

MCFADDIN BUTTRESS REPAIR + LEANING CHIMNEY REMOVAL

Project Manual & Specifications

October 28, 2025

Owner

**Cornell University
Ithaca, New York 14853**

Architect

**Mesick Cohen Wilson Baker Architects, LLP
388 Broadway
Albany, New York 12207**

Instructions to Bidders

Bid Proposal Certification Form

General Conditions and Exhibits

DIVISION 1 - GENERAL REQUIREMENTS

Section 01 11 00	Summary of the Work
Section 01 14 00	Work Restrictions
Section 01 22 00	Unit Pricing
Section 01 23 00	Alternates
Section 01 25 00	Substitutions and Product Options
Section 01 31 19	Project Meetings
Section 01 31 50	Electronic Project Management
Section 01 32 16	Construction Schedules
Section 01 32 33	Photographic Documentation
Section 01 33 00	Submittal Procedures
Section 01 35 29	General Health & Safety
Section 01 35 43	General Environmental Requirements
Section 01 35 44	Spill Control
Section 01 41 00	Regulatory Requirements
Section 01 42 00	References
Section 01 45 00	Quality Control
Section 01 45 29	Testing Laboratory Services
Section 01 45 33	Code Required Special Inspections and Procedures
Section 01 50 00	Temporary Facilities and Controls
Section 01 51 00	Temporary Utilities
Section 01 57 13	Soil Erosion and Sediment Control
Section 01 66 00	Storage and Protection
Section 01 73 29	Cutting, Patching and Repairing
Section 01 77 00	Project Close Out
Section 01 78 36	Warranties and Bonds
Section 01 78 39	Record Documents

TECHNICAL SPECIFICATIONS

DIVISION 02 – EXISTING CONDITIONS

Section 02 41 19 Selective Removals

DIVISION 04 – MASONRY

Section 04 01 40 Stone Masonry Restoration

DIVISION 05 – METALS

Section 05 70 00 Decorative Metal

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

Section 07 62 00 Sheet Metal Flashing

Section 07 92 00 Joint Sealants

DIVISION 10 – SPECIALTIES

Section 10 16 00 Construction Project Signage

DIVISION 32 – EXTERIOR IMPROVEMENTS

Section 32 92 00 Turf and Grasses

DRAWINGS

T1.0	Title Sheet
SP1.0	Site Plan
G1.0	General Notes
G1.1	Floor Plans - North Baker Hall & South Baker Hall
G1.2	Floor Plans – Baker Tower & Founder’s Hall
G1.3	Floor Plans – Boldt Hall & McFaddin Hall
A1.0	McFaddin Tower Plans
A1.1	McFaddin Tower Elevations - East
A1.2	McFaddin Tower Elevations - North
A1.3	McFaddin Tower Elevations - West
A1.4	Stone & Flashing Details
A3.0	North Baker Hall – North Chimney
A3.1	North Baker Hall - South Chimney
A3.2	South Baker Hall North Chimney
A3.3	South Baker Hall South Chimney
A3.4	Founders Hall – North Chimney
A3.5	Baker Tower South Annex Chimney
A3.6	Baker Tower South Annex Chimneys
A3.7	Boldt Hall Chimney

END OF DOCUMENT

INSTRUCTIONS TO BIDDERS

Project: McFaddin Buttress Repair + Leaning Chimney Removal

Owner: Cornell University
Ithaca, New York 14853

Architect: Mesick Cohen Wilson Baker Architects, LLP
388 Broadway
Albany, New York 12207

1. BID DOCUMENTS

The Bid Documents provided electronically by the Owner will consist of the following:

- (1) Instructions to Bidders.
- (2) Bid Proposal Certification Form.
- (3) General Conditions of the Contract and Division 1 - "General Requirements", and Supplemental Conditions.
- (4) Drawings and Specifications.
- (5) Addenda and/or bulletins issued prior to date of opening of Proposals.

Bid Documents are available electronically in the Owner's electronic project management Bid Portal under the Bid Package Invitation – Invitation Documents Tab.

Dataflow, Inc. maintains the current set of Documents and all addenda and is the contracted supplier for printed plans and specifications for this project. Contact Dataflow at CUProjects@godataflow.com.

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2. EXAMINATION OF SITE AND CONTRACT DOCUMENTS

- a. Each Bidder shall acquaint themselves with location conditions as they exist, as well as the character of the necessary work to be carried out under the proposed Contract. A Pre-Bid Zoom meeting will be scheduled and include: a review of project related information, an opportunity to ask and receive responses to Bidder questions, and make such inquiries as are necessary to fully understand the subject facilities, physical conditions and/or restrictions attendant to the work under the Contract.
- b. Boring information, water levels, indications of sub-surface conditions and similar information given on the Drawings or in the Specifications are furnished only for the convenience of the Bidders. The Owner, Architect and Consulting Engineer make no representation regarding the character and extent of the soil data or other sub-surface conditions to be encountered during the work and no guarantee as to the accuracy or validity of interpretation of such data or conditions is made or intended.
- c. Each Bidder shall also thoroughly examine and become familiar with the Drawings, Specifications and associated Bid Documents.
- d. By submitting a Bid, the Bidder covenants and affirms that the Bidder has carefully examined all of the Bid Documents including Drawings, Specifications, and the Addenda and Bulletins, if any, as well as posed any questions associated with the Site, and that Bidder is satisfied as to the nature and location of the work, the general and local conditions, and all matters which may in any way affect the work or its performance.

3. DISCREPANCIES

- a. Should a Bidder find discrepancies in or omissions from the Drawings, Specifications and associated Bid Documents, or be in doubt as to their meaning, Bidder shall at once enter the item in the Q&A Board of the Owner's electronic management Bid Portal and an Addenda with written instructions will be sent to all bidders. Neither the Owner nor the Architect will be responsible for oral instructions. Every request for such interpretation should be in writing and entered into the electronic project management Bid Portal Q&A Board. Inquiries received in advance of the deadline established at the Pre-Bid conference will be given consideration.

4. PRE-BID CONFERENCE

a. A pre-bid conference has been scheduled for 10:00AM, January 15, 2026, in Room 102C of Humphreys Service Building or via Zoom at:

<https://cornell.zoom.us/j/95675114440?pwd=EbPcK1aS9MXtIdVNPChu3YU7W9B3L1&from=addon>

A Pre-bid walkthrough will follow and will meet on West Avenue at the War Memorial, 366 West Avenue, Ithaca.

The Pre-Bid Conference is designed to assist Bidders in understanding the Contract Documents, the opportunity to pose clarifying questions or make inquiries regarding Contract Documents. Results will be published in an Addendum.

b. NOTE: All Contractors/Subcontractors attending the walkthrough are REQUIRED to sign a Release if using Cornell equipment. You are also required to have appropriate PPE including, but not limited to, all current OSHA regulations and at a minimum the use of eye protection foot protection, hand protection, head protection, hearing protection and fall protection. Additionally, the Borrower shall provide their own five-point safety harness where required.

5. ASSUMPTION OF RISK

Contractors/Subcontractors are expected to bring to jobsite all applicable personal safety devices required or needed to view the Scope of Work. Use of Cornell equipment or tools, with or without permission, involves inherent risk of injury to User(s). Any use of Cornell equipment is conditioned upon the assumption of all risks attendant to the use of any tools or equipment – including personal injury, death or permanent disability – arising from the Use of Cornell equipment or tools. These risks also include but are not limited to: accidents, collisions, falling, as well as unforeseen risks resulting in injuries to User and/or bystanders. Participation in a walkthrough or similar activity constitutes acceptance of risk assumption.

6. BID SUBMISSION

Bid Submissions must include the following:

a. Base Bid entered into the electronic project management Portal broken down per the Bid Scope Tab Schedule of Values (Step 1: Bid Form of the Response Form tab).

b. Additional Required Information:

1. Bid Proposal Certification Form
2. Bid Bond
3. Bond Surety Company
4. Bonding Rate for Change Orders
5. Proposed Project Team and Resumes
6. Proposed Project Schedule
7. Unit Pricing
8. Substitutions

- c. Bid Proposal Certification Form: The Bid Proposal Certification Form shall be signed by the Principal(s) or Officer(s) legally authorized to bind the Bidder, and to execute such documents on behalf of their respective firms or organizations, and the Certificates included in the Bid Proposal Certification Form shall be completed accordingly. Bidder's legal name should be fully and accurately stated. Completed form shall be without interlineation, alterations, or erasures unless initialed and dated by the signer; Owner expressly reserves the right to accept or reject any or all bids, and to waive irregularities or informalities in its sole and reasonable discretion.
- d. Bid Bond: Each Bidder will be required to furnish a Bid Bond electronically via the electronic project management Bid Portal in the amount of 10% of the Bid Amount. Such Bid Bond shall guarantee that the Bidder will execute the Contract if it is awarded to him in conformity with his Proposal. Such Proposal Guarantee Bond shall include a statement that the Insurer shall, at the option of the Bidder, be willing to provide to the Bidder the Contract Bonds as described in 13 below.

7. SALES AND USE TAX EXEMPTION

- a. The Owner, Cornell University, a non-profit educational institution, is exempt from payment of certain Sales and Use Taxes.

8. FEDERAL EXCISE TAX

- a. The Owner, Cornell University, a non-profit educational institution, is exempt from payment of certain Federal Excise Taxes.

9. TAX EXEMPT STATUS

- a. Bidders shall inform all prospective subcontractors and suppliers from whom they expect to obtain proposals or quotations of the tax-exempt status of the Owner as set forth above and request that they reflect anticipated tax credits in their proposals or quotations.

10. EXEMPTION CERTIFICATES

- a. At the Contractor's request, following the award of a Contract, Contractor exempt purchase certificates will be furnished by the Owner to the Contractor with respect to such tax-exempt articles or transactions as may be applicable under the Contract.

11. TRADE SUBCONTRACTORS, MATERIAL SUPPLIERS

- a. Each portion of the work shall be performed by an organization equipped and experienced to do work in that particular field, and no portion of the work shall be reserved by the Bidder to himself unless he is so equipped and experienced. Subcontracts shall be awarded only to parties satisfactory to the Owner and the Architect. Each subcontractor and materials supplier shall be approved individually.
- b. In the spaces provided in the electronic project management Bid Portal Bid Scope form, the Bidder shall list all portions of the work he proposes to perform directly with his own forces.

- c. A list of names from which the Bidder proposes to select subcontractors, materials suppliers, and/or manufacturers for the principal trades or subdivisions of the work is required as part of the Proposal.
- d. In the Bid Scope Tab in the electronic project management Bid Portal, a list of the principal trades or subdivisions of the work for which such a listing is required, together with the provisions which govern the listing, selection and approval of principal subcontractors.

12. UNIT PRICES

The Bidder agrees, if awarded the Contract, to perform work "In addition to" or "deducted from" the scope of the Contract Documents as directed by the Owner and/or Architect, computed in accordance with the unit prices, which prices include all overhead, profit and other expense items in connection therewith, subject to the terms of the Contract Documents.

- a. Certain Unit Prices may be requested. If requested, a form will be attached to these instructions and will need to be completed and uploaded to the electronic project management Bidding Portal Response Form – Step 3 – Additional Required Information Custom Fields. All Bidders are required to bid on all Unit Prices without exception.
- b. All unit prices include the installation or omission, complete for each item, together with all work in connection therewith and shall include all shoring, bracing, dewatering and other incidental work.
- c. Unit prices shall be the total compensation for the item and includes all overhead, profit and any other charges of the Contractor and/or subcontractor in connection therewith.
- d. Adjustments will be computed on net variation of total quantities of like items.
- e. The Owner reserves the right to accept or reject any or all of the unit prices listed below prior to the execution of the Contract.

13. SUBSTITUTIONS

- a. Proposals shall conform to the requirements of the Bid Documents.
- b. The Bidder may offer substitutions for any item of material or equipment, element of work, or method of construction set forth in the Bid Documents, with the exception of Form of Contract, General Conditions and General Requirements - Division 1, are to be entered into the electronic project management Bid Portal Response Form – Step 3 – Additional Required Information Custom Fields by listing each proposed substitution, together with the amount to be deducted from the Base Bid if the substitution is accepted on the form supplied with these instructions. However, the Bidder is cautioned to make his base proposal on the materials and items specified by name or other particular reference.

14. ALTERNATE PROPOSALS

- a. Certain Alternate Proposals may be requested by the Owner and are included in the General Requirements. They will be listed in the Bid Scope Tab in the electronic project management Bid Portal. All Bidders are required to bid on all Alternates without exception.

b. Alternate Proposals shall include all overhead, profit and other expenses in connection therewith.

15. METHOD OF SUBMISSION

- a. Base Bid shall be prepared and electronically submitted via the electronic project management Bid Portal. All required fields and attachments in the electronic project management Bid Portal must be completed.
- b. Bid Proposal Certification Form shall be prepared electronically submitted as an attachment via the electronic project management Bid Portal Response Form – Step 3 – Additional Required Information Custom Fields.
- c. Completed and responsive Bid Proposals shall be submitted through the electronic project management Bid Portal no later than **2:00PM on February 3, 2026**.
- d. Bid Proposals shall not contain any recapitulation of the work to be done. No oral, written, electronic or telephonic proposals, or modifications will be considered.

16. BID OPENING

- a. Completed and responsive Bid Proposals will be opened electronically via the electronic project management Bid Portal. Responsive Bid results will be posted to the Facilities Contracts website at: <https://fcs.cornell.edu/awarded-projects>.. The Owner reserves the right to postpone the date and time of opening of proposals at any time prior to the date and time announced in this Instruction to Bidders or amendments thereto.

17. AWARD OF CONTRACT

- a. It is the intent of the Owner to enter into a Contract with one General Contractor for the entire project. All labor and services and materials and supplies, etc. are to be provided in accordance with the Contract.
- b. Award of the Contract shall be made to the bidder submitting the lowest responsive and responsible base bid who, in the opinion of the Owner, is qualified to perform the work. The competence and responsibility of the Bidders' proposed principal subcontractors will be considered in making the Award.
- c. The Owner reserves the right to reject any or all Proposals, and to waive any informalities in Bidding. Contract award shall be subject to approval of Cornell University's Contractors Qualification Statement.
- d. Bidder expressly warrants and commits that its Proposal shall remain unchanged and in full force and effect at the Owner's option for a period of not less than ninety (90) calendar days following the bid opening date.
- e. Bidders may submit, recall, modify, resubmit or withdraw their Bids through the electronic project management Bid Portal up until the Bid Due Date and Time.

f. The Owner reserves the right to accept any of the Alternate Proposals listed within sixty (60) calendar days following the award of a construction contract or such other time as may be agreed to by the Owner and Contractor.

18. SCHEDULE OF VALUES

a. The successful Bidder shall submit a complete "Schedule of Values" showing the amounts allocated to the various trades, suppliers, subcontractors, installers and General Contractor's work, aggregating the total sum of the Contract. If requested by the Owner or Architect, the complete "Schedule of Values" shall be submitted prior to award of Contract.

19. PERFORMANCE AND LABOR AND MATERIALS PAYMENT BONDS

Prior to commencement of on-site construction activities, the successful Bidder shall furnish the Owner with "Performance" and "Labor and Material Payment Bonds", each in the amount of 100% of the Contract Price. Each of these Bonds are to be in a form with such sureties as the Owner may approve. The cost of such bonds shall be included in the Bidders Proposal.

20. START OF WORK

a. Work at the site shall be started within thirty (30) calendar days from the date of issuance of written authorization to proceed and shall achieve substantial completion of the project no later than October 30, 2026.

1. NOTE: Prior to commencement of any on-site construction activities, the successful Bidder shall:

- i. Furnish the Owner with fully executed and satisfactory Payment and Performance bonds. No on-site construction activities may commence until executed and satisfactory bonds are in place for the subject project.
- ii. Furnish the Owner with safety plan related to COVID-19 pandemic.

b. The construction schedule and completion are critical. The Contractor shall provide adequate labor and equipment in the Bid to ensure that no slippage of the schedule will occur.

21. ADDENDA AND BULLETINS

a. Bidders must acknowledge in Step 3 of the Bid Response in the electronic project management Bid Portal each Addendum and/or Bulletin issued during the bidding period.

22. REQUIRED POST-AWARD SUBMISSIONS BY THE APPARENT LOW BIDDER

a. Within fourteen days after bid opening:

- (1) Six-Month Workforce Projection

b. Upon Execution of Contract:

- (1) Insurance Certificate
- (2) Performance Bond
- (3) Labor and Material Payment Bond
- (4) Schedule of Work (bar chart)
- (5) Federal Tax Identification Number

END OF SECTION

UNIT PRICES

This form shall be completed by the bidder and uploaded into the electronic project management Bid Portal Response Form – Step 3 – Additional Required Information Custom Fields

UNIT PRICE		UNIT	ADD	DEDUCT
UP-1	Replace existing sandstone with new	Cubic Foot	\$	\$

MCFADDIN BUTTRESS REPAIR + LEANING CHIMNEY REMOVAL

Cornell University, Ithaca, New York

BID PROPOSAL CERTIFICATION FORM

Vendor Name:	
Type of Firm, State of Incorporation if Applicable	
Street Address, City, State, Zip	

Having carefully examined the Instructions to Bidders, the "Conditions of the Contract" (General, Division 1 - "General Requirements"), Supplemental Conditions, the Drawings, Specifications and associated Bid Documents dated October 28, 2025, as prepared by Mesick Cohen Wilson Baker Architects, LLP, 338 Broadway, Albany, New York 12207, as well as the premises and conditions affecting the work, proposes to furnish all material, equipment, labor, plant, machinery, tools, supplies, services, applicable taxes and specified insurance necessary to perform the entire work, as set forth in, and in accordance with the said documents.

1. Receipt of the Addenda to the Terms and Conditions, Drawings or Specifications has been acknowledged in the Owner's electronic project management Bid Portal.
2. Milestone Dates
 - a. The undersigned agrees, if awarded the Contract, to commence work at the site within thirty (30) calendar days after date of issuance of written notice to proceed and to achieve substantial completion of the project no later than October 30, 2026.
 - b. The Contractor shall provide adequate labor and equipment in the Bid to ensure that no slippage of the schedule will occur. Contractor shall attach a Project Duration Schedule to this form that meets the duration established.
 - c. Following are additional Milestone Dates:

- d. The undersigned agrees, if awarded the Contract, to furnish a "Construction Progress Schedule" consistent with the agreed upon Construction Duration showing the starting and completion dates for all principal trades and subdivisions of the Work, together with such additional information related thereto as may reasonably be required. Such schedule shall be in conformance with General Requirements, Section 01 32 16, 1.3, A.

3. Proposed Principal Subcontractors

- a. The undersigned agrees, if awarded the Contract, to employ subcontractors from the list submitted in the electronic project management Bid Portal Response Form – Step 3 – Additional Required Information Custom Fields subject to the following provisions:
 - i. The Owner and Architect reserve the right to review the list of "Proposed Principal Subcontractors" prior to the award of the Contract, and to delete from it the name or names of any to whom they may have a reasonable objection. The Contractor may make the final selection of principal subcontractors at his option from the resulting list after the award of the Contract.

4. Contractor Team:

- a. The Owner reserves the right to reject the names of any Project Manager or Superintendent provide in the electronic project management Bid Portal submission to whom they have a reasonable objection.

5. Bonds

- a. Bid Bond. A Bid Bond in the amount of a minimum of 10% of Bid Amount is attached to the electronic project management Bid Portal Response Form – Step 3 – Additional Required Information Custom Fields.
- b. Performance and Payment Bonds. Prior to commencement of any on-site construction activities, the undersigned expressly agrees if awarded the Contract, to deliver to Owner executed "Performance" and "Labor and Material Payment Bonds" in such forms as are acceptable to the Owner and in an amount equal to 100% of the Contract Sum.
- c. Such bonds will be furnished by the Surety entered into the electronic project management Bid Portal Response Form – Step 3 – Additional Required Information Custom Fields
- d. Bonding Rate for Change Orders has been entered into the electronic project management Bid Portal Response Form – Step 3 – Additional Required Information Custom Fields

6. Bid Scope - Schedule of Values

- a. The undersigned agrees, prior to the award of a construction contract and upon the request of the Architect or Owner, to submit a complete, itemized and detailed "Schedule of Values" including Alternates elected, if any, showing the amount allocated to the various trades and subdivisions of the work, aggregating to the total Contract Sum submitted in the electronic project management Bid Portal.

7. Substitutions

- a. The Base Bid is predicated on compliance with the Drawings and Specifications without substitutions.
- b. The Bidder may offer substitutions for any item noted in the Specifications, with the exception of Form of Contract, General Conditions and General Requirements - Division 1.

- c. Any Substitutions are to be entered into the electronic project management Bid Portal Response Form – Step 3 – Additional Required Information Custom Fields by listing each proposed substitution, together with the amount to be deducted from the Base Bid if the substitution is accepted.
- d. The Owner reserves the right to accept or reject any proposed substitution.
- e. The sum stated includes any modifications of work or additional work that may be required by reason of acceptance of substitution. Substitute materials must be approved and accepted by the Owner in writing before same may be used in lieu of those named in the Specifications.

8. Unit Price Schedule

- a. The undersigned agrees, if awarded the Contract, to perform work "In addition to" or "deducted from" the scope of the Contract Documents as directed by the Owner and/or Architect, computed in accordance with the unit prices form uploaded in the electronic project management Bid Portal Response Form – Step 3 – Additional Required Information Custom Fields, which prices include all overhead, profit and other expense items in connection therewith, subject to the terms of the Contract Documents.
- b. All unit prices include the installation or omission, complete for each item, together with all work in connection therewith and shall include all shoring, bracing, dewatering and other incidental work.
- c. Adjustments will be computed on net variation of total quantities of like items.
- d. The Owner reserves the right to accept or reject any or all of the unit prices entered into the electronic project management Bid Portal Response Form – Step 3 – Additional Required Information Custom Fields prior to the execution of the Contract.

