FULTON COUNTY

Vision

People *Families* *Neighborhoods*

Mission

To serve, protect and govern in concert with local municipalities

Values

People *Customer Services*
Ethics *Resource Management*
Innovation *Equal Opportunity*

REQUEST FOR INVITATION TO BID NO. #08ITB64423K-JD

10TH FLOOR TERRACES WATERPROOFING

VOLUME 2

For

GENERAL SERVICES DEPARTMENT

BID DUE DATE AND TIME: December 8, 2008, 11:00 A.M.
BID ISSUANCE DATE: October 27, 2008
PURCHASING CONTACT: Joyce Daniel, Assistant Purchasing Agent, (404) 612-5824
E-MAIL: joyce.daniel@fultoncountyga.gov

LOCATION: FULTON COUNTY DEPARTMENT OF PURCHASING & CONTRACT COMPLIANCE
130 PEACHTREE STREET, S.W., SUITE 1168
ATLANTA, GA 30303

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PROJECT MANUAL FOR

FULTON COUNTY GOVERNMENT CENTER
10TH FLOOR TERRACES WATERPROOFING
141 PRYOR STREET
ATLANTA, GEORGIA

OWNER:
FULTON COUNTY
GOVERNMENT SERVICES/FACILITY CONSTRUCTION
ATLANTA, GEORGIA 30303

ARCHITECT:
SIZEMORE GROUP
1700 COMMERCE DRIVE, NW
ATLANTA, GEORGIA 30318
PHONE (770)605-0690
FAX (770)605-0890

MECHANICAL/ELECTRICAL/PLUMBING ENGINEERS:
MEHA ENGINEERING
NORCROSS, GEORGIA

CONSTRUCTION CONSULTANTS:
WILLIAMSON & ASSOCIATES
ATLANTA, GEORGIA

SPECIFICATION CONSULTANT:
SPIKER BALDWIN ASSOCIATES, INC.
DECATUR, GEORGIA

ISSUE FOR BID: **10 MAR 08**

DOCUMENT 00611

CONTRACTOR WARRANTY FORM

PROJECT: FULTON COUNTY GOVERNMENT CENTER
10TH FLOOR TERRACES WATERPROOFING

LOCATION: 141 PRYOR STREET
ATLANTA, GA

OWNER: FULTON COUNTY
GOVERNMENT SERVICES/FACILITY CONSTRUCTION
ATLANTA, GA

We, _____, Contractor for the above-referenced project, do hereby warrant that all labor and materials furnished and work performed are in accord with the Contract Documents and authorized modifications thereto, and will be free from defects due to defective materials or workmanship for a period of two years from Date of Substantial Completion. This warranty commences on

_____
(Date of Substantial Completion affixed by Architect)

and expires on _____
(Expiration Date)

Should defects develop during the warranty period due to improper materials, workmanship or arrangement, the same, including adjacent work displaced, shall be made good by the undersigned at no expense to the Owner.

The Owner will give Contractor written notice of defective work. Should Contractor fail to correct defective work within 60 days after receiving written notice, the Owner may, at his option, correct defects and charge Contractor costs for such correction. Contractor agrees to pay such charges upon demand.

Nothing in the above shall be deemed to apply to work which has been abused or neglected by the Owner.

FOR _____
(Company Name)

BY _____

TITLE _____

DATE _____

End of Contractor Warranty Form

SECTION 00612

INSTALLER WARRANTY FORM

PROJECT: FULTON COUNTY GOVERNMENT CENTER
10TH FLOOR TERRACES WATERPROOFING

LOCATION: 141 PRYOR STREET
ATLANTA, GA

OWNER: FULTON COUNTY
GOVERNMENT SERVICES/FACILITY CONSTRUCTION
ATLANTA, GA

GENERAL CONTRACTOR:

We, _____, Installer
(Company Name)

for _____, as described
(List Trade)

in Specification Section(s) _____

_____,
(List appropriate sections of Specifications)
do hereby warrant that all labor and materials furnished and work performed in conjunction with the above-referenced project are in accord with the Contract Documents and authorized modifications thereto, and will be free from defects due to defective materials or workmanship for a period of _____ year(s) from Date of Substantial Completion. This warranty commences on

_____
(Date of Substantial Completion affixed by Architect)
and expires on _____.
(Expiration Date)

Should defects develop during the warranty period due to improper materials, workmanship or arrangement, the same, including adjacent work displaced, shall be made good by the undersigned at no expense to the Owner.

The Owner will give Installer written notice of defective work. Should Installer fail to correct defective work within 60 days after receiving written notice, the Owner may, at his option, correct defects and charge Installer costs for such correction. Installer agrees to pay such charges upon demand.

Nothing in the above shall be deemed to apply to work which has been abused or neglected by the Owner.

FOR _____ (General Contractor)	FOR _____ (Installer's Company Name)
BY _____	BY _____
TITLE _____	TITLE _____
DATE _____	DATE _____

End of Installer Warranty Form

DOCUMENT 00640

AFFIDAVIT OF PAYMENT AND RELEASE OF LIEN

Contractor shall submit AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims" and AIA Document G706A, "Contractor's Affidavit of Release of Liens", along with supporting documents listed within each document, with each Application for Payment. Contractor shall attach separate Releases or Waivers of Lien from each Contractor, Subcontractor and supplier of material and equipment represented in each Application for Payment.

End of Document

DOCUMENT 00710

GENERAL CONDITIONS

"The General Conditions of the Contract for Construction," AIA Document A201, dated 1997, Articles 1 through 14, pages 1 through 44, of the American Institute of Architects, is hereby made a part of these documents to the same extent as if herein written out in full.

End of Document 00710

CONTRACTOR SAFETY AND HEALTH MANAGEMENT PROCESS

SAFETY POLICY STATEMENT

It is the policy of Fulton County to establish a comprehensive accident and loss prevention process for all Capital Projects implemented by Fulton County or its agents.

The goals of this comprehensive accident and loss prevention process are as follows:

- To prevent personal injury, property damage, and injury to the public.
- To implement safety and loss prevention processes as critical elements in the complete design and build process.
- To establish a proactive safety and health process that complies with all laws, regulations, consensus standards, and good management practices.
- To have the Contractors partner with Fulton County in the implementation of a Safety and Loss Prevention Process Program to minimize loss potential and to minimize risk.

Fulton County requires safety, health and loss prevention requirements and expectations to be included in project design, in the invitation to bid, in bid award and project meetings, and in the post job evaluations. The Contractor is required to develop and submit a project safety and health program for acceptance by Fulton County prior to Notice to Proceed. The Contractor is required to implement these requirements, and develop a management system to ensure compliance following the safety and health process outlined in this document and the bid documents.

The Contractor and other entities placed under contract with Fulton County will be obligated to implement, adhere to and enforce this Policy. The safety and health of the Contractor's employees, Sub-Contractors, and the public are the sole responsibility of the Contractor. The County may use and direct designated Representatives to implement and enforce this policy. **Failure of the Contractor to comply with this policy or any Safety related obligations may be grounds for contract termination.**

Fulton County's designated Representative will periodically inspect all Fulton County construction projects to identify safety hazards and make recommendations to resolve the issues. Contractor will be responsible for abating the identified issues in a timely manner, and submitting written description of corrective action within 48 hours to Fulton County designated Representatives. Failure to bring timely resolution to the issues may result in work stoppage at Contractor's expense.

Prior to commencing work under this contract, Contractor's Project Manager and Project Superintendent shall attend a Pre-Construction Meeting and Safety Pre-Planning meeting to address safety issues/requirements.

****

CONTRACTOR SAFETY AND HEALTH MANAGEMENT PROCESS

1.0 NOT USED

2.0 REFERENCES

1.1 Occupational Safety and Health Regulations (OSHA) 29CFR1910 and 29CFR1926
1.2 Environmental Protection Agency Regulations (EPA) 40CFR
1.3 Fulton County Safety and Health and Requirements
1.4 Georgia Department of Transportation Regulations and Requirements
1.5 US Department of Transportation Requirements
1.6 Manual of Uniform Traffic Control Devices for Streets and Highways (ANSI D6.1)
1.7 Georgia Department of Natural Resources Environmental Protection Division Regulations

Safety rules and regulations will be followed using federal, state or local regulations in force. Should a Contractor's rule be in use which is more effective, the most stringent rule or regulation will be enforced by the Contractor, Sub-Contractor's and Fulton County designated Safety Representative(s).

3.0 RESPONSIBILITY

The Contractor receiving the bid has the ultimate responsibility for the safety and health of all Sub-Contractors, all employees on the project, and the general public and complying with all governmental regulations and requirements (OSHA, EPA, DOT, state, local).
Nothing contained herein shall relieve the Contractor or any Sub-Contractor of such responsibility or liability.

4.0 PROCEDURE

4.1 The Contractor and each Sub-Contractor must implement a written safety and health prevention process and program following the guidelines contained in this document and in any other relevant portion of the Contract Documents. This program must be accepted by Fulton County or its Representatives prior to Notice to Proceed.
4.2 The Contractor and each Sub-Contractor must implement a drug and alcohol policy following the guidelines contained in this document and in the bid specific actions. This program must be accepted by Fulton County or its Representatives prior to Notice to Proceed.
4.3 The Contractor must designate a person responsible for site safety. Each Sub-Contractor must designate a person responsible for site safety.
4.4 Not Used.
4.5 Contractor is responsible for providing all necessary safety supplies and personal protective equipment required to protect its employees, Sub-Contractors, and the general public.
4.6 Contractor shall make available certified First-aid services, First-aid supplies, and provisions for medical care for all employees at the construction site prior to beginning work on site.
4.7 Contractor shall maintain a competent person at the construction site at all times with an OSHA 10-hour certification. Said person shall have the knowledge to recognize hazards or potential hazards and has the authority to correct such hazards.
4.8 The status of project safety shall be included in the Contractor's agenda, which is required in Progress Meetings.

5.0 DRUG AND ALCOHOL POLICY

The Contractor and each Sub-Contractor must implement a drug and alcohol policy in order to maintain a safe and efficient work environment. This policy must include the following elements.

1. Written policy that prohibits the use, transportation, sale and possession of these materials.
2. Disciplinary action plan for violations
3. Any treatment or reinstatement/reemployment options
4. Drug and alcohol testing schedule that includes pre-employment, periodic for safety sensitive or critical jobs, and for cause

Note: AGC, ABC and/or Fulton County programs may be used as guidance documents.

6.0 OTHER CONTROLLED ITEMS

The Contractor and each Sub-Contractor is required to include in the Project Safety Program a prohibition against the use, possession, concealment, transportation, promotion or sale of the following controlled items

1. Firearms, weapons, and ammunition.
2. Switchblades
3. Unauthorized explosives including fireworks
4. Stolen property or contraband
5. Controlled chemicals or chemicals recognized as being able to be used for improper purposes.

7.0 EMERGENCY PROCEDURES/GUIDELINES

7.1 The Contractor is required to establish site specific emergency procedures in the Project Safety Program to manage emergencies that may occur at any time in the following categories:

1. Fire
2. Employee injury
3. Pedestrian injury due to work activity of any kind
4. Property damage and damage to various utilities (i.e., electrical, gas, sewerage, water, telephone or public roadways)
5. Public demonstrations
6. Bomb threats
7. Flood, Wind, Lightening, Hail
8. Terrorists Threats
9. Work place violence

7.2 These Emergency Procedures will be made part of the Contractor's Project Safety Program submittal and shall include but not be limited to the following elements:

1. A list of emergency phone numbers posted at the job site, along with information to be transmitted in such emergencies.
2. An incident command structure defining duties and responsibilities
3. A system to train supervisors and employees on this emergency plan
4. Procedures on how to handle emergencies including access to the site by emergency responders, accounting for workers, and securing the area.
5. Procedures for media releases. These releases must be coordinated through the Fulton County Information and Public Affairs Office in coordination with the County's designated Representative.
6. A plan that addresses serious incidents that includes notification to Fulton County, Fulton County's designated Representative immediately after the incident.

7. A review and updating frequency that includes forwarding a copy to Fulton County and the County's designated Representative.

8.0 ACCIDENT AND INCIDENT INVESTIGATION AND REPORTING

8.1 The Contractor is responsible for reporting all accidents and incidents on the project site to the County's designated Representative within (1) business day. Accidents or incidents resulting in a fatality, property loss in excess of $5,000, or involvement with the general public must be reported immediately to Fulton County's designated Representative and the investigation of the accident or incident coordinated with Fulton County Safety staff.

8.2 The Contractor will maintain a log of all injuries that occur on the job site. This log will be current and available for review.

8.3 For any incidents such as fires, explosions, fatalities, etc., the Contractor must notify Fulton County's designated Representative immediately and must coordinate any releases to the news media through the County's designated Representative and the County's Information and Public Affairs Office.

8.4 If a work-related injury should occur on this project, Contractor shall perform a thorough investigation of the incident and document the information.

8.5 A written accident investigation report containing the following information as a minimum must be forwarded to the Fulton County's designated Representative within 24 hours of incident.

1. Company Name
2. Location
3. Date and Time of incident
4. Description of incident
5. Names of all parties involved and all witnesses
6. Corrective action(s) taken to prevent recurrence
7. If the incident involves injury or illness, the following information must be provided:
   a) A medical description of the injury or illness
   b) OSHA recordability status i.e. first aid, medical treatment, lost time, days of restricted work.
   c) If the public is involved, information about treatment and treatment location.
8. Any pictures, site drawings, etc. if they assist in describing the incident.

If the investigation cannot be completed in 24 hours, a preliminary report marked as such shall be forwarded and the report completed and forwarded as soon as possible.

9.0 JOB SAFETY ANALYSIS

9.1 The Contractor and each Sub-Contractor must implement a procedure to conduct a written job safety analysis or job hazard analysis for all project work tasks prior to beginning each task. Reference Appendix A.

9.2 The job safety analysis should follow National Safety Council, AGC, or other recognized guidelines and address all safety and health hazards for the work, identify personal protective and other safety equipment required, identify potential hazards to the general public if applicable, and identify any safety equipment, training, or controls that must be implemented prior to starting the work.

9.3 The Contractor must maintain a file for all job safety analysis forms, which is accessible for review.

10.0 SAFETY AND HEALTH COMPLIANCE AUDITING

10.1 Self Auditing Requirements

10.1.1 The Contractor and each Sub-Contractor must implement a procedure to assure that written safety and health audits or inspections are conducted at least biweekly (every 2 weeks). Safety checklists used by Fulton County's designated Representative may be used. The Contractor may use this checklist or an equivalent approved by Fulton County's designated Representative.

10.1.2 Each written safety audit must be filed on the site and a copy forwarded to Fulton County designated Representative.

10.2 NOT USED

10.3 INSPECTIONS BY REGULATORY AGENCIES

10.3.1 The Contractor must notify the Fulton County designated Representative whenever an OSHA compliance officer, health inspector, or EPA or Georgia Environmental Protection Division Representative arrives at the project site to conduct an inspection.

10.3.2 The Contractor is required to forward a copy of all regulatory citations, notice of violations, or similar for this project to Fulton County's designated Representative.

10.3.3 These records will be reviewed with Fulton County designated Representative and included in the Construction Project files.

10.4 SAFETY INSPECTION AND AUDIT FOLLOW UP

10.4.1 Every safety audit or regulatory inspection conducted per the requirements above may be reviewed by the Fulton County designated Representative. This review may identify serious and repeat safety items, look at trends, identify risks and potential losses, and site safety and loss prevention activities.

10.4.2 After this review the findings may identify areas needing improvement.

10.4.3 A copy of the audit and any areas identified, as needing improvement will be forwarded to the Contractor's senior management.

10.4.4 For findings that indicate major loss potential or serious concerns about site safety, the areas identified as needing improvement and the overall performance may be reviewed by Fulton County's designated Representative A written action plan to address the Contractor's performance issues may be developed.

10.4.5 Fulton County or designated Representative may meet the Contractor's senior management to discuss the findings, contract requirements, and their plans to address the findings.

10.4.6 The number and frequency of safety audits and site visits may be increased until improvements are noted.

11.0 SAFETY MEETINGS

11.1 The Contractor will conduct weekly safety meetings with all Contractor and Sub-Contractor employees on the site.

11.2 The Contractor will keep safety-meeting records that include meeting topic(s), outline of items discussed, and attendance and sign in sheet. At this meeting any accidents or audit findings and corrective actions from the previous week will be discussed.

11.3 The Contractor will maintain a job site file that contains copies of the safety meeting records.

12.0 TRAINING, INSPECTION AND CERTIFICATION

12.1 Employee Training

12.1.1 The Contractor must be able to show when requested the required safety training for all Contractor and Sub-Contractor employees and competent persons working on the site including any required craft training.

12.1.2 The Contractor must be able to show when requested that all employees operating mobile equipment or cranes have met or exceeded training and licensing requirements.

12.1.3 The Contractor must be able to show when requested that all scaffolds are erected under the direction of a competent scaffold builder, that all users are properly trained, and that the scaffold is inspected daily.

12.1.4 The Contractor shall ensure that each employee is properly trained in the recognition and avoidance of unsafe conditions and the regulations applicable to his or her work environment to control or eliminate any hazards or other exposure to illness or injury.

12.1.5 If Contractor or Sub-Contractor employs anyone who cannot effectively communicate using the English language, a translator must be maintained on site who can relay instructions, questions, or concerns in a manner that the non-English and English-speaking employees will understand. The identification of this translator shall be provided to Fulton County's designated Representative.

12.1.6 Contractor shall orient all supervision and employees concerning safety requirements before working on the project site.

12.2 Equipment Certification and Inspection

12.2.1 The Contractor must be able to document that all cranes and mobile equipment used on the job site have current inspections and certifications.

12.2.2 The Contractor must assure that required daily and weekly equipment inspections are performed and documented in writing per governmental regulations and the requirements of this policy.

12.2.3 The Contractor must maintain a job site file for these required inspections and certifications.

12.2.4 Equipment identified as having safety problems or not meeting standards or codes shall be tagged as defective and shall not be used until those identified items have been corrected.

12.2.5 Contractor shall maintain, and have available for viewing, safety inspection reports for ladder, electrical cords, scaffolds, and trenches/excavations.

13.0 SAFETY AND HEALTH PROGRAM ELEMENTS

Note: Based on the project work activities and scope of work, some program elements may be not applicable to the project work and therefore do not have to be implemented. Elements marked with an asterisk are applicable to all Projects.

13.1 Return to Work Policy*

The Contractor and each Sub-Contractor will be required to establish a transitional work program for employees injured at work, which provides modified duty within the employee's physical limitations.

13.2 Fire Prevention Program*

The Contractor and each Sub-Contractor will be required to submit a temporary fire protection plan to be in effect for the duration of the contract. This plan must be submitted as part of the Contractor's Safety Program submittal. It must include provisions for fire protection systems and equipment, as identified in OSHA Safety and Health for Construction 1926, Sub-Part F, Fire Protection and Prevention.

13.3 Hazard Communication (HAZCOM)*

The Contractor and each Sub-Contractor shall have a written HAZCOM Program. The program shall meet OSHA 1926 Requirements and provide for training so that all employees will be able to:

- Understand the program and identify hazardous chemicals with which they work.
- Understand product-warning labels.
- Have MSDSs for all potentially hazardous materials brought onto, used on, or stored at the job site.
- Know the physical location of the Material Safety Data Sheets (MSDS).

13.4 Personal Protective Equipment(PPE)*

All Contractor and Sub-Contractor employees and other site visitors will be required to wear the PPE necessary to accomplish the work in a safe manner. PPE required will vary from job to job and must be based on a written hazard assessment. A list of PPE that is required is identified below:

- Hard Hats shall be worn at all times on all projects
- Hearing Protection for operations that create noise in excess of 85 dBA is required.
- Contractor shall provide eye or face protection equipment when machines or operations present potential eye or face injury from physical, chemical, or radiation agents.
- Work boots or work shoes made of leather shall be required. No open toed shoes or canvas shoes are allowed
- Shirts with sleeves at least 4 inches long are required. Tank tops and mesh shirt are not allowed.
- Full Body Safety Harnesses with shock absorbing lanyards for fall protection are required.
- Full body and chemical splash protection is required when handling hazardous chemicals.
- Respirators are required when employees maybe exposed to dust and/or chemicals in excess of the OSHA permissible exposure limits.
- Long pants are required.

