	Up to & Including 8' Height for Commercial Applications
4" x 12 Ga.	Up to & Including 8' Height for Commercial Applications
4" x 11 Ga.	Up to & Including 10' Height for Commercial Applications

Gate Leaf	Gate Height		
	Up to & Including 6'	Over 6' Up to & Including 8'	Over 8' Up to & Including 10'
Up to 4'	2-1/2" x 14Ga.	3" x 12 Ga.	4" x 11 Ga.
4'1" to 6'	3" x 12Ga.	3" x 12 Ga.	4" x 11 Ga.
6'1" to 8'	4" x 11 Ga.	4" x 11 Ga.	6" x 3/16"

Table 2 – Coating Performance Requirements

Quality Characteristics	ASTM Test Method	Performance Requirements
Adhesion	D3359 – Method B	Adhesion (Retention of Coating) over 90% of test area (Tape and knife test).
Corrosion Resistance	B117, D714 & D1654	Corrosion Resistance over 3,500 hours (Scribed per D1654; failure mode is accumulation of 1/8" coating loss from scribe or medium #8 blisters).
Impact Resistance	D2794	Impact Resistance over 60 inch lb. (Forward impact using 0.625" ball).
Weathering Resistance	D822 D2244, D523 (60˚ Method)	Weathering Resistance over 1,000 hours (Failure mode is 60% loss of gloss or color variance of more than 3 delta-E color units).



SOURCE: PLAN ADAPTED FROM A PREVIOUS PLAN ENTITLED "SOIL BORING LOCATION PLAN - 730 ASHBURTON STREET - THE TUERK HOUSE PHASE IV" PREPARED BY RM SOVICH ARCHITECTURE, DATED 28 SEPTEMBER 2022

LEGEND:

SOIL BORING LOCATION

HILLIS-CARNES ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, Maryland
(410) 880-4788 www.hcea.com Fax: (410) 880-4098

BORING LOCATION PLAN

TUERK HOUSE PHASE II

730 ASHBURTON ST. CITY OF BALTIMORE, MD

PROJECT NO.	20056B
DATE:	11/23/22
SCALE:	1" = 50'
DRAWN BY:	AM
CHECKED BY:	WMC

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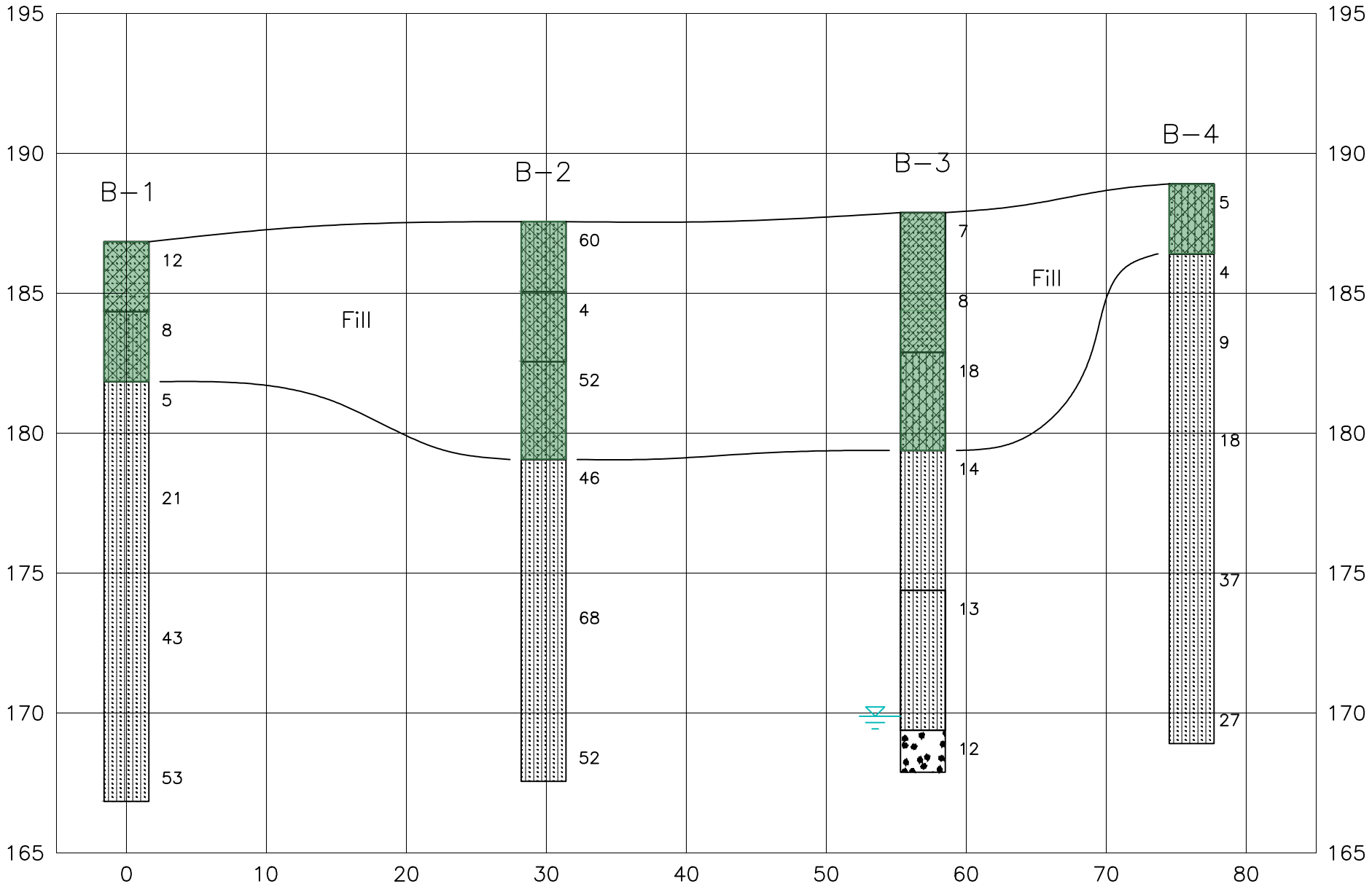

HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, Maryland
(410) 880-4788 www.hcea.com Fax: (410) 880-4098

BORING PROFILE
TUERK HOUSE PHASE II
730 ASHBURTON ST. CITY OF BALTIMORE, MD

PROJECT NO.	20056B
DATE:	11/23/22
SCALE:	As Noted
DRAWN BY:	AM
CHECKED BY:	WMC

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HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: **Tuerk House Phase II** | Boring No.: B-1

Location: Baltimore, MD | Job #: 20056B

SAMPLER

Datum: | Hammer Wt.: 140 lbs. | Hole Diameter: 3.25 in. | Foreman: J. Russell

Surf. Elev.: 186.84 ft | Hammer Drop: 30 in. | Rock Core Diameter: N/A | Inspector:

Date Started: 11/03/22 | Pipe Size (O.D.): 2.0 in. | Boring Method: HSA | Date Completed: 11/03/22

Elevation/ Depth (ft)	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	SPT N (blows/ft) N
0 / 186	D	Dark brown, moist, medium dense, clayey SAND, trace gravel and brick fragments. (SC; Fill)	Topsoil - 1"	1	10		4-6-6	12
185	D	Dark brown to brown, moist, loose, silty SAND, some gravel, with roots. (SM; Fill)		2	5		5-5-3	8
5 / 181	D	Brown, moist, loose to very dense, micaceous, silty SAND. (SM)	Groundwater was not encountered while drilling	3	14		2-2-3	5
180	D			4	16		4-10-11	21
10 / 176	D	Brown to green		56	18		16-19-24	43
175	D			7	18		20-26-27	53
15 / 171		Bottom of boring at 20'	Boring was backfilled after 24 hours					
170								
20 / 166								
165								
25 / 161								
160								
30 / 156								
155								

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	16.0 ft.
AFTER 24 HRS.	ft.	ft.
AFTER ____ HRS.	ft.	ft.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: **Tuerk House Phase II** | Boring No.: B-2

Location: Baltimore, MD | Job #: 20056B

SAMPLER

Datum: | Hammer Wt.: 140 lbs. | Hole Diameter: 3.25 in. | Foreman: J. Russell

Surf. Elev.: 187.56 ft | Hammer Drop: 30 in. | Rock Core Diameter: N/A | Inspector:

Date Started: 11/03/22 | Pipe Size (O.D.): 2.0 in. | Boring Method: HSA | Date Completed: 11/03/22

Elevation/ Depth (ft)	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	SPT N (blows/ft) N	SPT N (blows/ft) 10 30 50
0 / 187.56	D	Dark gray to gray and light brown, moist, very dense, gravelly, silty SAND, some gravel and asphalt fragments. (SM; Fill)	Asphalt - 2" Gravel - 2"	1	12		34-42-18	60	
185	D	Brown to dark gray, moist, very loose, silty SAND, some gravel, trace brick fragments and asphalt fragments. (SM; Fill)		2	10		5-2-2	4	
5	D	Brown, moist, very dense, silty SAND, some gravel, trace brick fragments, with mica. (SM; Fill)	Groundwater was not encountered while drilling	3	16		10-24-28	52	
180	D	Brown, moist, dense to very dense, micaceous, silty SAND, some gravel. (SM)		4	3		4-24-22	46	
10 / 175	D	with mica		56	8		24-34-34	68	68 →
15 / 170	D	Brown to light brown and tan		7	16		14-24-28	52	
20		Bottom of boring at 20'	Boring was backfilled after 24 hours						
165									
25 / 160									
30 / 155									

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	16.5 ft.
AFTER 24 HRS.	ft.	ft.
AFTER ____ HRS.	ft.	ft.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: **Tuerk House Phase II** | Boring No.: B-3

Location: Baltimore, MD | Job #: 20056B

SAMPLER

Datum: | Hammer Wt.: 140 lbs. | Hole Diameter: 3.25 in. | Foreman: J. Russell

Surf. Elev.: 187.88 ft | Hammer Drop: 30 in. | Rock Core Diameter: N/A | Inspector:

Date Started: 11/03/22 | Pipe Size (O.D.): 2.0 in. | Boring Method: HSA | Date Completed: 11/03/22

Elevation/ Depth (ft)	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	SPT N (blows/ft) N
0 / 187.88	D	Dark brown to brown, moist, loose, clayey SAND, trace to some gravel, with mica. (SC; Fill)	Asphalt - 2"	1	12		5-3-4	7
185	D	with brick fragments		2	10		3-4-4	8
5	D	Brown to light brown, moist, medium dense, gravelly, clayey, silty SAND. (SC-SM; Fill)		3	10		4-9-9	18
180	D	Brown, moist, medium dense, micaceous, silty SAND. (SM)		4	16		5-7-7	14
10 / 175	D	Brown, moist, medium dense, micaceous, silty SAND, some gravel and brick fragments. (SM)		56	14		6-6-7	13
15 / 170	D	Brown to dark brown, wet, medium dense, GRAVEL, trace sand. (GP)	Groundwater was encountered at 18' while drilling	7	10		4-5-7	12
20 / 165		Bottom of boring at 20'	Boring was backfilled after 24 hours					
25 / 160								
30 / 155								