9. Acceptance

- a. The undersigned agrees that the amount submitted for the Base Bid and any Alternates and Unit Pricing along with the required attachments in the Response Form – Step 3 – Additional Required Information Custom Fields submitted in the electronic project management Bid Portal have been reviewed and are accurate.
- b. It is understood and agreed that the Owner expressly reserves the right to accept or reject any or all bids, and to waive irregularities or informalities in its sole and reasonable discretion.
- c. Upon acceptance of Bidder's Proposal, Bidder expressly agrees and affirms to hold its unchanged Bid Proposal for ninety (90) calendar days. The undersigned will execute an Agreement between Contractor and Owner, amended and/or supplemented, if required, in accordance with the Proposal as accepted. Nothing contained herein shall preclude Bidder and Owner from mutually agreeing upon a Contract based upon the unchanged Bid Proposal if the time elapsed from Award is in excess of ninety (90) calendar days.

d. The undersigned acknowledges the following Addendum(s) (if applicable):

Addendum No. __ dated ____.

- e. It is understood and agreed that award of the Contract shall be made to the bidder submitting the lowest responsive and responsible bid who, in the opinion of the Owner, is qualified to perform the work.
- f. The undersigned agrees to furnish Owner satisfactory and executed Performance and Payment Bonds prior to the commencement of any Work on-site.
- g. The undersigned acknowledges as Contractor to be and remain exclusively in control of the Project site and Work, as well as the Project's Health & Safety Plan, measures, and/or protocols, for the duration of construction activities.
- h. Alternates:
 - 1. The undersigned, if awarded the Contract, proposes to perform work in addition to or in place of the scope of the work shown and specified herein associated with the Base Bid in accordance with the Alternate Proposals, which amounts are to be added or deducted to the amount of the Base Bid as indicated for the Alternates specified in Division 1 of the Specifications.
 - 2. It is understood that the Owner reserves the right to accept or reject any of the Alternate Proposals provided in the electronic project management Bid Portal within sixty (60) calendar days following the award of a construction contract or such other time as may be agreed to by the Owner and Contractor.

The following documentation is required to be submitted electronically in the electronic project management Bidding Portal Response Form – Step 3 – Additional Required Information Custom Fields

- This Form with Proposed Milestone Schedule – signed and executed
- Bid Bond
- Proposed Project Team Resumes
- Bidder Project Qualifications
- Unit Pricing

(Bidder)

By: _____

Title: _____

Business Address: _____

Dated: _____

CERTIFICATE OF NON-COLLUSION

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief:

a. The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor.

b. Unless required by law, the prices that have been quoted in this bid have not been knowingly disclosed, directly or indirectly, by the bidder and will not knowingly be disclosed by the bidder to any other bidder or any competitor prior to opening.

c. No attempt has been made or will be made by the bidder to induce any other persons, partnership, or corporation to submit or not submit a bid for the purpose of restricting competition.

(Bidder)

By: _____

Title: _____

Dated: _____

CERTIFICATE AS TO CORPORATE BIDDER

I, _____, certify that I am the _____ of the Corporation named as Bidder within this Bid Form for General Contractors; that _____, who signed said Bid Form on behalf of the bidder was then _____ of said Corporation; that I know his signature; that his signature thereto is genuine and that said Bid Form and attachments thereto were duly signed and executed for and on behalf of said Corporation by authority of its governing body.

(Secretary-Clerk)

Dated: _____

GENERAL CONDITIONS

FOR

MCFADDIN BUTTRESS REPAIR + LEANING CHIMNEY REMOVAL

**CORNELL UNIVERSITY
ITHACA, NEW YORK**

GENERAL CONDITIONS

Table of Contents	Page
ARTICLE 1 -- INTERPRETATION OF CONTRACT DOCUMENTS	1
Section 1.01 - Owner	1
Section 1.02 - Meaning and Intent of Specifications, Plans and Drawings	1
Section 1.03 - Order of Precedence.....	1
ARTICLE 2 -- CONTRACTOR	2
Section 2.01 - Contractor's Obligations	2
Section 2.02 - Contractor's Title to Materials	2
Section 2.03 - "Or Equal" Clause.....	2
Section 2.04 - Quality, Quantity and Labeling.....	3
Section 2.05 - Superintendence by Contractor.....	3
Section 2.06 - Subsurface or Site Conditions.....	4
Section 2.07 - Representations of Contractor	4
Section 2.08 - Verifying Dimensions and Site Conditions	4
Section 2.09 - Copies of Contract Documents for Contractors.....	5
Section 2.10 - Meetings	5
Section 2.11 - Related Work	5
Section 2.12 - Surveys and Layout	5
Section 2.13 - Errors, Omissions or Discrepancies.....	5
Section 2.14 - Project Labor Rates.....	6
Section 2.15 – Daily Reports	6
ARTICLE 3 -- INSPECTION AND ACCEPTANCE	6
Section 3.01 - Access to the Work.....	6
Section 3.02 - Notice for Testing.....	6
Section 3.03 - Inspection of Work	7
Section 3.04 - Inspection and Testing	7
Section 3.05 - Defective or Damaged Work	7
Section 3.06 - Acceptance.....	7
ARTICLE 4 -- CHANGES IN WORK	8
Section 4.01 - Changes.....	8
Section 4.02 – Claims for Extra Work	11
Section 4.03 - Form of Change Orders	12
ARTICLE 5 -- TIME OF COMPLETION	12
Section 5.01 - Time of Completion.....	12
ARTICLE 6 -- TERMINATION.....	13

Section 6.01 - Termination for Cause	13
Section 6.02 - Termination for Convenience of Owner	13
Section 6.03 - Owner's Right to do Work	13
ARTICLE 7 -- DISPUTES	14
Section 7.01 - Disputes Procedure	14
ARTICLE 8 -- SUBCONTRACTS	15
Section 8.01 - Subcontracting	15
ARTICLE 9 -- COORDINATION AND COOPERATION	15
Section 9.01 - Cooperation with Other Contractors.....	15
ARTICLE 10 -- PROTECTION OF RIGHTS, PERSONS AND PROPERTY	16
Section 10.01 - Accidents and Accident Prevention.....	16
Section 10.02 - Adjoining Property	17
Section 10.03 - Emergencies.....	17
Section 10.04 - Bonds	18
Section 10.05 - Risks Assumed by the Contractor.....	18
Section 10.06 - Contractor's Compensation and Liability Insurance	18
Section 10.07 - Liability Insurance of the Owner	23
Section 10.08 - Owner's and Contractor's Responsibilities for Fire and Extended Coverage Insurance Hazards	24
Section 10.09 - Effect of Procurement of Insurance	25
Section 10.10 - No Third Party Rights.....	25
Section 10.11 – Assumption of Risk.....	25
Section 10.12 - Health And Safety Plan Requisites for Construction Activity Applicable To High Impact Respiratory Pathogen Pandemics And Contagions.....	25
ARTICLE 11 -- USE OR OCCUPANCY PRIOR TO ACCEPTANCE BY OWNER.....	25
Section 11.01 – Substantial Completion	25
Section 11.02 - Occupancy Prior to Acceptance.....	26
ARTICLE 12 -- PAYMENT	26
Section 12.01 - Provision for Payment	26
Section 12.02 – Stored Materials & Equipment.....	28
Section 12.03 – Retention	29
Section 12.04 - Withholding Payments.....	29
Section 12.05 – Documents and Conditions Precedent to Final Payment	30
Section 12.06 - Final Payment and Release.....	30
ARTICLE 13 -- TAX EXEMPTION	31
Section 13.01 - Tax Exemption.....	31
ARTICLE 14 -- GUARANTEE	31

Section 14.01 - Guarantee.....	31
ARTICLE 15 -- STANDARD PROVISIONS	32
Section 15.01 - Provisions Required by Law Deemed Inserted.....	32
Section 15.02 - Laws Governing the Contract.....	32
Section 15.03 - Assignments.....	32
Section 15.04 - No Third Party Rights.....	32
Section 15.05 - Waiver of Rights of Owner.....	32
Section 15.06 - Limitation on Actions	32
Section 15.07 - Owner's Representative.....	33
Section 15.08 - Cost Escalation / De-escalation	33
ARTICLE 16 – MINORITY AND WOMEN BUSINESS ENTERPRISES	34
Section 16.01 – Definitions.....	34
Section 16.02 – Participation by Minority and Women Business Enterprises.....	34
Section 16.03 – Reports and Records	35
ARTICLE 17 -- ACCOUNTINGS, INSPECTION AND AUDIT.....	35
ARTICLE 18 – CONTRACTOR PERFORMANCE EVALUATION.....	35
ARTICLE 19 -- ROYALTIES AND PATENTS	36
ARTICLE 20 -- CONFIDENTIALITY AND USE OF OWNER'S NAME	36
Section 20.01 - Release of Information.....	36
Section 20.02 - Confidential Information	36
Section 20.03 - Use of Owner's Name on Non-Work Related Content	36
ARTICLE 21 -- CORNELL UNIVERSITY STANDARDS OF ETHICAL CONDUCT	37
Section 21.01 Private Job Site.....	37

EXHIBITS

A	Change Order Documentation Instructions Construction Contract Change Order Request Construction Contract Change Order Summary
B	Final Release
C	Guarantee
D	Form I MWBE Utilization Plan Form II Summary of Bid Activity with MBE and WBE Subcontractors and Vendors Form III Workforce Report
E	Labor Rate Breakdown
F	Stored Materials Invoicing Documentation
G	Contractor Performance Evaluation

ARTICLE 1 -- INTERPRETATION OF CONTRACT DOCUMENTS

Section 1.01 - Owner

A. The Owner is Cornell University as identified in the Agreement and referred to throughout the Contract Documents as the "Owner" or "Cornell University".

B. Ownership of Documents: All drawings, specifications, computations, sketches, test data, survey results, photographs, renderings and other material relating to the Work, whether furnished to or prepared by the Contractor, are the property of Cornell University. The Contractor shall use such materials or information therefrom only in connection with the Work of this Contract. When requested, the Contractor shall deliver such materials to Cornell University.

C. The Owner shall give all orders and directions contemplated under the Contract relative to the execution of the Work. The Owner shall determine the amount, quality, acceptability, and fitness of the Work and shall decide all questions which may arise in relation to said Work. The Owner's estimates and decisions shall be final except as otherwise expressly provided.

D. Any differences or conflicts concerning performance which may arise between the Contractor and other Contractors performing Work for the Owner shall be adjusted and determined by the Owner.

E. The table of contents, titles, captions, headings, running headlines, and marginal notes contained herein and in said documents is intended to facilitate reference to various provisions of the Contract Documents and in no way affect the interpretation of the provisions to which they refer.

Section 1.02 - Meaning and Intent of Specifications, Plans and Drawings

The meaning and intent of all specifications, plans and drawings shall be determined in a manner approved by the Owner.

Section 1.03 - Order of Precedence

A. Should a conflict occur in or between or among any parts of the Contract Documents that are entitled to equal preference, the more expensive way of doing the Work, the sounder technique or workmanship, or better quality or greater quantity of material shall govern, unless the Owner directs otherwise so directs in writing.

B. Drawings and specifications are reciprocal. Anything shown on the plans and not mentioned in the specifications, or mentioned in the specifications and not shown on the plans, shall have the same effect as if shown or mentioned in both.

C. Requirements of reference standards form a part of these specifications to the extent indicated by the reference thereto. When provisions of reference standards conflict with provisions in these specifications, the specifications shall govern.

ARTICLE 2 -- CONTRACTOR

Section 2.01 - Contractor's Obligations

A. The Contractor shall, in good workmanlike manner, perform all the Work required by the Contract within the time specified in the Contract. The Contractor shall comply with all terms of the Contract, and shall do, carry on, and complete the entire Work to the satisfaction of the Owner.

1. All labor for this project which is normally under the jurisdiction of one of the local unions as covered in the contract between the Tompkins-Cortland Building Trades Council, Maintenance Division and Cornell University shall be performed by Union labor.

B. The Contractor shall furnish, erect, maintain, and remove such construction plant and such temporary Work as may be required.

C. The Contractor shall provide and pay for all labor, material, tools, equipment, machinery, as well as utility connections, transportation, and all other facilities and services necessary for the proper execution and completion of the Work, except as otherwise specified elsewhere in the Contract Documents.

D. Whenever a provision of the Specifications conflicts with agreements or regulations in force among members of trade associations, unions, or councils which regulate or distinguish what work shall or shall not be included in the work of a particular trade, the Contractor shall make all necessary arrangements to reconcile such conflict without delay, damage, or cost to the Owner and without recourse to the Architect or the Owner. In case progress of the Work is affected by undue delay in furnishing or installing items of material or equipment required under the Contract because of a conflict involving such agreement or regulations, the Owner or the Architect may require that other material or equipment of equal kind and quality be provided at no additional cost to the Owner.

Section 2.02 - Contractor's Title to Materials

A. The Contractor warrants that the Contractor has full, good and clear title to all materials and supplies used by the Contractor in the Work, free from all liens, claims or encumbrances.

B. All materials, equipment and articles which become the property of the Owner shall be new unless specifically stated otherwise.

Section 2.03 - "Or Equal" Clause

A. Whenever a material, article or piece of equipment or method is identified on the plans or in the specifications by reference to manufacturers' or vendors' names, trade name, catalogue number, or make, no others or alternatives may be substituted. Any and all other "Or Equal" considerations will be handled under this Section in accordance with General Requirements, Section 01 25 00.

B. Where the Architect approves a product proposed by the Contractor and said proposed product requires a revision or redesign of any part of the Work covered by this Contract, or the Work covered by other contracts, all said revision(s) or redesign(s), and all new drawings and details required thereto shall be provided by the Contractor and shall be approved by the Architect. All time spent by the Architect or its agents to evaluate the proposed substitution and or necessary engineering cost to accommodate the requested change shall be reimbursed to the Owner by the Contractor via the Change Order procedure.

Section 2.04 - Quality, Quantity and Labeling

A. The Contractor shall furnish materials and equipment of the quality and quantity specified in the Contract. Unless otherwise provided, all materials and articles incorporated into the Work shall be new and of the most suitable grade of their respective kinds for the purpose. When required by the Contract Documents or when directed by the Owner, the Contractor shall supply the Owner's Representative, for their acceptance, full information concerning any material which the Contractor contemplates incorporating into the Work. Materials and articles installed or used without such acceptance shall be at the risk of subsequent rejection.

B. When materials are specified to conform to any standard, the Owner may require that the materials delivered to the Site shall bear manufacturer's labels stating that the materials meet said standards.

C. The above requirements shall not restrict or affect the Owner's right to test materials as provided in the Contract.

D. Whenever several alternative materials or items are specified by name or other particular reference for one use, the Owner's Representative may require the Contractor to submit in writing a list of the particular materials or items the Contractor intends to use before the Contract is executed.

Section 2.05 - Superintendence by Contractor

A. The Contractor shall employ a full-time effective, responsive and competent construction superintendent and necessary staff; the construction superintendent shall devote full time to the Work and shall have full authority to act for the Contractor at all times. The Contractor shall provide the Owner with the names and authority of such personnel in writing.

B. If at any time the superintendent is not satisfactory to the Owner, the Contractor shall, if requested by the Owner, replace said superintendent with another superintendent satisfactory to the Owner. There shall be no change in superintendent without the Owner's approval.

C. The Contractor shall remove from the Work any employee of the Contractor or of any Subcontractor when so directed by the Owner.

Section 2.06 - Subsurface or Site Conditions

A. The Contractor acknowledges that it has assumed the risk and that the Contract consideration includes such provision as the Contractor deems appropriate and adequate to account for all subsurface conditions as the Contractor could reasonably anticipate encountering from the provisions of the Contract Documents, borings, rock cores, topographical maps and such other information as the Owner made available to the Contractor or from their own inspection and examination of the site prior to the Owner's receipt of Contractor bids.

B. In the event that the Contractor encounters subsurface physical conditions at the site differing substantially from those shown on or described or indicated in the Contract Documents and which could not have been reasonably anticipated from the aforesaid information made available by the Owner or from the Contractor's inspection and examination of the site, the Contractor shall give immediate notice to the Owner of such conditions before they are disturbed. Such notice shall include probable cost and/or any impact to the Project Schedule. The Owner will thereupon promptly investigate the conditions and if Owner finds that they do substantially differ from that which should have been reasonably anticipated by the Contractor, the Owner shall make such changes in the drawings and specifications as may be necessary and a change order shall be issued.

Section 2.07 - Representations of Contractor

The Contractor represents and warrants:

A. That the Contractor is financially solvent, sufficiently stable to secure the required payment and performance bonds, and is sufficiently experienced in and competent to perform the subject Work or retain qualified subcontractors to perform elements of the Work pursuant to the Project's plans and specifications;

B. That the Contractor is familiar with all Federal, State, or other laws, ordinances, orders, building codes, rules and regulations, which may in any way affect the Work;

C. That any temporary and permanent Work required by the Contract can be safely and satisfactorily constructed.

D. That the Contractor has carefully examined the Contract and the Site of the Work and that, from the Contractor's own investigations is satisfied as to the nature and location of the Work, the character, quality and quantity of surface and subsurface materials likely to be encountered, the character of equipment and other facilities needed for the performance of the Work, accounted for weather days, the general and local conditions, and all other materials or items which may affect the Work. The Contractor has correlated those observations with the requirements of the Contract Documents and has made all other investigations essential to a full understanding of the Work and the difficulties which may be encountered in performing the Work.

Section 2.08 - Verifying Dimensions and Site Conditions

A. The Contractor shall take all measurements at the Site and shall verify all dimensions and site conditions at the Site before proceeding with the Work. If said dimensions or conditions are found to be in conflict with the Contract, the Contractor immediately shall refer said conflict to the Owner.

B. During the progress of Work, the Contractor shall verify all field measurements prior to fabrication of building components and equipment, and proceed with the fabrication to meet field conditions.

C. The Contractor shall consult all Contract Documents to determine exact location of all Work and verify spatial relationships of all Work. Any question concerning said location or spatial relationships shall be submitted in a manner approved by the Owner.

D. Specific locations for equipment, pipelines, ductwork and other such items of Work, where not dimensioned on plans, shall be determined in consultation with the Owner and other affected Contractors and Subcontractors.

E. The Contractor shall be responsible for the proper fitting of the Work in place.

F. Should Contractor's failure to perform services under this section result in additional costs to the Owner, the Contractor shall be responsible for such additional costs.

Section 2.09 - Copies of Contract Documents for Contractors

A. The Contractor will have access to view and download the Bid Documents in the Owner's electronic project management system.

B. All drawings, specifications, and copies thereof furnished by the Owner are the property of the Owner. They are not to be used on other work with the exception of the signed Contract Set, are to be returned to the Owner along with the As-Builts at the completion of the Work.

Section 2.10 - Meetings

The Contractor and all subcontractors as requested shall attend all meetings as directed by the Owner or the Owner's Representative.

Section 2.11 - Related Work

The Contractor shall examine the Contract for related work to ascertain the relationship of said work to the Work under the Contract.

Section 2.12 - Surveys and Layout

Unless otherwise expressly provided in the Contract, the Owner shall furnish the Contractor all surveys of the property necessary for the Work, but the Contractor shall lay out the Work.

Section 2.13 - Errors, Omissions or Discrepancies

The Contractor shall examine the Contract thoroughly before commencing the Work and report in writing any errors or discrepancies to the Owner or the Owner's Representative.

Section 2.14 - Project Labor Rates

The Contractor shall submit to the Owner, for review and approval, within thirty (30) days after Contract is awarded all trade labor rates inclusive of fringe benefits, taxes, insurance for the duration of the individual craft agreement in accordance with Exhibit E. Revised rates shall be provided within thirty (30) days of signing any new agreements with the individual crafts during this project.

Section 2.15 – Daily Reports

The Contractor's Construction Superintendent shall submit a Daily Report to the Cornell University Project Manager or the Resident Field Engineer at the job site. Such reports shall, at a minimum, contain the following information:

Name of Project
Project Number
Date of Report
Weather Conditions
Equipment on the site
Contractors on site including name and number of employees on site for each contractor
Work/area and activity for each contractor
Overtime worked and planned work progress
Environmental problems and corrections
Other information, such as special events, occurrences, materials delivered, accidents or injuries, recommendations, suggestions, visitors, inspections, equipment start-up and check out, occupancy, etc.

ARTICLE 3 -- INSPECTION AND ACCEPTANCE

Section 3.01 - Access to the Work

The Owner and Architect, or their duly authorized representatives, assistants, or inspectors shall at all times and for any purpose have access to the Work and the premises used by the Contractor, and the Contractor shall provide safe and proper facilities therefor. In addition, the Contractor shall, whenever so requested, give the Owner and Architect or their duly authorized representatives access to the proper invoices, bills of lading, specifications, etc., which may be required in determining the adequacy and/or quantity of materials used in completion of the Work.

Section 3.02 - Notice for Testing

If the Contract Documents, laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction require any Work to be inspected, tested, accepted, or approved, the Contractor shall give the Owner timely notice of its readiness and of the date arranged so the Owner may observe such inspection, testing, or approval. The Contractor shall bear all costs of such inspection, tests, and approvals unless otherwise provided.

Section 3.03 - Inspection of Work

A. The Contractor will cooperate in all ways to facilitate the inspection and examination of the Work. The inspections and examinations will be carried out in such a manner that the Work will not be delayed.