13.5 Confined Space Entry

If the project work involves permit required confined spaces, a permit required confined space entry program that meets OSHA requirements must be established. This program must include but is not limited to the following elements.

- Confined Space Identification
- Environmental Testing
- Rescue
- Communication with employees in the confined space
- Employee Training
- Permit System for entry

13.6 Excavations

If the Contractor or Sub-Contractor must make a cut, cavity, trench or depression in an earth surface formed by earth removal, the work must comply with the OSHA Regulations on trenching and excavations. A competent person must be assigned for each excavation. Requirements include but are not limited to

- Employee Training
- Daily inspections
- Soil testing
- Protective or support systems.

13.7 Electrical Tools, Equipment, and Systems*

- The Contractor and each Sub-Contractor must implement Assured Grounding Program or use Ground Fault Circuit Interrupter (GFCI) devices on all electrical tools and extension cords.
- All electrical work must be performed in accordance with the National Electrical Code (NEC) and OSHA.
- All electrical tools and extension cords must be in good repair and the Contractor must establish a written inspection program for all electrical tools. The frequency of inspection shall be at least monthly.

13.8 Lockout/Tagout Procedure

The Contractor and each Sub-Contractor will be required to implement a written Lockout/Tag procedure that meets OSHA requirements if their work requires energy isolation. Program elements include but are not limited to the following:

- Energy isolation lists for each piece of equipment
- Employee training
- Individually keyed locks and danger tags
- Written Procedure that assigns responsibilities

13.9 Fall Protection*

Contractor shall provide an approved fall protection system for all employees working at an elevation of 6 feet or higher on this project, including scaffolding work and steel erection. Employees will be responsible for utilizing the fall protection 100% of the time. Sub-Contractor will be responsible for ascertaining their employees' compliance with this

requirement. The plan must address the following items:

- Only full body harnesses with shock absorbing lanyards and double locking hooks shall be use.
- Falls should be limited to less than 6 feet such than employee can neither fall more than 6 feet nor contact any lower level.
- Fall protection systems must be planned into the job and must be designed to handle loads and forces expected. The project goal is 100% fall protection.
- Employee training and enforcement of these requirements are mandatory to assure an effective program.

13.10 Scaffolding*

All scaffolds and work platforms shall be constructed to meet the requirements of OSHA 1926.451 and ANSI A10.8. Some program elements include but are not limited to

- User training for all employees who may use scaffolds
- Scaffolding is to be designed and erected by competent person(s) following manufacturer's guidelines. Employees must use fall protection when erecting scaffolding.
- Daily inspection by competent person. Must implement daily tag system to document inspection.
- Must have engineering approval for scaffolds above 100 feet in height.
- Must be able to document competent person credentials.
- Scaffolds must have proper egress (ladder/stairs) and should have guardrails, complete deck, toe boards and netting if anything can fall on people below. If guardrails or decking is not complete, fall protection must be used.

13.11 Cranes And Other Lifting Devices

- Trained and experienced operators shall operate Cranes in accordance with the applicable OSHA and ANSI/ASME.
- The Contractor is responsible for ensuring that the crane is properly sized for the job and that all required inspections and maintenance required by OSHA and ANSI/ASME standards have been conducted.
- All cranes should have anti-two block devices installed and operational. Cranes lifting employees in personnel baskets must have an anti-two block device to stops the crane if this condition occurs (positive acting).
- Tag lines are required to secure materials while being moved or handled by cranes.
- All cranes working in the vicinity of overhead power lines shall be grounded and be equipped with proximity guards.
- A lift plan must be submitted for all lifts that exceed 20,000 pounds or 75% of the crane's lift capacity. This plan must be reviewed and approved by the Contractor.
- Slings, hooks, and other lifting devices must be inspected on regular basis and stored properly.

13.12 Use Of Personnel Baskets

- Personnel baskets should only be used as the last practical means after documenting that all other means are unacceptable.
- The personnel basket must be manufactured, tested, and used in accordance with

OSHA 1926.550. The crane lifting the basket must also meet OSHA requirements.

13.13 Personal Lifts With Articulating Booms (Jlg) And Scissors Lifts

- Operators must be trained in the safe operation of the lift including daily inspection procedures prior to use.
- Operators of JLG lifts must wear a full body harness with shock absorbing lanyard and be tied off while the lift is operation. Operators in a scissors lift must use fall protection anytime the guardrail system removed or altered.

13.14 Ladders*

- Ladders are acceptable means of access when used in compliance with OSHA 1926.1053.
- Ladders must be in good repair, have safety feet and be inspected.
- Extension ladders must be either held by an employee on the ground or tied off at the top.
- Homemade ladders not meeting OSHA requirements should not be used.
- Non-conducting ladders are required for electrical work.
- Fall protection is encouraged for employees working on ladders especially if they will be leaning and turning in their work activities.

13.15 Tools And Equipment*

All tools and equipment used on the project must be in a safe operating condition, with all guards in place, and must meet or exceed all governmental regulations (OSHA, EPA, DOT, etc.). Tools and equipment must be maintained, inspected, tested, and used in accordance with OSHA regulations.

13.16 Compressed Gas Cylinders*

- Compressed gas cylinders must be used, stored, and transported in accordance with OSHA requirements, DOT requirements, and Compressed Gas Association standards.
- Fuel and oxygen cylinders must be store separately or separated by a ½ hour rated firewall.
- Compressed gas cylinders are not allowed inside confined spaces.

13.17 Welding, Burning, And Cutting*

- The Contractor's program must meet or exceed OSHA and NFPA requirements.
- All flammables must be removed from work area and a fire watch posted in area until 30 minutes after the job is completed.
- At a minimum a 10 LB ABC rated fire extinguisher must be available in the immediate work area.
- Regulators must be in good working order and must have anti-flash back and check valves.
- Welding shields and burning goggles must be used.

13.18 Sanitation And Housekeeping*

- The project site shall have an adequate number of portable toilets and hand washing

facilities.

- The project site must establish a housekeeping plan that includes daily site clean up and trash and debris removal.

13.19 Hearing Conservation*

The Contractor and each Sub-Contractor who has employees exposed to noise levels exceeding 85 dBA must establish a hearing conservation program that meets or exceeds OSHA requirements. Minimum program elements include audiometric testing, noise monitoring, use of hearing protectors, and employee training.

13.20 Respiratory Protection

The Contractor and each Sub-Contractor who has employees who wear respiratory protection must implement a respiratory protection program that meets or exceeds OSHA requirements. Minimum program elements include risk based respirator selection, medical surveillance, employee training, respirator fit testing, and written operating procedures.

14.0 SPECIALIZED SAFETY PROGRAM ELEMENTS

If required by the project scope of work and specific work site or activities, specialized programs listed below shall be included in the Contractor's Safety Program submittal. The Contractor is required to implement the required programs and assure that they meet or exceed all contractual, regulatory and Fulton County's requirements applicable. Details for specific program elements may be included in the contract documents.

14.1 Asbestos Removal
14.2 Lead Based Paint Removal
14.3 Exposure Assessment and Employee Monitoring (Industrial Hygiene)
14.4 Hazardous Waste Operations and Training
14.5 Overhead Power Lines
14.6 Locating underground utilities
14.7 Dust Control
14.8 Guarding for floor holes and roof openings
14.9 Heavy Equipment, Truck and Earth Moving Equipment requirements
14.10 Environmental Requirements

15.0 ROAD AND TRANSPORTATION SAFETY REQUIREMENTS

The Contractor shall implement the following into its safety program whether required by the contract or any other authority having jurisdiction if required to perform the work and maintain vehicular and pedestrian traffic safety:

15.1 Barricades and Cones
15.2 Traffic and Warning Signs
15.3 Traffic control devices
15.4 Equipment and materials storage
15.5 Reflective Clothing and other personal protective equipment
15.6 Excavation and road hole protection

15.7 Erosion protection
15.8 Trained flaggers

16.0 ADDITIONAL REQUIREMENTS TO PROTECT THE GENERAL PUBLIC

Based on the Contractor's scope of work and specific work activities or location the Contractor may be required to implement the following into its safety program to protect the general public:

16.1 Fencing and other measures for site security
16.2 Warning, direction and no trespassing signs
16.3 Alternate public walk ways
16.4 Protection of the public from over head and other construction hazards
16.5 Site Traffic Control
16.6 Barricading off hazardous areas and open pits and holes

Appendix A Job Safety Analysis Worksheet Example and Information

Job Safety Analysis/ Job Pre-Planning Worksheet

Job Name and #:		**Completed By:**	
Date:		**Phase/Operation:**	
Task	**Hazard**		**Control**

PRE-OPERATIONAL PLANNING
FACT FINDING GUIDE - GL

I. Evaluate present conditions at job site to determine items that could lead to liability claims during work and after completion of the project.

A. PRESENT OCCUPANCY OR USE OF THE SITE

- Demolition to be done?
- Structures will remain (condition)?

B. HISTORY OF THE SITE

- For what was the site used before?
- Underground tanks?
- Underground utilities?

C. GEOLOGY OF THE SITE

- Rock to be blasted?
- Water to be removed/diverted?
- Fill needed? (where and how obtained?)
- Excavation needed? (where and how disposed of?)

II. Evaluate controls needed in reference to site security and public protection.

A. FENCING NEEDED?

B. ACCESS/GATES

- Can traffic be routed past office or checkpoint?
- "Non-Vendor" visitors escorted?
- Gate lockable after hours?
- "Hard Hat" signs at entrance?
- Dirt removal/tarping area at exit?
- Ready Mix chute wash area?

C. PEDESTRIANS

- Sidewalk maintained outside fence?
- Covered sidewalk needed?
- Special access requirements for neighboring occupants?
- Special after-hours considerations?

D. ENVIRONMENTAL

- Dust control?
- Silt control?

- Mud control on streets?
- Vibration control?

E. UTILITIES

- Underground utilities located?
- Overhead power lines in work area relocated, removed, or deenergized?
- Temporary power service away from high traffic areas?

F. **SUB-CONTRACTORS**

- Method to secure proof of adequate insurance coverage in place?
- List of hazardous materials obtained?
- List of hazardous materials provided?
- Responsibilities established
  - Job site safety meetings
  - Materials delivery
  - Debris removal
  - Access to site
  - Weekly Sub-Contractors' meetings
  - Schedule of safety inspections
  - Emergency Procedures

G. **MATERIALS HANDLING**

- Crane selection criteria established
  - Maximum weight to be handled
  - Maximum lifting height
  - Maximum horizontal reach needed
  - Amount of travel needed
  - Swing radius available
  - Set-up area available
  - Ground bearing capacity
  - Approximate frequency of lifts

- Crane operations responsibilities established
  - Triangle or leasing company crane to be used?
  - Operator trained and experienced on specific machine?
  - Operator can accurately read and interpret machine load chart?
  - Critical lift identified (75% of net capacity)?
  - Machine fully inspected by a qualified outside agency?
  - Rigging hardware properly selected?
  - Inspecting and maintaining the crane per owner/manufacturer specifications?

III. Start Up.

A. ELECTRICAL

- Temporary Power

- Underground service possible?
- Maintenance responsibilities established?
- Main circuit panel barricaded?
- Lighting planned?

- Circuit Protection
  - Ground fault circuit interrupt protection?
  - Assured grounding conductor program?
  - Responsibilities established?

B. FIRE PROTECTION

- ABC extinguishers adequately distributed?
- Properly sized?
- Maintenance of fire extinguishers?
- Stand pipe/hydrant available? Adequate?
- Housekeeping checks/inspections?

C. FALL PROTECTION

- Critical Job Phases Identified?
  - Critical exposures identified by phase? (e.g. "Worker falls into basement excavation")
  - Scheduled start dates for critical phases?

- General Fall Protection Procedures
  - Perimeters
  - Floor openings
  - Working deck
  - Work area access
  - Ladders
  - Elevator hatchways

D. PERSONAL PROTECTIVE EQUIPMENT

- General
  - Hard hats
  - Work shoes
- Specific by Task

E. HAZARD COMMUNICATION PROGRAM ESTABLISHED AND EMPLOYEES TRAINED

F. CONFINED SPACE ENTRY

- Procedures established and task(s) identified requiring use of procedures?

G. TRENCHING

- Procedures established and task(s) requiring procedures identified?

H. PHASE PRE-PLANNING

- Job schedules established?
- Agreed upon target dates for meeting?
- Follow up system

END OF SECTION NO. 00700 – EXHIBIT B

SECTION 01110

SPECIAL PROJECT CONDITIONS

PART 1 - GENERAL

1.1 INSPECTION OF EXISTING FACILITIES:

A. Contractor, Contractor's Superintendent, Key Subcontractors, Waterproofing Consultant, Owner's Representative, Architect, and MEP Engineer shall visit the existing facilities and all areas where Work is to be performed to understand area and scope of Contract, access, staging and storage areas, hours of access, security requirements, noise control, dust control, water intrusion prevention, and other special conditions pertaining to performance of Work of this Contract.

B. Upon Award of Contract, Owner's Representative, Architect, and Contractor shall again inspect existing facility and areas of Work and during course of this inspection the three parties to the joint inspection shall prepare a schedule identifying and showing the location of all damage to the existing work which is ascertainable by inspection. The schedule shall be prepared in three counterpart originals each of which shall be dated and signed on behalf of each party to the joint inspection.
1. An executed and dated counterpart original shall be filed with Owner, Architect and Contractor.

1.2 OWNER USE OF SITE:

A. During Contractor's performance of Work, Owner will continue to occupy all spaces of existing facility. Interruption of building access and usage for normal tenant activities by Contractor shall be minimized and will not be permitted except as further specified and specifically approved in advance by Owner. Except as specifically approved in advance, limit construction operations to those methods and procedures which will not adversely affect occupied spaces and immediate surrounding area, including noise, dust, odors, water intrusion, visual distraction, physical hazards or other undesirable conditions.

B. Indoor Air Quality: Contractor shall schedule work and provide temporary ventilation and/or isolation to insure that fumes from welding, other construction tasks, and out-gassing from construction materials do not migrate to occupied areas.

C. All work that has a potential of disruption of operation of occupied spaces shall be carried out after normal tenant hours or during weekends, unless specifically approved by Owner, in writing, in advance. Contractor shall work with Owner to schedule and sequence the work to be carried out in the occupied spaces.

D. Mechanical, electrical or plumbing outages shall not occur during normal tenant hours. All electrical outages and mechanical, plumbing or other utility outages shall only be scheduled after normal tenant hours, or on weekends.
1. No shut-down of any system shall occur until the Contractor has received Owner's permission in writing.

1.3 KEY SUBCONTRACTORS:

A. General Contractor is required to provide a list of the key Subcontractors to the Owner prior to submitting his Bid. Upon Owner's approval of General Contractor's Key Subcontractors, General Contractor will not be allowed to make any substitutions subsequent to submittal of the List of Subcontractors without the express written consent of the Owner. If the work will not be sub-contracted, the General Contractor should be listed on this form and a Qualification Affidavit included where stipulated for the General Contractor's credential for the work covered, for example, hot applied rubberized-asphalt waterproofing system.

1.4 SEQUENCING PLAN AND SECURITY REQUIREMENTS:

A. Sequencing plan: Contractor shall submit a plan of execution of the work that addresses safety and sequencing methods and timing, including the following:
1. The existing facility will remain in operation throughout the demolition and construction period.
a. Provide safe access for building occupants to all areas of the building during normal business hours (8:00 am through 5:00 pm). Public areas shall fully remain accessible during this time.
b. Segregate work areas from public and tenant areas by means of protective partitions and barricades as herein specified.
c. Protect occupied areas from dust, debris, water intrusions, overspray and damage by covering with non-staining, waterproof covers.
d. For areas requiring restricted access, perform demolition and construction after normal business hours; beginning after 6:00 pm and prior to 7:00 am and on weekends.
1) Contractor shall submit date(s), time(s) and location(s) of work to be performed.
2) For non-business hours work of construction personnel, coordinate security clearance with the Owner's building security.
e. Make mechanical and electrical connections without disruption of service to occupied areas or overloading of existing systems.
f. Work shall be sequenced in such a way that the Owner will be able to continue normal business operations for existing tenants.

2. Plan shall numerically show the sequence of work by which each area will be affected.
   a. Indicate locations of barricades, dust and noise enclosures and protective coverings. Coverings shall include protection of each tenant's furniture and equipment.
   b. Indicate access and egress to and from each area.
   c. Indicate use of areas outside the work limits, including corridors, lobbies, elevators, loading dock and public thoroughfares.
3. Submit safety and sequencing plan as marked up blueline prints.

B. Identification badges: Owner will provide photo identification badges for Contractor and Contractor's personnel.
1. The Contractor, Subcontractors and all construction and delivery personnel shall wear these photo identification badges on the site, throughout demolition and construction period. Badges shall be visible at all times.
2. Badges shall be pin-on or clip-on type. Do not allow lanyard-type badges.
3. Submit monthly list of badges issued to personnel each month. Submit at regular project meetings.
4. Each badge shall contain the following information:
   a. Photograph, full name and signature of badge-holder.
   b. Badge-holder's employer name and contact.
   c. Expiration date of badge.
5. Personnel entering the site without proper identification badges will be required to leave the site.

C. All workmen shall be fully clothed and shall exhibit acceptable behavior at all times. Association with building tenants shall be prohibited.
1. Contractor shall be responsible for the proper attire and actions of all workmen at all times. Any improper attire or actions by any person is cause for immediate dismissal of the offending person from the site and the project.

1.5 10TH FLOOR TERRACE AREAS:

A. While demolishing and removing the existing terrace pavers and waterproofing system, and re-installing the new terrace waterproofing system, drains and pavers, ensure the existing tenants on the 9th Floor below are protected from all damage due to weather and water intrusion and odors or fumes.

1.6 DELIVERIES:

A. Deliveries made during business hours, 7 am to 6 pm, are to be scheduled with the Owner, and coordinated to not disrupt or delay the Owner's deliveries.

B. For deliveries made after business hours, Contractor is to schedule the Owner's loading dock security personnel to be present.

1.7 PERMITS:

A. The Contractor shall be solely responsible for obtaining all permits for sidewalk or street closings from the City of Atlanta.

1.8 CODES AND STANDARDS:

A. The codes and standards referred to are minimum standards. Where requirements of these specifications and the accompanying drawings exceed those of the codes and standards, the drawings and specifications will be followed.

1.9 FIRE PREVENTION:

A. Take adequate and reasonable precautions to protect Work against damage by fire and smoke.
   1. Provide fire extinguishers in readily accessible locations.
   2. Periodically inspect fire extinguishers; remove discharged extinguishers immediately and replace with new or recharged extinguishers.
   3. Keep one operable fire extinguisher within ten (10) feet of any welding or open flame operations.

B. Remove oil-soaked and paint-soaked materials, including paper and rags, from building daily, and more frequently as necessary, to eliminate danger of fire.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 CUTTING AND PATCHING:

A. All repairs shall be made as necessary to leave the building walls, floors and ceilings in their original condition, including all cutting, fitting and drilling of masonry, concrete, metal and other materials as specified or required for proper assembly, fabrication, installation and completion of all work under the contract, and including all patching as may be necessary.

B. All provisions required to facilitate removal of existing equipment and installation of new equipment and repair thereof shall be the responsibility of the Contractor.

End of Section

SECTION 01230

ALTERNATES

PART 1 - GENERAL

1.1 DETAIL REQUIREMENTS:

A. Definitions: Alternates are defined as products, materials, equipment, systems, methods, units of work or major elements of the construction, which may, at the Owner's option and under the terms established in the Contract, be selected for the Work in lieu of requirements of the Contract Documents. Selection may occur prior to the contract date, or may, by the Agreement, be deferred for possible selection at a subsequent date.

B. Alternates may or may not change the scope and general character of the Work.

C. Requirements of this section may be related to, but shall not be confused with, requirements of the Contract Documents related to "allowances," "unit prices," "change orders," "substitutions" and similar terms.

D. Refer to the Contract and subsequent modifications thereto, if any, for determination of alternates which have been accepted and included in the Contract.

E. Notification: Immediately following the award of Contract, prepare and distribute to Owner, Architect and other applicable parties a notification of the status of each Alternate. Indicate that Alternates have been accepted, rejected or deferred for consideration at a later date. Indicate dates by which Owner must make decisions on deferred Alternates in order not to delay the project.