SPT N (blows/ft) scale: 10, 30, 50

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	14.0 ft.
AFTER 24 HRS.	ft.	ft.
AFTER ____ HRS.	ft.	ft.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: **Tuerk House Phase II** | Boring No.: B-4

Location: Baltimore, MD | Job #: 20056B

SAMPLER

Datum: | Hammer Wt.: 140 lbs. | Hole Diameter: 3.25 in. | Foreman: J. Russell

Surf. Elev.: 188.91 ft | Hammer Drop: 30 in. | Rock Core Diameter: N/A | Inspector:

Date Started: 11/03/22 | Pipe Size (O.D.): 2.0 in. | Boring Method: HSA | Date Completed: 11/03/22

Elevation/ Depth (ft)	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	SPT N (blows/ft) N
0 / 188	D	Brown to dark brown, moist, loose, clayey, silty SAND, trace gravel. (SC-SM; Fill)	Asphalt - 3" Gravel - 2"	1	14		3-2-3	5
2	D	Orange brown, moist, very loose to dense, silty SAND, trace gravel, with mica. (SM)		2	14		1-1-3	4
185 / 5	D	Brown micaceous	Groundwater was not encountered while drilling	3	14		4-4-5	9
180 / 10	D	Yellowish brown to brown		4	16		6-9-9	18
175 / 15	D	Gray to brown		56	18		10-14-23	37
170 / 20	D	Tan to brown		7	18		12-14-13	27
		Bottom of boring at 20'	Boring was backfilled after 24 hours					
165 / 25								
160 / 30								
155								

SPT N (blows/ft) scale: 10, 30, 50

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	17.0 ft.
AFTER 24 HRS.	ft.	ft.
AFTER ____ HRS.	ft.	ft.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

GREEN STREET ENVIRONMENTAL

6304 Blair Hill Lane | Suite 2 | Baltimore, MD 21209
410-296-8800 (ph) | 410-296-8801 (f)
www.greenstreet-environmental.com

Hazardous Materials Assessment

Of

Tuerk House
730 Ashburton Street
Baltimore, MD 21216

GSE Project # 181115-4

Prepared For

Tuerk House Properties, LLC
6200 N. Charles Street, Unit 1
Baltimore, MD 21212

Date of Report

November 26, 2018

GREEN STREET ENVIRONMENTAL

Table of Contents

List of Appendices

Acronyms

ACM	asbestos-containing material
AHERA	Asbestos Hazard Emergency Response Act
CFCs	chlorofluorocarbons
CFR	Code of Federal Regulations
COMAR	Code of Maryland Regulations
EPA	U.S. Environmental Protection Agency
GSE	Green Street Environmental
LBP	lead-based paint
mg/cm^2	milligrams per square centimeter
mg/kg	milligrams per kilogram
NESHAP	National Emission Standards for Hazardous Air Pollutants
NIST	National Institute of Standards and Technology
OSHA	Occupational Safety and Health Act
PCB	polychlorinated biphenyl
PLM	polarized light microscopy
RACM	regulated asbestos-containing material
SDAT	State Department of Assessments and Taxation
SF	square feet
TCLP	Toxicity Characteristic Leaching Procedure
TEM	transmission electron microscope
XRF	X-ray fluorescence

1.0 Summary

Green Street Environmental (GSE) was retained by Tuerk House Properties, LLC (the Client) to conduct a Hazardous Materials Assessment of the Tuerk House (the Site) located at 730 Ashburton Street in Baltimore, Maryland.

The purpose of the Hazardous Materials Assessment was to identify specific building materials and building contents that must be addressed prior to or during renovation of the above-listed structure to ensure environmental compliance with local, state and Federal regulations.

The scope of services included inspection, assessment, and sampling/analysis of suspect asbestos-containing materials (ACMs) and lead-based paint (LBP). Inspection and assessment was also conducted for items potentially containing mercury (fluorescent lamps and thermostats), polychlorinated biphenyls (PCBs), or chlorofluorocarbons (CFCs); compressed gas cylinders; and other potentially regulated/hazardous materials. GSE conducted the inspections and sampling on November 12 and 15, 2018.

1.1 Summary of Findings

A summary of findings for the assessed hazardous materials that may require removal, recycling/disposal, and/or remediation is presented below. Details regarding the identified hazardous materials and the associated recommendations can be found in the corresponding section of the report. The recommendations presented in this report are applicable to the areas that will be affected by the planned renovation/demolition.

Item	Potential Hazard	Section	Hazardous Material Identified?
ACM	> 1% Asbestos	4.1	Yes
LBP	Lead > 0.7 mg/cm^2	4.2	Yes
Fluorescent Lamps	Mercury	4.3	Yes
Thermostats, Non-Digital	Mercury	4.3	No
Fluorescent Light Ballasts	PCBs > 50 mg/kg	4.4	Yes
Electrical Equipment/ Transformers	PCBs > 50 mg/kg	4.4	No
Refrigeration/Coolant Systems	CFCs	4.5	No
Compressed Gas Cylinders	Explosive, Flammable, and/or Toxic	4.6	Yes
Other Potential Regulated/ Hazardous Materials	Varies	4.7	No

2.0 Introduction and Site Description

The Site, known as the Tuerk House, is currently owned by Tuerk House Properties LLC and functions as a substance abuse treatment facility. The structure consists of three floors and a crawl space. According to the provided drawings, the building footprint is approximately 10,000 SF, with a gross square footage of approximately 40,000 square feet (SF). According to the Maryland State Department of Assessments and Taxation (SDAT), the structure was built in 1904.

2.1 Purpose and General Scope of Services

The planned renovation activities of the Tuerk House may impact ACM, LBP, and other hazardous materials. Due to the age of the structure, the identification, removal, and disposal and/or mitigation of hazardous materials in the structures is necessary as part of the renovation.

The purpose of the Hazardous Materials Assessment was to identify specific building materials and building contents that must be addressed prior to or during renovation of the property to ensure environmental compliance with local, state and Federal regulations. The Hazardous Materials Assessment was conducted on November 12 and 15, 2018.

The scope of work for the Hazardous Materials Assessment of the Site included the following:

- Conduct a comprehensive asbestos inspection;
- Conduct a LBP X-ray fluorescence (XRF) inspection;
- Identify and inventory fluorescent lamps and thermostats that may contain mercury;
- Identify and inventory fluorescent light ballasts and other electrical equipment (including transformers) that may contain PCBs;
- Identify and inventory equipment that may contain CFCs;
- Identify and inventory drums or containers that may contain petroleum-based products or other regulated materials;
- Identify and inventory compressed gas cylinders which may pose explosive hazards or contain regulated materials; and
- Identify other potentially regulated and/or hazardous materials.

All areas of the Tuerk House were accessible for inspection and/or sampling at the time of the assessment. At the Client's request, roofing materials were sampled as part of the assessment and patches were applied by the Client's professional roofing contractor.

Any limitations encountered during the Hazardous Materials Assessment are discussed in Section 4.0 of this report.

3.0 Inspection Methods and Rationale

3.1 Asbestos

The purpose of the asbestos inspection was to identify whether building materials at the Site are ACMs that may be subject to National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements during the planned renovation activities. An ACM is a building material that contains greater than 1% asbestos. According to NESHAP, regulated ACM (RACM) that will be impacted by renovation or demolition activities must be removed by a Maryland-licensed asbestos contractor in accordance with Code of Maryland Regulations (COMAR) 26.11.21. As defined in Title 40 of the Code of Federal Regulations (CFR) Part 61, RACM includes (a) friable asbestos material; (b) Category I nonfriable ACM that has become friable; (c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading; and (d) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder during demolition or renovation activities.

GSE adheres to sampling requirements outlined in the Asbestos Hazard Emergency Response Act (AHERA) and Occupational Safety and Health Act (OSHA). GSE's Maryland-licensed Asbestos Inspectors Patrick LaShier (License #18014341) and Cody Furlong (License #18025131) conducted the asbestos inspection and sampling. A total of 84 building material samples were collected and shipped to an accredited laboratory (SanAir Technologies Laboratory, Inc. in Powhatan, Virginia) for analysis using polarized light microscopy (PLM) by U.S. Environmental Protection agency (EPA) Method 600. The samples were analyzed using positive stop analysis, which refers to the lab protocol that analyzes samples of homogeneous building material and stops analysis for a particular material when asbestos is identified at concentrations greater than 1%. Samples that represent two or more distinct layers of building materials are considered to be heterogeneous, and each layer or distinct material is analyzed and reported separately. As a result, 127 PLM analyses were required. All identified ACMs were quantified and the results are provided in Section 4.1 of this report.

3.2 Lead-Based Paint

The purpose of the LBP inspection was to gain a general understanding of whether LBP is present in the painted surfaces at the Site, and if so, what types of components contain LBP. Representative interior and exterior painted components were selected for testing at the discretion of the GSE Inspector.

GSE is a Maryland-licensed Lead Inspection Contractor (# 12857) and maintains a Maryland Radioactive Material License (#MD-07-228-01). GSE's Maryland-licensed Lead Inspectors Patrick LaShier (Certification #15400) and Cody Furlong (Certification #17093) conducted XRF analyses using a Thermo Scientific™ Niton™ XLp 300A XRF analyzer.

Prior to and subsequent to each inspection event, "validation checks" were performed to ensure that the XRF measurements taken during the inspection truly reflect lead levels at the inspection sample points. GSE performed validation check measurements on the National Institute of Standards and Technology (NIST) Standard Reference Material using the nominal 1.0 milligram per cubic centimeter (mg/cm^2) paint film. In accordance with the manufacturer's recommendations, each validation check was a 20-second nominal sample of the NIST Standard Reference Material. All validation check readings were within this range. LBP results are presented in Section 4.2.

3.3 Fluorescent Lamps and Thermostats

GSE completed a visual assessment for fluorescent lamps and thermostats to estimate the quantities present at the Site. These items may contain regulated materials (mercury) that must be removed, transported, and disposed of (or recycled) properly. Mercury is used to generate light in all fluorescent lamps. Certain thermostats, primarily those manufactured between 1953 and 1990, contain a mercury switch with the mercury contained in a small glass ampule.

Fluorescent Lamps: A lamp-by-lamp count was conducted. All fluorescent lamps are assumed to contain mercury.

Thermostats: Estimated quantities of thermostats are based on visual observation. All non-digital thermostats are assumed to potentially contain mercury.

The findings regarding fluorescent lamps and thermostats are presented in Section 4.3.

3.4 Fluorescent Light Ballasts and Electrical Transformers/Equipment

GSE completed a visual assessment for fluorescent light ballasts to estimate the quantities present at the Site. Fluorescent light ballasts manufactured before 1979 may contain PCBs. Ballasts manufactured in or after 1979 that do not contain PCBs should be labeled "No PCBs". If a ballast is not labeled "No PCBs", it is best to assume it contains PCBs.

The total quantity of ballasts was estimated based on visual observations. Approximately 10% of the ballasts identified were accessed to determine if a "No PCB" label is present. Based on this evaluation, a final estimated quantity of PCB-containing ballasts was calculated and is presented in Section 4.4.

3.5 Chlorofluorocarbons

GSE completed a visual assessment of the Site for equipment that may contain CFCs (e.g., equipment with refrigeration systems such as air conditioning units, vending machines, chillers, refrigeration units). In addition, Halon gas found in Halon gas fire suppression systems contains CFCs.