B. All Work, all materials whether or not incorporated in the Work, all processes of manufacturer, and all methods of construction shall be, at all times and places, subject to the inspection of the Owner and the Owner shall be the final judge of the quality and suitability of the Work. Any Work not approved by the Owner shall immediately be reconstructed, made good, replaced or corrected by the Contractor including all Work of other Contractors destroyed or damaged by said removal or replacement.

C. Required certificates of inspection, testing, acceptance, or approval shall be secured by the Contractor and promptly delivered to the Owner.

Section 3.04 - Inspection and Testing

All materials and equipment used in the Work shall be subject to inspection and testing in accordance with accepted standards to establish conformance with specifications and suitability for uses intended, unless otherwise specified in the Contract. If any Work shall be covered or concealed without the approval or consent of the Owner, said Work shall, if required by the Owner, be uncovered for examination. If any test results are below specified minimums, the Owner may order additional testing. The cost of said additional testing, any additional professional services required, and any other expenses incurred by the Owner as a result of said additional testing shall be paid by the Contractor. Reexamination of any part of the Work may be ordered by the Owner, and if so ordered the Work must be uncovered by the Contractor. If said Work is found to be in accordance with the Contract, the Owner shall pay the cost of reexamination and replacement. If said Work is found not to be in accordance with the Contract, the Contractor shall pay the cost of reexamination and replacement.

Section 3.05 - Defective or Damaged Work

If, in the opinion of the Owner, it is undesirable to replace any defective or damaged materials or to reconstruct or correct any portion of the Work injured or not performed in accordance with the Contract Documents, the compensation to be paid to the Contractor shall be reduced by an amount which, in the judgment of the Owner, shall be deemed to be equitable.

Section 3.06 - Acceptance

No previous inspection shall relieve the Contractor of the obligation to perform the Work in accordance with the Contract Documents. No payment, either partial or full, by the Owner to the Contractor shall excuse any failure by the Contractor to comply fully with the Contract Documents. The Contractor shall remedy all defects, paying the cost of any damage to other Work resulting therefrom.

ARTICLE 4 -- CHANGES IN WORK

Section 4.01 - Changes

A. The Owner, without invalidating the Contract, may order and approve changes within the general scope of the Contract and the Contractor shall promptly comply with such change orders.

B. A change order is a written direction to the Contractor signed by the Owner, issued after execution of the Contract, authorizing a change in the Work, extra work, or an adjustment in the Contract price or time of performance.

C. No claims for changes, extra work or additional time to complete the Contract or an adjustment in the Contract price shall be allowed unless such change is ordered in writing by the Owner.

D. The Owner shall determine the amount by which the Contract consideration is to be increased or decreased by a change order by one (1) or more of the following methods:

1. By agreement with the Contractor.
2. By applying the applicable price or prices previously bid and approved.
 - (i) To the extent that Unit Prices are applicable, as determined by the Owner, work shall be priced and paid for or credited in accordance with such Unit Prices; except that a Unit Price shall not apply to any portion of work which is either reduced or increased by more than 25%. Said Unit Prices shall be valid for the duration of the project as applicable, unless stipulated elsewhere in the Contract Documents.
 - (ii) For Unit Price items, additions and deletion of like items shall be algebraically summed and then multiplied by the applicable Unit Prices. For Direct Labor and Material items, all additions and deletions shall be algebraically summed for each subcontractor and then multiplied by the applicable markup.
 - (iii) Unit Prices are for work complete, measured in place and cover profit and all other costs and expenses. Unit Prices include, without limit, all conditions of the contract and all general requirements such as layout, reproduction of Drawings and Specifications, testing and inspection, shop drawing and sample coordination, supervision (field and home office), small tools and expendable items, insurance, taxes, temporary facilities and services, including access and safety, "as-built" drawings, and general and administrative overhead and profit.

3. By estimating the fair and reasonable cost of:
 - (i) Labor, including all wages, required wage supplements and insurance required by law paid to employees below the rank of superintendent directly employed at the Site.
 - (ii) Materials
 - (iii) Equipment, excluding hand tools, which in the judgment of the Owner, would have been or will be employed exclusively and directly on the Work. When submitting change orders, equipment which is common to the project scope at hand is expected to be previously paid for as overhead / general conditions to the project. Special rental equipment or tools not common to the project that are required to perform the change order will be accepted as additional costs.
4. By determining the actual cost of the extra work in the same manner as in Subsection 3 except the actual costs of the Contractor shall be used in lieu of estimated costs.

E. Mark-up Percentages

1. Work performed by the Contractor: Where the Work is performed directly by the Contractor by adding to the total of such estimated costs a sum equal to fifteen percent (15%) thereof.
2. Work performed by a Subcontractor: Where the change order work is performed by a Subcontractor under contract with the Contractor, by adding a sum equal to fifteen (15%) of said costs for the benefit of said Subcontractor, and by adding for the benefit of the Contractor an additional sum equal to ten percent (10%) of said costs.
3. Work performed by a Sub-Subcontractor: Where work is performed by a Sub-Subcontractor, by adding the sum equal to fifteen percent (15%) of said costs for the benefit of said Sub-Subcontractor, by adding for the benefit of the Subcontractor an additional sum equal to five percent (5%) of said cost and by adding for the benefit of the Contractor an additional sum equal to five percent (5%) of said cost. The maximum aggregate of all mark-up percentages may not exceed twenty five percent (25%).
4. No Markup on Bonds and Insurance Costs: Change Order cost adjustments due to increases or decreases in bond or insurance costs (if applicable) shall not be subject to any Markup Percentage.
5. Overtime Pay: No mark-up shall be paid on the premium portion of overtime pay.

6. **Direct and Indirect Costs Covered by Markup Percentages:** As a further clarification, the agreed upon Markup Percentage is intended to cover the Contractor's profit and all indirect costs and expenses associated with the change order work. Items intended to be covered by the Markup Percentage include, without limit: home office expenses, branch office and field office overhead expense of any kind; project management; superintendents, general foremen; estimating, engineering; coordinating; expediting; purchasing; detailing; legal, accounting, data processing or other administrative expenses; reproduction of drawings and specifications; shop drawings and sample coordination; "as-built" drawings; permits; auto insurance and umbrella insurance; pick-up truck costs; parking permits; cellular phones; testing and inspection; temporary facilities; access and safety provisions; and warranty expense costs. The cost for the use of small tools and/or tools already in use on site are also to be considered covered by the Markup Percentage. Small tools shall be defined as tools and equipment (power or non-power) with an individual purchase cost of less than \$750
7. **Deduct Change Orders and Net Deduct Changes:** The application of the markup percentage will apply to both additive and deductive change orders. In the case of a deductive change order, the credit will be computed by applying the percentage so that a deductive change order would be computed in the same manner as an additive change order. In those instances where a change involves both additive and deductive work, the additions and deductions will be netted and the markup percentage adjustments will be applied to the net amount

F. Regardless of the method used by the Owner in determining the value of a change order, the Contractor, within thirty (30) calendar days after a request for the estimate of value shall submit to the Owner a detailed breakdown of the Contractor's estimate, including all subcontractors details, of the value of the Change Order Work, in the format detailed in Exhibit A. Each submission shall include an electronic .pdf format of all documentation.

G. Unless otherwise specifically provided for in a change order, the compensation specified therein includes and shall constitute a full payment for both the Work covered or arising from the order and for any damage or expense incurred by the Contractor by any delays, including any and all impacts, known or unknown, or delays to other Work to be done under the Contract resulting from said change order. The Contractor expressly waives all rights to any other compensation for said damage or expense.

H. The Contractor shall furnish satisfactory bills, payrolls and vouchers covering all items of cost and when requested by the Owner shall give the Owner access to accounts and records relating thereto.

Section 4.02 – Claims for Extra Work

If the Contractor claims (i) that any work it has been ordered to do is extra work or (ii) that it has performed or is going to perform extra work or (iii) that any action or omission of the Owner or the Architect is contrary to the terms and provisions of the Contract, the Contractor shall:

A. Promptly comply with such order;

B. Notwithstanding the provisions of this Agreement, Article 4 of these General Condition and any other provisions of the Contract documents to the contrary, file with the Owner, within fourteen (14) calendar days after being ordered to perform the work claimed by it to be extra work or within fourteen (14) calendar days after commencing performance of the extra work, whichever date shall be the earlier, or within fourteen (14) calendar days after the said action or omission on the part of the Owner or the Architect occurred, a written notice of the basis of its claim and request a determination thereof;

C. Notwithstanding the provisions of this Agreement and any other provisions of the Contract documents to the contrary, file with the Owner, within thirty (30) calendar days after said alleged extra work was required to be performed or said alleged extra work was commenced, whichever date shall be the earlier, or said alleged action or omission by the Owner or the Architect occurred, a verified detailed statement, with documentary evidence, of the items and basis of its claim;

D. Produce for the Owner's examination, upon notice from the Owner, all its books of account, bills, invoices, payrolls, subcontracts, time books, progress records, daily reports, bank deposit books, bank statements, checkbooks and cancelled checks, showing all of its actions and transactions in connection with or relating to or arising by reason of its claim, and submit persons in its employment and in its subcontractors' employment for examination under oath by any person designated by the Owner to investigate any claims made against the Owner under the Contract, such examination to be made at the offices of the Contractor; and

E. Proceed diligently, pending and subsequent to the determination of the Owner with respect to any such disputed matter, with the performance of the Contract and in accordance with all instructions of the Owner and the Architect.

F. The Contractor's failure to comply with any or all parts of Section 4.02 shall be deemed to be: (i) a conclusive and binding determination on its part that said order, work, action or omission does not involve extra work and is not contrary to the terms and provisions of the Contract; and (ii) a waiver by the Contractor of all claims for additional compensation or damages as a result of said order, work, action or omission. The provisions of Section 4.02 is to promptly afford the Owner opportunity to cancel or revise any order, change its plans, mitigate or remedy the effects or circumstances giving rise to a claim or take such other action as may seem desirable and to verify any claimed expenses or circumstances as they occur. Compliance with such provisions is essential whether or not the Owner is aware of the circumstances of any order or other circumstances which might constitute a basis for a claim and whether or not the Owner has indicated it will consider a claim in connection therewith.

G. No person has power to waive or modify any of the foregoing provisions and, in any action against the Owner to recover any sum in excess of the sum certified by the Owner to be due under or by reason of the Contract, the Contractor must allege in its complaint and prove compliance with the provisions of this Section.

Section 4.03 - Form of Change Orders

All change orders shall be processed, executed and approved via the Owner's Electronic project management system Change Order Process. No payment for change order Work shall be due the Contractor unless a change order has been issued and approved as noted above and processed via the electronic project management system.

ARTICLE 5 -- TIME OF COMPLETION

Section 5.01 - Time of Completion

A. The Work shall be commenced at the time stated in the written order of the Owner and shall be completed no later than the dates of completion specified in the Contract. All required overtime to maintain progress schedule is included in the Base Bid.

B. The date of beginning and the times for completion of the Work, as specified in the Contract, are essential conditions of the Contract.

C. The Work shall be prosecuted diligently at such rate of progress as shall insure substantial and full completion within the time specified. It is expressly understood and agreed, that the times for the completion of the Work described herein is a reasonable time, taking into consideration the average climatic range and usual business and labor conditions prevailing in the locality of the Site.

D. Time is of the essence on each and every portion of the Work. In any instance in which additional time is allowed for the completion of any Work, the new time of completion established by said extension shall be of the essence. If in the Architect's or Owner's judgment, it becomes necessary at any time during construction to accelerate and/or complete certain areas of the project, the Contractor shall concentrate efforts and manpower on designated areas.

E. Where Work occurs within occupied areas, perform same only on the approved schedule, so as not to interfere with normal operation of occupied areas.

F. The Contractor shall not be charged with damages or any excess cost if the Owner determines that the Contractor is without fault and the Contractor's reasons for the time extension are acceptable to the Owner. The Contractor shall not be charged with damages or any excess cost for delay in completion of the work if the Owner determines that the delay is due to:

1. any preference, priority or allocation order duly issued by the Government of the United States or the State of New York;
2. unforeseeable cause beyond the control and without the fault or negligence of the Contractor, and approved by the Owner, including, but not limited to, acts of God or of public enemy, acts of the Owner, fires, epidemics, quarantine, restrictions, strikes, freight embargoes and unusually severe weather.

G. The time for completion can only be extended by change order and may be extended for:

1. all of the Work, or
2. only that portion of the Work altered by the change order.

H. Any claim for extension of time shall be made in writing to the Owner not more than ten (10) days after the commencement of the delay; otherwise it shall be waived.

ARTICLE 6 -- TERMINATION

Section 6.01 - Termination for Cause

In the event that any provision of this Contract is violated by the Contractor or by any Subcontractor of the Contractor, the Owner may serve written notice upon the Contractor, and upon the Contractor's surety, if any, of the Owner's intention to terminate the Contract. The notice shall briefly state the reasons for the termination and shall specify a termination date. If arrangements satisfactory to the Owner are not made to remove and remedy the violation, the Contract shall terminate upon the date specified by the Owner in the notice. In the event of termination, the Owner may take over and complete the Work at the expense of the Contractor. The Contractor and Contractor's surety shall be liable to the Owner for all costs thereby incurred by the Owner. In the event of such termination the Owner may take possession of and may utilize such materials, appliances, and plant as may be located on the Site and which may be necessary or useful in completing the Work.

Section 6.02 - Termination for Convenience of Owner

The Owner, at any time, may terminate the Contract in whole or in part. Any said termination shall be effected by delivering to the Contractor a notice of termination specifying the extent to which performance of Work under the Contract is terminated and the date upon which said termination becomes effective. Upon receipt of the notice of termination, the Contractor shall act promptly to minimize the expenses resulting from said termination. The Owner shall pay the Contractor for costs actually incurred by the Contractor up to the effective date of said termination, but in no event shall the Contractor be entitled to compensation in excess of the total consideration of the Contract. In the event of said termination the Owner may take over the Work and prosecute same to completion.

Section 6.03 - Owner's Right to do Work

The Owner may, after notice to the Contractor, without terminating the Contract and without prejudice to any other right or remedy the Owner may have, perform or have performed by others all of the Work or any part thereof and may deduct the cost thereof from any monies due or to become due the Contractor.

ARTICLE 7 -- DISPUTES

Section 7.01 - Disputes Procedure

A. If the Contractor claims that any Work which the Contractor has been ordered to perform will be Work which should have been authorized or directed by change order, or that any action or omission of the Owner is contrary to the terms of the Contract, the Contractor shall:

1. File a notice with the Owner which sets forth the basis of the Contractor's claim and requests a resolution of the dispute. Such notice shall be filed within fifteen (15) working days after being ordered to perform the disputed work or within fifteen (15) working days after commencing performance of the disputed work, whichever is earlier, or within fifteen (15) working days after the act or omission of the Owner which the Contractor claims is contrary to the terms of the Contract.
2. Proceed diligently with the performance of the work in accordance with the instructions of the Owner pending the resolution of the dispute by the Owner.
3. Promptly comply with the order of the Owner regarding the disputed matter.
4. Any such decision, or any other decision of the Owner in respect to a dispute, shall be final unless the Contractor, within ten (10) working days after such decision, shall deliver to the Owner a verified written statement which sets forth the Contractor's contention that the decision is contrary to a provision of the contract. Pending the decision of the Owner, the Contractor shall proceed in accordance with the original decision. The Owner shall determine the validity of the Contractor's claim and such determination shall be final. The Contractor may file a notice with the Owner reserving its rights in connection with the dispute but shall comply with the Owner's decision and complete the work as directed.

B. No claim for additional costs regarding changed or extra work shall be allowed unless the work was done pursuant to a written order of the Owner.

C. The value of claims for extra work, if allowed, shall be determined by the methods described in the Contract. Refer to Article 4 of these General Conditions.

D. The Contractor's failure to comply with any or all parts of Article 7 shall be deemed to be:

1. a conclusive and binding determination on the part of the Contractor that the order, work, action or omission is not contrary to the terms and provisions of the Contract;
2. a waiver by the Contractor of all claims for additional compensation, known or unknown, including time extensions, or damages as a result of said order, work, action, or omission.

ARTICLE 8 -- SUBCONTRACTS

Section 8.01 - Subcontracting

- A. The Contractor may utilize the services of Subcontractors.
- B. The Contractor shall submit to the Owner, in writing, the name of each proposed Subcontractor and Sub-Subcontractor, as required by the Contract. The Contractor shall not award any Work to any Subcontractor or Sub-Subcontractor without the prior written approval of the Owner.
- C. The Contractor shall be fully responsible for the Work, acts and omissions of Subcontractors, and of persons either directly or indirectly employed by Subcontractors.
- D. The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the Work to bind Subcontractors to the Contractor by the terms of the Contract insofar as applicable to the Work of Subcontractors, indemnification and to give the Contractor the same power to terminate any subcontract that the Owner may exercise over the Contractor.
- E. The Contractor's use of Subcontractors shall not diminish the Contractor's obligation to complete the Work in accordance with the Contract. The Contractor shall control and coordinate the Work of Subcontractors.
- F. Nothing contained in the Contract shall create any contractual relationship between Subcontractors and the Owner.

ARTICLE 9 -- COORDINATION AND COOPERATION

Section 9.01 - Cooperation with Other Contractors

- A. Normally, the Work will be performed by a single Contractor. However, the Owner reserves the right to perform work related to the Work with its own forces or award separate contracts. In that event, the Contractor shall coordinate its operations with the Owner's forces or separate Contractors.
- B. The Owner cannot guarantee the responsibility, efficiency, unimpeded operations or performance of any contractor. The Contractor acknowledges these conditions and shall bear the risk of all delays including, but not limited to, delays caused by the presence or operations of other contractors.
- C. The Contractor shall keep informed of the progress and workmanship of other contractors and shall notify the Owner immediately of lack of progress or defective workmanship on the part of other contractors where said delay or defective workmanship may interfere with the Contractor's operations.
- D. Failure of a Contractor to keep so informed and failure to give notice of lack of progress or defective workmanship by others shall be construed as acceptance by the Contractor of said progress and workmanship as being satisfactory for proper coordination with the Work.

E. If the Contractor notifies the Owner, in writing, that another contractor on the Site is failing to coordinate the work of said contractor with the Work, the Owner shall investigate the charge. If the Owner finds it to be true, the Owner shall promptly issue such directions to the other contractor with respect thereto as the situation may require. The Owner shall not be liable for any damages suffered by the Contractor by reason of the other contractor's failure to promptly comply with the directions so issued by the Owner, or by reason of another contractor's default in performance.

F. If the Owner shall determine that the Contractor is failing to coordinate the Work with the work of other contractors as the Owner has directed:

1. the Owner shall have the right to withhold any payments due under the Contract until the Owner's directions are complied with by the Contractor; and
2. the Contractor shall indemnify and hold the Owner harmless from any and all claims or judgments for damages and from any costs or damages to which the Owner may be subjected or which the Owner may suffer or incur by reason of the Contractor's failure promptly to comply with the Owner's directions.

G. Should the Contractor sustain any damage through any act or omission of any other contractor having a contract with the Owner or through any act or omission of any Subcontractor of said other contractor, the Contractor shall have no claim against the Owner for said damage.

H. Should any other contractor having a Contract with the Owner sustain damage through any act or omission of the Contractor or its Subcontractor, the Contractor shall reimburse said other contractor for all said damages and shall indemnify and hold the Owner harmless from all said claims.

ARTICLE 10 -- PROTECTION OF RIGHTS, PERSONS AND PROPERTY

Section 10.01 - Accidents and Accident Prevention

A. The Contractor shall at all times take reasonable precautions for the safety of persons engaged in the performance of the Work. The Contractor shall comply fully with all applicable provisions of federal, state, and local law. The Contractor alone shall be responsible for the safety, efficiency and adequacy of the Contractor's Work, plant, appliances and methods, and for any damage which may result from the failure or the improper construction, maintenance, or operation of said Work, plant, appliances and methods.

B. The Contractor shall maintain an accurate record of all cases of death, occupational disease, public health statistics or information, and injury requiring medical attention, pursuant to government authority, or causing loss of time from work, arising out of or in the course of employment on Work under the Contract, and shall immediately notify the Owner in writing of any injury which results in hospitalization or death, or significant near miss incidents that had the potential to result in serious injury or death. The Contractor shall upload all completed Contractor and Subcontractor incident investigation forms and reports within five (5) working days of the incident. The report shall include the extent of damage or injury, the persons involved and their employers, the number of days persons are hospitalized, and any other pertinent information required by Cornell University. Such reporting shall be submitted on the electronic project management system Accident Form.

C. The Contractor shall provide to the Project Manager, Material Safety Data Sheets (OSHA Form 20 or the equivalent) for all chemicals to be used on site. All chemicals requiring any precautionary measures (e.g., special storage or disposal requirements, personal protective equipment, or additional ventilation), shall be brought to the attention of Cornell University for review and approval, prior to their use on site.

1. All chemicals brought on site by the Contractor shall be clearly labeled. The label shall state the identity of the chemical, any associated hazards, and the Contractor's name.
2. All Contractor employees who are using chemicals shall be made aware of the hazards associated with their use. Safe chemical handling procedures in accordance with OSHA or other governmental agencies, and manufacturer's recommendations shall be used at all times.
3. The Contractor shall dispose of all chemicals in accordance with EPA and Cornell University requirements, regardless of the size of the container or the quantity of waste, and must receive prior approval of Cornell University.
4. A Contractor's Waste Material Disposal Plan form is required (with or without waste) to be submitted with submission of the first payment. The form can be found at:

<https://ehs.cornell.edu/sites/default/files/FRM-CWMDP-Contractor-Waste-Material-Disposal-Plan-IPDF.pdf>

D. The Contractor shall be responsible for the initiation, maintenance and supervision of safety precautions and programs in connection with the Work.