F. Execute accepted alternates under same conditions as other Work of this Contract.

G. Schedule: A Schedule of Alternates is included at end of this Section. Specification sections referenced in Schedule contain requirements for materials necessary to achieve Work described under each alternate.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES:

A. General: Description for each Alternate listed below is recognized to be abbreviated but implies that each change shall be complete for the scope of work affected. Refer to applicable specification sections and drawings for specific requirements for each Alternate.

B. Alternate No. 1: State amount, in dollars, to be added to or deducted from Contract Sum and number of consecutive calendar days to be added to or deducted from proposed Contract Time to furnish and install fully adhered roof membrane system specified in Adhered Single Ply Roof Membrane System, at 10th Floor Terraces, in lieu of waterproofing system specified in Hot Rubberized-Asphalt Waterproofing section.

End of Section

SECTION 01312

PROJECT MEETINGS

PART 1 - GENERAL

1.1 SUMMARY:

A. Work described: This section defines requirements for project meetings, of such nature as relates to the overall project.

B. Related work described elsewhere: A pre-construction conference relating to a specific trade or specific construction process or sequence is specified in the applicable section.

1.2 CONTRACTOR'S DUTIES:

A. Scheduling and notification:
1. Notify invited parties of meeting time and place at least 36 hours prior to meeting.
2. Coordinate timing of progress meetings with Architect and Owner to coincide with progress of major divisions of work.
3. Make physical arrangements for and preside over meetings.

B. Administration:
1. Prepare meeting agenda and distribute to invited parties at least 36 hours prior to meetings.
2. Record and promptly distribute copies of minutes of significant proceedings and decisions of meetings.
3. Prepare and distribute copies of construction progress schedules as originally issued or subsequently approved, marked to show current progress.

1.3 PRE-CONSTRUCTION CONFERENCE:

A. Scheduling: A pre-construction conference shall be held at a location to be announced, prior to commencement of the Work.

B. Attendance:
1. Owner.
2. Architect and invited consultants.
3. Contractor.
4. Major subcontractors as requested by Owner, Architect and Contractor.
5. Representatives of separate contractors, when applicable.

C. Minimum agenda:
1. Distribute and discuss list of major subcontractors and material suppliers.
2. Distribute and review insurance submittals.
3. Distribute tentative construction progress schedule and submittals schedule, with discussion of critical work sequencing.
4. Identify and designate responsible personnel.

5. Process and distribute field decisions, change orders and other Contract Documents.
6. Process required submittals, including shop drawings, samples and product data, and review Contractor's submittal schedules.
7. Establish procedures for maintaining required Record Documents and Maintenance Manuals.
8. Discuss use of site, including temporary offices, storage areas, erosion control and site use limitations and restrictions.
9. Discuss material and equipment deliveries, storage, protection and priorities.
10. Discuss security procedures and methods.
11 Discuss housekeeping procedures and methods.
12 Discuss special project requirements and conditions.

1.4 PROGRESS AND COORDINATION MEETINGS:

A. Scheduling: Unless otherwise requested by Owner or Architect, a progress and coordination meeting shall be held twice monthly, at time determined by Owner, at job site.

B. Attendance:
1. Contractor, represented by Project Manager or Principal.
2. Contractor's Project Superintendent.
3. Subcontractors and material suppliers specifically invited, as applicable to the progress of the Work.
4. Architect and invited consultants.
5. Owner.

C. Minimum agenda:
1. Review minutes of previous meeting, with review of follow-up and work progress since previous meeting.
2. Review field observations, problems and decisions.
3. Identify problems and potential problems affecting project construction or anticipated progress.
4. Review problems of materials delivery, off-site fabrication and subcontractor scheduling.
5. Develop corrective measures and procedures to regain planned schedule when delays occur.
6. Revise construction progress and submittals schedule to reflect actual progress.
7. Review details of anticipated construction progress prior to next meeting.
8. Review workmanship and maintenance of quality standards.
9. Review proposed changes, including effect on construction progress schedule and completion date.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

End of Section

SECTION 01326

CONSTRUCTION SCHEDULES

PART 1 - GENERAL

1.1 SUMMARY:

A. This section covers provisions for construction schedules and supplements provisions of the General Conditions.

1.2 FORM OF SCHEDULES:

A. Prepare in form of "Critical Path Method" schedule for all portions of the Work.
   1. Provide separate horizontal breakdown of each trade or operation.
   2. Order: Chronological order of beginning of each item of work.
   3. Identify each item of work:
      a. By major specification section number.
      b. By logically grouped activities.
   4. Horizontal time scale: Identify first work day of each week.
   5. Scale and spacing: Allow space for updating.

1.3 CONTENT OF SCHEDULES:

A. Provide complete sequence of construction by activity:
   1. Shop drawings, product data and samples:
      a. Submittal data.
      b. Status of each submittal relative to Contractor's Submittal Schedule.
   2. Decision dates for selection of finishes.
   3. Product procurement and delivery dates.
   4. Dates for beginning and completion of each element of construction.

B. Show projected percentage of completion for each element of construction.

C. Provide sub-schedules to define critical portions of work.

1.4 UPDATING:

A. Show all changes since previous submittal of updated schedule.

B. Indicate progress of each activity, show completion dates. Include the following:
   1. Major changes in scope.
   2. Activities modified since previous updating.
   3. Revised projections due to changes.
   4. Other identifiable changes.

C. Provide narrative report, including:
   1. Discussion of problem areas, including current and anticipated delay factors and their impact.
   2. Corrective action taken, or proposed, and its effect.

3. Description of revisions:
   a. Effect on schedule to change of scope.
   b. Revisions in duration of activities.
   c. Other changes that may affect schedule.

1.5 SUBMITTALS:

A. Submit initial schedule at least five calendar days prior to pre-construction conference.

B. Submit updated schedules accurately depicting progress to first day of each month.

C. Submit one reproducible transparency for Architect's information.

D. Distribute reviewed schedules to:
   1. Owner.
   2. Job site file.
   3. Subcontractors.
   4. Architect.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

End of Section

SECTION 01330

SUBMITTALS

PART 1 - GENERAL

1.1 SUMMARY:

A. Definitions:
1. Submittals: General term including samples, shop drawings and product data, as applicable.
2. Shop drawings: Drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.
3. Product data: Illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.
4. Samples: Physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

B. Shop drawings, product data, samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required the way the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents.

C. General provisions:
1. Provisions in this section are mandatory procedures for preparing and submitting samples, shop drawings and product data.
2. Submittals shall be in orderly sequence and timed to cause no delay in the Work.
3. Job delays occasioned by requirement of resubmission of samples, shop drawings and product data not in accord with Contract Documents are Contractor's responsibility and will not be considered valid justification for extension of Contract time.
4. Commence no portion of work requiring submittals until submittal has been approved and stamped by Architect.

D. Informational Submittals; (FIO): Submittals required to be submitted "For Architect's Information Only" (FIO), are required to demonstrate that Work complies with performance requirements of Contract Documents.
1. Calculations, certifications and test reports are submitted for record purposes and Architect's information only and will not be approved by Architect.
a. Include calculations and required information if not completely covered by load tables and products data.
2. Information Submittals, if acceptable to Architect, will not be returned to Contractor.
3. Submittals may be rejected for not complying with requirements.

1.2 SUBMITTAL SCHEDULE:

A. At least five days prior to date of pre-construction conference, submit a list of all required submittals, by specification section. Indicate timing for submission of required submittals and relation to construction sequence.

B. During course of the Work, maintain an updated submittal schedule showing status of all submittals. Provide copies for Architect's information at project meetings and at other times when requested.

1.3 SAMPLE PREPARATION:

A. Prepare samples in sizes, shapes and finishes in accord with provisions of individual specification sections.

B. Samples submitted for color, sheen or texture selection for approval shall be actual samples of the required material. Where a range of color, sheen or texture is anticipated or proposed, samples shall indicate full range proposed, from which Architect may select the exact range to be provided.

C. Samples furnished under this section are not to be confused with full size, on-the-site "mock-ups" or "sample panels" called for in some specification sections.

D. The number of samples submitted shall be the number required by Contractor, plus one which will be retained by Architect, unless otherwise indicated.

E. Attach a tag to each sample, sized to accept Contractor's and Architect's stamps. Samples submitted to Architect shall have tag stamped with Contractor's stamp and appropriate action shall be indicated thereon.

1.4 SHOP DRAWING PREPARATION:

A. Drawings shall conform to the following requirements:
1. Number drawings consecutively.
2. Indicate working and erection dimensions and relationships to adjacent work.
3. Show arrangements and sectional views, where applicable.
4. Indicate material, gauges, thicknesses, finishes and characteristics.
5. Indicate anchoring and fastening details, including information for making connections to adjacent work.
6. Contract documents prepared by the Architect and his consultants will not be acceptable as shop drawing submittals.

B. Form: Submit three blue or black line bond prints of shop drawings.

1.5 PRODUCT DATA PREPARATION:

A. Include product manufacturer's standard printed material, dated, with product description and installation instructions indicated. Product data may also contain test and performance data, illustrations and special details.

B. Form: Number of copies submitted shall be the number required by Contractor, plus two which will be retained by Architect.

C. Identify each product data item with specification section and paragraph number. Data not related to this project shall be deleted from manufacturer's standard product data.

1.6 INFORMATIONAL SUBMITTALS (FIO):

A. General: Prepare and submit Informational Submittals required by other Specification Sections.
   1. Number of Copies: Submit three copies of each submittal, unless otherwise indicated. Architect will not return copies.
   2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
   3. Test and Inspection Reports: Comply with requirements in Section 01458.

B. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of Architects and Owners, and other information specified.

C. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.

D. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

E. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.

F. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.

G. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.

H. Material Test Reports: Prepare reports written by qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.

I. Preconstruction Test Reports: Prepare reports written by qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements.

J. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

K. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.

L. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by qualified testing agency, or on comprehensive tests performed by qualified testing agency.

M. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
1. Name of evaluation organization.
2. Date of evaluation.
3. Time period when report is in effect.
4. Product and manufacturers' names.
5. Description of product.
6. Test procedures and results.
7. Limitations of use.

N. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Closeout Submittals Section.

O. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

P. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
1. Preparation of substrates.
2. Required substrate tolerances.

3. Sequence of installation or erection.
4. Required installation tolerances.
5. Required adjustments.
6. Recommendations for cleaning and protection.

Q. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

R. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

1.7 CONTRACTOR'S REVIEW:

A. Review for compliance with the Contract Documents, stamp with approval and submit to the Architect drawings, product data, samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals which are not marked as reviewed for compliance with the Contract Documents or which are not required by the Contract Documents may be returned by the Architect without action.

B. By approving and submitting submittals, Contractor represents that he has determined and verified materials, field measurements, and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

C. The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of shop drawings, product data, samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and the Architect has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in shop drawings, product data, samples or similar submittals by the Architect's approval thereof.

D. The Contractor shall direct specific attention, in writing or on resubmitted shop drawings, product data, samples or similar submittals, to revisions other than those requested by the Architect on previous submittals.

E. When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, the Architect shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

F. Where work is indicated "By Others," Contractor shall indicate responsibility for providing and coordinating such work, whether by Subcontractors or under separate contracts.

G. Contractor agrees that submittals processed by Architect are not Construction Change Directives or Change Orders; that purpose of submittals by Contractor is to demonstrate that Contractor understands design concept; that he demonstrates his understanding by indicating which equipment and material he intends to furnish and install and by detailing fabrication and installation methods he intends to use.

H. Contractor represents by submitting samples, shop drawings and product data that he has complied with provisions herein specified. Submissions made without Contractor's approval indicated thereon will be returned without being reviewed for compliance with this requirement.

I. Date each submittal and indicate name of Project, Architect, Contractor, Subcontractor, as applicable, description or name of equipment, material or product, and identify location at which it is to be used in the Work.

J. Accompany submittal with transmittal letter containing project name, Contractor's name, number of samples or drawings, titles and other pertinent data. Transmittal shall outline deviations, if any, in submittals from requirements of Contract Documents.

K. Perform no portion of the Work requiring submittal and review of submittals until the respective submittal has been approved and stamped by the Architect. Such work shall be in accord with submittals bearing the Architect's stamp.

1.8 ARCHITECT'S REVIEW AND APPROVAL:

A. Architect will review each submittal, mark it with appropriate action, and return it to Contractor with reasonable promptness, except where it must be held for coordination and the Contractor is so advised. Submittals will be marked by Architect as follows:
   1. "Approved" indicates the submittal has been reviewed for conformance with design and no exceptions are taken. Proceed with the work.
   2. "Approved as Noted" indicates Contractor may proceed with the work as noted. All submittals must be "Approved" or "Approved as Noted" before issued for field use.
   3. "Revise and Resubmit" or "Not Approved" indicates submittal to be revised and resubmitted for review prior to proceeding with the work or that submittal does not comply with Contract Documents.

B. Architect's review, approval or other appropriate action is only for checking for conformance with information given and the design concept expressed in the Contract Documents. Architect's approval of a specific item shall not indicate approval of an assembly in which the item is a component.

C. Architect's review of Contractor's submittals shall not relieve Contractor of responsibility for deviation from requirements of Contract Documents unless Contractor has informed Architect in writing of such deviation at time of submission and Architect has given written approval to the specific deviation. Architect's review shall not relieve Contractor from responsibility for errors or omissions in submittals.

D. Submittals required to be submitted "For Architect's Information Only" are required to demonstrate that the Work complies with performance requirements of the Contract Documents. Such submittals, if acceptable to Architect, will not be returned to Contractor.

E. Architect will return one reproducible copy of reviewed shop drawings for printing and distribution by Contractor.

1.9 RESUBMISSION:

A. Make corrections and changes indicated for unapproved submittals, and resubmit in same manner as specified above until Architect's approval is obtained.

B. On resubmittal transmittal, direct specific attention to revisions other than corrections requested by Architect on previous submittals, if any.

1.10 DISTRIBUTION:

A. Contractor is responsible for obtaining and distributing copies of submittals to his subcontractors and material suppliers after, as well as before, final approval. Prints of reviewed shop drawings shall be made from transparencies which carry the Architect's appropriate stamp.

B. For duration of project, Contractor shall maintain a file of approved submittals which shall be delivered to Owner as a part of project closeout documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

End of Section

SECTION 01500

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 FACILITIES:

A. Temporary offices: Provide sufficient space for Contractor's personnel.
   1. Provide temporary office facilities complete with lighting, heating, air conditioning and telephone service.
   2. Location of temporary office shall be subject to Owner's and Architect's acceptance.
   3. Provide office space complete with desk, layout board, chair, four-drawer file cabinet and plan rack for Architect's use.

B. Temporary storage facilities: Provide weathertight storage sheds with raised floors. Sheds shall be of type and size required by storage conditions. Locations and adequacy of storage facilities shall be subject to Architect's acceptance.

C. Storage and staging areas: Owner will provide limited area(s) within the building for the Contractor's use to store materials and maintain a project office. The area(s) to be provided are limited and will be identified at time of initial inspection of existing facilities.

D. Parking: Owner will not provide parking spaces for the Contractor or Contractor's employees, except for vehicles which are loading or unloading goods, equipment, supplies and materials in the loading area. Contractor shall not block the loading dock area or permit its employees to park in this area.

E. Signs: No project or advertising signs of any description will be allowed. Contractor shall provide directional and warning signs at protective barricades to assure safe passage of pedestrians in and near areas of work.

1.2 TEMPORARY UTILITIES:

A. Electrical service: Electrical power service of existing voltage and amperage may be obtained from Owner's present facility at no cost to Contractor. Contractor shall be responsible for making connections to Owner's service and for extensions of service. Contractor shall provide additional higher voltage power service and pay all costs for such power, including connections and extensions, if required by him for construction purposes.

B. Temporary lighting; provide the following minimum light levels for construction purposes:
   1. General construction and safety lighting: Five foot-candle.
   2. Finishing work and testing: 25 foot-candle.

C. Temporary heat and ventilation:
   1. Provide temporary heat in enclosed spaces to provide minimum temperatures of 40 degrees F. until the time that finishing work begins.
   2. After building is enclosed and installation of finishes begins, maintain spaces in a temperature range of 60 degrees F. to 80 degrees F. at all times, except as may otherwise be required by product manufacturers for proper product installation and performance. Maintain until Date of Substantial Completion.
   3. Maintain relative humidity in a range of 50% to 65% in enclosed spaces after building is enclosed and installation of finishes begins, except as may otherwise be required by product manufacturers for proper product installation and performance. Maintain until Date of Substantial Completion.
   4. Provide ventilation to prevent accumulation of dust, fumes or gases and to cure materials and disperse humidity.

D. Telephone service: Provide temporary telephone service to temporary offices for duration of project. Pay costs of installation and for local service.

E. Water: Water for construction purposes may be obtained from Owner's present facility. Contractor shall be responsible for extending lines from source and for making connections.

F. Sanitary toilet facilities: Provide and maintain temporary toilet facilities for construction personnel.
   1. Permanent new facilities may not be used by personnel.
   2. Sanitary facilities shall meet standards of International Building Code.

G. 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. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, assume full responsibility for placing systems in like-new operational status, including replacement of worn parts and cleaning or replacement of pumps, traps, screens and filters before offering Work for acceptance.

1.3 TEMPORARY ELEVATOR AND HOIST EQUIPMENT:

A. Elevator and hoist equipment:
   1. Contractor may use one designated existing service elevator for vertical transportation of personnel, interior materials and equipment. The service elevator will be used during normal hours of operation by Building Tenants. Contractor shall coordinate use of the Service Elevator with Building Manager.
   2. Elevator will be available for Contractor's use off-hours on Monday through Friday and any time on Saturday, Sunday and holidays, upon receipt of Owner's written approval. Contractor shall schedule use with building security.
   3. Contractor shall not restrict use of service elevator to prevent use by others so authorized or by building occupants.

4. Do not overload elevator, hoisting equipment or off-loading areas with materials.
5. Contractor shall make elevator available to separate contractors at Owner's request.

B. Temporary hoist and staging equipment: Provide temporary equipment for transportation of personnel and equipment for exterior terrace materials and personnel.
1. Provide protection devices for building during equipment use.
2. Do not overload building structural system with temporary equipment; do not overload hoisting equipment or staging.
3. Use of building elevators for transporting personnel, exterior building materials and equipment for 10th Floor Terraces is prohibited.

1.4 SECURITY:

A. Security lighting: Provide temporary security lighting for site and structures until permanent building site lighting is installed and in operation on a normal basis.

B. For off-hours work of construction personnel, coordinate security clearance with the Owner's building security. Security clearance is required for work performed during holidays and at times other than 8:00 A. M. to 5:00 P. M., Monday.

1.5 BUILDING ACCESS:

A. The Contractor shall generally be prohibited from entering areas of the building except where work is in progress. Access to roofs through the building shall be coordinated with the Architect. Work and access shall cause as little disruption to building occupants as possible.

B. Schedule the Work and arrange material storage in a manner which leaves the project site as unencumbered as possible. Provide temporary barriers and enclosures, and maintain the site in clean condition. Loading dock areas shall not be blocked.

C. The Contractor shall be responsible for correcting damages to the building caused by his work or passage. Soiled or damaged materials shall be replaced or repaired to satisfaction of the Owner.

D. The limits of construction shall be maintained at all times.

1.6 SPECIAL PROTECTION REQUIREMENTS:

A. Protect buildings and building components from damage, staining or defacing due to the Work. Correct or replace damaged materials or finishes to satisfaction of the Owner.

B. Protect landscape planting from damage, including toxic overspray or run-off from cleaning materials. Damaged or ruined planting shall be replaced by the Contractor with plants of identical variety, size and configurations. Replace damaged ground cover materials to match existing.

C. Provide protective enclosures at building entrances and exterior walkways to protect building occupants. Enclosures shall include protection from cleaning and applied materials. Coordinate placement and location of all protective enclosures with Owner. Building entrances and exits shall not be made inaccessible unless approved in advance by Owner and local fire officials.

D. Control surface water and drainage during the course of construction. Provide equipment and materials to safely remove drainage water from the site. Dispose of drainage water in a manner to prevent damages to any portion of the site or adjacent sites.

E. Provide methods, means and facilities to prevent pollution and contamination of water and air. Enact emergency measures to contain spills, to prevent toxic chemical releases and to remove pollution and contaminated materials.