The purpose of this assessment was to determine estimated quantities of CFC-containing equipment because CFCs are regulated and must be removed, transported and disposed of (recycled) properly. The results of the assessment for CFCs are presented in Section 4.5.

3.6 Compressed Gas Cylinders

GSE completed a visual assessment of the Site for compressed gas cylinders. The purpose of this assessment was to determine estimated quantities of compressed gas cylinders because all cylinders are assumed to present a potential hazard regardless of condition or labeling. Gas cylinders may contain many different types of pressurized materials such as fuels, refrigerants, and poisons. The associated hazards may include toxic effects and physical hazards from explosion or flammability. The results of the assessment for compressed gas cylinders are presented in Section 4.6.

3.7 Other Potentially Regulated and/or Hazardous Materials

GSE completed a visual assessment of the Site for other potentially regulated and/or hazardous materials that may require special handling and disposal or recycling (e.g., batteries, paints/stains, cleaning products, etc.). The results of this assessment are presented in Section 4.7.

4.0 Results and Recommendations

4.1 Asbestos

This section provides the results of the asbestos inspection (sampling and analyses) for the Site. It is important to note that not all building material types were sampled. The inspection was limited to building materials that were accessible and suspected to contain asbestos at the time of the inspection. The asbestos bulk data sheets and laboratory analytical results are provided in **Appendix A** and **Appendix B**, respectively.

A total of 84 building material samples were collected at the Site and a total of 127 PLM analyses were completed based on positive stop analysis and material layering. The table below provides a list of RACM identified at the Site. RACM must be removed by a Maryland-licensed Asbestos Contractor in accordance with COMAR 26.11.21, if the RACM will be impacted by renovation activities.

Regulated ACM	Estimated Quantity	Location(s)	Condition
Roofing tar*	9,500 SF	Throughout roof	Good
Gray Tar on Elevator shaft	200 SF	On side of rooftop elevator shaft	Good
12"x12" Beige mottle floor tile	15,000 SF	Throughout hallways & rooms	Good
Tan carpet mastic*	1700 SF	PA office on the 4th floor. Offices behind front desk on 2nd floor. Office 5 on 2nd floor. Offices on 1st floor.	Good
12"x12" Brown & tan floor tile	1400 SF	Throughout stairwells and Room 5 on 3rd floor	Good
12"x12" Black floor tile	300 SF	Throughout stairwells and Room 5 on 3rd floor	Good
12"x12" Off-white & black floor tile	100 SF	Throughout PA Office on 3rd Floor	Good
Black floor tile mastic	260 SF	3rd Floor Room 12	Good

* TEM analysis is recommended for materials with results of <1% to determine if the asbestos content is greater or less than 1%; otherwise, these materials should be assumed to contain >1% asbestos. Materials containing <1% asbestos are not regulated by the EPA; however, any renovation work impacting these materials is still regulated under OSHA asbestos standards.

4.2 Lead-Based Paint

A total of 116 XRF measurements were collected at the Site. Readings greater than 0.7 mg/cm^2 are considered "positive" for LBP. The XRF sampling data provided in this report are considered "representative" but not necessarily comprehensive. Painted surfaces that were not inspected should be assumed to contain LBP unless the data presented here, or other data, concludes that LBP is not present. All XRF data are presented in **Appendix C**.

There were several component types that contain LBP or have been assumed to contain LBP. It is important to note that not all painted components were tested throughout the Site. Component types that tested positive for LBP are listed in the following table.

Location	Positive Component Types (> 1.0 mg/cm^2)
Roof	
Entrance to Roof	Black metal stairs Blue wood screen door Black metal handrails Red metal exhaust pipes
Roof Elevator Shaft	Gray metal elevator equipment
4th Floor	
Weight Room	Blue wood window casings
3rd Floor	
Game Room	White wood window casing
Mop and Broom Closet	White wood window casing White wood window sills
Room #6	White wood window casing
2nd Floor	
Stairwell	White wood window casings
Room #6	White wood window casings
1st Floor	
Hallway	Black plaster baseboard
Exterior	
Exterior	White wood door casings White wood door casings

Contractors impacting surfaces containing lead must adhere to OSHA's Lead in Construction Standard (19 CFR 1926.62). Lead-containing materials should also be sampled and analyzed using the Toxicity Characteristic Leaching Procedure (TCLP) with lead analysis to ensure proper waste segregation and disposal (40 CFR 261.24 and COMAR 26.13.02.14).

4.3 Fluorescent Lamps and Thermostats

The table below summarizes the estimated quantities of fluorescent lamps and thermostats identified as part of the Hazardous Materials Assessment. Mercury-containing lamps and thermostats are regulated materials that should be inventoried, packaged and disposed of in accordance with all local, state, and Federal regulations. All non-digital thermostats are assumed to potentially contain mercury.

Location	Fluorescent Lamps	Thermostats
Throughout Building	660	None

4.4 Fluorescent Light Ballasts

Based on a visual inventory, it is estimated that there are 345 fluorescent light ballasts at the Site. GSE did not observe any non-PCB labels during the inspection, and therefore these ballasts are assumed to contain PCBs. PCB-containing ballasts are regulated materials that should be inventoried, packaged, and disposed of properly.

4.5 Chlorofluorocarbons

The table below summarizes the estimated quantities of CFC-containing equipment identified as part of the Hazardous Materials Assessment. Section 608 of the Clean Air Act (40 CFR Part 82) regulates CFCs and includes requirements which are comprehensive and cover all aspects of CFC use, handling, and disposal. Disposal of all CFC-containing equipment should be performed in accordance with the requirements outlined by Section 608 of the Clean Air Act.

Location	Description
Throughout Building	None Observed

4.6 Compressed Gas Cylinders

The table below summarizes the estimated quantities of compressed gas cylinders identified as part of the Hazardous Materials Assessment. Guidance and regulations for handling, transport, and disposal of compressed gas cylinders are in place under OSHA, Department of Transportation regulations, and the Compressed Gas Association standards.

Location	Description
Throughout Building	22 fire extinguishers

4.7 Other Potentially Regulated and/or Hazardous Materials

The following potentially regulated and/or hazardous materials identified at the Site should be collected, staged, recycled, and/or disposed of in accordance with all local, state, and Federal regulations.

Location	Description
Throughout Building	None Observed

5.0 Certification

This Hazardous Materials Assessment was conducted in accordance with accepted environmental practices, standards, regulations, and procedures.

Prepared By:

Patrick LaShier
Project Manager

Reviewed By:

Jessica Bennett, PE, CIH
Project Director

GREEN STREET ENVIRONMENTAL

Appendices

Appendix A

Asbestos Bulk Data Sheets

GREEN STREET ENVIRONMENTAL
6304 BLAIR HILL LANE / SUITE 2 / BALTIMORE, MD 21209
PHONE 410.296.8800
FAX 410.296.8801
WWW.GREENSTREET-ENVIRONMENTAL.COM

Project # 181115-4

ASBESTOS BULK DATA

Project Name: Tuerk House - 730 Ashburton Street

Date: 11/12/18

No.	Suspect Homogeneous ACM	Friable (Y/N)	"+"	Approx. Quantity	Location(s)	Sample ID(s)
1	Roofing Tar*	N	✓	9,500 SF	Throughout roof	181112-1-2
2	Black vapor barrier	N		120 SF	On side of elevator shaft	181112-3-4
3	Gray tar on elevator shaft	N	✓	200 SF	On side of elevator shaft	181112-5-6
4	Metal flashing caulk	N		75 LF	Bottom of elevator shaft	181112-7-8
5	Expansion joint caulk	N		30 LF	Side of elevator shaft	181112-9-10
6	2'x4' Fissured Pinhole Ceiling Tile	Y		8,500 SF	Hallways on 1st, 2nd, and 3rd floor, 4th floor workout room, 2nd floor room 1, throughout all rooms on the 1st floor	181112-11-12
7	Drywall	N		33,000 SF	Throughout all rooms on 1st, 2nd, 3rd, and 4th floor	181112-13-15-16
8	Joint Compound	N		33,000 SF	Throughout all rooms on 1st, 2nd, 3rd, and 4th floor	181112-14-16-18
9	Tan Wall Mastic	N		360 SF	Admin office on 3rd floor above ceiling grid	181112-19-20
10	Interior White Window Caulk	N		115 window	All interior windows on 1st, 2nd, 3rd, and 4th floor	181112-21-22

"+" = Building Materials Containing ≥ 1% Asbestos by PLM Analysis

ACRONYMS:
ACM - asbestos-containing material
LF - linear feet
PLM - polarized light microscopy
SF - square feet

NOTES:

*While <1% asbestos materials are not regulated by the US EPA, any renovation or demolition work impacting these materials is still regulated under Occupational Safety and Health Administration (OSHA) asbestos standards.

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Project # 181115-4

ASBESTOS BULK DATA

Project Name: Tuerk House - 730 Ashburton Street

Date: 11/12/18

No.	Suspect Homogeneous ACM	Friable (Y/N)	"+"	Approx. Quantity	Location(s)	Sample ID(s)
11	1'x1' Ceiling Tile Mastic Dots	N	☐	5,560 SF	Throughout hallways on 1st, 2nd, and 3rd floor. 4th floor workout room	181112-23-26
12	Plaster	N	☐	33,000 SF	Throughout all rooms on 1st, 2nd, 3rd, and 4th floor	27-30
13	12"x12" Grey Mottle Floor Tile & mastic	N	☐	2,100 SF	1st floor hallways. 4th floor workout room	31-32
14	Tan Cove Base Mastic	N	☐	4,400 SF	Throughout 1st, 2nd, 3rd, and 4th floor	33-34
15	12"x12" Beige Mottle Floor Tile & mastic	N	☑	15,000 SF	Throughout 1st, 2nd, and 3rd floor hallways and miscellaneous rooms	35-36
16	Tan Carpet Mastic*	N	☑	1,700 SF	PA office on the 4th floor. Offices behind front desk on 2nd floor. Office 5 on 2nd floor. Offices on 1st floor.	37-38
17	12"x12" Brown / Tan Floor Tile & mastic	N	☑	1,400 SF	Both stairwells. Room 5 on 3rd floor	39-40
18	12"x12" Black Floor Tile & mastic	N	☑	300 SF	Both stairwells. Room 5 on 3rd floor	41-42
19	12"x12" Off White / Black Floor Tile & mastic	N	☑	100 SF	PA office on 3rd floor	43-44
20	12"x12" Off White Floor Tile & mastic	N	☐	300 SF	PA office on 3rd floor	45-46

"+" = Building Materials Containing ≥ 1% Asbestos by PLM Analysis

ACRONYMS:
ACM - asbestos-containing material
LF - linear feet
PLM - polarized light microscopy
SF - square feet

NOTES:

*While <1% asbestos materials are not regulated by the US EPA, any renovation or demolition work impacting these materials is still regulated under Occupational Safety and Health Administration (OSHA) asbestos standards.