E. The Contractor shall, at all times, guard the Owner's property from injury or loss in connection with the Work. The Contractor shall, at all times, guard and protect the Contractor's Work. The Contractor shall replace or make good any said loss or injury unless said loss or injury is caused directly by the Owner.

F. The Contractor shall have full responsibility to install, protect and maintain all materials and supplies in proper condition and forthwith repair, replace and make good any damage thereto until Final Acceptance.

Section 10.02 - Adjoining Property

A. The Contractor shall be required to protect all the adjoining property and to repair or replace any such properties damaged or destroyed by the Contractor, its employees or subcontractors thereof, by reason of, or as a result of activities under, for or related to the Contract.

Section 10.03 - Emergencies

A. In case of an emergency which threatens loss or injury to persons or property, the Contractor will be allowed to act, without previous instructions from the Owner, in a diligent manner, to the extent required to avoid or limit such loss or injury, and the Contractor shall notify the Owner immediately thereafter of the action taken.

Section 10.04 - Bonds

A. Before commencing the performance of any work covered by the Contract, the Contractor shall furnish to the Owner any required Bonds. The failure of the Contractor to supply the required Bonds within ten (10) days after the Contract signing shall constitute a default on the part of the Contractor.

Section 10.05 - Risks Assumed by the Contractor

A. Indemnification. The Contractor shall defend, indemnify and hold harmless the Owner and its trustees, officers, agents and employees from and against all claims, damages, losses, fines, and expenses, including reasonable attorneys' fees, arising out of or resulting from the performance of the Work including, but not limited to, bodily or personal injury, sickness, disease, death, or injury or damage to tangible property, to the extent they arise out of or result from:

1. any negligent act or omission, or intentional or willful misconduct, violation of law, or breach of this Contract by the Contractor, or any of its subcontractors, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, or
2. any injury to an employee of the Contractor, its subcontractors, anyone directly or indirectly employed by them. The indemnification obligation under this section shall not be limited by the amount or type of damages, compensation or benefits payable by or for the Contractor under workers' compensation, disability benefit or other employee benefit laws.

B. In the event that Contractor is requested but refuses to fully comply with and honor its indemnification obligations hereunder, then the Contractor shall, in addition to all other obligations, pay the cost, including reasonable attorneys' fees, of bringing an action to enforce such indemnification obligations.

C. Neither the Owner's final acceptance of the work to be performed hereunder nor the making of any payment shall release the Contractor from its obligations under this Section. The enumeration elsewhere in the Contract of particular risks assumed by the Contractor or of particular claims for which the Contractor is responsible shall not be deemed to limit the effect of the provisions of this Section or to imply that the Contractor assumes or is only responsible for risk or claims of the type enumerated.

Section 10.06 - Contractor's Compensation and Liability Insurance

A. The Contractor shall procure and maintain, at its own cost and expense, until final acceptance by the Owner of all the work covered by this Contract, the following kinds of insurance:

1. Worker's Compensation Insurance. A policy complying with the requirements of the laws of the State of New York, including Coverage B - Employer's Liability with limits as follows: (1) Bodily injury by accident - \$1,000,000 each accident; (2) Bodily injury by disease - \$1,000,000 each employee; and (3) Bodily injury by disease - \$1,000,000 policy limit. This policy shall provide a Waiver of Subrogation in favor of the Owner.

2. Contractor's Comprehensive General Liability Insurance. A standard commercial general liability insurance policy, with contractual, completed operations, explosion, collapse and underground property damage coverage's issued to and covering the liability of the Contractor for all work and operations under this Contract and all obligations assumed by the Contractor under this Contract. The Contractor shall provide Broad Form Commercial General Liability Insurance, and the Owner shall be an additional insured in the policy utilizing additional insured endorsements CG 20 10 10 01 and CG 20 37 10 01 or their equivalents and provide a Waiver of Subrogation in favor of Owner. The completed operations coverage's shall be maintained for not less than two years after acceptance of the work or until the end of the applicable Statute of Repose, whichever is greater. The limits of the Commercial General Liability policy shall be as follows:

\$ 1,000,000	Each Occurrence
\$ 1,000,000	Personal and Advertising Injury per Occurrence
\$ 2,000,000	General Aggregate
\$ 2,000,000	Completed Operations

- a) No exclusionary language or limitations relating to soils or earth movement.
- b) No exclusions for Bodily Injury and Property Damage, Labor Law (240) products liability/completed operations coverage (including any product manufactured or assembled), premises operations, blanket contractual liability (for this agreement), broad form property damage, personal and advertising injury, independent contractor's liability, mobile equipment, elevators, damage from explosion, collapse and underground hazards ("XCU") cross-liability, cross suits or severability of interest clauses are acceptable.

3. Automobile Liability Insurance. A policy covering the use in connection with the work covered by the Contract Documents of all owned, non-owned and hired vehicles bearing, or, under the circumstance under which they are being used, required by the Motor Vehicle Laws of the State of New York to bear license plates. This policy shall name Owner as an Additional Insured and provide a Waiver of Subrogation in favor of Owner. The coverage under such policy shall be not less than a combined single limit for Bodily Injury and Property Damage of:

COMBINED SINGLE LIMIT
\$ 1,000,000 Each Accident

4. **Umbrella Liability Insurance.** Umbrella and/or Excess Liability policy(ies) will be provided on a following form basis subject to limits not less than \$5,000,000 per occurrence and follow-form of the primary General Liability, Automobile Liability, and Employers Liability policies. These policies shall contain an endorsement stating that any entity qualifying as an additional insured on the insurance stated in the Schedule of Underlying Insurance shall be an Additional Insured on the Umbrella/Excess liability policy and that they apply immediately upon exhaustion of the insurance stated in the Schedule of Underlying Insurance as respects to the coverage afforded to any Additional Insured. No trailing retentions on Umbrella or Excess Liability policy(ies) shall be allowed without Owner prior written consent. When approved in advance by Owner, the policies provided in this section may have policy limits lower than indicated above if the excess liability insurance policy limits provided by Contractor, when combined with the corresponding underlying policy limits, total at least the sum of all required minimum policy limits required by this section.

\$ 5,000,000 Each Occurrence/Aggregate

5. Professional Liability Insurance. Contractor shall purchase and maintain Contractor's Professional Liability Insurance if Contractor or any of its Subcontractors or agents will provide any design, engineering or other professional services under the Subcontract Documents, covering Subcontractor and Sub-subcontractors, and their respective professionals, for liability for negligent acts, errors, or omissions, arising out of the performance of the Contractor's Work. The Retroactive date must be prior to start of the Work required under this Agreement. Coverage must be maintained for a minimum period of 3 years or until the applicable Statute of Repose, whichever is greater. The policy shall contain a blanket endorsement for contractual liability and afford coverage on a claim made basis:

6. **Contractors Pollution Liability Insurance:** Contractor shall purchase and maintain Pollution Liability Insurance as will protect the Owner and Contractor from claims of Bodily Injury, Property Damage and cleanup, which may arise out of or result from Contractor's operations under the Contract and for which the Contractor may be legally liable. Pollution liability coverage shall extend to microbial matter including mold, mold remediation and diminution in value. The insurance shall be maintained from inception of the Work through the earlier of Substantial Completion or Final Payment. This insurance shall include coverage and limits as follows.

\$ 2,000,000 Each Occurrence/Aggregate

7. Unmanned Aerial Vehicle (UAV): If Contractor or any of its Subcontractors or agents will operate an Unmanned Aerial Vehicle (“UAV”), a policy of UAV insurance shall be provided on a standard form providing coverage for bodily injury (including death) and property damage on an “occurrence” basis with a combined single limit per occurrence of \$2,000,000. This coverage may also be provided by endorsement to the Commercial General Liability policy.

Contractor is responsible to follow the Cornell University UAV Policy, located at:

<https://www.risk.cornell.edu/events-and-staffing-main-page/use-of-drones/>

PDF of Insurance requirements per the above Cornell University Policy:

<https://bpb-us-e1.wpmucdn.com/blogs.cornell.edu/dist/8/4200/files/2016/09/UAV-Guidelines-28wl46t.pdf>

8. Contractor's Equipment. Contractor shall purchase and maintain coverage for its property and equipment to be used in the prosecution of the Contract Work. Such coverage shall be on a Replacement Cost basis. A Waiver of Subrogation in favor of Owner for any loss to Contractor's tools, equipment, machinery, and appliances shall be provided prior to the commencement of the Contract Work.

B. In addition to maintaining all of the above insurances, the Contractor shall indemnify and hold harmless the Owner and its agents and employees from and against liability, including additional premium due because of the Contractor's failure to maintain coverage limits as required under this section.

C. Insurance similar to that required of the Contractor shall be provided by or on behalf of all subcontractors to cover their own operations performed under this Contract. The Contractor shall be held responsible for any modifications in these insurance requirements as they apply to subcontractors.

A. Subcontractors' Insurance: Before permitting any of its Subcontractors to perform any Work, Contractor shall require and verify that all subcontractors maintain insurance meeting all the requirements stated herein, and Contractor shall ensure that Owner is an additional insured on insurance required from subcontractors. Such Additional Insured endorsement shall be attached to the certificate of insurance in order to be valid and on a form at least as broad as ISO Additional Insured Endorsement CG2010 1093 with CG2037 1001 or an endorsement providing equivalent or broader coverage. The policy shall not contain any exclusions for New York Labor Law §§ 200, 240, 240(1), 241, 241(6) and any related sections, and their insurance certificate or accompanying letter from Authorized Representative must specifically state the same. If any sub contractor's coverage does not comply with the foregoing provisions, Contractor shall defend and indemnify the Owner from any damage, loss, cost, or expense, including attorneys' fees, incurred by Owner as a result of subcontractor's failure to maintain required coverage.

B. Subcontractor insurance shall be in such amounts and against such risks as is consistent with Contractor's customary practices for such types of subcontracts for projects of similar type and capacity to the Project, PROVIDED that such insurance shall at least be in such amounts and against such risks as is customarily carried by persons engaged in similar businesses in the same geographic area.

C. Applicable subcontractor minimum insurance limits shall be:

For Subcontracts 1,000,000 or less:

- Workman's compensation as per Section 10.06.A.1
- Comprehensive General Liability as per Section 10.06.A.2 with the following limits:

**BODILY INJURY AND PROPERTY
DAMAGE LIABILITY (BROAD FORM)**
\$ 1,000,000 Each Occurrence
\$ 2,000,000 Aggregate

- Automobile Liability Insurance as per Section 10.06.A3
- Professional Liability Insurance – if applicable to the Subcontractor's Scope of Work – as per Section 10.06.A.5 with the following limits:

Minimum Limits Required: \$2,000,000 per claim and
\$2,000,000 aggregate

- Umbrella/Excess Liability as per Section 10.06 A.4 with the following limits:

Not less than \$5,000,000 per occurrence

- Pollution Liability Insurance as per section 10.06.A.6 with the following limits:

Not less than \$2,000,000 aggregate

For Subcontracts \$1,000,000 or more:

- Workman's compensation as per Section 10.06.A.1
- Comprehensive General Liability as per Section 10.06.A.2 with the following limits:

**BODILY INJURY AND PROPERTY
DAMAGE LIABILITY (BROAD FORM)**
\$ 1,000,000 Each Occurrence
\$ 2,000,000 Aggregate

- Automobile Liability Insurance as per Section 10.06.A3
- Professional Liability Insurance – if applicable to the Subcontractor's Scope of Work – as per Section 10.06.A.5 with the following limits:

Minimum Limits Required: \$2,000,000 per claim and \$2,000,000 aggregate

- Umbrella/Excess Liability as per Section 10.06A.4 with the following limits:

Not less than \$10,000,000 per occurrence

- Pollution Liability Insurance as per section 10.06.A.6 with the following limits:

Not less than \$5,000,000 aggregate

D. Before commencing the performance of any work covered by the Contract, the Contractor shall furnish to the Owner a current certificate or certificates, in duplicate, of the insurance required under the foregoing provisions including copies of subcontractor's certificates. Such certificates shall be on a form prescribed by the Owner, shall list the various coverage's and shall contain, in addition to any provisions hereinbefore required, a provision that the policy shall not be changed or cancelled and that it will be automatically renewed upon expiration and continued in force until final acceptance by the Owner of all the work covered by the Contract, unless the Owner is given thirty (30) days written notice to the contrary. Upon renewal of each of the Contractor's insurance coverage's, the Owner shall be provided with a new certificate of insurance showing such renewal. Certificates and written notices shall be directed to the Office of Facilities Contracts. The Contractor shall furnish the Owner with a certified copy of each policy including any and all exclusions to such policy.

E. If at any time any of the above required insurance policies should be cancelled, terminated or modified so that insurance is not in effect as above required, then, if the Owner shall so direct, the Contractor shall suspend performance of the work covered in the Contract. If the said work is so suspended, no extension of time shall be due on account thereof. The Owner may, at its option, obtain insurance affording coverage equal to that above required, at the Contractor's expense.

Section 10.07 - Liability Insurance of the Owner

A. The Owner, at its own cost and expense, shall procure and maintain such liability insurance as will, in its opinion, protect the Owner from its contingent liability to others for damages because of bodily injury, including death, and property damage which may arise from operations under this Contract.

Section 10.08 - Owner's and Contractor's Responsibilities for Fire and Extended Coverage
Insurance Hazards

A. The Contractor shall purchase and maintain in force a builders risk insurance policy on the entire work. Such insurance shall be written on a completed value form and in an amount equal to the initial contract sum and modified by any subsequent modifications to the contract sum. The insurance shall name Cornell University and the State of New York, all subcontractors and sub- subcontractors. The insurance policy shall contain a provision that the insurance will not be cancelled or allowed to expire until the Contractor has given at least thirty (30) days prior written notice to Cornell University. The insurance shall cover the entire work at the site, including reasonable compensation for Architect's services and expenses made necessary by an insured loss. Insured property shall include portions of the work located away from the site and in transit to the site. The policy shall cover the cost of removing debris and demolition as may be legally necessary. The policy shall cover any boiler or machinery loss which may be suffered during installation and until final acceptance. The insurance required shall be written to cover "all risk" of physical loss including a loss due to collapse. Any deductible shall be the responsibility of the Contractor but in no case shall the deductible be more than \$10,000 unless Cornell University has agreed to a higher deductible. The Contractor shall provide to Cornell University a certificate of insurance and a summary of coverage's including all endorsements and exclusions prior to commencement of the work. Once the policy is received, the Contractor shall provide a copy of such policy to Cornell University. There shall be a mutual waiver of recovery between Cornell University, the Contractor and all other parties to the extent such losses are covered by the builders risk policy. If Cornell University wishes to occupy the building prior to final acceptance and if the policy contains a provision which limits coverage for such partial occupancy, the parties agree work together to obtain consent of the insurance company for such partial occupancy or use under mutually acceptable terms.

B. Losses, if any, under such insurance shall be payable to the Owner.

C. The Contractor shall be responsible for any and all loss of materials connected with the construction due to unexplainable disappearance, theft or misappropriation of any kind or nature.

D. The foregoing provisions shall not operate to relieve the Contractor and subcontractors of responsibility for any loss or damage to their own or rented property or property of their employees, of whatever kind or nature, or on account of labor performed under the Contract incidental to the repair, replacement, salvage, or restoration of such items, including but not limited to tools, equipment, forms, scaffolding, and temporary structures, including their contents, regardless of ownership of such contents, except for such contents as are to be included in and remain a part of the permanent construction. The Owner shall in no event be liable for any loss or damage to any of the aforementioned items, or any other property of the Contractor, subcontractors and the Architect, or employees, agents, or servants of same, which is not to be included in and remain a part of the permanent construction. The Contractor and subcontractors severally waive any rights of recovery they may have against the Owner and the Architect for damage or destruction of their own or rented property, or property of their employees of whatever kind or nature.

Section 10.09 - Effect of Procurement of Insurance

A. Neither the procurement nor the maintenance of any type of insurance by the Owner or the Contractor shall in any way be construed or be deemed to limit, discharge, waive or release the Contractor from any of the obligations and risks imposed upon the Contractor by the Contract or to be a limitation on the nature or extent of such obligations and risks.

Section 10.10 - No Third Party Rights

A. Nothing in the Contract shall create or give to third parties; any claim or right of action against the Contractor, the Architect, and the Owner beyond such as may legally exist irrespective of the Contract.

Section 10.11 – Assumption of Risk

Vendors/Consultants/Contractors/Subcontractors are required to bring to jobsite all tools, equipment, and applicable personal safety devices required or needed to perform and complete the relevant scope of Work. Use of Cornell equipment or tools, with or without permission, involves inherent risk of injury to User(s). Any use of Cornell equipment is conditioned upon the assumption of all risks attendant to the use of any tools or equipment – including personal injury, death or permanent disability – arising from the Use of Cornell equipment or tools. These risks also include but are not limited to: accidents, collisions, falling, as well as unforeseen risks resulting in injuries to User and/or bystanders. Participation in a walk-through or similar activity constitutes acceptance of risk assumption.

Section 10.12 - Health And Safety Plan Requisites for Construction Activity Applicable To High Impact Respiratory Pathogen Pandemics And Contagions

Contractor agrees it shall follow all applicable safety requirements to a prospective health and safety event, emergency, epidemic or pandemic. Contractor is required to protect the health and safety of employees as required by applicable law, rule, regulation, and/or protocols based upon then current information, requirements, recommendations, and guidelines from civil authorities including, but not limited to, federal or New York State Executive Orders, CDC, OSHA and New York State Department of Health surrounding health and safety measures designed to eliminate or reduce the transmission of the high impact respiratory pathogen pandemics (HIRPP), or other emergent public health and safety events, epidemics, pandemics and conditions.

ARTICLE 11 -- USE OR OCCUPANCY PRIOR TO ACCEPTANCE BY OWNER

Section 11.01 – Substantial Completion

A. The term "substantial completion" means the completion of the Work to the extent that Cornell University may have uninterrupted occupancy or use of the facility or specified portion thereof for the purpose for which intended. The Contractor shall obtain all certificates of occupancy required prior to occupancy, and any electrical, mechanical and plumbing certificates, or other certificates or required approvals and acceptances by City, County, and State governments or other authority having jurisdiction.

Section 11.02 - Occupancy Prior to Acceptance

A. If, before Final Acceptance, the Owner desires Beneficial Occupancy of the Work, or any part thereof, which is completed or partly completed, or to place or install therein equipment and furnishings, the Owner shall have the right to do so, and the Contractor shall in no way interfere with or object to said Beneficial Occupancy by the Owner.

B. Said Beneficial Occupancy (1) shall not constitute acceptance of space, systems, materials or elements of the Work, nor shall said Beneficial Occupancy affect the start of any guarantee period, and (2) shall not affect the obligations of the Contractor for Work which is not in accordance with the requirements of the Contract or other obligations of the Contractor under the Contract.

C. The Contractor shall continue the performance of the Work in a manner which shall not unreasonably interfere with said use, occupancy and operation by the Owner.

ARTICLE 12 -- PAYMENT

Section 12.01 - Provision for Payment

A. The Owner agrees to pay the Contract Price to the Contractor for the performance of this Contract and the fulfillment of all the Contractor's obligations. The Contract Price means all costs reimbursable under the Contract Documents.

B. The final certificate of the Architect shall certify that the Contract has been completed within the stipulated time, and shall not be issued until all drawings and specifications have been returned to the Owner. The issuance of said certificates, however, or any payments made thereon shall not lessen the total responsibility of the Contractor to complete the work to the satisfaction of the Owner in accordance with the Contract.

C. Payments on the Contract Price shall be made each month as the work progresses in accord with the following procedure:

1. The Contractor's schedule of values, including quantities, aggregating the total Contract Price, divided so as to facilitate payments to subcontractors as specified herein, shall be the basis for monthly progress payments. This schedule, as shown in the electronic project management system Schedule of Values Process, when approved by the Owner shall be used as a basis for progress payments. In applying for payments, the Contractor shall submit a statement based upon this approved schedule.

2. (a) On a date agreed upon by the Owner, Architect, and Contractor, a meeting shall be held by the Owner to review the work completed and materials on hand. This meeting shall review each item to be submitted by the Contractor in the requisition for payment.

(b) On the first day of each month, or as soon thereafter as practicable, the Contractor shall submit via the electronic project management system Payment Application Process, a statement and all applicable documentation setting forth in detail the cost of the work done and materials delivered to the job site up to and including the last day of the previous month and shall make application for payment of ninety percent (95%) of the amount of said statement, less the aggregate of all previous payments made by the Owner against the Contract Price.

(c) Each statement and application shall be accompanied by an affidavit, executed by the Contractor, certifying that the statement is true and correct, and that all bills for labor, and materials incorporated in or delivered to the job, due and payable at the time of the preceding progress payment, have been paid. The Contractor shall attach a single .pdf file of certified payrolls for all employees on the project as indicated in the electronic project management system Payment Application Process. Before final payment is made, the Contractor shall submit evidence that all payrolls, material bills and other indebtedness incurred in connection with the Contract have been paid, including final waivers of any liens.

3. Each such application for payment shall be subject to the review and approval of the Architect. If the Architect finds that the affidavit and application for payment are acceptable and that all the above requirements in connection therewith have been complied with, the Architect shall, within seven (7) calendar days after receiving such application for payment, certify to the Owner that the payment applied for is due and payable to the Contractor.