F. Drives shall not be blocked to extent of restricting vehicular access, and parking area restrictions shall be kept to a minimum. Barriers and restrictions shall be approved in advance by the Owner. Do not work with materials subject to being wind blown during times of high winds.

G. Protect building from rain or water leakage during the course of the Work. Do not open joints and roof areas to extent that openings cannot be protected from inclement weather. Openings shall not be left unprotected overnight.

1.7 RELOCATION AND REMOVAL:

A. Relocate temporary facilities during construction as required by progress of the Work and as directed by Architect at no additional cost to the Owner.

B. At completion of the Work or at the time of permanent utility connections, as applicable, remove temporary facilities, including connections and debris resulting from temporary installation.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

End of Section

SECTION 01600

MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.1 HAZARDOUS SUBSTANCES:

A. The intent of the Contract Documents is to exclude all materials which contain known hazardous substances, including materials containing asbestos, polychlorinated biphenyl (PCB), or any other known substances determined to be a health hazard by the United States Environmental Protection Agency (EPA) and other recognized agencies. In studying the Contract Documents and at any time during execution of the Work, the Contractor shall at once report to the Architect any materials containing hazardous substances that he may discover. Do not proceed with installation of materials containing known hazardous substances.

B. Where products are specified by product, by manufacturer, by reference standard or in descriptive manner without manufacturer's name, model number or trade name, Contractor shall select materials meeting specified requirements which do not contain known hazardous substances in any form.

C. In making requests for substitution, Contractor shall be responsible for determining that materials requested for substitution are free of known hazardous substances in any form.

1.2 QUALITY ASSURANCE:

A. Nameplates: Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view in occupied spaces or on exterior.
   1. Labels: Locate required product labels and stamps on concealed surface or, where required for observation after installation, on an accessible surface that is not conspicuous.
   2. Equipment Nameplates: Provide permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface which is inconspicuous in occupied spaces. Nameplate shall contain following information and other essential operating data:
      a. Name of product and manufacturer.
      b. Model and serial number.
      c. Capacity.
      d. Speed.
      e. Ratings.

B. Mock-ups: Mock-ups, as described in individual Specifications Sections, must be installed and approved/ accepted by Architect prior to beginning manufacture/ fabrication of items. Architect's approval of submittals shall not relieve Contractor and manufacturer/fabricator of responsibility of obtaining Architect's approval and acceptance of mock-ups prior to manufacturer/fabricator proceeding with fabrication of items. Architect's approval of mock-ups may result in deviations and changes to Architect's original design.

1.3 DELIVERY, STORAGE AND HANDLING:

A. Requirements of this section are general in nature. Refer to individual specification sections for additional specific requirements.

B. Deliver manufactured products to project site in manufacturer's original packaging with labels and seals intact. Labels shall indicate manufacturer and product name, description, mixing and application instructions. Where applicable, labels shall indicate fire resistive classifications.

C. Inspect materials upon delivery to ensure proper material, color, type and quantity.

D. Prevent corrosion, soiling or breakage of materials or contact with deleterious materials.

E. Handle materials and equipment to prevent damage, deterioration or contamination. Install no materials which are physically damaged or stained prior to time for installation.

F. Flammable or hazardous materials:
1. Store minimum quantities in protected areas.
2. Provide appropriate type fire extinguishers near storage areas.
3. Observe manufacturer's precautions and applicable ordinances and regulations.

G. Comply with instructions and recommendations of manufacturer's product data for product storage and handling.

H. Comply with manufacturer's product data in all aspects of basic material usage, handling, installation and substrate preparation, except where more stringent requirements are specified.

1.4 PROJECT/SITE CONDITIONS:

A. During the course of the work, Contractor shall maintain the project and all permanent materials, equipment and finishes to be free of leaks, moisture, moisture vapor intrusion and other environmental conditions that could prove to be hazardous during and after construction operations.
   1. Should permanent materials, equipment or finishes become damp or wet, adhere to strict ASHRAE standards for elimination of moisture, moisture vapor and damp and wet elements.
   2. If potentially hazardous conditions are observed or suspected, Contractor shall suspend operations, shall notify Owner and Architect in writing, and shall investigate, perform testing and remedy hazardous conditions.
   3. Do not proceed with additional work until these conditions and materials are corrected.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION/MATERIALS:

A. Use materials and equipment that are new and of quality suited to use intended, suitable for function intended, and plainly labeled and delivered to Project site in original unopened containers when nature of materials is suitable for containers.

B. The intent of the Contract Documents is to exclude all materials which contain known hazardous substances, including materials containing asbestos, polychlorinated biphenyl (PCB), or any other known substances determined to be a health hazard by the United States Environmental Protection Agency (EPA) and other recognized agencies. In studying the Contract Documents and at any time during execution of the Work, the Contractor shall at once report to the Architect any materials containing hazardous substances that he may discover. Do not proceed with installation of materials containing known hazardous substances.

C. Where products are specified by product, by manufacturer, by reference standard or in descriptive manner without manufacturer's name, model number or trade name, Contractor shall select materials meeting specified requirements which do not contain known hazardous substances in any form.

D. In making requests for substitution, Contractor shall be responsible for determining that materials requested for substitution are free of known hazardous substances in any form.

E. Compliance with Standards, Codes and Regulations: Where Specifications only require compliance with an imposed code, standard or regulation, select product that complies with standards, codes or regulations specified.

F. Visual Matching: Where Specifications require matching an established sample, Architect's decision will be final on whether a proposed product matches satisfactorily.

2.2 CONTRACTOR'S OPTIONS:

A. For products specified only by reference standard or description, provide any product meeting specifications.

B. For products specified by naming one or more products or manufacturers, no substitutions will be permitted, provide one of named products.

C. Where particular items of materials, products, equipment, assemblies, and mechanical or electrical equipment are specified in Division 2 thru Division 16 as products of certain named manufacturers, products of only those named manufacturers are acceptable. Certain specified construction and equipment details may not be regularly included as part of every named manufacturer's standard catalog equipment, materials, products, or assemblies, but shall be provided by the manufacturer as required for the proper functioning of the equipment. The Contractor shall assume full responsibility to assure that the selected manufacturer provides equipment conforming to indicated and specified requirements. Reasonable minor variations in equipment due to manufacturing methods are expected and will be acceptable; however, indicated and specified performance and material requirements are minimum and all deviations are to be brought to Architect's attention prior to submission, fabrication, and beginning of installation of products, materials, or assemblies. The Architect reserves the right to determine equality of equipment that deviates from any of the indicated and specified requirements.

D. Naming any manufacturer does not imply approval of that manufacturer's nonconforming products.

E. The Contractor shall include in the Work; the materials, products and equipment named in the Contract Documents by trade name, proprietary name or manufacturer's catalog numbers, including all specified modifications thereto unless proposed substitutions are approved in writing by the Architect prior to award of the Contract. After execution of the Contract, the Contractor shall provide only those materials, products and equipment named in the Contract Documents and approved substitutions therefor for inclusion in the Work, except as provided herein.

PART 3 - EXECUTION

3.1 SUBSTRATE CONDITIONS:

A. Verify and obtain substrate conditions, tolerances and material alignments to receive applied or attached materials and construction.

B. Substrates shall be sound, clean, dry and free of imperfections and conditions which would be detrimental to receipt of applied materials and finishes.

C. Align materials to give smooth, uniform surface planes within specified tolerances and straight, level and plumb surfaces.

D. Inspect substrates prior to installation of applied materials and finishes. Correct unacceptable conditions prior to proceeding with work.

E. Existing subsurfaces receiving new finishes shall have existing finish removed or, if sound, prepared in accord with manufacturer's product data to receive new specified finish.

3.2 FINISHED SURFACES:

A. Finished surfaces shall be clean, uniform and free of damages, soiling or defects in material and finish.

B. Finished surfaces shall match color and texture of samples provided or approved by Architect.

C. Protection:
1. Protect finished surfaces from damage and soiling during application, drying or curing, as applicable.
2. Provide temporary protective coverings or barriers required.

3.3 WORKMANSHIP:

A. Follow manufacturer's instructions. When instructions are in conflict with Contract Documents, make request for clarification before proceeding. Maintain copy of manufacturer's instructions at Project site.

B. Comply with industry standards except when specified tolerances indicate more rigid standards or more precise workmanship. Perform Work by persons qualified to produce workmanship of specified quality.

C. Join materials to uniform, accurate fit to meet with straight lines free of smears and overlaps. Install exposed materials appropriately level, plumb, and at accurate right angles or flush with adjoining materials. Attach materials with sufficient strength, number, and spacing of attachments that will not fail until materials joined are broken or permanently deformed.

3.4 INSTALLATION OF PRODUCTS:

A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.

3.5 CLEANING AND PROTECTION:

A. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

B. Protection:
1. Protect finished surfaces from damage and soiling during application, drying or curing, as applicable.
2. Provide temporary protective coverings or barriers required.

End of Section

SECTION 01630

PRODUCT OPTIONS AND SUBSTITUTIONS

PART 1 - GENERAL

1.1 PRODUCT OPTIONS AND SUBSTITUTIONS:

A. Products are specified by reference standards, performance and manufacturer's name and model number or trade name.
   1. When specified only by reference standard or performance, Contractor may select any product meeting specified standards or performance requirements, by any manufacturer.
   2. When several products or manufacturers are specified as being acceptable, Contractor has the option of choosing among those named.
   3. When one product or manufacturer is specified or indicated as the "basis of design", "basis of selection" or "scheduled", Contractor shall bear costs associated with changes required for application or installation of other products or assemblies.
   4. When proprietary products are specified, substitutions will be allowed only by substitution provisions specified herein, unless it is specifically stated that no substitutions are allowed.

B. If it is desired to use products different from those indicated in the Contract Documents, the party requesting the substitution shall make written application on form provided at the end of this section and as described herein. The burden of proving equality of proposed substitutions rests with the party making the request for substitution.
   1. Requests for substitution will be considered by Architect in accord with the following:
      a. Requests will be considered from Contractor only, following contract award.
      b. Contract sum shall be based only on products and systems specified in the Contract Documents.
      c. Requests for substitution shall be made in a timely manner such that progress of the Work will not be adversely affected if substitution is unacceptable.
      d. Substitution requests shall precede and shall not be made as a part of shop drawings or product data submittals.
   2. Requests for substitution shall be accompanied by such technical data and samples as the party making the request desires to submit. Architect will consider reports from independent testing laboratories, verified experience records from previous users, and other printed or written information valid in the circumstances.
   3. Requests for substitution shall indicate in what respects proposed materials or products differ from those specified and the effect on interfacing or related work.
   4. Requests for substitution shall be accompanied by the manufacturer's dated product data describing the installation, use and care, as applicable, of proposed substitution. Include reference standards, test data and clarification drawings.

5. Requests for substitution shall be accompanied by complete cost data indicating material cost, installed cost and savings, if any, resulting from proposed substitution.
6. Determination as to acceptability of proposed substitutions will be made based only on data submitted.
7. Contractor shall coordinate installation of accepted substitutions with interfacing work, bearing re-design costs and making approved changes in the Work to properly incorporate the substitutions, and shall waive all claims for additional costs related to use of acceptable substitutions which become apparent following acceptance.
8. Contractor shall be responsible for payment of time for research, evaluation, selection and re-design costs incurred by Architect and his consultants for substitutions.

C. The appropriate contract modification will be issued to Contractor if a proposed substitution is accepted by Architect. Response regarding non-acceptance will also be given Contractor. Contractor shall be responsible for furnishing materials and products in accord with the Contract Documents unless requests for substitutions are received and accepted as described above.

D. In the event that specified items cannot be delivered to the job site and incorporated into the Work at such times and in such quantities as to cause no delay, then Contractor may request a substitution in the manner described above. Should the accepted substitution provide a cost savings, the Contract price will be adjusted by Change Order, with Owner receiving the benefit of the net savings. No increase in the Contract price will be allowed on substitutions made after the award of Contract, except where the Contractor can verify a timely placement of orders appropriate to the materials and conditions involved.

E. Inability to obtain specified items due to Contractor's failure to place timely orders will not be considered reason for authorizing substitutions.

End of Section (Attached: Substitution Request Form)

SUBSTITUTION REQUEST FORM

NOTE: This form is for use by Prime Construction Contractor only. Submittals by others will be returned with no response.

PROJECT: FULTON COUNTY GOVERNMENT CENTER, 10TH FLOOR TERRACES WATERPROOFING

LOCATION: 141 PRYOR STREET, ATLANTA, GA

OWNER: FULTON COUNTY GENERAL SERVICES/FACILITY CONSTRUCTION ATLANTA, GA 30303

DATE: _____

We hereby submit for your consideration the following substitution instead of the item specified or shown on the drawings:

Section: _____ Paragraph: _____ Specified Item: _____

Proposed Substitution:

_____

_____

Attach complete product data, drawings and descriptions of product, with fabrication and installation details. Provide laboratory tests if applicable.

Provide sample, if applicable. Indicate if sample will be provided under separate cover.

Include complete information on changes to drawings and/or specifications that proposed substitution will require for its proper installation.

Fill in blanks below: (Include attachments if space is insufficient. Failure to provide information will void submittal.)

A. Reason(s) for proposed substitution: (check all that apply):

____ 1. Request is equivalent to product/material/ assembly specified. (Note: Attach technical documentation.)

____ 2. Specified product or method cannot be provided within the Contract Time. (Note: This request will not be considered if the product or method cannot be provided as a result of the Contractor's failure to pursue the work promptly, or to coordinate the various activities properly, or if the Contractor fails to place timely orders.)

____ 3. Specified product or method cannot receive necessary approval by a governing authority, and the Contractor certifies that the requested substitution can be approved.

____ 4. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting redesign and evaluation costs and the increased cost of other work by the Owner or separate contractors, and similar considerations.

____ 5. Specified product or method cannot be provided in a manner which is compatible with other materials of the work, and the Contractor certifies that the substitution will overcome the incompatibility.

____ 6. Specified product or method cannot be properly coordinated with other materials in the work, and the Contractor certifies that the proposed substitution can be properly coordinated.

____ 7. Specified product or method cannot receive a warranty as required by the Contract Documents, and the Contractor certifies that the proposed substitution can receive the required warranty.

B. Does the substitution affect dimensions or details shown on drawings:

_____ No.
_____ Yes. (Attach marked up prints of drawings showing changes required.)

C. What effect does the substitution have on other trades?

_____

_____

D. Compare significant qualities of proposed substitution with those of work or product originally specified or shown on drawings. Include elements such as size, weight, durability, performance, visual effect, etc.

_____

_____

E. Coordination information. Include all changes required in other elements of the work in order to accommodate the substitution, including work performed by the Owner or separate contractors.

_____

_____

F. State effect the substitution will have on the work schedule in comparison to the schedule which would prevail without the proposed substitution. State the effect of the proposed substitution on the Contract Time.

_____

_____

G. Provide complete cost information, including a proposal of any net change in the Contract Amount.

_____

_____

H. Manufacturer's warranties of the proposed and specified items are:

_____ Same _____ Different (explain on attachment)

The Undersigned Contractor certifies its opinion that, after thorough evaluation, the proposed substitution will result in work that in every significant respect will be equivalent to or superior to the work required by the original Contract Documents and that it will perform adequately in the application indicated. Rights to additional payment or time because of failure of the substitution to perform adequately are hereby waived.

The Undersigned hereby agrees to pay in full for any changes to design, including detailing and engineering costs caused by the requested substitution.

Submitted by: NOTE: Submittal void and will be discarded if unsigned or if signed by entity other than General Construction Contractor.

Signature: _____
(Contractor's Authorized Representative)

_____
(Title)

Contractor's Firm Name: _____

Date: _____

For use by Architect:

_____ Accepted _____ Accepted as Noted

_____ Not Accepted _____ Received Too Late

By: _____

Date: _____

Remarks: _____

_____

_____

End of Form

SECTION 01740

CLEANING UP

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS:

A. Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, remove waste materials and rubbish, tools, construction equipment, machinery and surplus materials, from and about the project. Turn over to Owner at Date of substantial Completion those tools, construction equipment, machinery and surplus materials specifically required by Contract Documents to be left for Owner's maintenance.

B. If Contractor fails to keep project clean or to clean up prior to Date of Substantial Completion, the Owner may do so as provided in the General Conditions, and the cost shall be charged to the Contractor.

PART 2 - PRODUCTS

2.1 MATERIALS:

A. Provide cleaning products to suit individual cleaning needs for materials, equipment and surfaces to be cleaned, and meeting following general requirements:
1. Product, or products, do not create hazards to health.
2. Will not scratch, mar, stain, discolor or otherwise damage Work or any portion thereof.
3. Are recommended by manufacturer of surface material to be cleaned.

B. Provide brooms, rakes, vacuum cleaners, tools, equipment, buckets, pails, clean cloths and incidentals necessary for proper application and removal of cleaning materials and for execution of interior and exterior cleanup operations.

PART 3 - EXECUTION

3.1 DISPOSAL REQUIREMENTS:

A. Store volatile waste in covered metal containers. Remove from project site daily.
1. Allow no volatile wastes to accumulate on project site.
2. Provide adequate ventilation during use of volatile substances.

B. Do not burn or bury waste materials or rubbish on project site. Comply with governmental and environmental regulatory requirements for disposal of waste.

C. Dispose of no volatile wastes such as mineral spirits, oil or paint thinner in storm or sanitary drains, on pavements, in gutters or on project site.

D. Dispose of no waste or cleaning materials containing materials harmful to plant growth on project site. As quickly as possible, clean up materials which are accidentally spilled.

3.2 CLEANUP DURING CONSTRUCTION:

A. Execute cleaning procedures to ensure that building, project site and adjacent properties are maintained free from debris and rubbish.

B. Throw no waste materials from heights.

C. Provide covered on-site containers for waste collection. Place all waste materials and rubbish in containers in an expeditious manner to prevent accumulation. Remove waste from project site when containers become full.

D. Legally dispose of all waste materials, rubbish, volatile materials and cleaning materials off project site.

E. Dispose of no materials in waterways.

F. Clean and maintain interior spaces in a "broom clean" state until Date of Substantial Completion. Protect newly finished and clean surfaces from contamination during cleaning operations.

G. Allow no accumulation of debris contributing to survival or spread of rodents, roaches or other pests.
   1. On a daily basis, remove debris containing food scraps.
   2. Contractor shall be responsible for securing services of a pest exterminator at no additional cost to the Owner.

3.3 FINAL CLEANUP:

A. Clean all finished surfaces in accord with manufacturer's product data and requirements specified in trade sections, prior to Date of Substantial Completion. All general and specific cleaning shall be performed prior to Contractor's request that the project or portion thereof be inspected for Substantial Completion.

B. Remove manufacturer's labels, tags, stickers and unauthorized identification markings from finished surfaces.
   1. Do not remove permanently affixed nameplates, instructions, markings, Underwriters Laboratories labels and approval stickers, Factory Mutual approval stickers and other identifying markings required by federal, state and local codes, ordinances and regulations.

C. Remove spots, marks, dirt, mud and dust from exposed interior and exterior finished surfaces.

D. Sweep concrete floors not less than broom clean; vacuum where necessary to remove excessive dust; thoroughly clean other hard surfaced floors.

E. Sweep exterior paved surfaces broom clean.

F. Thoroughly clean all items of mechanical and electrical equipment; remove excess oils and grease from exposed surfaces.
   1. Clean permanent filters and replace disposable filters if ventilating units were operated during construction.
   2. Clean ducts, blowers and coils if units were operated without filters during construction.

G. Clean Project site, in area disturbed by construction activities, of rubbish, waste material, litter, and other foreign substances.

H. Remove tools, construction equipment, machinery, and surplus material from Project Site.

I. Remove debris and surface dust from limited access spaces, including plenums and similar spaces.

J. Sweep concrete floors broom clean in unoccupied spaces.

K. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use.

3.4 INSPECTION:

A. Prior to occupancy by Owner of any designated portion of Work, conduct inspection in presence of Owner to verify Work is properly clean and ready for acceptance by Owner.

End of Section

SECTION 01780

CLOSEOUT SUBMITTALS

PART 1 - GENERAL

1.1 DESCRIPTION:

A. Closeout includes general requirements in preparation for Final Completion and Final Payment. Closeout is directly related to "Substantial Completion" and may be a single time period for entire work or a series of time periods for parts of the Work accepted as substantially complete.