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Project # 181115-4

ASBESTOS BULK DATA

Project Name: Tuerk House - 730 Ashburton Street

Date: 11/12/18

No.	Suspect Homogeneous ACM	Friable (Y/N)	"+"	Approx. Quantity	Location(s)	Sample ID(s)
21	2'x2' Pinhole Fissured Ceiling Tile	Y	☐	2,700 SF	2nd floor lounge room, counselors office, behind front desk, room 213, room 6	181112-47-48
22	12"x12" Beige Grey Speckle Floor Tile & masti	N	☐	450 SF	PA office on 3rd floor	181112- 49-50
23	12"x12" White Speckle Floor Tile & mastic	N	☑	260 SF	Room 12 3rd floor	181112- 51-52
24	12"x12" Pink / Blue Floor Tile & mastic	N	☐	40 SF	Room 12 3rd floor	181112- 53-54
25	12"x12" Blue / White Floor Tile & mastic	N	☐	40 SF	Room 12 3rd floor	181112- 55-56
26	Tan / Brown Stone Pattern Floor Sheeting & m	N	☐	120 SF	Room 8 3rd floor	181112- 57-58
27	9'x9' Black / White Terrazzo Pattern Floor Tile	N	☐	120 SF	Room 9 3rd floor	181112- 59-60
28	12"x12" White / Black Floor Tile & mastic	N	☐	60 SF	3rd floor hallway storage closet	181112- 61-62
29	12"x12" Black / White Floor Tile & mastic	N	☐	60 SF	3rd floor hallway storage closet	181112- 63-64
30	Sink Undercoating	N	☐	3 Sinks	2nd floor room 1, lounge room, and exam room 2	181112- 65-66

"+" = Building Materials Containing ≥ 1% Asbestos by PLM Analysis

ACRONYMS:
ACM - asbestos-containing material
LF - linear feet
PLM - polarized light microscopy
SF - square feet

NOTES:

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WWW.GREENSTREET-ENVIRONMENTAL.COM

Project # 181115-4

ASBESTOS BULK DATA

Project Name: Tuerk House - 730 Ashburton Street

Date: 11/12/18

No.	Suspect Homogeneous ACM	Friable (Y/N)	"+"	Approx. Quantity	Location(s)	Sample ID(s)
31	12"x12" Pink Floor Tile	N	☐	80 SF	Narcotics room on the 2nd floor.	181112- 67-68
32	12"x12" White / Blue Floor Tile	N	☐	100 SF	2nd floor room 4.	181112- 69-70
33	White Fibrous Wall	N	☐	100 SF	Central stairwell 2nd floor.	181112- 71-72
34	12"x12" Blue Mottle Floor Tile	N	☐	250 SF	1st floor patient bathroom.	181112- 73-74
35	12"x12" Off white / Grey Floor Tile	N	☐	250 SF	1st floor admin office.	181112- 75-76
36	Exterior Door Caulk	N	☐	3 Exterior doors	3 exterior doors.	181115- 1-2
37	Wall fiberboard	N	☐	3,000 SF	Assumed to be behind drywall / plaster on exterior walls.	181115- 3-4
38	White pipe seam sealant	N	☐	60 LF	2nd floor bathroom. 1st floor bathroom.	181115- 5-6
39	Exterior White Window Caulk	N	☐	115 Windows	Exterior Windows.	181115- 7-8
40			☐			

"+" = Building Materials Containing ≥ 1% Asbestos by PLM Analysis

ACRONYMS:
ACM - asbestos-containing material
LF - linear feet
PLM - polarized light microscopy
SF - square feet

NOTES:

Appendix B

Asbestos Analytical Results

SanAir Technologies Laboratory

The Identification Specialists

Analysis Report prepared for Green Street Environmental

Report Date: 11/20/2018

Project Name:

Project #: Tuerk House

SanAir ID#: 18053081

NVLAP TESTING

NVLAP LAB CODE 200870-0

1551 Oakbridge Dr. Suite B | Powhatan, Virginia 23139-8061
888.895.1177 | 804.897.1177 | fax: 804.897.0070 | IAQ@SanAir.com | SanAir.com

SanAir Technologies Laboratory

SanAir ID Number
18053081
FINAL REPORT
11/20/2018 8:50:58 PM

Name: Green Street Environmental
Address: 6304 Blair Hill Lane
Ste 2
Baltimore, MD 21209
Phone: 410-296-8800

Project Number: Tuerk House
P.O. Number:
Project Name:
Collected Date: 11/12/2018
Received Date: 11/14/2018 10:25:00 AM

Dear Pat LaShier,

We at SanAir would like to thank you for the work you recently submitted. The 76 sample(s) were received on Wednesday, November 14, 2018 via FedEx. The final report(s) is enclosed for the following sample(s): 181112R-01, 181112R-02, 181112VB-03, 181112VB-04, 181112GTP-05, 181112GTP-06, 181112FC-07, 181112FC-08, 181112EJ-09, 181112EJ-10, 181112CT-11, 181112CT-12, 181112DJ-13, 181112DJ-14, 181112DJ-15, 181112JC-16, 181112JC-17, 181112JC-18, 181112WM-19, 181112WM-20, 181112WC-21, 181112WC-22, 181112SCT-23, 181112SCT-24, 181112SCM-25, 181112SCM-26, 181112PL-27, 181112PL-28, 181112PL-29, 181112PL-30, 181112GFT-31, 181112GFT-32, 181112BBM-33, 181112BBM-34, 181112BFT-35, 181112BFT-36, 181112CM-37, 181112CM-38, 181112BTFT-39, 181112BTFT-40, 181112BFT-41, 181112BFT-42, 181112OWBFT-43, 181112OWBFT-44, 181112OWFT-45, 181112OWFT-46, 181112PFT-47, 181112PFT-48, 181112BGFT-49, 181112BGFT-50, 181112WFT-51, 181112WFT-52, 181112PFT-53, 181112PFT-54, 181112BFT-55, 181112BFT-56, 181112TSF-57, 181112TSF-58, 181112BWFT-59, 181112BWFT-60, 181112WFT-61, 181112WFT-62, 181112BFT-63, 181112BFT-64, 181112SU-65, 181112SU-66, 181112PFT-67, 181112PFT-68, 18112WB-69, 18112WB-70, 181112FW-71, 181112FW-72, 181112BM-73, 181112BM-74, 181112OWT-75, 181112OWT-76.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

Sandra Sobrino
Asbestos & Materials Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:
- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

Sample conditions:
- 76 samples in Good condition.

SanAir Technologies Laboratory

SanAir ID Number
18053081
FINAL REPORT
11/20/2018 8:50:58 PM

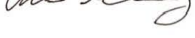
Name: Green Street Environmental
Address: 6304 Blair Hill Lane
Ste 2
Baltimore, MD 21209
Phone: 410-296-8800

Project Number: Tuerk House
P.O. Number:
Project Name:
Collected Date: 11/12/2018
Received Date: 11/14/2018 10:25:00 AM

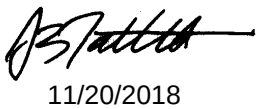
Analyst: Fleming, Christopher

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
181112R-01 / 18053081-001 Roofing Material-Throughout Roof, Cover	White Non-Fibrous Homogeneous		100% Other	None Detected
181112R-01 / 18053081-001 Roofing Material-Throughout Roof, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
181112R-01 / 18053081-001 Roofing Material-Throughout Roof, Felt	Black Fibrous Homogeneous	60% Cellulose	40% Other	None Detected
181112R-01 / 18053081-001 Roofing Material-Throughout Roof, Tar	Black Non-Fibrous Homogeneous		100% Other	None Detected
181112R-01 / 18053081-001 Roofing Material-Throughout Roof, Foam	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
181112R-02 / 18053081-002 Roofing Material-Throughout Roof, Cover	White Non-Fibrous Homogeneous		100% Other	None Detected
181112R-02 / 18053081-002 Roofing Material-Throughout Roof, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
181112R-02 / 18053081-002 Roofing Material-Throughout Roof, Felt	Black Fibrous Homogeneous	60% Cellulose	40% Other	None Detected
181112R-02 / 18053081-002 Roofing Material-Throughout Roof, Tar	Black Non-Fibrous Homogeneous		100% Other	< 1% Chrysotile
181112R-02 / 18053081-002 Roofing Material-Throughout Roof, Foam	Yellow Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: 

Analysis Date: 11/20/2018

Approved Signatory: 

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Name: Green Street Environmental
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Ste 2
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Project Number: Tuerk House
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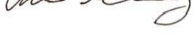
Analyst: Fleming, Christopher

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
181112VB-03 / 18053081-003 Vapor Barrier-On Exterior Of Elevator Shaft	Black Non-Fibrous Heterogeneous		100% Other	None Detected
181112VB-04 / 18053081-004 Vapor Barrier-On Exterior Of Elevator Shaft	Black Non-Fibrous Heterogeneous		100% Other	None Detected
181112GTP-05 / 18053081-005 Tar Layer-Exterior Of Elevator Shaft	Black Non-Fibrous Homogeneous		90% Other	10% Chrysotile
181112GTP-06 / 18053081-006 Tar Layer-Exterior Of Elevator Shaft				Not Analyzed
181112FC-07 / 18053081-007 Flashing Caulk-Along Metal Flashing On Roof, Caulk	Various Non-Fibrous Heterogeneous		100% Other	None Detected
181112FC-07 / 18053081-007 Flashing Caulk-Along Metal Flashing On Roof, Tar	Black Non-Fibrous Homogeneous		100% Other	None Detected
181112FC-08 / 18053081-008 Flashing Caulk-Along Metal Flashing On Roof, Caulk	Various Non-Fibrous Heterogeneous		100% Other	None Detected
181112FC-08 / 18053081-008 Flashing Caulk-Along Metal Flashing On Roof, Tar	Black Non-Fibrous Homogeneous		100% Other	None Detected
181112EJ-09 / 18053081-009 Expansion Joint Caulk On Elevator Shaft, Caulk	Various Non-Fibrous Heterogeneous		100% Other	None Detected
181112EJ-09 / 18053081-009 Expansion Joint Caulk On Elevator Shaft, Tar	Black Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: 
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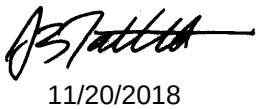
Approved Signatory: 
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Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
181112EJ-10 / 18053081-010 Expansion Joint Caulk On Elevator Shaft, Caulk	White Non-Fibrous Homogeneous		100% Other	None Detected
181112EJ-10 / 18053081-010 Expansion Joint Caulk On Elevator Shaft, Tar	Black Non-Fibrous Homogeneous		100% Other	None Detected
181112CT-11 / 18053081-011 2'x4' Fissured/Pinhole CT-1st-4th Floors	White Fibrous Homogeneous	60% Cellulose	40% Other	None Detected
181112CT-12 / 18053081-012 2'x4' Fissured/Pinhole CT-1st-4th Floors	White Fibrous Homogeneous	60% Cellulose	40% Other	None Detected
181112DJ-13 / 18053081-013 Drywall-1st To 4th Floors	White Non-Fibrous Homogeneous		100% Other	None Detected
181112DJ-14 / 18053081-014 Drywall-1st To 4th Floors	White Non-Fibrous Homogeneous		100% Other	None Detected
181112DJ-15 / 18053081-015 Drywall-1st To 4th Floors	White Non-Fibrous Homogeneous		100% Other	None Detected
181112JC-16 / 18053081-016 Joint Compound-1st to 4th Floors	White Non-Fibrous Homogeneous		100% Other	None Detected
181112JC-17 / 18053081-017 Joint Compound-1st to 4th Floors	White Non-Fibrous Homogeneous		100% Other	None Detected
181112JC-18 / 18053081-018 Joint Compound-1st to 4th Floors	White Non-Fibrous Homogeneous		100% Other	None Detected