4. The issuance of a Certificate for Payment constitutes a representation by the Architect to the Owner, based on the date of the Application for Payment, that the work has progressed to the point indicated, that, to the best of their knowledge, information, and belief, the quality of the work is in accordance with the Contract Documents and that the Contractor is entitled to payment in the amount certified.

The Owner shall make payment in the manner provided in the Agreement within thirty (30) calendar days of receipt of the approved Certificate in the Electronic project management system.

Approval of the Payment Application by the Architect shall not be deemed to represent that the Architect has made exhaustive or continuous on-site inspections to check the quality or quantity of the work or that the Architect has reviewed the construction means, methods, techniques, sequences, or proceedings or that the Architect has made any examination to ascertain how or for what purpose the Contractor has used the monies previously paid on account of the Contract Sum.

Section 12.02 – Stored Materials & Equipment

A. The Contractor may submit, no more than thirty (30) calendar days after contract approval and prior to the first application for payment, a written request to Cornell University for permission to invoice for critical materials and equipment ready, but not yet incorporated into the work. For the purpose of this paragraph, "critical materials and equipment" eligible for payment are defined as those items affecting project schedule or budget as determined by Cornell University's evaluation of the project schedule. This includes finished goods normally shipped to the job site in a condition ready for incorporation into the work that require significant time for delivery. Raw materials or work-in-process at a manufacturer's plant location shall not be eligible for such consideration unless the Contractor can demonstrate that Cornell University can save money by purchasing material in bulk quantities at the beginning of the project.

B. Cornell University will be under no obligation to accept such requests.

C. Payment authorized by Cornell University for such "long-lead" critical materials and equipment not yet incorporated in the work will be made provided the Contractor submits Exhibit F and complies with the following:

1. Items shall be listed in the "Total Materials Presently Stored" column on the Application for Payment.
2. Transfer of Title shall be executed and included in the Application for Payment.
3. The method used to store off-site items shall be described in the Contractor's request to invoice for such materials and equipment. Cornell University shall give prior approval of the location of off-site storage. Items requiring special environmental conditions to protect their integrity (temperature, humidity, etc.) shall be continuously stored in such an environment.
4. Items in storage shall be identified as property of Cornell University, and a description of the identification method used shall be submitted in the Application for Payment. Contractor shall maintain all necessary insurance on items in storage.
5. A written and photographic inventory of items and method used to verify such inventory, including Contractor's certification that all quantities have been received in good condition at the job site or other location acceptable to Cornell University shall be submitted with the Application for Payment.
6. A copy of the vendor's invoice is included with the Contractor's invoice. Packing lists will not be accepted.

D. Cornell University retains the right to verify storage by physical inspection prior to payment approval and at any time thereafter. Such payment shall not relieve the Contractor of the responsibility for protecting, safeguarding, and properly installing the equipment or materials. The Warranty and Guarantee period shall not commence until installation and final acceptance of the completed work by Cornell University. The Contractor shall bear the cost of transporting materials stored off-site to the site

E. Each subsequent invoice will restate the prior months' materials and equipment not incorporated in the Work and current month additions and deletions for materials and equipment incorporated into the Work.

F. Upon the making of partial payment by Cornell University, all work, materials, and equipment covered thereby shall become the sole property of Cornell University. Partial payments, however, shall not constitute acceptance of the Contractor's work by Cornell University, nor be construed as a waiver of any right or claim by Cornell University.

Section 12.03 – Retention

A. Retention in the amount of five percent (5%) of the value of the Work done and materials furnished and installed under this Agreement shall be retained by the Owner as part security for the faithful performance of the Contractor's work within the time specified, and shall be paid as indicated in Section 12.06.

B. Cornell University in its sole discretion may, upon the Contractor's application thereof, release retention applicable to a subcontractor, provided that there are no outstanding claims associated with the subcontractor's work and the subcontractor and Contractor submit an acceptable partial or final release when submitting the payment application process. If the project is bonded, a Consent of Surety to the reduction must be attached as well.

Section 12.04 - Withholding Payments

A. The Owner may, on account of contemporaneous or subsequently discovered evidence, withhold or nullify the whole or a part of any Certificate to such extent as may be necessary to protect the Owner from loss on account of:

1. Defective work not remedied.
2. To assure payment of just claims of any persons supplying labor or materials for the work and to discharge any lien filed against the Owner's property.
3. A reasonable doubt that the Contract can be completed for the balance of the Contract Price then unpaid.
4. Damage to another Contractor.
5. Unsatisfactory prosecution of the work by the Contractor.
6. Failure to provide and maintain an acceptable Critical Path Method Network Schedule.

Section 12.05 – Documents and Conditions Precedent to Final Payment

A. As-Built Documentation

1. Prior to acceptance by the Owner of all work covered by the Contract, the Contractor shall furnish to the Owner through the Architect one (1) set of current reproducible full-size Contract Drawings on which the Contractor has recorded in a neat and workmanlike manner all instances where actual field construction differs from work as indicated on the Contract Drawings.

B. Final Documentation:

1. Prior to final payment, and before the issuance of a final certificate for payment in accordance with the provisions of these General Conditions, file the following documents with the Owner.
 - a. Warranties, Bonds, Service & Maintenance Contracts and any other extended guarantees stated in the technical sections of the Specifications.
 - b. Release or Waiver of Lien for the Contractor and Sub-Contractors in accordance with Exhibit B, attached hereto.
 - c. Project Record Documents as defined in General Requirements Section 01 78 39.
 - d. Notification that Final Punch List work has been completed.
 - e. Manufacturers Instruction and Maintenance Manuals as defined in General Requirements Section 01 78 23.
 - f. Fixed Equipment Inventory as defined in General Requirements Section 01 78 22.
2. The Contractor shall also provide a CD containing scanned .pdf format and/or Word Documents of all documentation.

Section 12.06 - Final Payment and Release

A. When the Contractor determines that the work or a designated portion thereof is substantially complete, the Contractor shall prepare for submission to the Owner a list of items to be completed or corrected. This list, prepared by the Contractor, shall constitute a complete detailed list of defects and deficiencies which, when remedied, will complete all Contract requirements. The submittal shall be accompanied by a statement to that effect.

B. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all work in accordance with the Contract Documents. When the Architect, on the basis of an inspection, determines that the work is substantially complete, the Architect will then prepare a Certificate of Substantial Completion.

C. Upon receipt of written notice that the work is ready for final inspection and acceptance, the Architect will promptly make such inspection and, when the Architect finds the work acceptable under the provisions of the Contract Documents, and the Contract fully performed, and if bonds have been required, the written Consent of the Surety to the payment of the balance due, and a satisfactory Release of Lien, attached hereto as Exhibit "B" and made a part of the Contract Documents, has been submitted by the Contractor, each subcontractor and sub-subcontractor, the Contractor will promptly issue a final Certificate for Payment, stating that to the best of their knowledge, information, and belief, and on the basis of their observations and inspections the work has been completed in accordance with the terms and conditions of the Contract Documents, and that the entire balance is due and payable.

D. All prior certificates upon which progress payments may have been made, being estimates, shall be subject to correction to the final certificate.

E. The acceptance by the Contractor of the final payment aforesaid shall constitute a general release of the Owner and its agents or representatives from all claims and liability to the Contractor.

ARTICLE 13 -- TAX EXEMPTION

Section 13.01 - Tax Exemption

A. The Owner is exempt from payment of Federal, State and local taxes, including sales and compensating use taxes on all materials and supplies incorporated into the completed Work. These taxes are not to be included in bids. This exemption does not apply to tools, machinery, equipment or other property leased by or to the Contractor or a Subcontractor, or to supplies and materials which, even though they are consumed, are not incorporated into the completed Work, and the Contractor and Subcontractors shall be responsible for and pay any and all applicable taxes, including sales and compensating use taxes, on said leased tools, machinery, equipment or other property and upon all said unincorporated supplies and materials.

B. The Contractor and Subcontractor shall obtain any and all necessary certificates or other documentation from the appropriate governmental agency or agencies, and use said certificates or other documentation as required by law, rule or regulation.

ARTICLE 14 -- GUARANTEE

Section 14.01 - Guarantee

A. The Contractor, at the convenience of the Owner, shall remove, replace and/or repair at their own costs and expense any defects in workmanship, materials, ratings, capacities or characteristics occurring in or to the work covered by Contract for the period of one (1) year or within such longer period as may otherwise be provided in the Contract, the period of such guarantee to commence with the Owner's final acceptance of all work covered under the Contract, and the Contractor, upon demand, shall pay for all damage to all other work resulting from such defects and all expenses necessary to remove, replace and/or repair such work which may be damaged in removing, replacing or repairing the said defects. Acceptance means final acceptance of the entire work, early partial occupancy notwithstanding.

B. In some instances the nature of the work may require the Owner to accept various components, equipment, spaces or phase of the project. In such cases the Contractor shall submit a separate guarantee for the Owner's acceptance on the form attached hereto as Exhibit "C". Upon completion of the project, the Contractor shall submit to the Owner a guarantee for the project on the form attached hereto as Exhibit "C".

ARTICLE 15 -- STANDARD PROVISIONS

Section 15.01 - Provisions Required by Law Deemed Inserted

Each and every provision of law or clause required by law to be inserted in the Contract and made a part hereof, shall be deemed to be inserted herein and, in the event any such provision is not inserted or is not correctly inserted, then upon the application of either party, this Contract shall forthwith be physically amended to make such insertion or correction.

Section 15.02 - Laws Governing the Contract

The Contract shall be governed by the laws of the State of New York, without reference to conflict of law principles. Any and all proceedings relating to the subject matter hereof shall be maintained in New York State Supreme Court, Tompkins County or the federal district court for the Northern District of New York, which courts shall have exclusive jurisdiction for such purposes.

Section 15.03 - Assignments

The Contractor shall not assign the Contract in whole or in part without prior written consent of the Owner.

Section 15.04 - No Third Party Rights

Nothing in the Contract shall create or shall give to third parties any claim or right of action against the Owner, beyond such rights as may legally exist irrespective of the Contract.

Section 15.05 - Waiver of Rights of Owner

A. None of the provisions of the Contract will be considered waived by the Owner except when such waiver is given in writing.

Section 15.06 - Limitation on Actions

No action or proceeding shall be filed or shall be maintained by the Contractor against the Owner unless said action shall be commenced within six (6) months after receipt by the Owner of the Contractor's final requisition or, if the Contract is terminated by the Owner, unless said action is commenced within six (6) months after the date of said termination.

Section 15.07 - Owner's Representative

The Owner shall designate a representative authorized to act in its behalf with respect to the Project. The Owner or its representative shall examine documents and shall render approvals and decisions pertaining thereto promptly, to avoid unreasonable delay in the progress of the Contractor's work. Only directives from Cornell University's designated representative (John Pillar) shall be recognized by the Contractor.

Section 15.08 - Cost Escalation / De-escalation

A. The Contract Pricing for all materials, supplies and services will remain firm for the duration of the Contract. Only properly documented and timely advanced notice requests for an actual cost increase in excess of 10% for the subject materials due to a tariff tax imposed that result in significant and actual cost impacts after the date of Bid Proposal will be entertained.

B. A proper request for a cost escalation will:

1. only be considered for advanced, timely noticed, and properly documented materials escalation due to tariffs or natural disasters through no fault of the Contractor; and
2. must be submitted within thirty (30) days of actual tariff related cost escalation exceeding a total cost increase of 10% or more of the commodity's documented bid pricing; and
3. must be approved by the Owner and allowed only on a shared impact at actual pass-through cost basis, absent any mark-ups.

C. Approval of a cost escalation request will be at the sole discretion of the Owner on a shared cost basis. Retroactive cost increase adjustments will not be considered, nor will increases unrelated to tariff taxes. Adjustments to pricing shall be the result of increases at the manufacturer's level pricing incurred after the Contract commencement date that:

1. will not yield a higher profit margin than that reflected in the costs awarded in the original proposal; and
2. clearly identifies the items impacted by the increase; and
3. is accompanied by sufficient documentation, acceptable to the Owner, and subject to audit requirements below.

D. Contractor will be required to provide sufficient documentation to justify the requested cost escalations(s), and Owner will determine the acceptability of documentation and sources. Documentation will include a cost proposal in sufficient detail for the Owner to perform a cost/price analysis upon which the original proposal was made. An evaluation and/or audit will be performed on the cost proposal, as well as other submitted documentation in order to determine if the requested cost increase is a fair and reasonable reflection of the actual material cost increase(s).

E. In addition to the General Conditions Article 17 surrounding Accounting, Inspection and Audit requirements, the Contractor agrees to maintain and retain books and records showing all relevant and original costs included in Contractor bids surrounding the materials and pricing in the asserted cost escalation, as well records satisfactorily demonstrating the actual cost(s) incurred for the subject materials that are asserted to be the result of tariff impacts. Each Sub-Contractor shall be similarly obligated to maintain, for inspection and audit by the Owner, books and records respecting the relevant materials and their original pricing, as well as the subsequent actual cost(s). If requested by the Owner, the Contractor shall furnish copies of any and all relevant documents, subcontracts, purchase orders and/or requisitions of any nature associated with the project and the impacts due to tariffs. The absence of sufficient documentation shall be grounds to deny any claimed escalation in pricing due to tariffs.

F. If the Owner does not find the documentation sufficient to support a cost escalation request on a pass-through basis the Owner reserves the option to counter-offer. When agreed upon by both Parties, the contract cost changes shall be binding on the Contractor. This escalation/de-escalation provision shall apply equally to cost decreases as well as increases. Cost decreases may be considered and implemented at any time during the term of the Contract.

G. All cost escalations/de-escalations shall be processed via a Change Order to the Contract.

ARTICLE 16 – MINORITY AND WOMEN BUSINESS ENTERPRISES

Section 16.01 – Definitions

The terms "Minority-owned business enterprise" ("MBE") or "Women-owned business enterprise" ("WBE") or "minority group member" shall have the same meaning as under Section 310 of the New York State Executive Law, as the same may be from time to time amended.

Section 16.02 – Participation by Minority and Women Business Enterprises

A. The Contractor shall, in addition to any other nondiscrimination provision of the Contract and at no additional cost to Owner, fully comply and cooperate with the Owner in the implementation of MBE and WBE programs. These requirements include equal employment opportunities for minority group members and women ("EEO") and contracting opportunities for certified minority and women-owned business enterprises ("MWBEs"). The Contractor's demonstration of "good faith efforts" shall be a part of these requirements. These provisions shall be deemed supplementary to, and not in lieu of, the nondiscrimination provisions required by New York State or other applicable federal, state or local laws.

B. The Contractor shall include the provisions of this Article in each and every Agreement and/or Contract in such a manner that the provisions of this Article will be binding upon each subcontractor and supplier as to work in connection with and related to this Agreement.

C. For purposes of this procurement:

With respect to the procurement of goods and services and university contracting, Cornell University shall comply with all applicable state and federal laws, and refrain from discriminating against or considering the following in hiring or contracting: race, sex, sexual orientation, color, national origin, religion, or disability. Cornell's obligations surrounding state programs (MWBE utilization) and federal law regarding non-discrimination obligations continue to be the rule of law.

Section 16.03 – Reports and Records

A. The following forms, attached hereto as Exhibit "D" and made a part of the Contract Documents, are to be used in submitting MBE/WBE Utilization Reports when requested by the Owner.

1. MWBE Utilization Report
2. Workforce Report

B. The Contractor shall provide a single monthly report, or as requested by the Owner, inclusive of all subcontractor information for the project labor and such report must document the use of MWBE businesses in the Contract.

ARTICLE 17 -- ACCOUNTINGS, INSPECTION AND AUDIT

The Contractor agrees to keep books and records showing the actual costs incurred for the Work. Such books and records (including, without limitation, any electronic data processing files used by the Contractor in analyzing and recording the Work) shall be open for inspection and audit by the Owner and its authorized representatives at reasonable hours at the Contractor's local office or at the Owner's office, if necessary, and shall be retained by the Contractor for a period of seven years after the Work has been completed, except that if any litigation, claim or audit is started before the expiration date of the seven year period, the records shall be retained until all litigation, claims or audit findings involving the records have been resolved.. Each Sub-Contractor shall be similarly obligated to maintain, for inspection and audit by the Owner, books and records respecting the Work. If requested by the Owner, the Contractor shall furnish copies of any and all subcontracts, purchase orders and/or requisitions of any nature associated with the project.

ARTICLE 18 – CONTRACTOR PERFORMANCE EVALUATION

At project completion the Owner shall schedule a meeting to review with the Contractor their performance for the project unless performance warrants additional reviews. The Owner may schedule a meeting at fifty percent (50% completion) based on project complexity and/or duration. The Owner shall present its review based on the attached "Contractor Performance Evaluation", Exhibit G. The Contractor shall be given the opportunity to provide input as to the findings of the evaluation after completion by the Owner.

ARTICLE 19 -- ROYALTIES AND PATENTS

The Contractor shall pay all royalties and license fees and shall defend all suits or claims for infringement of any patents, and shall save Cornell University harmless from loss on account thereof; except that Cornell University shall be responsible for all such loss when a particular process or product is specified by Cornell University unless the Contractor shall have reason to believe that the particular process or product infringes a patent, in which event it shall be responsible for loss on account thereof unless it promptly provides such information to Cornell University.

ARTICLE 20 -- CONFIDENTIALITY AND USE OF OWNER'S NAME

Section 20.01 - Release of Information

The Contractor shall not divulge information concerning the Work (including news releases, social media, internal house organizations, applications for permits, etc.) to anyone without Cornell University's prior written approval, except to subcontractors and suppliers to the extent that they need such information to perform their work. The Contractor shall require a similar agreement from each such subcontractor and supplier, requiring their compliance with the foregoing. Cornell University reserves the right to release all information, as well as to time its release and specify its form and content. The Contractor may obtain Cornell University's approval to release information by submitting such request to the Cornell University Project Manager.

Section 20.02 - Confidential Information

The term "Confidential Information" means all unpublished information obtained or received from Cornell University during the term of this Contract which relates to Cornell University's research, development, manufacturing and business affairs. The Contractor shall not disclose confidential information to any person, except to its employees and subcontractors to the extent that they require it in the performance of their Work, during the term of this Contract and until authorized by Cornell University in writing. The Contractor and its subcontractors shall hold all confidential information in trust and confidence for Cornell University, and shall use confidential information only for the purpose of this Contract. The Contractor and its subcontractors shall require all of their employees to whom confidential information is revealed to comply with these provisions. The Contractor shall have an agreement with each subcontractor, requiring their compliance with the foregoing. If it becomes necessary for the Contractor to defend in case of litigation related to its services rendered, permission shall be sought from Cornell University, who shall not unreasonably withhold such permission, before any disclosures are made. This Section does not apply to information which (1) is or becomes known in public domain or (2) is learned by the Contractor from third parties.

Section 20.03 - Use of Owner's Name on Non-Work Related Content

The Contractor shall not use or permit on the job site, in its external, advertising, marketing program, social media, or other promotional efforts, any date, pictures, or other content unrelated to the Contracted Work, or any representation of the Owner except on the specific written authorization in advance of the Owner's Representative.

ARTICLE 21 -- CORNELL UNIVERSITY STANDARDS OF ETHICAL CONDUCT

Cornell University expects all executive officers, trustees, faculty, staff, student employees, and others, when acting on behalf of the university, to maintain the highest standard of ethical conduct as per Cornell University's Policy 4.6 - Standards of Ethical Conduct, a copy of which is available at <https://policy.cornell.edu/policy-library/standards-ethical-conduct>. This includes treating equally all persons and firms currently doing business with or seeking to do business with or for Cornell University, whether as contractors, subcontractors, or suppliers. Such persons and firms are respectfully reminded that Cornell University employees and their families may not personally benefit from Cornell University's business relationships by the acceptance of gifts or gratuities, defined as a gift in excess of \$75.00 given to a Cornell employee for personal use. Items not considered gifts/gratuities include occasional business meals, items of an advertising nature, and items that are generally distributed to all potential customers. In addition, it is expected that the Contractor's officers and employees shall conduct all business related to this Contract within the highest ethical standards, observing applicable policies, practices, regulations, law, and professional standards. All parties are expected to report violations of this policy to appropriate university personnel. You may file a report to on the web https://secure.ethicspoint.com/domain/en/report_custom.asp?clientid=6357 or contact Cornell University through EthicsPoint by dialing toll-free 1-866-293-3077.

Section 21.01 Private Job Site

Cornell University, its campuses and construction job sites, are private property, owned and operated by a private university. Cornell requires its Contractors, their employees and subcontractors, to conduct job sites under their project control in a professional manner free of discrimination, harassment, and intimidation.

As a private university, Cornell University job sites are neither a public nor quasi-public forums. The Contractor, subcontractors, and their respective employees and visitors to the job sites have no expectation to rights of free expression while working on a Cornell job site, surrounding campus property, or its buildings and grounds. This practice is a content neutral, non-discriminatory, and represents time, place, and manner restrictions of a private employer. A Cornell construction job site is not an appropriate venue for the exercise of personal speech or expression, political or apolitical, offensive or inoffensive, or whether made on an individual's own time. Actions involving flags, posters, shirts, emblems, symbols, protests, messaging and the like are not permitted on the job site and the Contractor controlling the job site shall ensure its subcontractors, all workers, suppliers and visitors to the job site comply with the foregoing. Violations may result in removal from the job site for those responsible.

CORNELL UNIVERSITY

**Construction Contract Change Order Forms
Instructions to Change Order Documentation**

Cornell University has several standard forms related to Changes in the Work. These forms have been prepared to comply with contract requirements related to Changes in the Work. The standard Construction Contract Change Order Request and Change Order Summary Forms shall be used to facilitate preparation of change order requests in conformity with construction contract requirements.