1.2 PREREQUISITES TO SUBSTANTIAL COMPLETION:

A. Prior to requesting Architect's certification of Substantial Completion, complete the following and list all known exceptions.
   1. If Substantial Completion is being requested for a portion of the Work, define such portion.
   2. Submit application for payment:
      a. Submit sworn statement indicating 100 percent completion of the work claimed as "Substantially Complete".
      b. List incomplete items, value of incomplete work, and reasons for being incomplete.
      c. Include documentation for completion.
   3. Indicate accounting changes to Contract Sum.
   4. Submit for that portion of the Work:
      a. Specific warranties.
      b. Workmanship/maintenance bonds.
      c. Maintenance agreements.
      d. Final certifications.
      e. Record drawings.
      f. Maintenance manuals.
      g. Project photographs, if pertinent to project activities.
      h. Damage or settlement survey.
   5. Obtain and submit releases enabling:
      a. Owner's use of the Work.
      b. Access to services and utilities.
      c. Occupancy permits.
      d. Operating certificates.
   6. Advise Owner of pending insurance change-over requirements.
   7. Obtain and submit operating certificates, final inspection/test certificates, and similar releases enabling Owner's full and unrestricted use of the work and access to services and utilities.
   8. Deliver tools, spare parts, extra stocks of materials, and similar physical items to Owner.
   9. Make final change-over of locks and transmit keys to Owner, and advise Owner's personnel of change-over in security provisions. Tag each key to indicate which lock key operates. Accompany keys with final hardware schedule, as specified in Finish Hardware section.
   10. Complete start-up testing of systems and instruction of Owner's operating/maintenance personnel.
   11. Touch-up and otherwise repair and restore marred exposed finishes.

B. Observation procedures:
1. Upon receipt of Contractor's request, Architect will either proceed with observation or advise Contractor of prerequisites not fulfilled.
2. Following initial observation, Architect will either prepare Certificate of Substantial Completion or advise Contractor of work which must be performed prior to issuance of certificate.
3. Re-observe when requested and assured Work has been substantially completed.
4. Results of completed observation will form initial "punch list" for final acceptance.

1.3 PREREQUISITES TO FINAL ACCEPTANCE:

A. General: Prior to requesting Architect's observation for certification of Final acceptance and Final payment, complete the following. List known exceptions.
1. Indicate accounting changes to Contract Sum.
2. Submit Final Application for Payment with:
   a. Final releases.
   b. Supporting documentation not previously submitted and accepted.
   c. Certificates of insurance for Products and Completed Operations where required.
3. Submit copy of Architect's Final Punch List. Contractor shall certify each item has been completed or resolved for acceptance.
4. Submit final meter readings for utilities.
5. Submit:
   a. Specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents not submitted at time of Substantial Completion.
   b. Record drawings and maintenance manuals not submitted at time of Substantial Completion.
   c. Final project photographs.
6. Submit consent of surety.
7. Finishes manual:
   a. Assemble a manual bound in hard cover binders, presenting for Owner's guidance full details of all finish materials used in the building including care and maintenance.
   b. Include a list of all finishes and their product names, numbers, colors, and cleaning and maintenance data. Include a list of installers and service representatives with company names and addresses, names of individual contacts, and telephone numbers.
   c. Submit documents in suitable transfer cases indexed and marked for each division of the Work.
8. Submit executed contracts for extended maintenance or service required by the Contract Documents to Architect for transfer to Owner.
9. Revise and submit evidence of final (continuing) requirements.
10. Complete final clean-up.

B. Re-observance procedure:
1. Upon receipt of contractor's Notice that Work has been completed, including punch list items and excepting incomplete items delayed because of acceptable circumstances, Architect will observe work.
2. Upon completion of observation, Architect will either prepare certificates of Final Acceptance or advise Contractor of work not completed or obligations not fulfilled.
3. If necessary procedure will be repeated.

1.4 RECORD DOCUMENT SUBMITTALS:

A. General:
1. Unless otherwise required, furnish three complete sets of required documents.
2. Do not use required documents for construction purposes.
3. Protect from deterioration and loss in a secure fire resistive location.
4. Provide access to record documents.

B. Record drawings:
1. Maintain a blueline set of Contract Drawings and shop drawings in clean, undamaged condition.
2. Mark up variations in the Work as originally shown.
3. Mark the drawing most capable of showing field condition.
4. Where shop drawings are used for mark-up, cross reference with Contract Drawings.
5. Mark with red erasable pencil and, where feasible, use other colors to distinguish categories of work.
6. Mark up new information of importance not shown on Contract Drawings or shop drawings.
7. Record work covered by subsequent construction or requiring the removal of finish material should maintenance be necessary.
8. Note related Change Order numbers where applicable.
9. Organize Record Drawing sheets into manageable sets. Identify each set.
10. At completion of project, provide the following:
    a. One full set of reproducible prints marked and noted with all variations and revisions. Provide reproducibles and two additional sets of prints made from the reproducibles.
    b. Electronic copy of scanned documents marked and noted with all variations and revisions. Provide in pdf format, on CDs.
    c. Indicate prints of drawings as Record Drawings.

C. Record Project Manual:
1. Maintain one copy of Project Manual, including addenda, Change orders, and similar modifications.
2. Mark up variations occurring in actual work.
3. Record substitutions and selection of options.
4. Cross reference with other documents.
5. Where feasible, mark up variations on blank left-hand pages of Project Manual, opposite original text.

D. Record product data:
   1. Maintain one copy of each Product Data Submittal.
   2. Mark up significant variations in the actual work. Include:
      a. Variations in product as delivered to site.
      b. Variations from manufacturer's instructions and recommendations for installation.
   3. Cross-reference with Change Orders and mark up Record Drawings and Specifications.

E. Record sample submittal: Immediately prior to Date(s) of Substantial Completion, Architect will meet with Contractor at site, and determine which, if any, samples to be transmitted to Owner. Comply with Architect's instructions for packaging, identification marking, and delivery to Owner's sample storage place. Dispose of other samples.

F. Maintenance and operating manuals:
   1. Organize maintenance and operating information into sets of manageable size. Manuals divisions shall match organization and location of specification sections indicated in Project Manual.
   2. Bind into heavy duty 3-ring binders, minimum 2" size, permanently identified and indexed with thumb tabs.
   3. Include:
      a. Name of project, nature of information, Contractor/subcontractor and name and address of local parts supplier and service organization.
      b. Emergency instructions.
      c. Spare parts listing.
      d. Warranties.
      e. Wiring diagrams.
      f. Recommend turn-around cycles.
      g. Inspection procedures.
      h. Applicable shop drawings.
      i. Applicable product data.

G. Miscellaneous record submittals:
   1. Refer to other sections of these specifications for requirements of miscellaneous record-keeping and submittals in connection with performance of the work.
   2. Immediately prior to Date(s) of Substantial Completion:
      a. Complete miscellaneous records and place in good order.
      b. Identify and bind or file.
      c. make ready for continued use and reference.

H. Inspection reports: Submit certificates from applicable local governmental agencies that the construction has been inspected as required by laws or ordinances and that the building is approved for occupancy.

I. Warranties: In accord with Contract Conditions, provide warranties as follows:
   1. Contractor shall furnish his warranty and shall require each subcontractor to furnish his warranty, in writing, on the form bound herein. Assemble, bind, label and transmit warranties as required for other manuals above. Unless specifically indicated otherwise in individual sections, the period for warranties shall begin on the Date of Substantial Completion and shall continue for one year. Warranties shall state the Date of Substantial Completion and the date on which the warranty expires.
   2. Contractor shall forward manufacturers' and installers' warranties as specified in the individual specification sections. Assemble, bind, label and transmit warranties as required for other manuals above. Unless specifically indicated otherwise in individual sections, the period for warranties shall begin on the Date of Substantial Completion. Warranties shall state the Date of Substantial Completion and the date on which the warranty expires.

1.5 CONTINUING INSPECTIONS:

A. Comply with Owner's request to participate in inspections at end of each time period required by specific warranties or similar components. Participate in general inspection of Work approximately one year beyond Date(s) of Substantial Completion.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

End of Section

SECTION 02225

SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY:

A. Work included in this section, includes, but is not necessarily limited to:
1. Removal of existing work to accommodate installation of new products and materials as indicated on drawings, includes, but is not limited to, existing terrace pavers and grout and setting bed, insulation, and waterproofing system down to bare concrete deck on 10th floor terraces; and existing ceilings and grids to access piping indicated on 9th floor level; removal and replacement of first course of exterior stone panels on 10th floor terraces; remove door threshold and install new pan and replace door threshold.
2. Protection of existing finished surfaces.
3. Cleaning and restoration of existing work to remain.
4. Removal and storage and/or replacement of existing lay-in acoustical ceilings and grid systems and gypsum board ceiling system indicated on 9th floor level.
5. Coordinate terrace paver and waterproofing removal and replacement work in such a manner as to keep new waterproofing and paving materials, building, and building interior clean, dry and watertight.
6. Protections of walls and floors in travel path to access areas of Work.

B. Related work specified elsewhere:
1. Special Project Conditions.
2. Temporary facilities and controls.
3. Hot rubberized-asphalt waterproofing.
4. Dampproofing.
5. Flashing and sheet metal work.
6. Mechanical.
7. Electrical.

C. In some instances it may have been impracticable to include, in the Drawings and Specifications, all items requiring demolition necessary to achieve desired finished results. Nevertheless, in such instances, Contractor will be required to furnish all labor, materials, and services necessary to perform demolition in compliance with intent of documents.

1.2 SUBMITTALS:

A. Product data: Indicate product description and instructions for use of cleaning materials.

B. Inventory list: Submit list of items designated to be removed and stored or items to be reused in the work.

C. Execution plan: Submit plan of execution for Owner's and Architect's approval. Indicate locations of barricades, dust and noise enclosures and protective coverings. Indicate use of areas outside the work limits, including corridors, lobbies, elevators, loading dock and public thoroughfares. Indicate phasing of the work. Submit phasing plan as marked up blueline prints and in compliance with Special Project Conditions section.

D. Obtain acceptance of Owner's property insurance carrier and waterproofing system warrantor(s) for proposed work involving existing building prior to start of work.

1.3 DELIVERY, STORAGE AND HANDLING:

A. Schedule use of elevators and loading dock with Owner's Representative. See Special Project Conditions and Temporary Facilities and Controls sections for restrictions relative to building access and elevator usage.

B. Store materials to be retained or reused in locations acceptable to Owner.

C. Maintain neat, clean conditions in storage areas; remove rags and waste materials at end of each day's work.

1.4 PROJECT/SITE CONDITIONS:

A. Drawings indicating existing building conditions are available from the Owner for general information only. The Owner assumes no responsibility for the actual condition of structures to be demolished. Conditions existing at the time of inspection for pricing purposes will be maintained by the Owner insofar as practicable.

B. Conduct demolition operations and the removal of debris to ensure minimum interference with tenants, public, roads, streets, walks and adjacent facilities.

C. Do not close or obstruct streets or walks without permission from authorities having jurisdiction. Provide flagman where public thoroughfares are used for debris removal. Maintain thoroughfares free of dirt and debris caused by demolition or hauling operations.

D. Conduct demolition operations to minimize disruption or interference with building occupants and operation, and the use of building facilities not included in the work. Coordinate phasing of work with the Owner.

E. Protect all portions of existing building in area of 10th Floor Terrace paver and waterproofing demolition. Repair or replace portions of building damaged by this work, at no additional cost.

F. Provide temporary enclosures or other methods to limit dust transmission to adjacent areas. Provide temporary weatherproof enclosures for portions of work exposed to weather. Provide temporary noise reduction barriers to separate work areas from adjacent occupied areas.

G. Maintain building security. Secure construction area during non-working hours.

H. Provide temporary protective walkways and covering on existing finish floor and wall surfaces to protect floor and wall finishes. Provide plywood walkways on finish floors where machinery is moved or operated.

I. Schedule high noise level operations to non-business hours as acceptable to Owner where working in close proximity to existing business operations.

J. Schedule removal of debris and cleaning operations so as not to interfere with pedestrian traffic in building lobbies, corridors and elevators.

PART 2 - PRODUCTS

2.1 PROTECTIVE COVERS:

A. Dust protective coverings:
1. Non-asphaltic, non-waxed, non-staining kraft paper.
2. Polyethylene sheeting, six mil thickness.
3. Tape for sealing joints in kraft paper or polyethylene sheeting.

B. Protective covering for floors:
1. Non-asphaltic, non-waxed, non-staining, reinforced kraft paper.
2. Minimum ½" thickness plywood or composition board for walkways.

C. Barricade and corner guard material:
1. Utility grade lumber.
2. Plywood.

PART 3 - EXECUTION

3.1 EXAMINATION AND PRE-DEMOLITION CONFERENCE:

A. Visit project site and compare locations of equipment, electrical and mechanical work with indications in Contract Documents. Report all discrepancies discovered for resolution.

B. Prior to beginning demolition work, a pre-demolition conference will be held to review work to be accomplished and to inventory existing conditions. Contractor, Architect, Owner and related subcontractors involved in demolition work will be present. Contractor shall notify Architect and Owner at least seven days prior to time of conference.

C. Demolition work and inventory of existing equipment, existing damages to work to remain and items to be removed shall be reviewed at conference. Contractor shall make list of inventoried items to be removed, reused or stored.

D. Movable office furniture, file cabinets or other items belonging to Owner, located in work area shall be covered and protected when designated to remain in-place during overhead mechanical work.

3.2 PREPARATION:

A. Plan scheduling and phasing of the work to minimize interference with Owner's existing operations that will remain in use during the work. Minimize disruption of building operations and use of adjacent facilities.

B. Make mechanical and electrical connections without disruption of service to occupied areas or overloading of existing systems.

C. Security:
1. Contractor shall provide safe access to occupied areas during the course of the work.
2. Provide enclosures or partitions to segregate work areas from occupied and used areas.
3. Provide guards or lockable closures for off-hours to secure occupied and used areas of building.

D. Clean adjacent structures and improvements of dust, dirt and debris caused by demolition operations, as directed by the Architect or governing authorities. Return adjacent areas to condition existing prior to the start of the work.

3.3 DEMOLITION:

A. Interior demolition: Remove interior construction and finishes as required for new construction and to limits indicated on drawings.

B. Temporary partitions:
1. Construct temporary partitions to separate demolition activity from spaces occupied during demolition. Partitions shall be dustproof and noise-reducing.
2. Contractor shall consult Architect for location of temporary partitions. Partitions will be inspected by Architect prior to beginning work.
3. In existing building, where miscellaneous work occurs that cannot be protected by a temporary partition, Contractor shall furnish covers and protection satisfactory to Architect.
4. Contractor shall schedule the work to provide minimum shutdown of the operations of Owner.

C. During demolition, protect adjoining work from damage.

D. Remove existing finishes to limits indicated without damage to substrates or adjacent surfaces. Include removal of mechanical and electrical work as applicable.

E. Where work is to be cut or removed to accommodate new work, form neat, uniform and smooth edges or terminations.

F. Except for items designated to be removed and reused in the work or items retained by Owner for storage, all material resulting from this work shall become property of Contractor and shall be promptly removed from site. Storage or sale of removed materials will not be permitted on project site or within building.

G. Prepare an itemized list of material or equipment for reuse or storage, including, but not limited to lay-in ceiling panels and grid systems and exterior stone panels to be removed at terrace level. List quantities, condition and location. Submit copies to Owner within seven days of removal of item.

H. Remove existing mechanical and electrical equipment, including piping, as indicated and required to complete work.

I. Materials resulting from demolition become the property of the Contractor except as follows:
1. Equipment belonging to utility or public service companies unless abandoned by such companies.
2. Hidden valuable items, buried items and property of third persons.
3. Salvaged equipment and materials noted for reuse.
4. Other items indicated or otherwise identified by Owner or Architect.

3.4 DISPOSAL OF DEMOLISHED MATERIALS:

A. Remove debris, rubbish and other materials resulting from demolition operations from the site. Do not stockpile debris on project site.

B. Removal of debris from interior demolition shall be generally through the exterior perimeter of the building, with removal through occupied spaces or corridors only upon specific permission by Owner.

C. Burning of removed materials from demolished structures will not be permitted on the site.

D. Transport materials removed from demolished structures and dispose of off the site.

E. Chuting and loading debris in streets surrounding site is prohibited.

3.5 INTERIOR CLEANING:

A. Clean exposed surfaces of the following items and surfaces by vacuum, washing with detergent and water, and wiping with clean rags:
1. Acoustical ceiling panels and suspension system.
2. Air diffusers and grilles.

B. Existing light fixtures:
1. Remove lens and clean both sides.
2. Clean interior surfaces of troffers.
3. Wipe lamps clean.

End of Section

SECTION 04850

STONE VENEER

PART 1 - GENERAL

1.1 SUMMARY:

A. Work of this section includes the following:
1. Replacement of existing stone panels damaged beyond repair or to Owner's and Architect's approval.

B. Related work specified elsewhere: Sealants and caulking.

1.2 SUBMITTALS:

A. Shop drawings and calculations:
1. Submit cutting and setting drawings showing sizes, dimensions, sections and profiles of stone units, edge and corner details, jointing, arrangement and provisions for jointing, anchoring system layout, fastening and supports, details for lifting devices and interface with adjacent work.
2. Indicate location of each stone unit on setting drawings with number designation corresponding to number marked on each unit.
3. Design calculations; (FIO): Submit for Architect's information. Include criteria for stone performance and anchors. Indicate stone thickness required. Indicate unit weights and supporting capacity of anchoring system.
4. Design calculations shall bear the seal of a professional engineer registered in the State of Georgia. Indicate that engineer has reviewed shop drawings.
5. Show edge and corner details, reveals, special shapes, returns and jointing details at full scale.
6. Indicate supplementary bracing and anchorage requirements for stone veneer.

B. Samples: Submit for Architect's approval:
1. For installation: Submit one sample, minimum 6" by 6" face size. Samples shall include pieces of required stone, installed with specified sealant material on plywood backup. List of required samples will be indicated by Architect on shop drawing submittal.
2. All approved samples will be retained by Architect and will become standards for stone fabrication and installation.

C. Product data: Include specifications and descriptive data for stone, indicating structural characteristics of material furnished, descriptions of anchors and sealants.

1.3 QUALITY ASSURANCE:

A. Fabricator/installer qualifications: Fabricator/installer shall have at least five years successful experience in the fabrication and installation of stone similar to the type specified and, if required by Architect, shall submit evidence of such experience.

B. Expansion: To ensure uninterrupted delivery, consistency of color, and availabilities for future expansion, granite of a given color shall come from a single quarry owned and operated by fabricator.

1.4 DELIVERY, STORAGE AND HANDLING:

A. Protect stone during storage and construction against moisture, soiling, staining and physical damage.

B. Handle stone to prevent chipping, breakage, soiling or other damage. Use no pinch or wrecking bars without protecting edges of stone. Lift with wide belt type slings; use no wire rope or ropes containing substances which might cause staining. If required, use wood rollers and provide cushion at end of wood slides.

C. Stone indicating flaws or imperfections upon receipt at storage yard or building site shall be referred to Architect for determination as to whether it shall be rejected, patched or redressed fore use.

D. Store stone on wood pallets a minimum of 3" above ground, covered with non-staining, waterproof membrane. Place and stack pallets and stone to distribute weight evenly and to prevent breakage or cracking of stone. Protect stored materials from weather with waterproof, non-staining covers or enclosures; allow air to circulate around stone units.

1.5 PROJECT/SITE CONDITIONS:

A. Environmental requirements: Install no stone when temperature of surrounding air has dropped below 45 degrees F., unless it is rising, and at no time when temperature has dropped below 40 degrees F., except with written permissions from Architect.

B. Protection of work: Protect finished exposed work from stains.

C. Use no frozen materials; do not build on frozen work.

PART 2 - PRODUCTS

2.1 GRANITE VENEER:

A. Characteristics: Meeting requirements of ASTM C615-03.
1. Color and texture: Match existing granite panels when removal necessitates replacement of existing panels with new granite panels.