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Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
181112WM-19 / 18053081-019 Wall Mastic-3rd Floor-3rd Floor Counselor Office	Tan Non-Fibrous Homogeneous		100% Other	None Detected
181112WM-20 / 18053081-020 Wall Mastic-3rd Floor-3rd Floor Counselor Office	Tan Non-Fibrous Homogeneous		100% Other	None Detected
181112WC-21 / 18053081-021 Window Caulk-1st to 3rd Floors	White Non-Fibrous Homogeneous		100% Other	None Detected
181112WC-22 / 18053081-022 Window Caulk-1st to 3rd Floors	White Non-Fibrous Homogeneous		100% Other	None Detected
181112SCT-23 / 18053081-023 1'x1' Spline CT-4th Floor Weight Room	White Fibrous Homogeneous	95% Cellulose	5% Other	None Detected
181112SCT-24 / 18053081-024 1'x1' Spline CT-4th Floor Weight Room	White Fibrous Homogeneous	95% Cellulose	5% Other	None Detected
181112SCM-25 / 18053081-025 1'x1' Mastic Dots-4th Flr. Weight Room	Brown Non-Fibrous Homogeneous		100% Other	None Detected
181112SCM-26 / 18053081-026 1'x1' Mastic Dots-4th Flr. Weight Room	Brown Non-Fibrous Homogeneous		100% Other	None Detected
181112PL-27 / 18053081-027 Plaster-Walls And Ceilings Throughout, Plaster	Beige Non-Fibrous Heterogeneous		100% Other	None Detected
181112PL-27 / 18053081-027 Plaster-Walls And Ceilings Throughout, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected

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	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
181112PL-28 / 18053081-028 Plaster-Walls And Ceilings Throughout, Plaster	Beige Non-Fibrous Heterogeneous		100% Other	None Detected
181112PL-28 / 18053081-028 Plaster-Walls And Ceilings Throughout, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
181112PL-29 / 18053081-029 Plaster-Walls And Ceilings Throughout, Plaster	Beige Non-Fibrous Heterogeneous		100% Other	None Detected
181112PL-29 / 18053081-029 Plaster-Walls And Ceilings Throughout, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
181112PL-30 / 18053081-030 Plaster-Walls And Ceilings Throughout, Plaster	Beige Non-Fibrous Heterogeneous		100% Other	None Detected
181112PL-30 / 18053081-030 Plaster-Walls And Ceilings Throughout, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
181112GFT-31 / 18053081-031 12x12 Mottle FT-4th Floor	Gray Non-Fibrous Homogeneous		100% Other	None Detected
181112GFT-32 / 18053081-032 12x12 Mottle FT-4th Floor	Gray Non-Fibrous Homogeneous		100% Other	None Detected
181112BBM-33 / 18053081-033 Baseboard Mastic-All Walls, Mastic	Tan Non-Fibrous Homogeneous		100% Other	None Detected
181112BBM-33 / 18053081-033 Baseboard Mastic-All Walls, Mastic	Off-White Non-Fibrous Homogeneous		100% Other	None Detected

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Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
181112BBM-34 / 18053081-034 Baseboard Mastic-All Walls, Mastic	Tan Non-Fibrous Homogeneous		100% Other	None Detected
181112BBM-34 / 18053081-034 Baseboard Mastic-All Walls, Leveler	Beige Non-Fibrous Homogeneous		100% Other	None Detected
181112BFT-35 / 18053081-035 12x12 Mottle FT-3rd Floor, Floor Tile	Beige Non-Fibrous Homogeneous		96% Other	4% Chrysotile
181112BFT-35 / 18053081-035 12x12 Mottle FT-3rd Floor, Mastic	Various Non-Fibrous Homogeneous		100% Other	None Detected
181112BFT-36 / 18053081-036 12x12 Mottle FT-3rd Floor, Floor Tile	Beige Non-Fibrous Homogeneous			Not Analyzed
181112BFT-36 / 18053081-036 12x12 Mottle FT-3rd Floor, Mastic	Various Non-Fibrous Homogeneous		100% Other	None Detected
181112CM-37 / 18053081-037 Carpet Mastic-1st To 3rd Floor	Tan Non-Fibrous Heterogeneous		100% Other	None Detected
181112CM-38 / 18053081-038 Carpet Mastic-1st To 3rd Floor	Tan Non-Fibrous Heterogeneous		100% Other	< 1% Chrysotile
181112BTFT-39 / 18053081-039 12x12 FT-Stairs And 2nd Flr., Floor Tile	Brown Non-Fibrous Homogeneous		93% Other	7% Chrysotile
181112BTFT-39 / 18053081-039 12x12 FT-Stairs And 2nd Flr., Mastic	Black Non-Fibrous Homogeneous		100% Other	None Detected

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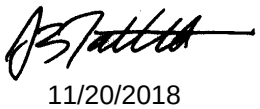
Approved Signatory: 
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Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
181112BTFT-40 / 18053081-040 12x12 FT-Stairs And 2nd Flr, Floor Tile	Brown Non-Fibrous Homogeneous			Not Analyzed
181112BTFT-40 / 18053081-040 12x12 FT-Stairs And 2nd Flr, Mastic	Black Non-Fibrous Homogeneous		100% Other	None Detected
181112BFT-41 / 18053081-041 12x12 FT-All Floors, Floor Tile	Black Non-Fibrous Homogeneous		93% Other	7% Chrysotile
181112BFT-41 / 18053081-041 12x12 FT-All Floors, Mastic	Black Non-Fibrous Homogeneous		100% Other	None Detected
181112BFT-42 / 18053081-042 12x12 FT-All Floors, Floor Tile	Black Non-Fibrous Homogeneous			Not Analyzed
181112BFT-42 / 18053081-042 12x12 FT-All Floors, Mastic	Black Non-Fibrous Homogeneous		100% Other	None Detected
181112OWBFT-43 / 18053081-043 12x12 OW With FT-3rd Floor, Floor Tile	Off-White Non-Fibrous Homogeneous		93% Other	7% Chrysotile
181112OWBFT-43 / 18053081-043 12x12 OW With FT-3rd Floor, Mastic	Black Non-Fibrous Homogeneous		100% Other	None Detected
181112OWBFT-44 / 18053081-044 12x12 OW With FT-3rd Floor, Floor Tile	Grey Non-Fibrous Homogeneous			Not Analyzed
181112OWBFT-44 / 18053081-044 12x12 OW With FT-3rd Floor, Mastic	Black Non-Fibrous Homogeneous		100% Other	None Detected

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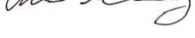
Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
181112OWFT-45 / 18053081-045 12x12 OWFT-3rd Floor, Floor Tile	Off-White Non-Fibrous Homogeneous		100% Other	None Detected
181112OWFT-45 / 18053081-045 12x12 OWFT-3rd Floor, Mastic	Black Non-Fibrous Homogeneous		100% Other	None Detected
181112OWFT-46 / 18053081-046 12x12 OWFT-3rd Floor, Floor Tile	Off-White Non-Fibrous Homogeneous		100% Other	None Detected
181112OWFT-46 / 18053081-046 12x12 OWFT-3rd Floor, Mastic	Black Non-Fibrous Homogeneous		100% Other	None Detected
181112PFT-47 / 18053081-047 2x2 Fissured PH CT-2nd Floor	White Fibrous Homogeneous	60% Cellulose	40% Other	None Detected
181112PFT-48 / 18053081-048 2x2 Fissured PH CT-2nd Floor	White Fibrous Homogeneous	60% Cellulose	40% Other	None Detected
181112BGFT-49 / 18053081-049 12x12 FT-3rd Floor, Floor Tile	Beige Non-Fibrous Homogeneous		100% Other	None Detected
181112BGFT-49 / 18053081-049 12x12 FT-3rd Floor, Mastic	Black Non-Fibrous Homogeneous		100% Other	None Detected
181112BGFT-50 / 18053081-050 12x12 FT-3rd Floor, Floor Tile	Beige Non-Fibrous Homogeneous		100% Other	None Detected
181112BGFT-50 / 18053081-050 12x12 FT-3rd Floor, Mastic	Black Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: 

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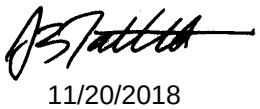
Approved Signatory: 

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Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
181112WFT-51 / 18053081-051 12x12 FT-3rd Floor, Floor Tile	White Non-Fibrous Homogeneous		100% Other	None Detected
181112WFT-51 / 18053081-051 12x12 FT-3rd Floor, Mastic	Various Non-Fibrous Homogeneous		98% Other	2% Chrysotile
181112WFT-52 / 18053081-052 12x12 FT-3rd Floor, Floor Tile	White Non-Fibrous Homogeneous		100% Other	None Detected
181112WFT-52 / 18053081-052 12x12 FT-3rd Floor, Mastic	Various Non-Fibrous Homogeneous			Not Analyzed
181112PFT-53 / 18053081-053 12x12 FT-3rd Floor	Various Non-Fibrous Homogeneous		100% Other	None Detected
181112PFT-54 / 18053081-054 12x12 FT-3rd Floor	Various Non-Fibrous Homogeneous		100% Other	None Detected
181112BFT-55 / 18053081-055 12x12 FT-2nd Floor, Floor Tile	Blue Non-Fibrous Homogeneous		100% Other	None Detected
181112BFT-55 / 18053081-055 12x12 FT-2nd Floor, Mastic	Various Non-Fibrous Homogeneous		100% Other	None Detected
181112BFT-56 / 18053081-056 12x12 FT-2nd Floor, Floor Tile	Blue Non-Fibrous Homogeneous		100% Other	None Detected
181112BFT-56 / 18053081-056 12x12 FT-2nd Floor, Mastic	Various Non-Fibrous Homogeneous		100% Other	None Detected

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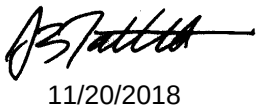
Approved Signatory: 

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	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
181112TSF-57 / 18053081-057 FT-3rd Floor Room 8, Floor Tile	Tan Non-Fibrous Heterogeneous		100% Other	None Detected
181112TSF-57 / 18053081-057 FT-3rd Floor Room 8, Mastic	Various Non-Fibrous Homogeneous		100% Other	None Detected
181112TSF-58 / 18053081-058 FT-3rd Floor Room 8, Floor Tile	Tan Non-Fibrous Heterogeneous		100% Other	None Detected
181112TSF-58 / 18053081-058 FT-3rd Floor Room 8, Mastic	Various Non-Fibrous Homogeneous		100% Other	None Detected
181112BWFT-59 / 18053081-059 9x9 Taruzzo-3rd Floor, Floor Tile	Various Non-Fibrous Homogeneous		100% Other	None Detected
181112BWFT-59 / 18053081-059 9x9 Taruzzo-3rd Floor, Mastic	Off-White Non-Fibrous Homogeneous		100% Other	None Detected
181112BWFT-60 / 18053081-060 9x9 Taruzzo-3rd Floor	Various Non-Fibrous Homogeneous		100% Other	None Detected
181112WFT-61 / 18053081-061 12x12 FT-3rd Floor Storage, Floor Tile	White Non-Fibrous Homogeneous		100% Other	None Detected
181112WFT-61 / 18053081-061 12x12 FT-3rd Floor Storage, Mastic	Various Non-Fibrous Homogeneous		100% Other	None Detected
181112WFT-62 / 18053081-062 12x12 FT-3rd Floor Storage, Floor Tile	White Non-Fibrous Homogeneous		100% Other	None Detected