These forms shall be used by the Contractor and by all Subcontractors in preparing their respective cost estimates for services associated with the Changed Work for the Owner's consideration and shall include all associated back-up documentation supporting the request.

Direct Cost of the Work:

- 1. Direct Labor** – Include the “wages paid” hourly direct labor and/or foreman necessary to perform the required change. “Wages paid” is the burdened labor rate documented in accordance with Section 2.14 – Project Labor Rates of the General Conditions. “Assigned Personnel or Work Crews” should be stated by trade or type of work performed not by name of person or company title. For example carpenter, mason, backhoe operator, etc. Supervisory personnel in district or home office shall not be included. Supervisory personnel on the job-site, but with broad supervisory responsibility and paid as salaried personnel, shall not be included as Direct Labor
- 2. Direct Material** – Include the acquisition cost of all materials directly required to perform the required change. Examples of “Unit of Measure” include square feet, cubic yards, linear feet, days, gallons, etc.
- 3. Equipment** – Include the rental cost of equipment items necessary to perform the change. For company-owned equipment items, include documentation of internal rental rates. Charges for small tools, and craft specific tools are not allowed.

Bond Premiums

The Contractor's actual documented bond premium rate as entered into the electronic project management Bid Portal Response Form – Step 3 – Additional Required Information Custom Fields at time of bid shall be added to all direct and indirect costs of the proposed change.

Overhead & Profit

The Contractor's overhead & profit rate shall be added to all direct and indirect costs of the proposed change in accordance with the Contract.

EXHIBIT "A"

CONSTRUCTION CONTRACT CHANGE ORDER SUMMARY

DATE:

PCO # _____

PROJECT TITLE:

CONTRACT NO.

CONTRACTOR:

DETAILED DESCRIPTION OF WORK:

1 DIRECT COST OF WORK:

**NAME OF CONTRACTOR/SUBCONTRACTORS
PERFORMING WORK**

TO TAL COST

TOTAL COST OF PROPOSED CHANGE ORDER ITEM

\$0

TOTAL CONTRACT DAYS ADDED/DELETED FROM PROJECT SCHEDULE

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FINAL RELEASE

EXHIBIT "B"

FINAL WAIVER OF CLAIMS AND LIENS AND RELEASE OF RIGHTS

Date _____

Project _____

Address _____

City _____

County _____

State _____

Contract Date	_____
Contract Price	_____
Net Extras and Deductions	_____
Adjusted Contract Price	_____
Amount Previously Paid	_____
Balance Due - Final Payment	_____

The undersigned hereby acknowledges that the above Balance Due when paid represents payment in full for all labor, materials, etc., furnished by the below named Contractor or Supplier in connection with its work on the above Project in accordance with the Contract.

In consideration of the amounts and sums previously received, and the payment of \$ _____
being the full and Final Payment amount due, the below named Contractor or Supplier does hereby waive and release
the Owner from any and all claims and liens and rights of liens upon the premises described above, and upon
improvements now or hereafter thereon, and upon the monies or other considerations due or to become due from the
Owner or from any other person, firm or corporation, said claims, liens and rights of liens being on account of labor,
services, materials, fixtures or apparatus heretofore furnished by the below named Contractor or Supplier to the
Project. The premises as to which said claims and liens are hereby released are identified as follows: _____

The undersigned further represents and warrants that he/she is duly authorized and empowered to sign and execute this waiver on his/her own behalf and on behalf of the company or business for which he/she is signing; that it has properly performed all work and furnished all materials of the specified quality per plans and specifications and in a good and workmanlike manner, fully and completely; that it has paid for all the labor, materials, equipment and services that it has used or supplied, that it has no other outstanding and unpaid applications, invoices, retentions, holdbacks, expenses employed in the prosecution of work, chargebacks or unbilled work or materials against the Owner as of the date of the aforementioned last and final payment application; and that any materials which have been supplied or incorporated into the above premises were either taken from its fully-paid or open stock or were fully paid for and supplied on the last and final payment application or invoice.

The undersigned further agrees to defend, indemnify and hold harmless the Owner for any losses or expenses (including without limitation reasonable attorneys' fees) should any such claim, lien or right of lien be asserted by the below named Contractor or Supplier or by any of its or their laborers, material persons or subcontractors.

In addition, for and in consideration of the amounts and sums received, the below named Contractor or Supplier hereby waives, releases and relinquishes any and all claims, rights or causes of action in equity or law whatsoever arising out of through or under the above mentioned Contract and the performance of work pursuant thereto.

The below named Contractor or Supplier further guarantees that all portions of the work furnished and installed are in accordance with the Contract and that the terms of the Contract with respect to this guarantee will remain in effect for the period specified in said Contract.

Sworn to before me this

Corporation or Business Name

_____ Day of _____ 20____

By: _____

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GUARANTEE

Date: _____

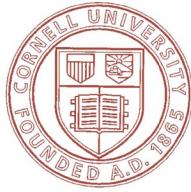
In accordance with plans and specifications and the terms and conditions of our contract with Cornell University dated _____, we hereby guarantee the _____ as found in the specifications for _____, Ithaca, New York to be free from defects in materials and workmanship for the period of _____ year(s) from _____, the date of acceptance by the Owner.
(Date)

_____ (COMPANY)

By: _____

Title: _____

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MWBE Utilization Report

PART I – PROJECT INFORMATION

ePM Project No.	Project Name:	Contract Value:
Contractor Name and Address:	Primary Contact Name, Phone Number, Email:	Bid Date:
Contractor's MWBE Contact Name, Phone Number, Email:		

PART II – MWBE LIST (Update as MWBE firms come under contract, sign and date, resubmit)

Subcontractor Name, Address, Contact, Email, MBE or WBE (List your firm if also MBE or WBE)	Federal ID Number	Dollar Value of Contract or Purchase Order	Description of Work or Supplies	Subcontractor or Supplier Start and End Dates

(Update totals as MWBE firms are added/subtracted to above list)

Print Name of Principal or Officer:	Title:
Signature:	Date:



MWBE Utilization Report

PART III – Quarterly Utilization Report (*Subcontractors & Sub-subcontractors fill this out and submit to General Contractor to compile into a single form.*) Double click on table to edit.

Month/Year:

SUMMARY OF BID ACTIVITY WITH MBE AND WBE SUBCONTRACTORS AND VENDORS

Please print or type all information, except where a signature is required.

PROJECT: _____

Name of Prime Contract Bidder:

Address (Street, City, State and Zip Code):

Contact Person (Name, Title and Telephone Number):

MBE and WBE Subcontractor/Vendor (Indicate which)	Item/ Trade	Bid Submitted: Date	Amount	Award Status Date	Amount	Date of Elimination

EXPLANATION OF ELIMINATION: Include meetings held for negotiation, etc.
(Use additional sheet if necessary)

OFFICER OF FIRM:

Name and Title:

Date:

Signature:

CORNELL UNIVERSITY

PROJECT PRIME CONTRACTOR

WORKFORCE REPORT

Please print or type all information.

EXHIBIT "D" - FORM III

EXHIBIT "E"

LABOR RATE BREAKDOWN

PROJECT TITLE:

CONTRACT NO.

CONTRACTOR:

TRADE:

EFFECTIVE DATE: _____
EXPIRATION DATE: _____

Base Hourly Rate: _____ \$ _____

Payroll Taxes and Insurance	% per Hour
F.I.C.A.	_____
Federal Unemployment (<i>Base on 1500 hours of work</i>)	_____
State Unemployment (<i>Base on 1500 hours of work</i>)	_____
* Worker's Compensation	_____
* Bodily Injury & Property Damage	_____
Disability	_____
TOTAL	_____ %

Payroll Taxes and Insurance Rates: Base Rate (x) Total % = \$ _____

* Rates are net Contractor cost after premium discounts and experience modifications have been applied against manual rate.

Supplemental Benefits	\$ per Hour
Vacation	_____
Health & Welfare	_____
Pension	_____
Annuity	_____
Education / Training	_____
Industry	_____
_____	_____
_____	_____
_____	_____
_____	_____

Total Hourly Fringe Benefits \$ _____

Hourly Labor Rate: Base Rate, Taxes/Insurance and Fringe Benefits \$ _____

Adjustment for a composite rate which includes apprentices: \$ _____

CONTRACTOR'S CERTIFICATION

I certify that the labor rates, insurance enumerations, labor fringe enumerations and expenses are correct and in accordance with actual and true cost incurred.

Signature of Authorized Representative:

Print Name: _____

Print Title: _____

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STORED MATERIALS INVOICING
DOCUMENTATION

PROJECT TITLE:

CONTRACTOR: _____ CONTRACT NO. _____
 SUBCONTRACTOR: _____

REASON FOR REQUEST: _____

APPLICATION FOR PAYMENT NO. _____ DATE: _____

1 Material Identification

Description:

_____ Quantity: _____

Provide Specific Location of Materials Stored:

2 Material Value

Attach an Invoice or Quantified Statement of Value. \$ _____

3 Certificate of Insurance

Attach a Certificate of Insurance for the above specified materials. Certificate shall name "Cornell University" as a loss payee with respect to the specified materials.

4 Transfer of Title

The Contractor hereby agrees to transfer complete ownership of all listed materials to Cornell University at the time payment is made to Contractor for the above referenced Application for Payment. The Contractor remains responsible for all contractual requirements for the above listed materials including complete installation and providing of all warranties.

Signed:

_____ Date: _____

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Cornell University

**Contractor Performance
Evaluation****Project Information**

Project Name: _____

Date Of Evaluation _____

Project Number _____

Evaluators:

Project Team _____

Campus _____

Project Start Date _____

Substantial Completion _____

Contractor _____

Prequalification Status _____

Original Contract Amount _____

Total Change Order Amount _____

Contractor Project Manager _____

Initial Evaluation _____

Contractor Superintendent _____

Final Evaluation _____

Type Of Contract

Prime Contractor _____

Subcontractor _____

Construction Manager _____

Project Comments/Description

Performance Evaluation

Please give one rating for each category. Add comments as required to justify your rating.

Fails to Achieve Expectation	Needs Improvement	Fully Achieve Expectation	Freq Exceeds Expectation	Cons Exceed Expectation
1	2	3	4	5

1 Quality of Workmanship

Rate this contractor's performance in regards to quality of work

- a. Compliance with project drawings and specifications
- b. Workmanship quality and accuracy
- c. Tools- quality and sufficient quantity
- d. Equipment - sufficient quantity and operating condition
- e. Quality of jobsite craft personnel

Comments:

2 Scheduling/Productivity

Rate this contractor's performance with regard to producing and meeting contract schedules and milestones

- a. Project schedule quality and completeness
- b. Controlling of project schedule
- c. Manpower allocation for maintaining schedule
- d. Material deliveries to support project schedule
- e. Ability to meet substantial completion date and project milestones
- f. Productivity of work force
- g. Ability to deal with added work and unforeseen issues.

Comments:

3 Subcontractor Management

Rate this contractor's ability, effort and success in managing and coordinating subcontractors (if no subcontractors rate overall management performance)

Comments:

3A Major subcontractor performance(score not added in final Contractor Evaluation)

For contractor information only

- a. Plumbing Contractor overall Performance

Comments:

- b. HVAC Contractor overall Performance

Comments:

- c. Electrical Contractor overall Performance

Comments:

Fails to Achieve Expectation	Needs Improvement	Fully Achieve Expectation	Freq Exceeds Expectation	Cons Exceed Expectation
1	2	3	4	5

4 MBE/WBE Participation

Rate this contractor's MBE/WBE solicitation effort and participation for this project for, Project Team, Subcontractors, Material Vendors

Comments:

5 Safety

Rate this contractor's performance in regards to project safety

- a. Timely submission of site specific safety program
- b. Knowledge of OSHA standards
- c. Implementation of safety rules and regulations
- d. Promotion and creation of safety awareness
- e. Daily overall housekeeping
- f. Safety record
- g. Response to safety concerns
- h. Awareness of public safety

Comments:

6 Contract Administration

Rate this contractor's performance in regards to contract administration as per criteria below

- a. Timely submission of complet and correct documentation required for insurance and bond
- b. Change order processing
- c. Timely submission of RFI's, Shop Drawings, and change orders
- d. Subcontractor payments made promptly
- e. Timely submission of complete and correct payment applications
- f. Quality of paperwork

Comments:

7 Working Relationships

*Rate this contractor's working relationships with other parties
(Cornell, Design Team, subcontractors,etc.)*

Comments:

Fails to Achieve Expectation	Needs Improvement	Fully Achieve Expectation	Freq Exceeds Expectation	Cons Exceed Expectation
1	2	3	4	5

8 Supervisory Personnel Rating

Rate the overall performance of this contractor's on site supervisory personnel and project management staff

Comments:

9 Contract Close-Out

Rate this contractor's overall ability to efficiently close out the project

- a. Timely completion of all punchlist items
- b. Timely resolution of all outstanding change orders
- c. Timely submission of all close out documents(O&M's, As-Builts, warranties, final releases and consent of surety)
- d. Quality of close out documentation and timely completion of any outstanding audit questions

Comments:

Summary Sheet

Project: _____
Contractor: _____

Performance Categories	
1	Quality of Workmanship
2	Scheduling
3	Subcontractor Management
4	MBE/WBE Participation
5	Safety
6	Contract Administration
7	Working Relationships
8	On Site Supervisory Personnel Rating
9	Contract Close Out

Rating Per Category	Weight %	Scoring
0	15.00%	0
0	10.00%	0
0	10.00%	0
0	10.00%	0
0	10.00%	0
0	10.00%	0
0	10.00%	0
0	10.00%	0
0	18.00%	0
0	7.00%	0

Over All Rating 0

Rating Reference	
Fails to achieve expectation	1
Needs improvement	2
Fully achieves expectation	3
Frequently exceeds expectation	4
Consistently exceeds expectation	5

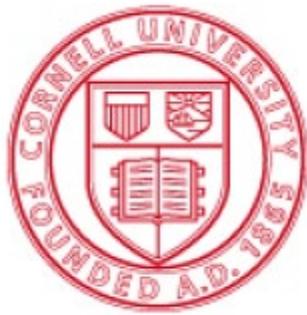
OWNER COMMENTS:

OWNER COMMENTS on 3A Ratings:

CONTRACTOR COMMENTS:

(To be completed by Contractor prior to Owner/Contractor discussion meeting)

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GENERAL REQUIREMENTS

FOR

**MCFADDIN BUTTRESS REPAIR
+ LEANING CHIMNEY REMOVAL**

**CORNELL UNIVERSITY
ITHACA, NEW YORK**

SECTION 01 11 00	SUMMARY OF WORK.....	1
1.0	GENERAL.....	1
1.1	DESCRIPTION.....	1
1.2	WORK UNDER OTHER CONTRACTS	2
1.3	CONTRACT MILESTONE SCHEDULE	2
2.0	PRODUCTS – NOT USED	2
3.0	EXECUTION – NOT USED	2
SECTION 01 14 00	WORK RESTRICTIONS	1
1.0	GENERAL.....	1
1.1	RELATED DOCUMENTS	1
1.2	CONTRACTOR USE OF PREMISES.....	1
1.3	UNIVERSITY CLOSURES	2
1.4	WATER USE RESTRICTION.....	2
1.5	PARKING.....	2
1.6	CHANGEOVERS AND CONTINUITY OF SERVICES	3
1.7	OBSTACLES, INTERFERENCE AND COORDINATION.....	4
1.8	EQUIPMENT ARRANGEMENTS.....	4
1.9	EXISTING EQUIPMENT, MATERIALS, FIXTURES, ETC.	5
1.10	EXAMINATION OF PREMISES, DRAWINGS, ETC.....	5
1.11	STAND DOWN DATES	6
1.12	WORKING HOURS.....	7
2.0	PRODUCTS – NOT USED	7
3.0	EXECUTION – NOT USED	7
SECTION 01 22 00	UNIT PRICING	1
1.0	GENERAL.....	1
1.1	RELATED DOCUMENTS	1
1.2	DESCRIPTION OF REQUIREMENTS.....	1
2.0	PRODUCTS – NOT USED	1
3.0	EXECUTION	1
3.1	SCHEDULE OF UNIT PRICES	2
SECTION 01 23 00	ALTERNATES	1
1.0	GENERAL.....	1
1.1	RELATED DOCUMENTS	1
1.2	DESCRIPTION OF REQUIREMENTS.....	1
2.0	PRODUCTS – NOT USED	1
3.0	EXECUTION	1
3.1	SCHEDULE OF ALTERNATES.....	2

SECTION 01 25 00 SUBSTITUTIONS AND PRODUCT OPTIONS.....	1
1.0 GENERAL.....	1
1.1 DESCRIPTION.....	1
1.2 DEFINITIONS.....	1
1.3 ACTION SUBMITTALS	2
1.4 PRODUCTS LIST	2
1.5 QUALITY ASSURANCE	2
1.6 PROCEDURES.....	3
1.7 EQUIVALENTS – APPROVED EQUAL	3
1.8 CONTRACTOR'S OPTIONS.....	4
1.9 SUBSTITUTIONS.....	6
1.10 COMPARABLE PRODUCTS	7
1.11 CONTRACTOR'S REPRESENTATION.....	8
1.12 ARCHITECT'S DUTIES	8
2.0 PRODUCTS – NOT USED	8
3.0 EXECUTION – NOT USED	8
SECTION 01 31 19 PROJECT MEETINGS	1
1.0 GENERAL.....	1
1.1 DESCRIPTION.....	1
1.2 PRE-CONSTRUCTION MEETING	1
1.3 PROGRESS MEETINGS	3
1.4 PRE-INSTALLATION MEETING(S)	4
2.0 PRODUCTS – NOT USED	4
3.0 EXECUTION – NOT USED	4
SECTION 01 31 50 ELECTRONIC PROJECT MANAGEMENT	1
1.0 GENERAL.....	1
1.1 SUMMARY	1
1.2 RELATED SECTIONS	1
1.3 DEFINITIONS.....	1
1.4 PROCEDURES.....	1
1.5 PROCESS OVERVIEW	2
1.6 ADDITIONAL INFORMATION.....	4
2.0 PRODUCTS – NOT USED	4
3.0 EXECUTION – NOT USED	4

SECTION 01 32 16 CONSTRUCTION SCHEDULE	1
1.0 GENERAL.....	1
1.1 SUMMARY	1
1.2 RELATED SECTIONS	1
1.3 DEFINITIONS.....	1
2.0 PRODUCTS.....	2
2.1 SCHEDULING SOFTWARE	2
3.0 EXECUTION	2
3.1 PROJECT SCHEDULE REQUIREMENTS MEETING	2
3.2 SCHEDULE SUBMISSIONS	3
3.3 SCHEDULE UPDATES.....	4
3.4 FORM OF SUBMISSION OF PROJECT SCHEDULE AND UPDATES	5
3.5 DISTRIBUTION.....	7
SECTION 01 32 33 PHOTOGRAPHIC DOCUMENTATION	1
1.0 GENERAL.....	1
1.1 DESCRIPTION.....	1
1.2 SUBMITTALS	1
2.0 PRODUCTS – NOT USED	1
3.0 EXECUTION	1
3.1 EXISTING CONDITION PHOTOGRAPHS.....	1
3.2 PROGRESS PHOTOGRAPHS	1
3.3 FINAL COMPLETION PHOTOGRAPHS	1
SECTION 01 33 00 SUBMITTAL PROCEDURES	1
1.0 GENERAL.....	1
1.1 DESCRIPTION.....	1
1.2 SUBMITTAL REGISTRY AND SCHEDULE.....	1
1.3 SHOP DRAWINGS.....	3
1.4 PRODUCT DATA.....	3
1.5 SAMPLES AND MOCK-UPS	4
1.6 QUALITY ASSURANCE AND QUALITY CONTROL SUBMITTALS.....	5
1.7 CONTRACTOR RESPONSIBILITIES	6
1.8 SUBMITTAL PROCEDURES.....	7
1.9 RECORD SUBMITTALS	8
1.10 RESUBMISSION REQUIREMENTS	8
1.11 ARCHITECT'S DUTIES	9
1.12 DISTRIBUTION.....	10
2.0 PRODUCTS – NOT USED	10
3.0 EXECUTION – NOT USED	10

SECTION 01 35 29 GENERAL HEALTH & SAFETY.....	1
1.0 GENERAL.....	1
1.1 DESCRIPTION.....	1
1.2 CONTRACTOR'S PROJECT SITE SPECIFIC PLAN	1
1.3 AERIAL WORK PLATFORMS	2
1.4 ASBESTOS.....	3
1.5 LEAD	3
1.6 SITE VISITS.....	3
1.7 CONFINED SPACE.....	4
2.0 PRODUCTS – NOT USED	4
3.0 EXECUTION – NOT USED	4
SECTION 01 35 43 GENERAL ENVIRONMENTAL REQUIREMENTS	1
1.0 GENERAL.....	1
1.1 DESCRIPTION.....	1
1.2 RELATED SECTIONS	1
1.3 SUBMITTALS	1
1.4 JOB SITE ADMINISTRATION	1
1.5 CLEARING, SITE PREPARATION AND SITE USE.....	2
1.6 SPOIL AND BORROW	2
1.7 NOISE AND VIBRATION	3
1.8 DUST CONTROL	3
1.9 PROTECTION OF THE ENVIRONMENT	3
1.10 TEMPORARY RE-ROUTING OF PIPING AND DUCTWORK.....	4
1.11 HAZARDOUS OR TOXIC MATERIALS	4
1.12 DISPOSAL OF WASTE MATERIAL AND TITLE	5
2.0 PRODUCTS – NOT USED	5
3.0 EXECUTION – NOT USED	5
SECTION 01 35 44 SPILL CONTROL.....	1
1.0 GENERAL.....	1
1.1 SPILL PREVENTION.....	1
1.2 SPILL CONTROL PROCEDURES	1
1.3 SPILL REPORTING AND DOCUMENTATION.....	4
2.0 PRODUCTS – NOT USED	5
3.0 EXECUTION – NOT USED	5