2. Thickness: As required by usage and to meet loading and anchorage methods, as determined by results of laboratory testing; however, not less than 1-1/4" thickness.
3. Finishes:
   a. Exposed faces and edges: Matching existing granite.
   b. Unexposed surfaces: Natural finish.
4. Internal corners: Matching existing conditions.
5. External corners: Matching existing conditions.
6. Granite shall meet minimum requirements of ASTM C615-03 and ASTM C119-07a.

2.2 ACCESSORY MATERIALS:

A. Weep tubes: 1/4" diameter clear plastic tubing.

B. Anchors, including dowels, cramps and similar shapes, as required, for exterior applications: Stainless steel in accord with ASTM A666-03, Series 300, minimum 14 ga., or extruded aluminum per ASTM B221-06 meeting properties of 6063-T6.

C. Relieving anchors: Stainless steel in accord with ASTM A666-03, Series 300 for exterior applications; steel in accord with ASTM A36-05, hot dip galvanized in accord with ASTM A123-02 for interior applications.

D. Setting buttons: Aluminum or plastic of thickness to maintain uniform joint widths.

E. Sealant: As specified in Sealants and caulking section.

2.3 FABRICATION:

A. Anchor types and assemblies shall comply with ASTM C1242-05.

B. Fabricate stone work in accord with approved shop drawings and samples. Provide holes and sinkages cut or drilled for anchors, fasteners, supports and lifting devices, as necessary to secure work in place. Cut and back-check as required for proper fit and clearance. Shape beds to fit supports.

C. Cut stone panels to shapes indicated on shop drawings. Maintain specified fabrication tolerances.

D. Apply no materials to stone which contain oils or similar contaminants which may stain stone or prevent bonding of setting or sealing materials.

E. Allowable patching: Chips at edges and corners may be patched provided structural integrity of stone is not affected and providing patch matches color and finish of natural stone so that patch does not detract from appearance.

F. Beds and joints: Bed and joint pieces as indicated on approved shop drawings, and cut bedded and jointed surfaces as follows:
1. 3/8" beds and joints for thermal stone, under 4" in thickness: Saw or cut full square back from face. Bed and joint surfaces shall be within ± 3% of 90 degrees to face of piece unless otherwise specified.

G. Backs of pieces:
1. Saw or roughly dress backs of pieces to approximately true planes. Back of surfaces shall be clean of matter that may cause staining.
2. Backs of pieces may be rough or natural quarry split to provide surfaces which vary not more than 1" in 12" from true plane and not more than 1" from their specified thickness.

H. Back-checking and fitting to structure or frame:
1. Stone coming in contact with structural work shall be back-checked as indicated on approved shop drawings. Stones resting on structural work shall have beds shaped to fit supports as required.
2. Maintain a minimum of 1" between stone backs and adjacent structure; 2" between stone backs and bolted connections.

2.4 SOURCE QUALITY CONTROL:

A. Fabrication tolerances:
1. Panel thickness:
   a. 3/8" to 1/2" thickness: + 1/32".
   b. 3/4" to 1-5/8" thickness: ± 1/8".
   c. Panel thickness greater than 1-5/8": ± 1/4".
2. Panel face dimensions: ± 1/16".
3. Face variation from rectangular: ± 1/16". (Maximum out of square)(non-cumulative).
4. Heads/calibrated edges: ± 1/16".
5. Quirk miters(width of nose):
   a. Up to 1/4": -0"; +25% of dimension.
   b. Over 1/4": -0"; +1/16".
6. Back anchors:
   a. Location: ± 1/8".
   b. Depth: -0"; +1/16".
7. Anchor slots:
   a. From face to centerline of slot: ± 1/16".
   b. Lateral placement: ± 1/4".
   c. Width: ± 1/16".
   d. Depth at maximum: ± 1/8".
8. Anchor holes:
   a. From face to centerline of hole: ± 1/16".
   b. Lateral placement: ± 1/8".
   c. Diameter: ± 1/16"
   d. Depth: ± 1/8".
9. Anchor sinkages; depth: -0"; +1/8".

B. Flatness tolerances:
   1. Variation from true plane, or flat surfaces, shall be determined by a 4'-0" dimension in any direction on the surface.
   2. Flatness tolerances for Thermal and coarse stippled finishes: 3/16".

PART 3 - EXECUTION

3.1 INSTALLATION:

A. Install stone work, including support system, in accord with ASTM C1242-05 and approved shop and setting drawings, plumb, level and true to line within specified tolerances. Install no units which have been broken, stained or otherwise damaged during transit, storage or handling.

B. Secure stone work to concrete backup using dovetail type anchors.

C. Secure stone work to masonry back-up using twisted wire anchors set in grout. Completely fill holes and sinkages with grout. Allow no grout to migrate on face of stone or to remain in joint.

D. Provide setting buttons as required to align units and to maintain specified joint width.

E. Pointing:
   1. Maintain joints between panels matching existing joint conditions.
   2. Caulk joints in accord with applicable provisions of Sealants and Caulking section. Tool sealants to ensure maximum adhesion to contact surfaces.

F. At cavity wall construction, provide weep tubes at sills, relieving angles, door and window heads and in bed joints at 10'-0" maximum vertically. Space weep tubes at 2'-0" horizontally. Install in accord with MIA standards as referenced herein.

G. Allowable erection tolerances:
   1. Variation from plumb of wall surfaces, arises, external corners, joints and other conspicuous lines: Do not exceed 1/4" in any story or in 20'-0" maximum.
   2. Variation from level from grades shown for horizontal joints and other conspicuous lines: Do not exceed 1/4" in 20'-0" maximum, nor 3/4" in 40'-0" or more.
   3. Variation in linear building lines from position shown on drawings and related portion of wall facing: Do not exceed 1/2" in any bay or 20'-0" maximum nor 3/4" in 40'-0" or more.
   4. Variation in face plane of adjacent pieces (lippage): Do not exceed 1/4 of width of joint between pieces.
   5. Joint size: ± 25%.
   6. Tolerances shall not be accumulative.

3.2 CLEANING AND PROTECTION:

A. Shop clean stone at time of final fabrication.

B. After installation and pointing, clean stone, removing dirt, excess mortar, weld splatter, stains, and other site incident defacements.

C. Use soft brushes or wool. Use of wire brushes or of acid or other solutions which will cause discoloration are expressly prohibited. Contact fabricator before using cleaners other than detergents.

D. Remove and replace chipped, broken, stained or otherwise damaged stone panels with panels of matching color and texture.

E. Protect finished work from damage until Date of Substantial Completion. Do not use lumber that will stain stone. Mechanical fasteners shall be galvanized or non-rusting.

F. Just prior to Date of Substantial Completion, clean all stone work with detergent and water solution, cleaning with stiff fiber bristle brushes. Use no acids, other caustic cleaners or wire brushes to clean stone.

End of Section

SECTION 07110

DAMPPROOFING

PART 1 - GENERAL

1.1 SUBMITTALS:

A. Product data: Submit manufacturer's product specifications and installation instructions, including rates of application for each type installation specified.

PART 2 - PRODUCTS

2.1 DAMPPROOFING:

A. Acceptable products; subject to compliance with specified requirements:
1. BASF Building Products, Hydrocide #700B Semi-Mastic.
2. Karnak Corp., Karnak 220 Fibrated, asbestos-free.
3. Lambert Corp., Waterban 60 SM.
4. W. R. Meadows, Inc., Sealmastic Type Two.

B. Characteristics: Non-asbestos, fibrated, mineral colloid asphalt emulsion meeting ASTM D1227-95(2007), Type 2, Class I and ASTM D1187-97(2002)e1, Type 1.

C. Primer: Type recommended by dampproofing manufacturer for application to concrete unit masonry, concrete and fiberglass-faced gypsum sheathing substrate.

D. Reinforcing fabric tape for sheathing joints, other joints and abutting dissimilar substrates: Minimum 2" wide glass fiber mat reinforcement as recommended by dampproofing manufacturer.

E. Sealant:
1. Acceptable products:
a. Basis of design: BASF Building Products NP-2.
b. Pecora Corp., Dynatrol II.
c. Tremco, Inc., an RPM Company, Dymeric 240.
2. Characteristics:
a. Type: Two-part, polyurethane-based sealant meeting ASTM C920-05, Type M, Grade NS, Class 25.
b. Colors: Standard colors as selected by Architect.

PART 3 - EXECUTION

3.1 SURFACE PREPARATION:

A. Prior to application of materials, remove dirt, grease, mortar droppings and other foreign matter from substrate.

B. Prime wall surfaces prior to dampproofing application, as required by manufacturer's product data.

C. Apply dampproofing at temperatures above 40 degrees F., to dry, cured surfaces.

D. Install separate flashings and corner protection stripping, as recommended by dampproofing manufacturer, where indicated to precede application of dampproofing. Comply with details shown and with manufacturer's recommendations. Pay particular attention to requirements at building expansion joints, if any.

E. Protection of Other Work: Prevent spillage and migration onto other surfaces of work by masking or otherwise protecting adjoining work.

3.2 INSTALLATION:

A. Comply with manufacturer's recommendations except where more stringent requirements are indicated and where Project conditions require extra precautions to ensure satisfactory performance of work.

B. Application: Apply dampproofing to the concrete masonry unit surfaces, cast-in-place concrete surfaces, and fiberglass-faced gypsum sheathing surfaces in locations indicated in Drawings.
1. Apply dampproofing to all indicated substrates free of pinholes and bubbles.

C. Application Methods:
1. Brush- or spray-applied at sheathing and other backup substrates behind stone veneer.
2. Trowel-applied over anchors, fasteners, termination bars and other elements as shown on the drawings.

D. Preparation at joints and abutting dissimilar substrates:
1. Sheathing joints and terminations: Apply a 3/8" bead of specified polyurethane sealant each side of joint, and fully embed a layer of specified glass fiber mat reinforcement into wet sealant.
2. Reinforcement shall span joints and junctures and lap onto adjacent surfaces a minimum of 3" each side.
3. Apply a second layer of specified polyurethane sealant over fabric reinforcement to fully embed reinforcement, feathering sealant edges beyond reinforcement.
4. Apply continuous topcoat of dampproofing to all surfaces as further specified.

E. Dampproofing; spray and brush applications:
1. On sheathing-covered walls, spray- or brush-apply dampproofing in a minimum of two coats, in accord with manufacturer's product data, at a rate to achieve a minimum 1/16" wet film coverage.
2. On concrete and masonry walls, spray- or brush-apply dampproofing in two coats required to achieve a minimum 1/16" wet film coverage.
3. Apply second coat at right angles to first coat.
4. All dampproofing shall be pinhole-free.

F. Trowel applications: Trowel-apply dampproofing to cover anchors, fasteners, termination bars and other elements as shown on the drawings.

G. Do not apply dampproofing during temperatures below 40°F. Do not apply dampproofing directly to masonry ties and reinforcing.

H. Seal around items and services projecting through dampproofing surfaces. Apply in compliance with manufacturer's recommendations. Ensure sealed areas are moisture tight.

3.3 CLEANUP:

A. Protect adjacent finished surfaces from damage or staining from this Work by masking prior to application. Repair or replace surfaces damaged or stained by dampproofing Work.

B. At completion of dampproofing operations, remove debris resulting from Work, including spilled materials.

End of Section

SECTION 07142

HOT RUBBERIZED-ASPHALT WATERPROOFING

PART 1 - GENERAL

1.1 SUBMITTALS:

A. Shop Drawings: Plans, elevation cross sections, and details:
1. Terrace plans indicating layout of each layer, relative elevations and slopes.
2. Drain locations and layout.
3. Edge flashing conditions.
4. All major penetrations.
5. Dimensionally located expansion joints.
6. All flashing details.
7. All other pertinent data required for this project.
8. Flashing details not specifically indicated on drawings or in manufacturer's product data details.
9. Insulation layout.
10. Concrete joints and slopes.

B. Product Data: Manufacturer's specifications, limitations, and recommended installation. Provide written assurance of compatibility of hot rubberized-asphalt membrane with sealants and sheet flashing used.
1. Submit a complete listing of each particular component or element of the waterproof membrane system that is required, specified or proposed for use on this project.
a. Each component or element proposed for use shall be identified by product number, name, and pertinent characteristics.
b. Further identify each component or element by indicating the function or location of each within the assembly.
2. Submit product description and complete installation instructions, including standard flashing details, for insulation, waterproofing and accessory materials. Indicate specific systems and procedures proposed for use, deleting inapplicable data.

C. Intent to warrant and certifications; (FIO): Submit an Intent to Warrant executed by authorized representative of membrane system manufacturer, indicating that manufacturer has reviewed drawings and specifications, conditions affecting the work and the relationship of membrane system with related work, and that manufacturer proposes to provide warranty as specified herein without further stipulation.
1. Submit certification that proposed applicator is approved for warranted work by membrane system manufacturer.
2. Submit certification from authorized representative of membrane system manufacturer stating that specified system and materials, as well as indicated surfaces and conditions, are acceptable for purpose of providing specified warranty.

D. Installer Certificates; (FIO): Signed by manufacturers certifying installers comply with requirements.

E. Field reports; (FIO): Submit manufacturer's certified field reports as herein specified.

F. Submittals schedule: Obtain Architect's approval of submittals prior to prewaterproofing conference.

1.2 QUALITY ASSURANCE:

A. Installer Qualifications: Installer with minimum five years continuous and successful experience with hot rubberized-asphalt waterproofing applications similar in material, design, and extent to requirements of this Project.

B. Single-Source Responsibility: Obtain primary waterproofing materials of each type required from single manufacturer.

C. Preinstallation Conference: Hold conference, prior to beginning waterproofing Work, to review Work to be accomplished.
1. Contractor, waterproofing subcontractor, waterproofing system manufacturer's representative, Construction Consultant, and all other subcontractors who have equipment penetrating waterproofing shall be present.
2. Contractor shall notify Architect and other attending parties minimum seven days prior to time for conference.
3. Contractor shall record minutes of meeting and distribute copies of minutes to attending parties.
4. Shop drawings to be available for review at Preinstallation Conference.

1.3 DELIVERY, STORAGE, AND HANDLING:

A. Deliver materials in original unopened containers of packaging clearly labeled with manufacturer's name, brand name, instruction for use, all identifying numbers, and UL labels.

B. Store materials in safe manner, not to exceed allowable structural capacity of storage area.

C. Store materials in clean, dry area protected from water and direct sunlight.

D. Store all adhesives at temperatures between 60° F. and 80° F. If exposed to lower temperatures, restore materials to 60° F. minimum temperature before using.

E. Remove and replace materials that cannot be applied within their stated shelf life.

1.4 PROJECT CONDITIONS:

A. Do not begin application or continue application during inclement weather. All surfaces to receive membrane must be free of water, dew, frost, snow and ice.

B. Do not begin application or continue application when ambient temperature is below 0° F.

C. Do not begin application until substrate construction and penetrating work has been completed.

D. Preparation and application of membrane must be conducted in well ventilated areas.

E. Protection:
1. Protect building from damage and defacing by waterproofing operations.
2. Restore or replace adjacent work or materials damaged during handling of waterproofing materials.
3. Provide protection or avoid traffic on completed surfaces.

F. Remove all trash, tools, debris and extraneous materials from areas during the course of work and upon completion of installation.

1.5 WARRANTY:

A. Manufacturer's warranty: Furnish manufacturer's ten year watertight warranty covering waterproofing, insulation, drainage mat, protection board and related flashings. Warranty shall include labor and materials to correct defects without limit.

B. Installer's warranty: Furnish installer's two-year warranty covering workmanship for installation of waterproofing assembly to correct defective work without limit.

C. Warranties shall take effect on Date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. Acceptable Products/Systems:
1. Basis of design; American Hydrotech, Inc. "Monolithic Membrane MM6125FR".
2. The Barrett Company "Ram-Tough W. I. 250".
3. Carlisle Coatings & Waterproofing, Inc. "CCW-500-R Reinforced Hot Applied Liquid Membrane System".
4. Tremco, Inc. "TREMproof 150".

2.2 SYSTEM COMPONENT MATERIALS AND ACCESSORY MATERIALS:

A. System description: Hot, fluid-applied, single component rubberized-asphalt compound, flexible membrane waterproofing system.
1. Provide surface conditioner, sealants, reinforcement, cleaning agents, and all other materials recommended by system manufacturer and which are compatible with waterproofing.

B. Reinforcing Sheet:
1. Standard Duty: "Standard Elastosheet" reinforcing sheet for construction joints and joints greater than 1/16".
2. Heavy Duty: "Heavy Duty Elastosheet" for use over expansion joints.

C. Protection Board:
1. Basis of design; American Hydrotech, Inc. "Hydroflex 30".
2. The Barrett Company "Ram-Tough Protection Board".
3. Carlisle Coatings & Waterproofing, Inc. "CCW-Protection Board-HS".
4. Tremco, Inc. "POWERply Standard Smooth".

D. Flexible Sheet Flashing:
   1. "Flex-Flash UN", uncured neoprene flashing at drains, exposed walls, curbs, penetrations, expansion joints and angle channels.
   2. "Flex-Flash F", spun-bonded polyester fabric for use at changes in plane, construction joints and cracks.

E. Hypalon Strip for Expansion/Control Joints: Sika "Sikadur Combiflex" perforated hypalon sheet.
   1. Adhesive: Sika "Sikadur 31 Hi-Mod Gel Adhesive", epoxy adhesive.
   2. Sealant: Sika "Sikaflex-2c NS", two-component, premium-grade, polyurethane-based elastomeric sealant.

F. Metal Termination Bars: Aluminum bars, approximately 1" by 1/8" thick, predrilled at 9" centers.

G. Drainage Mat: High density polyethylene drainage core bonded to calendared nonwoven geotextile fabric for pedestrian traffic and vehicular traffic.
   1. Basis of design; JDR Enterprises, Inc. "Jdrain 1000".
   2. American Hydrotech, Inc.
   3. Nicolon/Mirafi Group.

H. Water-Pervious Fabric: Minimum 2.5 oz./sq. yd. polyester or polypropylene fiber fabric. Subject to compliance with all requirements of this specification, provide named products and systems or comparable products and systems by one of following manufacturers:
   1. DuPont of Canada Ltd. "Fabrene VIE".
   2. International Paper Co. "Confil D689H".
   3. Phillips Fibers Corp. "Rufon P3B".
   4. Carlisle Coatings & Waterproofing "CCW Sure-Seal HP Protection Mat".

I. Rigid Insulation for Horizontal Areas: ASTM C578-07, Type IV, extruded polystyrene rigid insulation, Dow Chemical Co. "Styrofoam Roofmate", thickness indicated.

J. Pavers: Heavyweight, factory-cast, square-edged, concrete units; specially manufactured for use as roof ballast.
   1. Characteristics:
      a. Weight: 18 lb./sq. ft. to 24 lb./sq. ft. (120 kg/sq. m), minimum.
      b. Compressive Strength: 6000 psi to 8000 psi, minimum.
      c. Thickness: Nominal 3".
      d. Size: Nominal 24" by 24" with 3/16" bevel on all edges.
      e. Back: Grooved, with 4-way drainage capability.
      f. Finish: Nonslip paver surface in color and texture selected by Architect.
   2. Acceptable Manufacturers: Subject to compliance with all requirements of this specification, provide named products and systems or comparable products and systems by one of following manufacturers:
      a. American Hydrotech Terra Pavers-H and Accessories.
      b. Hanover Architectural Products, Inc.
      c. Hastings Pavement Company, Inc.
      d. Sunny Brook Pressed Concrete Company.
      e. Roofcap Paver/Div. Olympic Mfg. Group.
      f. Westile Division/Carder Concrete Products.