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	Stereoscopic	Components		
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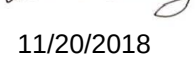
181112WFT-62 / 18053081-062 12x12 FT-3rd Floor Storage, Mastic	Various Non-Fibrous Homogeneous		100% Other	None Detected
181112BFT-63 / 18053081-063 12x12 FT-3rd Floor Storage, Floor Tile	Black Non-Fibrous Homogeneous		100% Other	None Detected
181112BFT-63 / 18053081-063 12x12 FT-3rd Floor Storage, Mastic	Various Non-Fibrous Homogeneous		100% Other	None Detected
181112BFT-64 / 18053081-064 12x12 FT-3rd Floor Storage, Floor Tile	Black Non-Fibrous Homogeneous		100% Other	None Detected
181112BFT-64 / 18053081-064 12x12 FT-3rd Floor Storage, Mastic	Various Non-Fibrous Homogeneous		100% Other	None Detected
181112SU-65 / 18053081-065 Sink Undercoating-2nd Floor	Gray Non-Fibrous Homogeneous		100% Other	None Detected
181112SU-66 / 18053081-066 Sink Undercoating-2nd Floor	Gray Non-Fibrous Homogeneous		100% Other	None Detected
181112PFT-67 / 18053081-067 12x12 FT-2nd Floor Med Room	Pink Non-Fibrous Homogeneous		100% Other	None Detected
181112PFT-68 / 18053081-068 12x12 FT-2nd Floor Med. Room	Pink Non-Fibrous Homogeneous		100% Other	None Detected
18112WB-69 / 18053081-069 12x12 FT-2nd Floor	White Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: 
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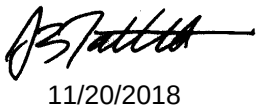
Approved Signatory: 
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Phone: 410-296-8800

Project Number: Tuerk House
P.O. Number:
Project Name:
Collected Date: 11/12/2018
Received Date: 11/14/2018 10:25:00 AM

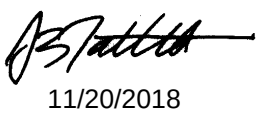
Analyst: Fleming, Christopher

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
18112WB-70 / 18053081-070 12x12 FT-2nd Floor	White Non-Fibrous Homogeneous		100% Other	None Detected
181112FW-71 / 18053081-071 Wall Fiber Sheeting-Stairwell	White Fibrous Heterogeneous	75% Cellulose	25% Other	None Detected
181112FW-72 / 18053081-072 Wall Fiber Sheeting-Stairwell	White Fibrous Heterogeneous	75% Cellulose	25% Other	None Detected
181112BM-73 / 18053081-073 12x12 Mottle FT-1st Floor, Floor Tile	Blue Non-Fibrous Homogeneous		100% Other	None Detected
181112BM-73 / 18053081-073 12x12 Mottle FT-1st Floor, Mastic	Black Non-Fibrous Homogeneous		100% Other	None Detected
181112BM-74 / 18053081-074 12x12 Mottle FT-1st Floor	Blue Non-Fibrous Homogeneous		100% Other	None Detected
181112OWT-75 / 18053081-075 12x12 OW And FT-1st Floor	Off-White Non-Fibrous Homogeneous		100% Other	None Detected
181112OWT-76 / 18053081-076 12x12 OWFT-1st Floor	Off-White Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: 

Analysis Date: 11/20/2018

Approved Signatory: 

Date: 11/20/2018

Disclaimer

The final report cannot be reproduced, except in full, without written authorization from SanAir. Fibers smaller than 5 microns cannot be seen with this method due to scope limitations. The accuracy of the results is dependent upon the client's sampling procedure and information provided to the laboratory by the client. SanAir assumes no responsibility for the sampling procedure and will provide evaluation reports based solely on the sample and information provided by the client. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. government. Samples are held for a period of 60 days.

For NY state samples, method EPA 600/M4-82-020 is performed.

Polarized- light microscopy is not consistently reliable in detecting asbestos in floor covering and similar non-friable organically bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos containing.

Asbestos Certifications
NVLAP lab code 200870
City of Philadelphia: ALL-460
PA Department of Environmental Protection Number: 68-05397
California License Number: 2915
Colorado License Number: AL-23143
Connecticut License Number: PH-0105
Massachusetts License Number: AA000222
Maine License Number: LB-0075
New York ELAP lab ID: 11983
Rhode Island License Number: AAL-126
Texas Department of State Health Services License Number: 300440
Commonwealth of Virginia 3333000323
Washington State License Number: C989
West Virginia License Number: LT000566
Vermont License: AL166318

Revision Date: 11/30/2017

1805 3081

SanAir Technologies Laboratory
1551 Oakbridge Dr. STE B
Powhatan, VA 23139
804.897.1177 / 888.895.1177
Fax 804.897.0070
sanair.com

Asbestos Chain of Custody
Form 140, Rev 1, 1/20/2017

SanAir ID Number
~~1805 2842~~
MB 11-14-18

Company: Green Street Environmental		Project #:	Collect by: Pat LaShier
Address: 6304 Blair Hill Lane		Project Name: Tuerk House	Phone #: 410-296-8800
City, St., Zip: Baltimore, MD 21209		Date Collected: 11/12/2018	Fax #:
State of Collection: MD	Account#: 2555	P.O. Number:	Email: plashier@greenstreet-environmental.com

Bulk

ABB	PLM EPA 600/R-93/116	■
	Positive Stop ■	
ABEPA	PLM EPA 400 Point Count	☐
ABB1K	PLM EPA 1000 Point Count	☐
ABBEN	PLM EPA NOB**	☐
ABBCH	TEM Chatfield**	☐
ABBTM	TEM EPA NOB**	☐
ABQ	PLM Qualitative	☐

** Available on 24-hr. to 5-day TAT

Water

ABHE	EPA 100.2	☐

Air

ABA	PCM NIOSH 7400	☐
ABA-2	OSHA w/ TWA*	☐
ABTEM	TEM AHERA	☐
ABATN	TEM NIOSH 7402	☐
ABT2	TEM Level II	☐
Other:		☐

New York ELAP

PLM NY	PLM EPA 600/M4-82-020	☐
ABEPA2	NY ELAP 198.1	☐
ABENY	NY ELAP 198.6 PLM NOB	☐
ABBNY	NY ELAP 198.4 TEM NOB	☐

Soil

ABSE	PLM EPA 600/R-93/116 (Qual.)	☐

Vermiculite & Soil

ABSP	PLM CARB 435 (LOD <1%)	☐
ABSP1	PLM CARB 435 (LOD 0.25%)	☐
ABSP2	PLM CARB 435 (LOD 0.1%)	☐

Dust

ABWA	TEM Wipe ASTM D-6480	☐
ABDMV	TEM Microvac ASTM D-5755	☐

Matrix	Other	
		☐

Turn Around Times	3 HR (4 HR TEM) ☐	6 HR (8HR TEM) ☐	12 HR ☐	24 HR ☐
	☐ 2 Days	☐ 3 Days	☐ 4 Days	☐ 5 Days

Special Instructions

Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start – Stop Time*	
181112R-01/02	Roofing material - throughout Roof					
181112VB-03/04	Vapor Barrier - on exterior of elevator shaft					
181112GTP-05/06	Gray tar layer - exterior of elevator shaft					
181112FC-07/08	Flashing caulk - along metal flashing on roof					
181112ES-09/10	Expansion Joint caulk - on elevator shaft					
181112CT-11/12	2'x4' fissured/pinhole CT - 1st-4th Floors					
181112DS-13/14/15	Drywall - 1st to 4th Floors					
181112SC-16/17/18	Joint Compound - 1st to 4th Floors					
181112WM-19/20	Tan wall mastic - 3rd floor counselor office					
181112WC-21/22	window caulk - 1st to 3rd floors					
181112SCT-23/24	1'x1' spline CT - 4th floor weight Room					
181112SCM-25/26	1'x1' mastic dots - 4th flr. weight Room					

Relinquished by	Date	Time	Received by	Date	Time
Pat LaShier	11/12/18	7:37pm	JLR	11/14/18	1025
			MB	NOV 14 2018	1025A

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST Friday will begin at 8 am Monday morning. Weekend or holiday work must be scheduled ahead of time and is charged for rush turnaround time. SanAir covers Standard Overnight FedEx shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.

Page 2 of 2

18053081

Form 140, Revision 1, 1/20/2017

Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start – Stop Time*	
18111 2PL - 27/28/29/30	Plaster - Walls and ceilings throughout					
18111 2GFT - 31/32	12x12 Gray mottle FT - 4th floor					
18111 2BBM - 33/34	Tan/Brown baseboard mastic - All walls					
18111 2BFT - 35/36	12x12 Beige mottle FT - 3rd floor					
18111 2CM - 37/38	Tan carpet mastic - 1st to 3rd floors					
18111 2BTFT - 39/40	12x12 Brown w/ Tan FT - Stairs and 2nd flr.					
18111 2BFT - 41/42	12x12 Black FT - All floors					
18111 20WBFT - 43/44	12x12 OW with Black FT - 3rd Floor					
18111 20WFT - 45/46	12x12 OW FT - 3rd floor					
18111 2PFT - 47/48	2x2 Fissured PH CT - 2nd floor					
18111 2BGFT - 49/50	12x12 Beige w/ Gray speck FT - 3rd floor					
18111 2WFT - 51/52	12x12 White speck FT - 3rd floor					
18111 2PFT - 53/54	12x12 Pink w/ white FT - 3rd floor					
18111 2BFT - 55/56	12x12 Blue w/ white FT - 2nd floor					
18111 2TSE - 57/58	Tan stone pattern FT - 3rd floor Room 8					
18111 2BWFT - 59/60	9x9 Black w/ White FT (Tarkett 220) - 3rd Floor					
18111 2WFT - 61/62	12x12 White w/ black FT - 3rd floor storage					
18111 2BFT - 63/64	12x12 Black w/white FT - 3rd flr. storage					
18111 2SU - 65/66	Gray sink undercoating - 2nd floor					
18111 2PFT - 67/68	12x12 Pink FT - 2nd floor Med. Room					
18111 2WB - 69/70	12x12 White w/ Blue FT - 2nd floor					
18111 2FW - 71/72	White wall fiber sheeting - staircwell					
18111 2BM - 73/74	12x12 Blue mottle FT - 1st Floor					
18111 20WT - 75/76	12x12 OW and gray FT - 1st Floor					

Special Instructions	

Relinquished by	Date	Time	Received by	Date	Time
Post Sylvia	11/12/18	7:37pm	MB	NOV 14 2018	1025A

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST Friday will begin at 8 am Monday morning. Weekend or holiday work must be scheduled ahead of time and is charged for rush turnaround time. SanAir covers Standard Overnight FedEx shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.