SECTION 01 41 00 REGULATORY REQUIREMENTS	1
1.0 GENERAL.....	1
1.1 PERMITS AND LICENSES	1
1.2 INSPECTIONS	1
1.3 COMPLIANCE.....	1
1.4 OWNER'S REQUIREMENTS	2
2.0 PRODUCTS – NOT USED	2
3.0 EXECUTION – NOT USED	2
SECTION 01 42 00 REFERENCES.....	1
1.0 GENERAL.....	1
1.1 INTENT OF CONTRACT DOCUMENTS.....	1
1.2 RELATED DOCUMENTS	2
1.3 DEFINITIONS.....	2
1.4 OWNER AGREEMENTS	4
1.5 INDUSTRY STANDARDS	4
1.6 ABBREVIATIONS AND ACRONYMS	5
2.0 PRODUCTS - NOT USED.....	18
3.0 EXECUTION - NOT USED.....	18
SECTION 01 45 00 QUALITY CONTROL.....	1
1.0 GENERAL.....	1
1.1 DESCRIPTION.....	1
1.2 CONTROL OF ON-SITE CONSTRUCTION	1
1.3 CONTROL OF OFF-SITE OPERATIONS.....	2
1.4 TESTING	3
1.5 OWNER'S REPRESENTATIVE	3
2.0 PRODUCTS – NOT USED	3
3.0 EXECUTION – NOT USED	3
SECTION 01 45 29 TESTING LABORATORY SERVICES	1
1.0 GENERAL.....	1
1.1 DESCRIPTION.....	1
1.2 QUALIFICATIONS OF LABORATORY	1
1.3 LABORATORY DUTIES	2
1.4 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY	3
1.5 CONTRACTOR'S RESPONSIBILITIES	3
2.0 PRODUCTS – NOT USED	4
3.0 EXECUTION – NOT USED	4

SECTION 01 45 33 CODE REQUIRED SPECIAL INSPECTIONS AND PROCEDURES.....	1
1.0 GENERAL.....	1
1.1 REQUIREMENTS.....	1
1.2 DEFINITIONS.....	1
1.3 QUALIFICATIONS	2
1.4 SUBMITTALS	2
1.5 PAYMENT	2
1.6 OWNER RESPONSIBILITIES.....	3
1.7 CONTRACTOR RESPONSIBILITIES	3
1.8 SPECIAL INSPECTOR RESPONSIBILITIES	3
1.9 LIMITS ON AUTHORITY	4
2.0 INSPECTIONS AND TESTING.....	4
3.0 DOCUMENTATION.....	7
3.1 RECORDS AND REPORTS.....	7
3.2 COMMUNICATION.....	8
3.3 DISTRIBUTION OF REPORTS	8
3.4 FINAL REPORT OF SPECIAL INSPECTIONS.....	9
SECTION 01 50 00 TEMPORARY FACILITIES AND CONTROLS	1
1.0 GENERAL.....	1
1.1 DESCRIPTION.....	1
1.2 REQUIREMENTS OF REGULATORY AGENCIES.....	1
2.0 PRODUCTS.....	1
2.1 MATERIALS, GENERAL	1
2.2 TEMPORARY FIRST AID FACILITIES.....	1
2.3 TEMPORARY FIRE PROTECTION	2
2.4 CONSTRUCTION AIDS	4
2.5 SUPPORTS.....	4
2.6 TEMPORARY ENCLOSURES	4
2.7 TEMPORARY WATER CONTROL.....	4
2.8 TREE, PLANT AND LAWN PROTECTION	5
2.9 PERSONNEL, PUBLIC AND EMPLOYEE PROTECTION	8
2.10 ACCESS ROADS AND PARKING AREAS	8
2.11 PROJECT IDENTIFICATION AND SIGNS	8
2.12 SECURITY	8
2.13 FIELD OFFICES	8
3.0 EXECUTION	9
3.1 PREPARATION	9
3.2 GENERAL.....	9
3.3 REMOVAL.....	10

SECTION 01 51 00 TEMPORARY UTILITIES.....	1
1.0 GENERAL.....	1
1.1 DESCRIPTION.....	1
1.2 REQUIREMENTS OF REGULATORY AGENCIES.....	1
2.0 PRODUCTS.....	1
2.1 MATERIALS, GENERAL	1
2.2 TEMPORARY ELECTRICITY, LIGHTING AND WATER	1
2.3 TEMPORARY CONTRACTOR TELEPHONE SERVICE	2
2.4 TEMPORARY SANITARY FACILITIES	3
3.0 EXECUTION	3
3.1 REMOVAL.....	3
SECTION 01 57 13 SOIL EROSION AND SEDIMENT CONTROL	1
1.0 GENERAL.....	1
1.1 DESCRIPTION.....	1
1.2 SUBMITTALS	1
1.3 PLAN AND IMPLEMENTATION GENERAL REQUIREMENTS	1
1.4 PERFORMANCE STANDARDS	1
1.5 EROSION AND SEDIMENT CONTROL PLAN COMPONENTS	2
1.6 INSPECTIONS	3
2.0 PRODUCTS – NOT USED	3
3.0 EXECUTION – NOT USED	3
SECTION 01 66 00 STORAGE AND PROTECTION	1
1.0 GENERAL.....	1
1.1 DESCRIPTION.....	1
1.2 TRANSPORTATION AND HANDLING	1
1.3 ON-SITE STORAGE.....	1
1.4 CAMPUS SITE / BOOKBANK DRIVE STORAGE	2
1.5 PROTECTION.....	3
1.6 PROTECTION AFTER INSTALLATION	4
2.0 PRODUCTS – NOT USED	4
3.0 EXECUTION – NOT USED	4

SECTION 01 73 29 CUTTING, PATCHING AND REPAIRING.....	1
1.0 GENERAL.....	1
1.1 DESCRIPTION.....	1
1.2 SUBMITTALS	2
1.3 QUALITY ASSURANCE.....	2
1.4 WARRANTIES	4
2.0 PRODUCTS.....	4
2.1 MATERIALS.....	4
3.0 EXECUTION	4
3.1 INSPECTION	4
3.2 PREPARATION.....	5
3.3 PERFORMANCE.....	5
3.4 CLEANING	7
SECTION 01 77 00 PROJECT CLOSEOUT.....	1
1.0 GENERAL.....	1
1.1 INSPECTIONS	1
1.2 SUBMITTALS	2
1.3 FINAL CLEAN UP	3
1.4 MAINTENANCE STOCK	4
1.5 ON-SITE CONSTRUCTION TRAILER REMOVAL	4
2.0 PRODUCTS – NOT USED	4
3.0 EXECUTION – NOT USED	4
SECTION 01 78 36 WARRANTIES AND BONDS.....	1
1.0 GENERAL.....	1
1.1 DESCRIPTION.....	1
1.2 SUMMARY	1
1.3 DEFINITIONS.....	1
1.4 QUALITY ASSURANCE.....	2
1.5 WARRANTY REQUIREMENTS.....	2
1.6 SUBMITTAL REQUIREMENTS.....	3
1.7 SUBMITTALS REQUIRED	4
2.0 PRODUCTS – NOT USED	4
3.0 EXECUTION	4
3.1 FORM OF SUBMITTALS.....	4
3.2 TIME OF SUBMITTALS	5

SECTION 01 78 39 RECORD DOCUMENTS	1
1.0 GENERAL.....	1
1.1 DESCRIPTION.....	1
1.2 MAINTENANCE OF DOCUMENTS AND SAMPLES.....	1
1.3 RECORDING	1
1.4 SUBMITTAL.....	4
2.0 PRODUCTS – NOT USED	4
3.0 EXECUTION – NOT USED	4

SECTION 01 11 00 SUMMARY OF WORK

1.0 GENERAL

1.1 DESCRIPTION

A. Work to be Done

1. Contractor will be rebuilding sections of buttresses with new stone, miscellaneous stone replacement, re-pointing, and flashing at McFaddin Tower.
2. Take down nine (9) brick chimneys and provide weather-caps - (allow for existing flues to be maintained) at the following locations:
 - a. North Baker Hall: one (1) chimney on southwest, one (1) chimney on northeast.
 - b. South Baker Hall: one (1) chimney on southwest, one (1) chimney on northeast.
 - c. Baker Tower Annex: three (3) chimneys located at southwest, northeast, and southeast corners.
 - d. Founders Hall: one (1) chimney at northwest end.
 - e. Boldt Hall: one (1) chimney over entrance.

B. The Scope of the Work

1. The scope of the Work in all SECTIONS of this Specification shall consist of the furnishing of all labor, materials, equipment and appliances and the performance of the Work required by the Contract Documents and/or by the conditions at the site, joining all parts of this Work with itself and the Work of others to form a complete, functioning entity.
2. Items not specifically mentioned in the Specifications or shown on the drawings, but which are inherently necessary to make a complete working installation, shall be included.
3. It is the intent and purpose of the Contract Documents to cover and include under each item all materials, machinery, apparatus, and labor necessary to properly install materials and equipment, adjust and put into perfect operation the respective portions of the installation specified and to so interconnect the various items or sections of the Work as to form a complete and operating whole. Any equipment, apparatus, machinery, material and small items not mentioned in detail, and labor not hereinafter specifically mentioned, which may be found necessary to complete or perfect any portion of the installation in a substantial manner, and in compliance with the requirements stated, implied, or intended in the Contract Documents, shall be furnished without extra cost to the Owner. The Contractor shall provide the greatest quantity, highest quality, highest degree of safety, and most stringent material, equipment or work. Should the Drawings or the Specifications disagree in themselves or with each other, the Contractor shall provide the better quality or greater quantity of work and/or materials unless otherwise directed by written addendum to the Contract.

1.2 WORK UNDER OTHER CONTRACTS

- A. The Contractor shall cooperate with other contracts performing related work, including providing labor, materials and other costs necessary to satisfactorily coordinate the Contract Work with work performed under others contracts.
- B. Concurrent / Future Work:
 - 1. Utility work on Gothics Way is expected to commence in April of 2026 and may prevent site access on Gothics Way from University Avenue until completed on approximately May 2026. Utility work will also occur throughout the entire quad between Baker South, Baker North, and Baker Tower. This work is expected to commence by May 25, 2025, and is expected to be completed by August 14, 2026.
 - 2. Utility work will extend from the intersection of Gothics Way and University Avenue to the north to the intersection of University Avenue and West Avenue, and will extend eastward along West Avenue to Founders Hall. Duration is expected from April through August.
- C. New York State Electric & Gas (NYSEG):
 - 1. Contractor shall be responsible for the project management of NYSEG work including coordinating any scheduling associated with the Project.
 - 2. The Owner shall be responsible for the cost associated with the work to be performed by NYSEG. No NYSEG costs shall be carried in the Contractor's bid.

1.3 CONTRACT MILESTONE SCHEDULE

- A. May 1, 2026 - McFaddin Tower scaffolding erection complete.
- B. May 25, 2026 - Selective demolition begins at McFaddin Tower.
- C. October 16, 2026 - Work substantially complete at McFaddin Tower
- D. October 30, 2026 - Scaffolding removed at McFaddin Tower.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION – NOT USED

*****END OF SECTION 01 11 00*****

SECTION 01 14 00 WORK RESTRICTIONS

1.0 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 CONTRACTOR USE OF PREMISES

- A. All traffic and pedestrian control measures shall be compliant with the **National Manual on Uniform Traffic Control Devices for Streets and Highways** (MUTCD) and **17 NYCRR Chapter V** (New York Supplement), (<https://www.dot.ny.gov/mutcd>) and all other local laws and regulations.
- B. The Contractor shall carry on the Work in the manner which will cause the least interruption to pedestrian and vehicular traffic and permit access of emergency vehicles at all times.
- C. The Work shall be scheduled and performed in such a manner that at least one lane of traffic will be maintained on all public streets. Two flag persons, equipped with adequate means of communication, must be provided for any activity blocking a traffic lane. One lane of traffic must be maintained at all times. Where traffic must cross open trenches, the Contractor shall provide suitable bridges and railings; including pedestrian bridges.
- D. The Contractor shall maintain 20' minimum fire lane access to all facilities in the area, unless pre-approved by the University Fire Marshall office and local fire official.
- E. The Contractor shall post and maintain flag persons and suitable signs indicating that construction operations are under way and other warning signs as may be required.
- F. The Contractor shall safeguard the use by the public and Owner of all adjacent highways, roadways and footpaths, outside the Contract Limit Lines (work area), and shall conform to all laws and regulations concerning the use thereof, especially limitations on traffic and the movement of heavy equipment. Access to the site for delivery of construction materials and/or equipment shall be made only at the locations shown in the Contract Documents or approved by the Owner's Representative.
- G. The Contractor shall make every effort to keep dirt and debris from making its way to roadways. The Contractor shall immediately remove dirt and debris which may collect on permanent roadways due to the Work.
- H. The Contractor shall limit the extent of its activities to that area of the site defined on the Contract Drawings as being within the Contract Limit Lines.

- I. For that portion of the Work required under this Contract which must be performed in other than the defined areas both on-site and off, including operations involving delivery and removal of materials, the Contractor shall schedule and coordinate its activities through the Owner's Representative, to meet the approval of the Owner and minimize disruption of the normal scheduled activities of the occupants of adjacent spaces.
- J. It is the Owner's expectation that the Contractor will take protective measures to minimize damage caused by construction activities including, but not limited to, the use of personnel lifts, material handling equipment, on-site material storage, etc. All portions of the site, including the staging area and those areas affected by the Work, shall be returned to their original condition after completion of Work. Such repair work shall include lawn restoration and reseeding, if required, and shall be included in the Contractor's Guarantee of Work.
- K. Routes to and from the location of the Work shall be as indicated in the Contract or as directed by the Owner's Representative. Temporary roadways shall be closed only with prior approval of the Owner's Representative.
- L. Parking may be made available for staging at Bookbank Drive or other pre-determined area for the duration of the project. The Contractor will be responsible for fencing, securing and maintaining the designated area. All vehicles at Bookbank Drive, or other predetermined areas, must be registered with Transportation Services.

1.3 UNIVERSITY CLOSURES

- A. In the event of University closure, the Contractor should use their judgement, follow their internal guidance on continuity of operations, and the direction of law enforcement, as to whether or not they will maintain operations on construction sites on campus. They should make this decision with the awareness that Cornell response to any project needs (shutdowns, emergencies) will not possible and the maintenance of roads and walks will not be to normal operating standards.
- B. With your safety as a top priority, the Cornell University Police allows you the ability to take advantage of our Emergency Mass Notification System that enables your cellphone to become a personal safety device for you. Contractor's wishing to participate may text the following: **CornellAlert** to **67283** and you will be set up to receive alert messages. Be advised that you may stop receiving messages at any time by sending "stop" to **CornellAlert**. There will also be a system generated "stop" every year on August 1st at which point you will need to send the text **CornellAlert** to re-enlist.

1.4 WATER USE RESTRICTION

- A. The Contractor shall adhere to any University issued Water Use Restrictions in place at the time of construction.

1.5 PARKING

- A. The Owner may designate an area for parking of essential Contractor vehicles on the project site.

- B. The Contractor shall make all arrangements, and bear the cost, for transportation of all trade persons from the designated parking area to the construction site as necessary.
- C. It should be noted that there is a fee for all parking on the Cornell University campus. The Contractor is responsible for the payment for all parking costs imposed by the Owner. The Contractor should contact the Project Manager (John Pillar) for additional information. The Contractor will be required to complete a "New Construction Employee Form" for each permit requested. This form may be found at <https://fcs.cornell.edu/forms-templates>.
- D. Contractor shall cooperate with Transportation Services and/or other authorities having jurisdiction, as follows:
 - 1. Ensure parking by all employees of the Contractor, Subcontractors, material suppliers, and others connected with this project only within construction fence or the designated parking area.
 - 2. Prohibit employees from parking in any other areas, roads, streets, grounds, etc.
 - 3. Discharge any employee refusing to comply with these requirements.
 - 4. Ensure proper transportation of personnel between the designated parking area and the construction site.
- E. The Contractor shall remove from the parking area and staging area all temporary trailers, rubbish, unused materials, and other materials belonging to the Contractor or used under the Contractor's direction during construction or impairing the use or appearance of the property and shall restore such areas affected by the Work to their original condition, and, in the event of its failure to do so, the same shall be removed by the Owner at the expense of the Contractor, and the Contractor shall be liable therefore.

1.6 CHANGEOVERS AND CONTINUITY OF SERVICES

- A. Make all changeovers, tie-ins and removals, etc., of any part of the Work that would affect the continuity of operation of the adjacent services at approved times that will not interfere with the Owner's operations. Secure approval of Owner before proceeding.
- B. Make all necessary temporary connections required to permit operation of the building services and/or equipment. Remove the connections after need has ceased.
- C. The Contractor may be permitted to make changeovers during normal working hours at the Owner's discretion. Should the Contractor perform this Work outside of normal working hours, no extra payment will be made for resulting overtime expenses.
- D. When connecting new facilities do not shut off any existing Mechanical/Electrical facilities or services without prior written approval of Owner's Representative.
- E. The Contractor shall not, except in an emergency condition, shutdown any utility without the express permission of the Owner's Representative. Major shutdowns of utilities, affecting life safety or outside contract limit lines, will be performed by Cornell University to enable Contractor to perform required Work. Major shutdowns shall be defined as those affecting life safety or which are outside the project site limits.

- F. Maintain domestic water and firewater in service at all times. No service may be out for more than twenty-four (24) hours. Maintain firewater flow capability (hose, if necessary) to all buildings and coordinate with Cornell Utilities, Cornell Environment, Health and Safety (EHS), and Authority Having Jurisdiction (AHJ).
- G. All shutdowns to be scheduled a minimum of seven (7) calendar days in advance and requests shall be submitted via ePM system to the Owner's Representative.
- H. IN THE EVENT OF AN EMERGENCY WHERE THE OWNER'S REPRESENTATIVE IS NOT AVAILABLE, THE CONTRACTOR SHALL DIAL 911 IMMEDIATELY.

1.7 OBSTACLES, INTERFERENCE AND COORDINATION

A. General

- 1. Plans show general design arrangement. Install Work substantially as indicated and verify exact location and elevations; DO NOT SCALE PLANS.
- 2. Due to small scale of Drawings, it is not possible to indicate all offsets, fittings, changes in elevations, interferences, etc. Make necessary changes in the Work, equipment locations, etc., after notification to the Owner's Representative and Architect. Obtain approval from same, as part of Contract, to accommodate work to obstacles and interferences encountered.
- 3. Obtain written approval for all major changes before installing. If requested, submit drawings, detailing all such deviations or changes.
- 4. Exposed to view mechanical units, ductwork, conduit, pipes or other building equipment are essential parts of the artistic effect of the building design and shall be installed in locations as shown on the drawings. Conformance to given dimensions and alignments with the structural system, walls, openings, indicated centerlines are a requirement of the Contract and the Contractor shall familiarize himself with the critical nature of proper placement of these items. The Contractor shall notify the Architect of conflicts which would cause such equipment to be installed in locations other than as indicated on the Drawings. The Contractor shall not proceed with the installation of exposed to view mechanical units, ductwork, conduit, pipes, etc. until all conflicts have been identified by the Contractor and resolutions to conflicts approved by the Architect.

B. Interference

- 1. Install Work so that all items are operable and serviceable and avoid interfering with removal of rails, filters, belt guards and/or operation of doors, etc. Provide easy and safe access to valves, controllers, motor starters and other equipment requiring frequent attention.

1.8 EQUIPMENT ARRANGEMENTS

- A. Since all equipment of equal capacity is not necessarily of same arrangement, size of construction, these Plans are prepared on basis of one manufacturer as "basis-of-design equipment", even though other manufacturers' names are mentioned.

B. If Contractor elects to use specified equipment other than "design equipment" which differs in arrangement, size, etc., the Contractor does so subject to following conditions:

1. Submit detailed drawings indicating proposed installations of equipment and showing maintenance and service space required.
2. If revised arrangement meets approval, make all required changes in the work of all trades, including but not limited to louvers, panels, structural supports, pads, etc. at no increase in Contract. Provide larger motors and any additional control devices, valves, fittings and other miscellaneous equipment required for proper operation of revised layout, and assumes responsibility for proper location of roughing in and connections by other trades.
3. If revised arrangement does not meet approval because of increase in pressure loss, possibility of increase in noise, lack of space or headroom, insufficient clearance for removal of parts, or for any other reason, provide equipment which conforms to Contract Drawings and Specifications.

1.9 EXISTING EQUIPMENT, MATERIALS, FIXTURES, ETC.

A. Where existing equipment, piping, fittings, etc. are to be removed, Contractor shall submit complete list to Owner. All items that Owner wishes to retain shall be carefully removed and salvaged and delivered to building storage where directed by Owner. Items that Owner does not wish to retain shall be removed from the site and legally disposed.

1.10 EXAMINATION OF PREMISES, DRAWINGS, ETC.

A. Before Submitting Proposal

1. Examine all Drawings and Specifications relating to work of all trades to determine scope and relation to other work.
2. Examine all existing conditions affecting compliance with Plans and Specifications, by visiting site and/or building.
3. Ascertain access to site, available storage and delivery facilities.