K. Paver Pedestals and Accessories: American Hydrotech, Inc. pads, shims adjustable pedestals, extenders and spacers as follows:
1. Tabs: "Terra-Tab-Rubber"; SBR rubber pads with shore hardness of 70 with spacing tabs for supporting pavers with 1/8" joint between pavers installed directly over filter fabric over insulation.
a. Size: Octagonal shape; 7" across flats, 5/8" thick.
b. Colors:
1) Pedestal: Gray.
2) 1/16" leveling plate: Black.
3) 1/8" leveling plate: Gray.
4) Durability: Unaffected by freeze-thaw cycling, ozone, humidity or water absorption.
2. Shims: "Terra-Shim-Rubber"; SBR rubber with shore hardness of 70; shims for minor height adjustments.
3. Adjustable Pedestals: "Terra-Adjust"; adjustable high impact styrene pedestals tilt and telescope from 2" to 5fi" to create a level surface for paver installation.
a. Adjustable pedestals are filled with American Hydrotech, Inc. "Terra System One Mix-Preblended" concrete mix for on-site filling after desired height and slope are obtained.
4. Extenders: "Extender-Extension"; adjustable high impact styrene unit adds 4fi" of height to adjustable pedestals for maximum height of 10".
5. Reducers: "Reducer-Pedestal"; adjustable high impact styrene; three stackable rings for installations requiring 2" or less of paver elevation. Reducer starts at 1/2" and expands in 3/8" increments.
a. Reducers are filled with American Hydrotech, Inc. "Terra System One Mix-Preblended" concrete mix for on-site filling after final adjustment.
6. Spacers: High impact styrene; cruciform shaped unit for maintaining 1/8" spacing between pavers.
a. Used with 1/8" shims when limited height clearance prevents use of tabs.

PART 3 - EXECUTION

3.1 PREPARATION AND EXAMINATION:

A. Remove existing pavers, mortar bed, insulation and waterproof membrane in sections to expose existing deck substrate. Thoroughly examine and remove damaged and deteriorated portions of substrate unsuitable as base for new waterproof membrane, insulation and paver system.
1. Remove existing wood nailers and other wood members not suitable for reuse in new waterproofing and flashing system.

B. Remove metal caps, flashings and expansion flashings.
1. Remove roof drains and roof drain top clamping rings. Replace with new roof drain system indicated on drawings.

C. All flashings, including flashings behind first course of stone pavers, shall be removed within the areas to receive new waterproofing system and flashings.

D. Cover openings resulting from removal of waterproofing, pavers, flashings and insulation. Keep water from entering building.

E. Surfaces to receive waterproofing membrane system shall be cleaned, smooth, free of projections, grease, oil and foreign material. Begin application only after surfaces are in proper condition to receive roof membrane system.

F. Ascertain work of other trades penetrating waterproofing membrane system, or intended to be made watertight by membrane application, is in place and accepted prior to installation of waterproofing membrane system. Schedule waterproofing application to minimize traffic on membrane.

G. Examine substrates, areas and conditions, with installer present, for compliance with requirements and other conditions affecting performance.

H. Moisture content: Just prior to installation, measure moisture content of substrates to receive waterproofing system. Do not apply waterproofing until substrate moisture content is within the range acceptable to waterproofing manufacturer.
   1. Verify that substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D4263-83(2005).
   2. Proceed with installation only after unsatisfactory conditions have been corrected.

I. Cast-in-place concrete substrates:
   1. Detail cracks in concrete surfaces in accord with manufacturer's product data.
   2. Repair holes over 1/2" in length and 1/4" deep and finish flush with surrounding surface.
   3. Remove scaling to sound, unaffected concrete and repair exposed area.
   4. Grind irregular construction joints to suitable flush surface.

J. Thoroughly clean all surfaces to receive waterproofing in strict compliance with manufacturer's instructions and recommendations. Remove oil, grease, and curing compound with commercial grade alkaline cleaner; thoroughly rinse and dry. Surfaces to receive waterproofing membrane shall have surfaces acceptable to waterproofing membrane manufacturer. Grind or patch slab to eliminate water ponding. Acid-etch or sandblast existing concrete deck, after complete removal of existing waterproofing system, as required by product data to provide appropriate/acceptable substrate to receive waterproofing membrane.

K. Curbs, Joints and Expansion Joints: Form all joints or transitions between planes sharply and free of broken edges or loose aggregate, and completely free of preformed joint fillers, sealants, or back-up materials to depth which is at least twice joint width. It is desirable to curb expansion joints at each side of joint, either by integrally forming it with slab, or securely fastening wood blocking to deck. Chamfered edges are preferable.

L. Apply surface conditioner at rate of one gallon per 300 to 600 square feet, depending on concrete condition and allow to thoroughly dry prior to application of waterproofing.

M. Melt cakes of membrane under continuous agitation until free flowing and lump free. Drawn temperature not to exceed 425° F.

N. Construction Joints and Cracks: At all construction joints and at cracks over 1/16" and less than 1/4" in width, apply liquid membrane 125 mils thick, then center 6" wide strip of standard sheet reinforcement or other approved reinforcement over joint or crack and embed into warm membrane.
1. Avoid air pockets. Apply another coat of liquid membrane 125 mils thick over reinforcement to totally encapsulate it with membrane. Install all reinforcement before continuous, 125 mil thick coating of liquid membrane is applied over entire surface.

O. Expansion Joints:
1. At all expansion joints up to 1/2" in width with designed total movement of less than 50% and at all cracks exceeding 1/4" in width, install standard sheet reinforcement in compliance with manufacturer's standard details.
2. At all expansion joints from 1/2" in width to 2" in width and with designed total movement of less than 50%, loop heavy duty sheet reinforcement down into joint to depth equal to width of joint at its maximum opening install in compliance with manufacturer's standard details.

P. At every location where uncured neoprene sheet occurs, sandwich uncured neoprene sheet between layer of membrane.

Q. Overcoat all uncured neoprene vertical flashings with minimum 125 mil thick membrane.

3.2 MEMBRANE APPLICATION:

A. Pour hot, melted membrane evenly at rate to provide continuous coating averaging 215 mils thick.
1. Reinforced Membrane: Apply membrane to substrates and adjoining surfaces indicated. Spread hot, rubberized-asphalt to thickness of 90 mils. Fully embed membrane-reinforcing-fabric and overlap sheets 2". Follow with another 125 mil thick continuous monolithic coating of membrane layer to provide uniform, reinforced, seamless membrane total 215 mils thick.
2. Apply 1/8" protection board with overlapped joints.

B. Protect membrane from physical damage including spillage of oil and solvents and excess heat.
1. Do not permit heavy equipment and materials to be transported across, or stored on, completed membrane unless adequate provisions are made to prevent damage.
2. Provide temporary walkways wherever workmen must cross completed membrane until all other work is completed.
3. Do not walk on, or allow traffic on, unprotected membrane.

3.3 FIELD QUALITY CONTROL:

A. Flood Testing: Flood test each deck area for leaks, according to recommendations in ASTM D5957-98(2005), after completing waterproofing but before overlying construction is placed. Install temporary containment assemblies, plug or dam drains, and flood with potable water.
   1. Flood to an average minimum depth of 2" and not exceeding a depth of 4". Maintain 2" of clearance from top of sheet flashings.
      a. Flood each area for 48 hours.
      b. Mark all leaks and repair when membrane is dry. Before flood testing, ascertain from structural engineer that structure will withstand water dead load.
      c. After flood testing, repair leaks, repeat flood tests, and make further repairs until waterproofing installation is watertight.
      d. Owner will engage an independent testing agency to observe flood testing and examine underside of decks and terminations for evidence of leaks during flood testing.

3.4 DRAINAGE MAT:

A. Horizontal Drainage Matting:
   1. Roll out horizontal drainage matting board in planters, in areas of vehicular traffic and plaza pedestrian areas to receive pavers and concrete topping.
   2. Cover entire surface.
   3. Butt adjacent panels and glue fabric overlaps with suitable adhesive.
   4. Wrap or cover all cut edges and terminations with filter fabric.
   5. Place concrete topping and bituminous setting bed as applicable, and pavers as soon as possible.

3.5 INSULATION:

A. Install insulation as soon after flood tests as possible, but not more than 30 days after membrane application. Comply with manufacturer's recommendations.

B. Lay out units to minimize cutting and prevent placement of units less than half width or length. Cut with sharp knife or saw.

C. Fit units at parapet and other vertical surfaces to within 1/4" of vertical surface. Stagger end joints and fit edges close but not tight. Drill or cut units to fit around roof penetrations and drains. Lay with channeled side down.

D. Repair broken edges and damaged areas of insulation as recommended by manufacturer.

E. Filter Fabric Placement: Filter fabric is required beneath ballast regardless of ballast type.
   1. Overlap all edges minimum 1'-0".
   2. Install fabric so no joints will exist between sheets parallel to and within 6'-0" of roof perimeter.
   3. Extend fabric 2- to 3" above ballast at perimeter and penetrations.

4. Extend fabric to drain bases or bonnets, but do not cover drains or restrict water flow to drain.
5. Install additional fabric around all penetrations in order to prevent stone entry into space between penetration and insulation.

3.6 PAVER INSTALLATION:

A. Install pavers immediately following fabric installation.

B. Install pavers on pedestals which provide minimum 3/16" air space between paver and insulation.

C. Pavers, weighing minimum 18 lb./sq. ft. are required at all traffic concentration points.

D. Place first row of pavers at exterior edge using 1/2 pedestals at edges and 1/4 pedestals at corners.
1. Run next rows parallel to first row.
2. Place pedestals with spacer ribs facing up.
3. Place paver tight to spacer ribs to maintain 1/8" joint spacing.

E. Leveling: Pedestals can be multiple stacked to accommodate 5/8" increments.
1. Use 1/8" or 1/16" thick leveling plates for fine leveling. Do not use more than two 1/8" thick or four 1/16" thick leveling plates under any one paver.
2. Locate leveling plates on top of pedestal; never in-between pedestals or below pedestals.

3.7 CLEAN-UP:

A. Clean stains from adjacent surfaces with solvent recommended by manufacturer.

B. Remove foreign matter from finished coating surfaces.

End of Section

SECTION 07544

ADHERED SINGLE PLY ROOF MEMBRANE SYSTEM
(ALTERNATE NO. 1)

PART 1 - GENERAL

1.1 SUMMARY:

A. Work of this section includes application of fully adhered roof membrane system over insulation over concrete deck at 10th Floor Terraces following removal of existing pavers, mortar setting bed, insulation, waterproofing membrane and reworking of drains and concrete deck preparation.

B. Related work specified elsewhere:
1. Flashing and sheet metal.
2. Sealants and Caulking.

C. Alternate No. 1: If Owner elects this alternate, furnish and install adhered single ply roof membrane system specified herein, at 10th Floor Terraces, in lieu of waterproofing system specified in Hot Rubberized-Asphalt Waterproofing section.

1.2 SUBMITTALS:

A. Product data:
1. Submit a complete listing of each particular component or element of the roof membrane system that is required, specified or proposed for use on this project.
   a. Identify each component or element proposed for use by product number, name, and pertinent characteristics.
   b. Identify each component or element by indicating the function or location of each within the assembly.
2. Submit product description and complete installation instructions, including standard flashing details, for insulation, roofing and accessory materials. Indicate specific systems and procedures proposed for use, deleting inapplicable data. Indicate fastener types and spacings.

B. Shop drawings:
1. Submit plans, drawings, and details illustrating the following:
   a. Roof plan indicating fastening patterns, layout of each layer, relative elevations and slopes.
   b. Drain locations and layout.
   c. Edge flashing conditions.
   d. Major penetrations.
   e. Dimensionally located expansion joints and area dividers.
   f. Typical Flashing details.
   g. Flashing details not specifically indicated on drawings or in manufacturer's product data details.

h. Walkway pad layouts.
i. All other pertinent data required for this project.

2. Submit for tapered insulation from roof system manufacturer's authorized tapered fabricator. Indicate layout of insulation showing slopes and drain locations. Include longitudinal and transverse sections, and sections showing insulation layers. Indicate method of attachment.
3. Submit for flashing details not specifically indicated on drawings or in manufacturer's product data details.

C. Intent to warrant and certifications: Submit an Intent to Warrant executed by authorized representative of roof membrane system manufacturer, indicating that manufacturer has reviewed drawings and specifications, conditions affecting the work and the relationship of roof membrane system with related work, and that manufacturer proposes to provide warranty as specified herein without further stipulation.
1. Submit certification that proposed applicator is approved for warranted work by roof membrane system manufacturer.
2. Submit certification from authorized representative of roof membrane system manufacturer stating that specified system and materials, as well as indicated surfaces and conditions, are acceptable for purpose of providing specified warranty.

D. Field reports: Submit manufacturer's certified field reports as herein specified.

E. Submittals schedule: Obtain Architect's approval of submittals prior to preroofing conference.

1.3 DELIVERY, STORAGE AND HANDLING:

A. Deliver materials to site in manufacturer's unopened containers bearing manufacturer's name and type of material.

B. Store materials in dry, covered storage, off ground. Handle roll goods to prevent damage to edges. Protect materials from exposure to spark or flame and extended periods at temperatures above 90 degrees F.

C. Store cartons level, standing in upright position. Do not stack cartons. Protect open top containers from debris and precipitation.

D. Store solvent-bearing materials in dry, cool storage. Keep lids tight on opened containers to prevent solvent escape.

1.4 JOB CONDITIONS:

A. Apply roof membrane system in dry weather when temperature is 40 degrees F. or above. Undertake application only when forecasted weather conditions are in accord with requirements of membrane manufacturer's product data.

B. Protection:
   1. Protect building from damage and defacing by roofing operations.
   2. Restore or replace adjacent work or materials damaged during handling of roofing materials.
   3. Provide protection or avoid traffic on completed roof surfaces.

C. Commence application after surfaces to receive roof membrane system are clean, smooth, free of voids or projections, grease, oil, contaminants and foreign material, and are in proper condition to receive roof membrane system.

D. Ascertain that the work of other trades penetrating roof membrane system or intended to be made watertight by membrane application is in place and accepted prior to installation of roof system. Schedule roofing application to minimize traffic on membrane.

1.5 QUALITY ASSURANCE:

A. Qualifications of applicator: Applicator shall be an approved roofing contractor authorized or certified to install roofing systems which can by warranted by the roofing materials manufacturer. Applicator shall be one who can furnish certification from the roofing manufacturer certifying that the applicator has satisfactorily applied the type of roof specified on projects which have been completed for at least five years.

B. Applicable standards:
   1. American Society for Testing and Materials (ASTM), standards as referenced herein.
   2. Factory Mutual Engineering Corp. (FM):
      a. "Wind Loads to Roof Systems and Roof Deck Securement," Data Sheet 1-28, 1996 Edition.
      b. "Roof Systems," Loss Prevention Data Sheet 1-28R/1-29R, 1996 Edition.
      c. "Above-Deck Roof Components," Loss Prevention Data Sheet 1-29, 1996 Edition.
      d. "Perimeter Flashing," Loss Prevention Data Sheet 1-49, 1985 Edition.
   3. National Roofing Contractors Association (NRCA): "Roofing and Waterproofing Manual," Fifth Edition, 2001 with 2003 Update.

C. Design criteria:
   1. Wind uplift resistance: Comply with wind uplift requirements of International Building Code, 2000 Edition with 2003 Georgia Amendments.
   2. Fire resistance: Comply with fire resistance designs indicated on the drawings. Use only manufacturers and type of materials as required by indicated designs.

1.6 WARRANTIES:

A. Roof membrane material warranty: Provide manufacturer's standard 15-year warranty for roof membrane material against manufacturing defects, including factory-made seams and wind-related damage up to 74 mph.

B. Manufacturer's full system warranty: Furnish manufacturer's 15-year comprehensive watertight warranty covering roofing, insulation, accessories and related flashings. Warranty shall include labor and materials to correct defects without limit.

C. Warranties shall begin at Date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ROOF MEMBRANE SYSTEM:

A. Acceptable products:
1. Basis of design: Seaman Corp., FiberTite-XT Single Ply EIP Roof System, fully adhered.
2. Sarnafil Roofing and Waterproofing Systems, PVC G410 Adhered Roofing Membrane System, fully adhered.

B. EIP membrane characteristics:
1. Material: Reinforced Ethylene Interpolymer (EIP).
2. Material thickness: Minimum 0.045".
3. Color: Off-white.
4. Tensile strength: 9500 psi, when tested in accord with ASTM D882-02.
5. Tear strength: 125 minimum, when tested in accord with ASTM D751-06.
6. Elongation: 20 x 30% when tested in accord with ASTM D751-06.
7. Water vapor transmission: 1.3 gm/m^2/24 hours when tested in accord with ASTM E96-05.
8. Water absorption: Maximum 5% when tested in accord with ASTM D471-06.
9. Dimensional stability: Maximum 0.5% change when tested in accord with ASTM D1204-07.
10. Hardness: Shore A, 80 minimum, when tested in accord with ASTM D2240-05.
11. Resistance to chemicals and oils: No swelling, cracking or leaking when in contact with ammonia, animal fats and other oils, acids and chemical reagents listed in membrane manufacturer's literature.
12. Sheet size: Maximum size resulting in minimum number of field-made seams in completed installation.
13. Membrane flashing: Same as roof membrane.

C. PVC membrane characteristics:
1. Membrane material: Polyester reinforced Polyvinyl Chloride (PVC) sheet meeting ASTM D4434-06, Type III; minimum 60 mil thickness.
2. Elongation at break: 15% when tested in accord with ASTM D751-06.
3. Seam strength: Minimum 75% of tensile strength when tested in accord with ASTM D751-06, A-Grab Method.

4. Linear dimension change: Maximum 0.5% when tested in accord with ASTM D1204-07.
5. Change in weight after immersion in water: Maximum 3% when tested in accord with ASTM D570-98(2005).
6. Color: Standard, as selected by Architect.

D. Membrane system shall be Class A or B fire-resistant.

E. Heavy-duty walkway pads: Manufacturer's premium quality, heavy-duty walkway pads, heat welded to roof membrane; 24" by 24" in size installed with 6" in between pads.

F. Fastener system for perimeters and penetrations: Type required by roofing system manufacturer's product data and meeting characteristics and wind uplift further specified:
1. Corrosion resistance: Pass FM 4470 Corrosion Test, modified DIN 50018 standard, with a maximum of 15 percent red rust after 15 wet and dry acidic atmosphere cycles in Kesternich cabinet.
2. Plates: Non-corrosive material.

G. Prefabricated accessories: Provide manufacturer's premium quality membrane-clad and prefabricated products and materials, including flashing elements, pipe boots, corners and other standard prefabricated elements.

H. System wind uplift resistance: FM Class 1-90 wind uplift resistance rating.

I. Sealants and adhesive: Types recommended or manufactured by roofing membrane manufacturer. Provide solvent-based adhesives for horizontal and vertical adhesive applications.

2.2 ROOF INSULATION:

A. Isocyanurate roof insulation:
1. Type: NRG/Johns Manville "E'NRG'Y 2", rigid isocyanurate closed-cell foam boards, permanently bonded to non-asphaltic glass facing sheets; minimum compressive strength of 20 psi, complying with requirements of ASTM C1289-07, Class 1, Type II.
2. Face size: Minimum 4'-0" by 4'-0", as required by manufacturer's product data.
3. Total thickness: Indicated in Drawings.
4. Long-term thermal resistance (LTTR) R-value in accord with ASTM C1289-07: R-14 for total thickness.
5. Fire hazard classification: FM Class I.
6. Roof covering classification: UL Classified for installation with Class A roof covering.

B. Tapered insulation units: Provide tapered isocyanurate insulation with same properties and from same manufacturer as flat stock insulation herein specified. Slope for tapered boards shall be 1/4" per foot, across board width.

C. Insulation fastener system; Type required by roofing system manufacturer and meeting characteristics and wind uplift further specified:
   1. Corrosion resistance: Pass FM 4470 Corrosion Test, modified DIN 50018 standard, with a maximum of 15 percent red rust after 15 wet and dry acidic atmosphere cycles in Kesternich cabinet.
   2. Plates: Non-corrosive material.
   3. Wind uplift: FM Class 1-90 wind uplift rating.

D. Adhesive for adhesion of second insulation layer: Roof membrane and insulation manufacturer's recommended product.

2.3 ACCESSORY MATERIALS:

A. Cant strips, tapered edge strips and blocking: Pressure-preservative treated lumber as specified in Rough Carpentry section. Creosote and oil/aliphatic preservatives are not allowed.

B. Pourable filler for pitch pockets: In accord with roof system manufacturer's product data.

C. Compressible insulation for expansion joints:
   1. Material: 2.25 pcf density, unfaced fiberglass.
   2. Thickness: As required to fill space between wood blocking and parapet; compressed 30 percent.
   3. R value at 75 degrees F.: 4.35.