18053081

Jordan L. Ridgeway

From: Patrick LaShier <plashier@greenstreet-environmental.com>
Sent: Wednesday, November 14, 2018 12:24 PM
To: Jordan L. Ridgeway
Subject: Re: Tuerk House - Missing Turn-Around Time

Sorry about that. Looking for 5 day turn-around for these.

Thank you!
Pat LaShier

On Wed, Nov 14, 2018 at 11:22 AM Jordan L. Ridgeway <jridgeway@sanair.com> wrote:

RE: Tuerk House

SanAir #18052842

Hello,

What turn-around time would you like for this job?

Jordan Ridgeway

Regional Account Manager

SanAir Technologies Laboratory, Inc

1551 Oakbridge Drive, Suite B

Powhatan, Va 23139

Phone: 804.897.1177

Phone: 888.895.1177

Fax 804.897.0070

SanAir
Technologies Laboratory

1 MB 1025A NOV 14 2018

18053081

"The Identification Specialists"

Asbestos, Environmental Microbiology, Legionella, Materials Testing

--

Patrick LaShier
Green Street Environmental
6304 Blair Hill Lane, Suite 2
Baltimore, MD 21209

443-798-0402 c | 410-296-8800 o | 410-296-8801 f

2 MB 10254 NOV 14 2018

SanAir Technologies Laboratory

The Identification Specialists

Analysis Report prepared for Green Street Environmental

Report Date: 11/21/2018

Project Name: Tuerk House

Project #: 181115-4

SanAir ID#: 18053479

NVLAP TESTING

NVLAP LAB CODE 200870-0

1551 Oakbridge Dr. Suite B | Powhatan, Virginia 23139-8061
888.895.1177 | 804.897.1177 | fax: 804.897.0070 | IAQ@SanAir.com | SanAir.com

SanAir ID Number
18053479
FINAL REPORT
11/21/2018 4:18:47 PM

Name: Green Street Environmental
Address: 6304 Blair Hill Lane
Ste 2
Baltimore, MD 21209
Phone: 410-296-8800

Project Number: 181115-4
P.O. Number:
Project Name: Tuerk House
Collected Date: 11/15/2018
Received Date: 11/16/2018 11:20:00 AM

Dear Pat LaShier,

We at SanAir would like to thank you for the work you recently submitted. The 8 sample(s) were received on Friday, November 16, 2018 via FedEx. The final report(s) is enclosed for the following sample(s): 181115RDC-01, 181115RDC-02, 181115FB-03, 181115FB-04, 181115WP-05, 181115WP-06, 181115WG-07, 181115WG-08.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

Sandra Sobrino
Asbestos & Materials Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:
- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

Sample conditions:
- 8 samples in Good condition.

SanAir Technologies Laboratory

SanAir ID Number
18053479
FINAL REPORT
11/21/2018 4:18:47 PM

Name: Green Street Environmental
Address: 6304 Blair Hill Lane
Ste 2
Baltimore, MD 21209
Phone: 410-296-8800

Project Number: 181115-4
P.O. Number:
Project Name: Tuerk House
Collected Date: 11/15/2018
Received Date: 11/16/2018 11:20:00 AM

Analyst: Roseblock, Mary

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
181115RDC-01 / 18053479-001 Exterior Caulk -1st Floor And Roof, Caulk	White Non-Fibrous Homogeneous		100% Other	None Detected
181115RDC-01 / 18053479-001 Exterior Caulk -1st Floor And Roof, Glazing	White Non-Fibrous Homogeneous		100% Other	None Detected
181115RDC-02 / 18053479-002 Exterior Caulk- 1st Floor And Roof, Caulk	White Non-Fibrous Homogeneous		100% Other	None Detected
181115RDC-02 / 18053479-002 Exterior Caulk- 1st Floor And Roof, Glazing	White Non-Fibrous Homogeneous		100% Other	None Detected
181115FB-03 / 18053479-003 Wall Fiberboard- All Walls Throughout Basement	Tan Fibrous Homogeneous	95% Cellulose	5% Other	None Detected
181115FB-04 / 18053479-004 Wall Fiberboard- All Walls Throughout Basement	Tan Fibrous Homogeneous	95% Cellulose	5% Other	None Detected
181115WP-05 / 18053479-005 White Pipe Seam Sealant- 2nd Floors, Insulation	White Fibrous Homogeneous	90% Cellulose 5% Glass	5% Other	None Detected
181115WP-05 / 18053479-005 White Pipe Seam Sealant- 2nd Floors, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
181115WP-05 / 18053479-005 White Pipe Seam Sealant- 2nd Floors, Cover	Various Non-Fibrous Heterogeneous		100% Other	None Detected
181115WP-06 / 18053479-006 White Pipe Seam Sealant-2nd Floors, Insulation	White Fibrous Homogeneous	90% Cellulose 5% Glass	5% Other	None Detected

Analyst: Mary E Roseblock
Analysis Date: 11/21/2018

Approved Signatory: Johnathan Wilson
Date: 11/21/2018

SanAir Technologies Laboratory

SanAir ID Number
18053479
FINAL REPORT
11/21/2018 4:18:47 PM

Name: Green Street Environmental
Address: 6304 Blair Hill Lane
Ste 2
Baltimore, MD 21209
Phone: 410-296-8800

Project Number: 181115-4
P.O. Number:
Project Name: Tuerk House
Collected Date: 11/15/2018
Received Date: 11/16/2018 11:20:00 AM

Analyst: Roseblock, Mary

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
181115WP-06 / 18053479-006 White Pipe Seam Sealant-2nd Floors, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
181115WP-06 / 18053479-006 White Pipe Seam Sealant-2nd Floors, Cover	Various Non-Fibrous Heterogeneous		100% Other	None Detected
181115WG-07 / 18053479-007 Window Glazing- Throughout Building	White Non-Fibrous Homogeneous		100% Other	None Detected
181115WG-08 / 18053479-008 Window Glazing- Throughout Building	White Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: Mary E Roseblock
Analysis Date: 11/21/2018

Approved Signatory: Johnathan Wilson
Date: 11/21/2018

Disclaimer

The final report cannot be reproduced, except in full, without written authorization from SanAir. Fibers smaller than 5 microns cannot be seen with this method due to scope limitations. The accuracy of the results is dependent upon the client's sampling procedure and information provided to the laboratory by the client. SanAir assumes no responsibility for the sampling procedure and will provide evaluation reports based solely on the sample and information provided by the client. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. government. Samples are held for a period of 60 days.

For NY state samples, method EPA 600/M4-82-020 is performed.

Polarized- light microscopy is not consistently reliable in detecting asbestos in floor covering and similar non-friable organically bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos containing.

Asbestos Certifications
NVLAP lab code 200870
City of Philadelphia: ALL-460
PA Department of Environmental Protection Number: 68-05397
California License Number: 2915
Colorado License Number: AL-23143
Connecticut License Number: PH-0105
Massachusetts License Number: AA000222
Maine License Number: LB-0075
New York ELAP lab ID: 11983
Rhode Island License Number: AAL-126
Texas Department of State Health Services License Number: 300440
Commonwealth of Virginia 3333000323
Washington State License Number: C989
West Virginia License Number: LT000566
Vermont License: AL166318

Revision Date: 11/30/2017

SanAir Technologies Laboratory

1551 Oakbridge Dr. STE B
Powhatan, VA 23139
804.897.1177 / 888.895.1177
Fax 804.897.0070
sanair.com

Asbestos Chain of Custody

Form 140, Rev 1, 1/20/2017

SanAir ID Number: 18053479

Company: Green Street Environmental	Project #: 181115-4	Collect by: Pat LaShier
Address: 6304 Blair Hill Lane	Project Name: Tuerk House	Phone #: 410-296-8800
City, St., Zip: Baltimore, MD 21209	Date Collected: 11/15/18	Fax #:
State of Collection: MD Account#: 2555	P.O. Number:	Email: plashier@greenstreet-environmental.com

Bulk

ABB	PLM EPA 600/R-93/116	■
	Positive Stop ■	
ABEPA	PLM EPA 400 Point Count	☐
ABB1K	PLM EPA 1000 Point Count	☐
ABBEN	PLM EPA NOB**	☐
ABBCH	TEM Chatfield**	☐
ABBTM	TEM EPA NOB**	☐
ABQ	PLM Qualitative	☐

** Available on 24-hr. to 5-day TAT

Water

ABHE	EPA 100.2	☐

Air

ABA	PCM NIOSH 7400	☐
ABA-2	OSHA w/ TWA*	☐
ABTEM	TEM AHERA	☐
ABATN	TEM NIOSH 7402	☐
ABT2	TEM Level II	☐
Other:		☐

New York ELAP

PLM NY	PLM EPA 600/M4-82-020	☐
ABEPA2	NY ELAP 198.1	☐
ABENY	NY ELAP 198.6 PLM NOB	☐
ABBNY	NY ELAP 198.4 TEM NOB	☐

Soil

ABSE	PLM EPA 600/R-93/116 (Qual.)	☐

Vermiculite & Soil

ABSP	PLM CARB 435 (LOD <1%)	☐
ABSP1	PLM CARB 435 (LOD 0.25%)	☐
ABSP2	PLM CARB 435 (LOD 0.1%)	☐

Dust

ABWA	TEM Wipe ASTM D-6480	☐
ABDMV	TEM Microvac ASTM D-5755	☐

Matrix	Other	
		☐

Turn Around Times	3 HR (4 HR TEM) ☐	6 HR (8HR TEM) ☐	12 HR ☐	24 HR ☐
	☐ 2 Days	■ 3 Days	☐ 4 Days	☐ 5 Days

Special Instructions

Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start – Stop Time*	
181115RDC-01/02	Exterior door caulk - 1st Floor and Roof					
181115FB-03/04	Wall fiberboard - All walls throughout Basement through					
181115WP-05/06	White pipe seam sealant - 2nd floors					
181115WG-07/08	Window glazing - Throughout Building					

Relinquished by	Date	Time	Received by	Date	Time
Pat LaShier	11/15/18	6:08pm	[signature]	NOV 16 2018	1120

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST Friday will begin at 8 am Monday morning. Weekend or holiday work must be scheduled ahead of time and is charged for rush turnaround time. SanAir covers Standard Overnight FedEx shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.

Page 1 of 1

Appendix C

Lead Based Paint XRF Data Sheets

GREEN STREET ENVIRONMENTAL
6304 BLAIR HILL LANE / SUITE 2
BALTIMORE, MD 21209
PHONE 410.296.8800 • FAX 410.296.8801
WWW.GREENSTREET-ENVIRONMENTAL.COM

Project # 181115-4

LEAD XRF DATA

Project Name: Tuerk House - 730 Ashburton Street Date: 11/15/2018

No.	Room Equivalent	Component Type / Substrate / Color	WC*	Reading mg/cm²	"+"
1	Calibration				☐
2	Calibration				☐
3	Calibration				☐
4	Calibration				☐
5	3rd Floor Hallway	stairway door / metal / black	D	0.0	☐
6	3rd Floor Hallway	door case / metal / black	D	0.0	☐
7	3rd Floor Hallway	door casing / metal / black	D	0.0	☐
8	3rd Floor Hallway	wall / drywall / yellow	D	0.0	☐
9	3rd Floor Hallway	ceiling / door case / white	Ceiling	0.0	☐
10	3rd Floor Hallway	ceiling / wood panel / white	Ceiling	0.0	☐
11	3rd Floor Hallway	wall / plaster / yellow	B	0.0	☐
12	3rd Floor Hallway	wall / glaze block / tan	D	0.0	☐
13	3rd Floor Game Room	door jam / wood / white	B	0.0	☐
14	3rd Floor Hallway	baseboard / block / black	B	0.0	☐
15	Game Room	wall / plaster / blue	A	0.0	☐
16	3rd Floor Game Room	pipe / metal / black	A	0.0	☐
17	3rd Floor Game Room	window casing / wood / white	B	2.6	☒
18	3rd Floor Game Room	window sill / wood / white	B	0.0	☐
19	3rd Floor Game Room	window / metal / white	B	0.0	☐
20	3rd Floor Game Room	electrical conduit / metal / blue	B	0.0	☐
21	3rd Floor Game Room	ceiling / plaster / white	Ceiling	0.0	☐
22	3rd Floor Game Room	radiator panel / wood / white	B	0.0	☐
23	3rd Floor Hallway	fire box / wood / red	B	0.0	☐
24	3rd Floor Mop/Broom Closet	wall / plaster / white	B	0.0	☐
25	3rd Floor Mop/Broom Closet	wall / ceramic tile / white	B	0.0	☐

WC = Wall Code**: A = bldg. entrance, B, C, D = clockwise from building entrance. **"+" = Reading > 0.7 mg/cm²

Validation Checks	Validation Check Readings (mg/cm²)
Pre: 9:00 AM/PM	1 0.9, 2 1.1, 3 1.0
Mid: _____ AM/PM	1 _____, 2 _____, 3 _____
Post: 11:15 AM/PM	1 0.9, 2 1.1, 3 1.1

GREEN STREET ENVIRONMENTAL
6304 BLAIR HILL LANE / SUITE 2
BALTIMORE, MD 21209
PHONE 410.296.8800 • FAX 410.296.8801
WWW.GREENSTREET-ENVIRONMENTAL.COM

Project # 181115-4

LEAD XRF DATA

Project Name: Tuerk House - 730 Ashburton Street Date: 11/15/2018

No.	Room Equivalent	Component Type / Substrate / Color	WC*	Reading mg/cm²	"+"
26	3rd Floor Mop/Broom Closet	shelf / wood / white	B	0.0	☐
27	3rd Floor Mop/Broom Closet	shelf support / wood / white	B	0.0	☐
28	3rd Floor Mop/Broom Closet	ceiling / plaster / white	Ceiling	0.0	☐
29	3rd Floor Mop/Broom Closet	window case / wood / white	C	2.5	⊞
30	3rd Floor Mop/Broom Closet	window sill / wood / white	C	1.5	⊞
31	3rd Floor Mop/Broom Closet	pipe / metal / black	D	0.0	☐
32	3rd Floor Bathroom	door casing / wood / white	B	0.0	☐
33	3rd Floor Bathroom	wall / ceramic tile / white	B	0.0	☐
34	3rd Floor Bathroom	door case / metal / white	D	0.0	☐
35	3rd Floor Bathroom	toilet / ceramic / white	D	0.0	☐
36	3rd Floor Bathroom	sink / ceramic / white	A	0.0	☐
37	3rd Floor Bathroom	wall / dry wall / blue	C	0.0	☐
38	3rd Floor Bathroom	stall / metal / tan	C	0.0	☐
39	3rd Floor Bathroom	door / wood / white	A	0.0	☐
40	3rd Floor Bathroom	door casing / wood / white	A	0.0	☐
41	3rd Floor Bathroom	conduit / metal / blue	A	0.0	☐
42	3rd Floor Bathroom	light switch / metal / white	A	0.0	☐
43	3rd Floor Room #6	wall / dry wall / blue	D	0.0	☐
44	3rd Floor Room #6	door case / wood / white	D	0.0	☐
45	3rd Floor Room #6	door / wood / white	D	0.0	☐
46	3rd Floor Room #6	window sill / wood / white	A	0.0	☐
47	3rd Floor Room #6	window case / wood / white	A	1.6	⊞
48	3rd Floor Hallway	access door casing / metal / white	C	0.0	☐
49	3rd Floor Hallway	access door / metal / white	C	0.0	☐
50	Stairwell	sprinkler pipe / metal / black	D	0.0	☐

WC = Wall Code**: A = bldg. entrance, B, C, D = clockwise from building entrance. **"+" = Reading > 0.7 mg/cm²

NOTES:

GREEN STREET ENVIRONMENTAL
6304 BLAIR HILL LANE / SUITE 2
BALTIMORE, MD 21209
PHONE 410.296.8800 • FAX 410.296.8801
WWW.GREENSTREET-ENVIRONMENTAL.COM

Project # 181115-4

LEAD XRF DATA

Project Name: Tuerk House - 730 Ashburton Street

Date: 11-15-18

No.	Room Equivalent	Component Type / Substrate / Color	WC*	Reading mg/cm^2	"+"
51	Stairwell	sprinkler valve / metal / red	D	0.0	☐
52	Stairwell	wall / glaze block / tan	C	0.0	☐
53	Stairwell	null post / wood / blue	Stairs	0.0	☐
54	Stairwell	spindle / wood / white	Stairs	0.0	☐
55	Stairwell	stringer / concrete / white	Stairs	0.0	☐
56	Stairwell	window casing / wood / white	A	1.9	⊞
57	2nd Floor Hallway	wall / plaster / yellow	C	0.0	☐
58	2nd Floor Hallway	wall / glaze block / tan	C	0.0	☐
59	2nd Floor Hallway	access door / metal / yellow	C	0.0	☐
60	2nd Floor Hallway	baseboard / block / black	A	0.0	☐
61	2nd Floor Bathroom	wall / drywall / red	B	0.0	☐
62	2nd Floor Bathroom	stall door / metal / tan	B	0.0	☐
63	2nd Floor Bathroom	wall / ceramic tile / white	C	0.0	☐
64	2nd Floor Bathroom	toilet / ceramic / white	B	0.0	☐
65	2nd Floor Bathroom	sink / ceramic / white	B	0.0	☐
66	2nd Floor Bathroom	door casing / metal / white	D	0.0	☐
67	2nd Floor Bathroom	door / wood / white	D	0.0	☐
68	2nd Floor Room #6	wall / drywall / white	B	0.0	☐
69	2nd Floor Room #6	window case / wood / white	C	2.0	⊞
70	2nd Floor Room #6	conduit / metal / white	C	0.0	☐
71	2nd Floor Room #6	door case / metal / white	A	0.0	☐
72	2nd Floor Room #6	door / wood / white	A	0.0	☐
73	1st Floor Hallway	wall / plaster / off white	B	0.0	☐
74	1st Floor Hallway	wall / glaze block / tan	B	0.0	☐
75	1st Floor Hallway	elevator door / metal / black	D	0.0	☐

WC = Wall Code**: A = bldg. entrance, B, C, D = clockwise from building entrance. **"+" = Reading > 0.7 mg/cm^2

NOTES:

GREEN STREET ENVIRONMENTAL
6304 BLAIR HILL LANE / SUITE 2
BALTIMORE, MD 21209
PHONE 410.296.8800 • FAX 410.296.8801
WWW.GREENSTREET-ENVIRONMENTAL.COM

Project # 181115-4

LEAD XRF DATA

Project Name: Tuerk House - 730 Ashburton Street Date: 11/15/2018

No.	Room Equivalent	Component Type / Substrate / Color	WC*	Reading mg/cm²	"+"
76	1st Floor Hallway	elevator door casing / metal / white	D	0.0	☐
77	1st Floor Hallway	door / metal / white	C	0.0	☐
78	1st Floor Hallway	door casing / metal / white	C	0.0	☐
79	1st Floor Hallway	baseboard / block / black	B	0.0	☐
80	1st Floor Bathroom	wall / plaster / yellow	B	0.0	☐
81	1st Floor Mailroom	wall / plaster / maroon	D	0.0	☐
82	1st Floor Hallway	wall / plaster/ blue	A	0.0	☐
83	1st Floor Hallway	handrail / metal / black	N/A	0.0	☐
84	1st Floor Hallway	radiator casing / wood / white	D	0.0	☐
85	1st Floor Hallway	baseboard / plaster / black	A	3.0	⊞
86	4th Floor Stairwell	stair ceiling / concrete / white	Stairs	0.0	☐
87	4th Floor Stairwell	wall / brick / white	B	0.0	☐
88	4th Floor Stairwell	door case / wood / orange	D	0.0	☐
89	4th Floor Weight Room	window case / wood / blue	D	2.7	⊞
90	4th Floor Weight Room	wall / drywall /orange	D	0.0	☐
91	4th Floor Weight Room	door case / wood / orange	D	0.0	☐
92	4th Floor Weight Room	door / wood / orange	D	0.0	☐
93	4th Floor Weight Room	window sash / wood / orange	D	0.0	☐
94	Roof	door trim / metal / white	A	0.0	☐
95	Roof	door / metal / white	A	0.0	☐
96	Roof	handrail / metal / black	Roof	2.5	⊞
97	Roof	exhaust pipe / metal / red	Roof	1.5	⊞
98	Roof Elevator Shaft	shaft door / metal / white	Roof	0.0	☐
99	Roof Elevator Shaft	floor / concrete / gray	Roof	0.0	☐
100	Roof Elevator Shaft	elevator equipment / metal / gray	Roof	2.0	⊞

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Project # 181115-4

LEAD XRF DATA

Project Name: Tuerk House - 730 Ashburton Street Date: 11/15/2018

No.	Room Equivalent	Component Type / Substrate / Color	WC*	Reading mg/cm²	"+"
101	Roof Elevator Shaft	roof support beam / metal / black	Roof	0.0	☐
102	Roof Elevator Shaft	pipe / metal / black	Roof	0.0	☐
103	Roof Elevator Shaft	platform / metal / silver	Roof	0.0	☐
104	Roof Elevator Shaft	inside door / metal / gray	Roof	0.0	☐
105	Roof Elevator Shaft	door casing / metal / gray	Roof	0.0	☐
106	Roof Elevator Shaft	exterior door case / metal / gray	Roof	0.0	☐
107	Roof Elevator Shaft	stair case support / metal / black	Roof	0.0	☐
108	Roof	stair / metal / black	Roof	4.6	⊞
109	Roof	screen door / wood / blue	Roof	7.5	⊞
110	Exterior	handrail / metal / black	A	0.0	☐
111	Exterior	wall / concrete / white	A	0.0	☐
112	Exterior	door / metal / black	A	0.0	☐
113	Exterior	door case / wood / white	A	0.8	⊞
114	Exterior	crawl space door / metal / black	A	0.0	☐
115	Exterior	door / wood / white	D	0.0	☐
116	Exterior	door case / wood / white	D	16.9	⊞
117					☐
118					☐
119					☐
120					☐
121					☐
122					☐
123					☐
124					☐
125					☐

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