D. Miscellaneous flashing and sheet metal: Refer to Flashing and Sheet Metal section.

PART 3 - EXECUTION

3.1 PRE-ROOFING CONFERENCE:

A. Pre-roofing conference: Prior to beginning roofing work, a pre-roofing conference will be held to review work to be accomplished.
   1. Contractor, Architect, roofing subcontractor, roof membrane system manufacturer's representative and subcontractors who have equipment penetrating roof or whose work involves access to roof shall be present.
   2. Contractor shall notify all parties at least seven days prior to time for conference.
   3. Contractor shall record minutes of meeting and distribute to attending parties.

3.2 PREPARATION AND EXAMINATION:

A. Remove existing pavers, mortar bed, insulation and waterproof membrane in sections to expose existing deck substrate. Thoroughly examine and remove damaged and deteriorated portions of substrate unsuitable as base for new insulation and roof membrane system.
   1. Remove existing wood nailers and other wood members not suitable for reuse in new waterproofing and flashing system.

B. Remove metal caps, flashings and expansion flashings.
   1. Remove roof drains and roof drain top clamping rings. Replace with new roof drain system indicated on drawings.

C. All flashings, including flashings behind first course of existing stone panels, shall be removed within the areas to receive new waterproofing system and flashings.

D. Cover openings resulting from removal of waterproofing, pavers, flashings and insulation. Keep water from entering building.

E. Surfaces to receive waterproofing membrane system shall be cleaned, smooth, free of projections, grease, oil and foreign material. Begin application only after surfaces are in proper condition to receive roof membrane system.

F. Ascertain work of other trades penetrating waterproofing membrane system, or intended to be made watertight by membrane application, is in place and accepted prior to installation of waterproofing membrane system. Schedule waterproofing application to minimize traffic on membrane.

G. Examine substrates, areas and conditions, with installer present, for compliance with requirements and other conditions affecting performance.

H. Moisture content: Just prior to installation, measure moisture content of substrates to receive roofing system. Do not apply roofing until substrate moisture content is within the range acceptable to roofing manufacturer.
   1. Verify that substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D4263-83(2005).
   2. Proceed with installation only after unsatisfactory conditions have been corrected.

I. Cast-in-place concrete substrates:
   1. Remove scaling to sound, unaffected concrete and repair exposed area.
   2. Grind irregular construction joints to suitable flush surface.

J. Thoroughly clean all surfaces to receive roofing in strict compliance with manufacturer's instructions and recommendations. Grind or patch slab to eliminate water ponding. Acid-etch or sandblast existing concrete deck, after complete removal of existing waterproofing system, as required by product data to provide appropriate/acceptable substrate to receive insulation and roofing membrane.

K. Immediately prior to application of roof membrane system, sweep roof deck, removing debris and foreign material.

3.3 RIGID INSULATION INSTALLATION:

A. Install insulation in two layers, with joints staggered between layers. Stagger end joints in adjacent boards. Butt edges for snug contact.

B. Installation over concrete decks: Prime concrete deck and solid-mop first layer of insulation in cold adhesive at rate recommended by insulation manufacturer's product data. Step into place to ensure full adhesion; do not slide into place. No bitumen shall be present on the exposed insulation faces or joints.

C. Solid-mop second and subsequent layers of insulation, including tapered insulation and crickets, in solid cold adhesive mopping at rate recommended by insulation manufacturer's product data. Step into place to ensure full adhesion; do not slide into place.

D. Install only as much roof insulation each work period as can be covered by roofing by end of same work period.

E. Mechanically anchor cant strips and tapered edge strips to wood blocking, in accord with FM Data Sheet 1-49. Butt lengths together and to adjacent construction. Install cant strips at abutting vertical surfaces, except those which have built-in cants.

3.4 ROOF MEMBRANE SYSTEM INSTALLATION:

A. Install roof membrane system, fully adhered, in accord with manufacturer's product data. Adhere membrane using specified solvent-based adhesive; secure perimeters and penetrations with specified fasteners meeting requirements of pullout testing at spacings recommended by product data, achieving FM 1-90 wind uplift resistance classification.

B. Lay out roof membrane sheets with seams located in accord with approved shop drawings. Allow membrane to relax for minimum 15 minutes. Laps in laid out sheets shall be 5" minimum.

C. EIP membrane application:
1. Fold back laid out membrane to expose bottom of membrane and insulation substrate.
2. Secure membrane to insulation prior to sealing seams using 100% continuous coat of adhesive to both membrane and insulation, in accord with approved shop drawings and manufacturer's product data. Application shall achieve required FM I-90 wind uplift resistance classification.
3. Do not allow adhesive to contact seam edges required to be heat welded.
4. Spray- or roller-apply adhesive at rate specified in manufacturer's product data. Allow adhesive to dry to a point of being tacky, but not stringy, to the touch. Do not allow adhesive to dry completely.
5. Carefully roll prepared membrane over prepared substrate, taking precautions to avoid wrinkles or air bubbles.
6. Broom in the adhered portion of the membrane to ensure full contact adhesion. Press completed areas into final position using a weighted, foam-covered lawn roller.
7. Repeat procedure for each section of membrane.

D. PVC membrane application:
   1. Pull back one-half of laid out sheet and apply adhesive to substrate at rate required by membrane manufacturer's product data using paint roller.
   2. Apply adhesive to back side of rolled back membrane in same manner.
   3. Do not allow adhesive to contact seam edges required to be heat welded.
   4. Allow adhesive on membrane to dry for 5-20 minutes, until adhesive legs or strings are evident when lightly touched.
   5. If adhesive dries too long, recoat both substrate and membrane back with adhesive.
   6. Roll adhesive-coated membrane onto adhesive-coated substrate without evidence of wrinkles, air pockets or misalignment of edges.
   7. Roll completed membrane to promote full bond and adhesion, using a large, water-filled lawn roller covered with carpet or foam.
   8. Repeat procedure for each section of membrane.

E. Heat weld laps using roof membrane system manufacturer's required heat welding procedures. If required by roof membrane manufacturer's product data, seal exposed edges with edge sealant at each lap.

F. Mechanically attach roof membrane at perimeter, terminations and penetrations in accord with manufacturer's product data and approved shop drawings.

G. Install base flashing in accord with manufacturer's product data and approved shop drawings using same material as roof membrane. Lap joints and seal. Fully adhere flashing membrane to substrates; wrap top of flashing membrane over parapet walls and down face 2" minimum; cover with metal flashing as specified in Flashing and Sheet Metal section. Where flashing top edge does not return over parapet wall, cover top edge of flashings with metal termination bars and counterflashing.

H. Flash at curbs and similar vertical surfaces same as base flashings. If required by roof membrane manufacturer, provide cant strips at curbs and equipment not having integral curbs. Provide metal counterflashing at curbs which are not self-flashing.

I. Install copings in accord with membrane manufacturer's product data and approved shop drawings and Flashing and Sheet Metal section.

J. Pipe penetrations: Comply with membrane manufacturer's product data, NRCA Detail TP-18A, and approved shop drawings for pipe penetration flashing.
   1. Flash using two layers of flashing membrane adhered to pipe and roof, in layers. Extend first flashing layer a minimum of 6" onto roof and a minimum of two inches up pipe. Extend second layer a minimum of 3" onto roof and a minimum of 8" onto pipe, above roof surface. Seal flashing membrane layers to roof membrane.

2. At top of flashing provide drawband. Finish exposed edges with lap sealant.

K. Roof drain flashing: Comply with membrane manufacturer's product data and approved shop drawings for roof drain flashing.
1. Cut hole in membrane at roof drain locations, smaller than drain clamping ring. Do not allow field-fabricated seams in drain locations.
2. Install water cutoff mastic to seal between membrane and drain.
3. Lock membrane under drain clamping ring. Tighten bolts.

L. Roof Walkway Pads:
1. Install walkways at locations indicated on drawings at areas around rooftop mounted equipment and other locations indicated on drawings.
2. Clean roof membrane in areas to receive walkway material.
3. Cut and position walkway material in accord with manufacturer's product data and spot adhere in place using manufacturer's recommended mastic.
4. Hot air weld entire perimeter of walkway to clean roofing membrane.
5. Provide minimum 6" between walkway pads.

M. Remove all trash, tools, debris and extraneous materials from roof areas during the course of work and upon completion of roof installation.

N. At end of each day's work, provide water cutoff at exposed edges of roof membrane.

O. Upon completion of roof membrane system installation, roof membrane system manufacturer's representative shall inspect installation to ascertain that the roof membrane system has been installed according to manufacturer's published product data, and approved shop drawings.
1. Defects or deviations from manufacturer's product data and approved shop drawings shall be remedied as required to secure manufacturer's warranty.
2. Reinspect installation until defects and deviations are corrected.
3. Provide written report of each inspection, documenting defects, deviations and corrective measures.
4. After corrections have been approved, include statement in final report that roof is installed correctly and is suitable for specified warranty.
5. Submit one copy of each report to Architect immediately following each inspection.

P. Completed roof system shall be free of defects, including leaks and ponded water. No ponding water shall remain within 48 hours of measurable precipitation.

End of Section

SECTION 07600

FLASHING AND SHEET METAL

PART 1 - GENERAL

1.1 SUMMARY:

A. Related work specified elsewhere:
1. Waterproofing system.
2. Sealants and caulking.

1.2 SUBMITTALS:

A. Shop drawings: Indicate material types, sizes, shapes, thicknesses, finishes, fabrication details, anchors, connections, expansion joints and relation to adjacent work. Details and profiles shall be drawn at full scale.

B. Product data: Indicate product description, finishes and installation instructions for all manufactured products, including interface with adjacent materials and surfaces.

C. Stainless Steel Samples: 6" by 6" samples, indicating full range of finish to be expected.

D. Submittals schedule: Obtain Architect's acceptance of submittals prior to pre-waterproofing conference.

1.3 QUALITY ASSURANCE:

A. Applicable standards as referenced herein:
1. American Iron and Steel Institute (AISI), "Stainless Steel Data Manual".
2. ASTM International (ASTM).
3. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA), "Architectural Sheet Metal Manual," Sixth Edition, 2003.
4. Society for Protective Coatings (SSPC), standards as referenced herein.

1.4 DELIVERY, STORAGE AND HANDLING:

A. Store materials off ground, under cover. Protect from damage and deterioration.

B. Handle materials to prevent damage to surfaces, edges and ends of sheet metal items. Damaged material shall be rejected and removed from site.

1.5 WARRANTIES:

A. Warrant flashing and sheet metal work to be free of defects in materials and workmanship. Warranty period shall be ten years beginning at Date of Substantial Completion in compliance with Hot Rubberized-Asphalt Waterproofing section.

PART 2 - PRODUCTS

2.1 MATERIALS:

A. Stainless steel sheet metal flashing: AISI Type 302/304 alloy, 2B finish in following gauges and applications:
   1. Davit Cover: Minimum 26 ga.
   2. Stone Panel Flashing: Minimum 30 ga.
   3. Threshold Pan: Minimum 26 ga.
   4. Window Sill Flashing: Minimum 30 ga.

B. Stainless steel soldering materials:
   1. Solder flux for stainless steel: Muriatic acid neutralized with zinc.

C. Welding Rods: Type recommended by stainless steel sheet manufacturer for type stainless steel provided.

D. Sealants: Specified in Sealants and Caulking section.
   1. Multi-part urethane sealant for concealed joints.
   2. Silicone sealant for exposed joints; color selected by Architect.

E. Bituminous coating for separation of dissimilar materials: Cold-applied, asphalt roofing cement meeting SSPC-PS 9.01, minimum 30 mils thickness.

2.2 SHEET METAL FABRICATION:

A. Fabricate sheet metal work in accord with approved shop drawings and applicable standards. Form sheet metal work with clear, sharp and uniform arrises. Hem exposed edges.

B. Provide linear sheet metal items in 10'-0" to 12'-0" sections, except as otherwise noted. Form flashing using single pieces for the full width. Provide shop-fabricated, one-piece corners and transition pieces, with maximum 2'-0" long legs.

C. Wipe and wash clean soldered joints, immediately after soldering, to remove traces of flux.

D. Hem exposed edges of flashings on underside 1/2".

E. Apply flexible flashing or bituminous paint on surfaces where expected to be in contact with cementitious materials or dissimilar metals.

PART 3 - EXECUTION

3.1 SHEET METAL INSTALLATION:

A. Install work in accord with approved shop drawings. Sheet metal items shall be true to line, without buckling, creasing, warp or wind in finished surfaces.

B. Coordinate flashing at waterproofing surfaces with waterproofing work to provide weathertight condition at waterproofing terminations.

C. Perform field joining of lengths as specified for shop fabrication.

D. Seaming: Form seams in direction of flow. Lap seams occurring in members sloping 45 degrees or more than 4", minimum; bed in flashing cement.

E. Form joints in linear sheet metal to allow for 1/2" minimum expansion at 12'-0" o. c., maximum, and maximum 2'-0" from corners. Provide 6" wide cover plate and 1'-0" wide backup plate at intersections. Form plates to profile of sheet metal item.

F. Waterproofing penetration flashing: Refer to Hot Rubberized-Asphalt Waterproofing section.

End of Section

SECTION 07900

SEALANTS AND CAULKING

PART 1 - GENERAL

1.1 SUMMARY:

A. Related work specified elsewhere:
   1. Waterproofing system sealants.
   2. Flashing and sheet metal work.

B. Definitions:
   1. Sealant: A weatherproof elastomer used in filling and sealing joints, having properties of adhesion, cohesion, extensibility under tension, compressibility and recovery; designed to make joints air and watertight. Material is designed generally for application in exterior joints and for joints subject to movement.
   2. Caulking compound: A material used in filling joints and seams, having properties of adhesion and cohesion; not required to have extensibility and recovery properties, generally for application in interior joints not subject to movement.
   3. Caulk: The process of filling joints, without regard to type of material.
   4. Joint failure: A caulked joint exhibiting one or more of the following characteristics:
      a. Air and/or water leakage.
      b. Migration and/or reversion.
      c. Loss of adhesion.
      d. Loss of cohesion.
      e. Failure to cure.
      f. Discoloration.
      g. Staining of adjacent work.
      h. Development of bubbles, air pockets or voids.

1.2 SUBMITTALS:

A. Product data: Submit manufacturer's product description, indicating conformance with specified requirements and installation instructions for each type of sealant. Indicate preparation and priming requirements for each substrate condition.

B. Color samples:
   1. Samples shall be actual materials or literature depicting actual colors of standard color materials. Architect reserves the right to reject work not in conformance with selected colors, based upon samples submitted.
   2. Submit samples of manufacturer's standard material colors for full range of standard color sealants.

C. Adhesion compatibility test results; (FIO): Submit a letter from sealant manufacturer indicating adhesion and compatibility testing has been performed and that materials are compatible and that adhesion is acceptable. Indicate requirements for primers or special preparation.

D. Substrate staining test results; (FIO): Submit a letter from sealant manufacturer indicating that substrate stain testing has been performed on actual samples of substrates indicated to receive joint sealant and that sealant was found to be non-staining to substrate. Indicate requirements for primers or special preparation to meet non-staining requirements.

1.3 QUALITY ASSURANCE:

A. Applicable standards as referenced herein:
   1. ASTM International (ASTM).

B. Adhesion compatibility tests: Perform tests on actual samples of stainless flashing systems; existing aluminum window and door frames, and existing and new stone panels, to determine that materials are compatible and that adhesion is acceptable. Identify requirements for primers or special preparation.

C. Substrate staining test results: Perform test on actual samples of each type of stone to receive joint sealant to determine that sealant is non-staining to substrate. Identify requirements for primers or special preparation to meet non-staining requirements.
   1. Test porous substances in accord with ASTM C1248-06.
   2. Test non-porous substrates in accord with ASTM D2203-01(2007).

1.4 PROJECT/SITE CONDITIONS:

A. Weather conditions:
   1. Install no materials under adverse weather conditions or when temperatures are below or above those recommended by manufacturer's product data or when substrate moisture content is above manufacturer's recommended level.
   2. Proceed with work only when forecasted weather conditions are favorable for joint cure and development of high early bond strength.
   3. Wherever joint width is affected by ambient temperature variations, install materials only when temperatures are in lower third of manufacturer's recommended installation temperature range.

B. Protection of adjacent surfaces:
   1. Protect by applying masking material or manipulating application equipment to keep materials in joint. If masking materials are used, allow no tape to touch cleaned surfaces to receive sealant. Remove tape immediately after caulking, before surface skin begins to form.
   2. Remove misapplied materials from surfaces by using solvents and methods recommended by manufacturer.
   3. At surfaces from which materials have been removed, restore to original condition and appearance.

1.5 WARRANTIES:

A. Installer's warranty: Warrant work to be watertight and free from defects in materials and workmanship, including joint failure, for a period of five years. Form of warranty shall be as included in Project Manual.

B. Exterior silicone sealant material warranty: Warrant exterior silicone sealants to be free from defects in materials and to provide structural adhesion, watertight weatherseal and non-staining of adjacent materials for a period of twenty years.

C. Warranties shall begin at Date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SEALANTS:

A. Low modulus silicone sealant for joints in existing stone and new stone panel vertical joint (including control joints) applications:
   1. Acceptable products:
      a. Dow Corning Corp., #790.
      b. Pecora Corp., #890.
      c. Tremco, Inc., an RPM Company, SpecTrem 1.
   2. Characteristics:
      a. Type: One-part, low modulus silicone rubber; meeting ASTM C920-05, Type S, Grade NS, Class 25.
      b. Colors: As selected by Architect.

B. Medium modulus silicone sealant at continuous horizontal joint at base of stone panels and new pavers at building edge, around the stainless steel davit cover, at the door threshold pan, non-porous substrates, exterior joints at perimeter of all aluminum-to-aluminum and metal-to-metal exterior applications:
   1. Acceptable products:
      a. Dow Corning Corp.,#795.
      b. Pecora Corp., #895.
      c. Tremco, Inc., an RPM Company, SpecTrem 2.
   2. Characteristics:
      a. Type: One-part silicone rubber; meeting ASTM C920-05, Type S, Grade NS, Class 25.
      b. Colors: As selected by Architect.

C. Multi-part, non-sag polyurethane sealant integral with waterproofing system; concealed conditions only:
   1. Acceptable products:
      a. Tremco, Inc., an RPM Company, Vulkem 227.
      b. Pecora Corp., Dynatrol II.
      c. BASF Building Products, Sonolastic NP-2.
      d. Tremco, Inc., an RPM Company, Dymeric 511.
   2. Characteristics:
      a. Type: Two-part, polyurethane-based sealant with separate pre-packaged color agent to achieve special colors required; meeting ASTM C920-05, Type M, Grade NS, Class 25.
      b. Colors: Black for all concealed conditions integral with waterproofing system.

2.2 ACCESSORY MATERIALS:

A. Joint cleaner: Type recommended by material manufacturer for substrates indicated.

B. Joint primer/sealer: Type recommended by material manufacturer for substrates, conditions and exposures indicated.

C. Bond breaker tape: Plastic tape applied to contact surfaces where bond to substrate or joint filler must be avoided for material performance.

D. Sealant backer rod: Compressible rod stock as recommended by sealant manufacturer for compatibility with sealant. Provide size and shape of rod to control joint depth.

E. Tooling agent: Agent recommended by material manufacturer to ensure contact of material with inner joint faces.

PART 3 - EXECUTION

3.1 JOINT SURFACE PREPARATION:

A. Clean joints of debris and projections including shims.

B. Clean joint surfaces immediately before caulking joints. Remove dirt, insecure coatings, moisture and other substances which would interfere with bond.

C. Etch concrete and masonry joint surfaces to remove excess alkalinity, unless material manufacturer's product data indicates that alkalinity does not interfere with bond and performance. Etch with 5% solution of muriatic acid; neutralize with dilute ammonia solution; rinse with clean water and allow to dry before caulking.

D. Roughen joint surfaces of non-porous materials, unless material manufacturer's product data indicates equal bond strength as porous surfaces. Rub with fine abrasive cloth or wool to produce dull sheen.

3.2 APPLICATION:

A. Comply with caulking material manufacturer's product data and ASTM C1193-05a except where more stringent requirements are specified.

B. Prime joint surfaces where recommended by material manufacturer. Do not allow primer/sealer to spill or migrate onto adjacent surfaces.

C. Install backer rod for caulking materials, except where recommended by material manufacturer to be omitted for application indicated.
1. Place backer rod to maintain recommended sealant thickness and profile.
2. Place rod at depth to provide sealant manufacturer's recommended sealant depth.
3. Do not twist rod during installation.