B. Before Commencing Work on Any Phase or in any Area

1. Verify all governing dimensions at site and/or building.
2. Inspect all adjacent work.

C. Tender of Proposal Confirms Agreement

1. All items and conditions referred to herein and/or indicated on accompanying Drawings.
2. No consideration, additional monies or time extensions will be granted for alleged misunderstanding.

D. Existing or Archived Drawings

1. Existing or Archived drawings of impacted buildings are appended in electronic format only for reference and informational purposes. These historic drawings are not to be considered contract drawings and are provided "FOR INFORMATION ONLY". The Owner makes no representation as to the accuracy of the drawings as representing current conditions.

1.11 STAND DOWN DATES

A. Strict and effective enforcement by Contractor's management and supervision of the following dates and hours is required.

1. **Stand-Down Dates** (No construction work and no deliveries on site):
 - a. Study Time & Final Exams: May 5, 2026 – May 16, 2026
 - b. Commencement Weekend
 - Thursday, May 21, 2026
 - Friday, May 22, 2026
 - Saturday, May 23, 2026
 - Sunday, May 24, 2026
 - Monday, May 25, 2026
 - c. Reunion Weekend
 - Friday, June 5, 2026
 - Saturday, June 6, 2026
 - Sunday, June 7, 2026
 - d. Commencement Weekend
 - Thursday, May 20, 2027
 - Friday, May 21, 2027
 - Saturday, May 22, 2027
 - Sunday, May 23, 2027
 - e. Reunion Weekend
 - Friday, June 4, 2027
 - Saturday, June 5, 2027
 - Sunday, June 6, 2027
2. **Restricted Work Dates** (delivery & demolition restrictions but otherwise work as usual):

Wednesday and Thursday, June 3 - 4, 2026 Reunion guest arrivals- no work outside fence; no demo work inside fence

Wednesday and Thursday, June 2 - 3, 2027 Reunion guest arrivals- no work outside fence; no demo work inside fence

3. Student and Campus Life

Residence Halls Open

August 17, 2026 January 11, 2027

- ❖ No deliveries, no hauling materials into or out of the project site for the week prior to opening
- ❖ All work to be contained to the fenced area of the project site.

1.12 WORKING HOURS

- A. Normal work hours are 7AM-dusk Monday-Saturday except during above noted restrictions. This means that Contractor shall not permit any noise generating activities that could disturb campus occupants or residents to take place outside of these hours. Should any conditions necessitate work to extend beyond these hours – Contractor may submit a detailed request with reasonable advance notice to Cornell. Cornell (at its sole discretion) may issue a written relaxation of the above but Contractor is advised never to assume that it will be granted.
- B. During Construction periods, no work shall take place prior to 9AM during the academic semester. Residence Halls require 72 hours notification to the Student & Academic Services representative prior to entering a Residence Hall or Student Room.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION – NOT USED

END OF SECTION 01 14 00

SECTION 01 22 00 UNIT PRICING

1.0 GENERAL

1.1 RELATED DOCUMENTS

- A. This Section describes Unit Pricing requested by the Owner.
- B. The Specification Section containing the pertinent requirements of materials and methods to achieve the Work described herein.

1.2 DESCRIPTION OF REQUIREMENTS

- A. Definition: Unit price is an amount proposed by bidders, stated on the Bid Proposal Submission Form and in the ePM Bid Module, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.
- B. Procedures: Unit Prices are for work complete, measured in place and cover profit and all other costs and expenses of the Subcontractor. Unit Prices include, without limit, all conditions of the contract and all general requirements such as layout, reproduction of Drawings and Specifications, testing and inspection, shop drawing and sample coordination, supervision (field and home office), small tools and expendable items, insurance, taxes, temporary facilities and services, including access and safety, "as-built" drawings, and general and administrative overhead and profit of the Subcontractor.
- C. To the extent that a Subcontractor's Unit Prices are applicable, as determined by the Architect and Cornell University, work shall be priced and paid for or credited in accordance with such Unit Prices; except that a Unit Price shall not apply to any portion of subcontract work which is either reduced or increased by more than 25%. Said Unit Prices shall be valid for the duration of the Subcontractor's activity on the project as applicable, unless stipulated elsewhere in the Contract Documents.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION

3.1 SCHEDULE OF UNIT PRICES

A. Unit Price 1: Replacement of Sandstone

Replacement of existing deteriorated sandstone as specified under Specification 04 01 40 Stone Masonry Restoration. Provide unit price in units of cubic feet of stone.

*****END OF SECTION 01 22 00*****

SECTION 01 23 00 ALTERNATES

1.0 GENERAL

1.1 RELATED DOCUMENTS

- A. This Section describes the changes to be made under each Alternative.
- B. The Specification Section containing the pertinent requirements of materials and methods to achieve the Work described herein.

1.2 DESCRIPTION OF REQUIREMENTS

- A. Definition: An alternate is an amount proposed by Bidders and stated on the Bid Proposal Submission Form and in the electronic Bid Module for certain items that may be added to or deducted from the Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the product, materials, equipment, systems or installation methods described in the Contract Documents. Alternates shall include all overhead, profit and other expenses, including bond costs, in connection therewith.
- B. Coordination: Coordinate related Work and modify or adjust adjacent Work as necessary to ensure that Work affected by each accepted alternate is complete and fully integrated into the Project.
- C. Notification: Immediately following Contract award, prepare and distribute to each party involved, notification of the status of each alternate. Indicate whether alternates have been accepted, rejected or deferred for consideration at a later date. Include a complete description of negotiated modifications to alternates.
- D. Schedule: A "Schedule of Alternates" is included at the end of this Section. Include as part of each alternate, miscellaneous devices, accessory objects or similar items incidental to or required for a complete installation whether or not mentioned as part of the alternate.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. ALTERNATE NO. 1

Partial demolition, rebuild, and repoint of West-North buttress above the third floor line as shown on Drawings A1.0, A1.2, and A1.3. Repoint diagonal face between two (2) Northwest buttresses above third floor line.

B. ALTERNATE NO. 2

Repoint all stone joints to a depth of 2" below the third floor line in the work area shown on Drawings A1.0, A1.1, A1.2, and A1.3. See Specification 04 01 40 and Detail 13/A1.4.

C. ALTERNATE NO. 3

Provide a deduct Alternate amount for reimbursement of deposit to hold matching stone paid for by Owner (\$4,500).

*****END OF SECTION 01 23 00*****

SECTION 01 25 00 SUBSTITUTIONS AND PRODUCT OPTIONS

1.0 GENERAL

1.1 DESCRIPTION

A. The Contractor shall furnish and install the products specified, under the options and conditions for substitutions stated in this Section.

1.2 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions that are beyond the Contractor's control, such as unavailability of product, or regulatory changes.
 - a. Products that are not available from Contractor's preferred suppliers does not constitute unavailability of product.

2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

B. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.

2. New Products: Items that have not previously been incorporated into another project or facility. Items salvaged from other projects are not considered new products. Items that are manufactured or fabricated to include recycled content materials are considered new products, unless indicated otherwise.

3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

C. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.3 ACTION SUBMITTALS

A. Substitution Requests: Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. In addition to submission of Substitution Request Form, substitutions shall be listed on the Bid Proposal Submission Form with description, specification references, and corresponding change in base bid

1.4 PRODUCTS LIST

A. Within thirty (30) days after the award of Contract, submit to the Architect a complete list of products which are proposed for installation.

B. Tabulate the products by listing under each specification section title and number.

C. For products specified only by reference standards, list for each such product:

1. Name and address of the manufacturer.
2. Trade name.
3. Model or catalog designation.
4. Manufacturer's data:
 - a. Reference standards.
 - b. Performance test data.

1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

B. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1. Contractor is responsible for providing products and construction methods compatible with other products and construction methods.

2. If a dispute or compatibility issue arises over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.6 PROCEDURES

- A. Coordination: Modify or adjust affected Work as necessary to integrate Work of accepted substitutions and approved comparable products.

1.7 EQUIVALENTS – APPROVED EQUAL

- A. Equivalents or Approvals - General

1. The words "similar and equal to", or "or equal", "equivalent" and such other words of similar content and meaning shall for the purposes of this Contract be deemed to mean similar or equivalent to one of the named products. For the purposes of Paragraph A and B of this Section 1.4 and for the purposes of Bidding Documents, the word "products" shall be deemed to include the words "articles", "materials", "items", "equipment" and "methods". Whenever in the Contract documents one or more products are specified, the words "similar and equal to" shall be deemed inserted.
2. Whenever any product is specified in the Contract documents by a reference to the name, trade name, make or catalog number of any manufacturer or supplier, the intent is not to limit competition, but to establish a standard of quality which the Architect has determined is necessary for the Project. The Contractor may at its option use any product other than that specified in the Contract Documents provided the same is approved by the Architect in accordance with the procedures set forth in Paragraph B of this Section 1.4. In all cases the Architect shall be the sole judge as to whether a proposed product is to be approved and the Contractor shall have the burden of proving, at its own cost and expense, to the satisfaction of the Architect, that the proposed product is similar and equal to the named product. In making such determination the Architect may establish such objective and appearance criteria as it may deem proper that the proposed product must meet in order for it to be approved.
3. Nothing in the Contract Documents shall be construed as representing, expressly or implied, that the named product is available or that there is or there is not a product similar and equal to any of the named products and the Contractor shall have and make no claim by reason of the availability or lack of availability of the named product or of a product similar and equal to any named product.
4. The Contractor shall have and make no claim for an extension of time or for damages by reason of the time taken by the Architect or by reason of the failure of the Architect to approve a product proposed by the Contractor.
5. Request for approval of proposed equivalents will be received by the Architect only from the Contractor.

B. Equivalents or Approvals After Bidding

1. Request for approval of proposed equivalents will be considered by the Architect after bidding only in the following cases: (a) the named product cannot be obtained by the Contractor because of strikes, lockouts, bankruptcies or discontinuance of manufacturer and the Contractor makes a written request to the Architect for consideration of the proposed equivalent within ten (10) calendar days of the date it ascertains it cannot obtain the named product; or (b) the proposed equivalent is superior, in the opinion of the Architect, to the named product; or (c) the proposed equivalent, in the opinion of the Architect, is equal to the named product and its use is to the advantage of the Owner, e.g., the Owner receives an equitable credit, acceptable to it, as a result of the estimated cost savings to the Contractor from the use of the proposed equivalent or the Owner determines that the Contractor has not failed to act diligently in placing the necessary purchase orders and a savings in the time required for the completion of the construction of the Project should result from the use of the proposed equivalent; or (d) the proposed equivalent, in the opinion of the Architect, is equal to the named product and less than ninety (90) calendar days have elapsed since the Notice of Award of the Contract.
2. Where the Architect pursuant to the provisions of this Section 1.4 approves a product proposed by the Contractor and such proposed product requires a revision or redesign of any part of the Work covered by this Contract, all such revision and redesign and all new Drawings and details required therefore shall be subject to approval of the Architect and shall be provided by the Contractor at its own cost and expense.
3. Where the Architect pursuant to the provisions of this Section approves a product proposed by the Contractor and such proposed product requires a different quantity and/or arrangement of ductwork, piping, wiring, conduit or any other part of the Work from that specified, detailed or indicated in the Contract Documents, the contractor shall provide the same at its own cost and expense.

1.8 CONTRACTOR'S OPTIONS

- A. For products specified only by reference standard, select any product meeting that standard, by any manufacturer.
- B. For products specified by naming several products or manufacturers, select any one of products and manufacturers named.
 1. Products:
 - a. Restricted List (Products): Where Specifications include paragraphs or subparagraphs titled "Products" or that include the phrase "provide one of the following", and include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products for Contractor's convenience will not be considered.
 - Substitutions may be considered, unless otherwise indicated.

- b. Non-restricted List (Available Products): Where Specifications include paragraphs or subparagraphs titled "Available Products" or that include the phrase "include, but are not limited to, the following", and include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
2. Manufacturers:
 - a. Restricted List (Manufacturers): Where Specifications include paragraphs or subparagraphs titled "Manufacturers" or that include the phrase "provide products by one of the following", and include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products for Contractor's convenience will not be considered.
 - Substitutions may be considered, unless otherwise indicated.
 - b. Non-restricted List (Available Manufacturers): Where Specifications include paragraphs or subparagraphs titled "Available Manufacturers" or that include the phrase "include, but are not limited to, the following", and include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
3. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Contractors shall be responsible for accommodating differences in dimensions, connection locations, and other information in order to effect a complete functioning system should a component other than basis of design be submitted.
 - a. Restricted List (List of Manufacturers): Where Specifications include paragraphs or subparagraphs titled "Basis-of-Design Product", and include a list of other manufacturers' names, provide the specified or indicated product or a comparable product by one of the other named manufacturers that complies with requirements.
 - Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
 - Substitutions may be considered, unless otherwise indicated.

- b. Non-restricted List (No List of Manufacturers): Where Specifications include paragraphs or subparagraphs titled "Basis-of-Design Product", and do not include a list of other manufacturers' names, provide the specified or indicated product or a comparable product by another manufacturer that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
- C. For products specified by naming one or more products or manufacturers and stating "or equal", the Contractor shall submit a request as for substitutions, for any product or manufacturer not specifically named. Such substitution shall have been listed on Bid Proposal Submission Form as required in Instructions to Bidders. If not so listed, no substitution will be allowed.
- D. For products specified by naming only one product and manufacturer, no option and no substitution will be considered unless listed on the Bid Proposal Submission Form as provided in the Instructions to Bidders. Base Bid must include the specified product or manufacturer. Substitutions will be at the sole discretion of the Owner.

1.9 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 21 days prior to time required for preparation and review of related submittals.
- B. Substitutions for Convenience: Submit requests for substitution within thirty (30) days of contract award.
- C. Submit a separate request for each substitution. Support each request with:
 - 1. Completed "Request for Substitution" form in the ePM system. A request for substitution of a product, material, or process for that specified in the Contract Documents must be formally submitted as such accompanied by evidence that the proposed substitution {1} is equal in quality and serviceability to the specified item; {2} will not entail changes in detail and construction of other work; {3} will be acceptable to the Architect and Owner's Design Consultant's in achieving design and artistic intent; and {4} will not result in a cost and/or schedule disadvantage.
 - 2. Complete data substantiating compliance of the proposed substitution with requirements stated in Contract Documents:
 - a. Product identification, including manufacturer's name and address.
 - b. Manufacturer's literature; identify:
 - Product description.
 - Reference standards.
 - Performance and test data.
 - c. Samples, as applicable.

- d. Name and address of similar projects on which product has been used, and the date of each installation.
3. An itemized comparison of the proposed substitution with the product specified listing any variations.
4. Data relating to any changes in the construction schedule.
5. The effect of the substitution on each separate contract of the Project.
6. List any changes required in other work or projects.
7. Designate any required license fees or royalties.
8. Designate availability of maintenance services, and source of replacement materials.

D. Substitutions shall not result in additions to the Contract Sum.

E. Substitutions will not be considered as having been accepted when:

1. They are indicated or implied on shop drawings or product data submittals without a formal request from the Contractor.
2. They are requested by a Subcontractor or supplier.
3. The acceptance will require substantial revision of Contract Documents.

F. Substitute products shall not be ordered or installed without written acceptance of the Owner.

G. The Owner and the Architect shall be the sole judges of the acceptability of a proposed substitution.

1.10 COMPARABLE PRODUCTS

A. Conditions for Consideration: Contractor's request for approval of comparable product will be considered when the following conditions are satisfied. If the following conditions are not satisfied, Architect may reject or return requests without action, except to record noncompliance with these requirements. Where products or manufacturers are specified by name, submit the following, in addition to other required submittals, to obtain approval of an unnamed product or manufacturer:

1. Evidence that the proposed product does not require revisions to the Contract Documents that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the product specified.
3. Evidence that proposed product provides specified warranty.

4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

1.11 CONTRACTOR'S REPRESENTATION

- A. In making a formal request for a substitution the Contractor represents that:
 1. By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor thereby represents that he has determined and verified all dimensions, quantities, field dimensions, relations to existing work, coordination with work to be installed later, coordination with information on previous Shop Drawings, Product Data, or Samples and compliance with all the requirements of the Contract Documents. The accuracy of all such information is the responsibility of the Contractor.
 2. The Contractor has personally investigated the proposed product and has determined that it is equal to or superior in all respects to that specified.
 3. The Contractor will provide the same warranties or bonds for the substitution as for the product specified.
 4. The Contractor will coordinate the installation of an accepted substitution into the Work, and will make such changes as may be required for the Work to be complete in all respects.
 5. The Contractor waives all claims for additional costs related to the substitution which may subsequently become apparent.

1.12 ARCHITECT'S DUTIES

- A. Review Contractor's requests for substitutions with reasonable promptness.
- B. Transmit evaluations and recommendations to the Owner, so that the Owner can notify the Contractor of the decision for acceptance or rejection of the request for substitution.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION – NOT USED

*****END OF SECTION 01 25 00*****

SECTION 01 31 19 PROJECT MEETINGS

1.0 GENERAL

1.1 DESCRIPTION

- A. The Owner will schedule and administer pre-construction meeting, periodic progress meetings, and specially called meetings throughout the progress of the Work.
 - 1. Prepare agenda for meetings.
 - 2. Distribute notice of each meeting no less than four calendar days in advance
 - 3. Make physical arrangements for meetings.
 - 4. Preside at meetings.
 - 5. Record the minutes; include all significant proceedings and decisions.
 - 6. Upload copies of minutes after each meeting to all participants in the meeting.
- B. Representatives of Contractor, Subcontractors and suppliers attending the meetings shall be qualified and authorized to act on behalf of the entity each represents.

1.2 PRE-CONSTRUCTION MEETING

- A. Schedule at least fifteen (15) days after date of Notice to Proceed.
- B. Location: A central site, convenient for all parties.
- C. Attendance:
 - 1. Owner's Representative(s)
 - 2. Contractor(s)
 - 3. Architect and its professional consultants
 - 4. Major Subcontractors
 - 5. Major suppliers
 - 6. Safety Representatives for the Owner and Contractor
- D. Minimum Agenda:
 - 1. Distribution and discussion of:
 - a. List of major Subcontractors and suppliers

- b. Projected Construction Schedules
- 2. Critical work sequencing
 - a. Identification of major shutdowns and approximate schedule
- 3. Major equipment deliveries and priorities
- 4. Project Coordination
 - a. Designation of responsible personnel
- 5. Procedures and processing of:
 - a. Field decisions
 - b. Proposal requests
 - c. Submittals
 - d. Change Orders
 - e. Applications for Payment
 - f. Requests for Information
 - g. Daily Reports
- 6. Adequacy of distribution of Contract Documents
- 7. Procedures for maintaining Record Documents
- 8. Use of premises:
 - a. Office, work and storage areas
 - b. Owner's requirements
 - c. Job site personnel conduct
 - d. Building access and security
- 9. Temporary facilities, controls and construction aids
- 10. Temporary utilities
- 11. Safety and first-aid procedures
 - a. Contractor's Project Site Specific Plan
 - b. Plan as applicable to high impact respiratory pathogen pandemics and contagions (HIRPP)

12. Security procedures
13. Housekeeping procedures

1.3 PROGRESS MEETINGS

- A. Schedule regular periodic meetings on the site, not less than once every two weeks throughout the Construction period.
- B. Attendance:
 1. Architect
 2. Architect's professional consultants when, in the opinion of the Owner, needed
 3. General Contractor, including Site Superintendent
 4. Owner's Representatives
 5. Subcontractors as appropriate to the agenda
 6. Suppliers as appropriate to the agenda
 7. Safety Representative
- C. Minimum Agenda:
 1. Review, approval of minutes of previous meeting
 2. Review percentage of work to be in place by next meeting by individual trades
 3. Review of work progress since previous meeting
 4. Field observations, problems, and conflicts
 5. Problems which impede Construction Schedule
 6. Review of off-site fabrication, delivery schedules
 7. Corrective measures and procedures to regain projected schedule
 8. Revisions to Construction Schedule
 9. Planned progress and schedule, during succeeding work period
 10. Coordination of schedules
 11. Review submittal schedules; expedite as required
 12. Maintenance of quality standards
 13. Review status of all issued proposal requests and change orders

14. Review proposed changes for:
 - a. Effect on Construction Schedule and on completion date
 - b. Effect on other contracts of the Project
15. Other business

D. All decisions, instructions, and interpretations given by the Architect/Engineer or its representative at these meetings shall be binding and conclusive on the Contractor.

1.4 PRE-INSTALLATION MEETING(S)

- A. The Contractor to hold pre-installation meetings where required by individual specification sections or others at the discretion of the Owner. Minimum attendees would be Architect and/or their specific sub-consultant, Owner, Contractor, Subcontractor, key Suppliers, testing & inspection firm, Facilities Engineering subject matter expert, etc. Minimum agenda would include review of key submittals, RFI's, safety, logistics, material procurement, quality control, etc. Contractor to assemble and distribute the Agenda minimum 48 hours prior to meeting as well as distribute meeting minutes a minimum of seven (7) calendar days after the meeting.
- B. Submit a list of pre-installation meetings with preliminary dates within fifteen (15) days of issuance of the Notice to Proceed.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION – NOT USED

****END OF SECTION 01 31 19***

SECTION 01 31 50 ELECTRONIC PROJECT MANAGEMENT

1.0 GENERAL

1.1 SUMMARY

- A. Owner Provided System: The Contractor will utilize the Owner's electronic Project Management (ePM) system on this project.
 - 1. The Owner shall manage the day to day use of the Owner provided ePM system and organize the training, support and maintenance of the ePM Website System for the entire project team for the period of its use on the Project.
- B. There are no fees to utilize this system.

1.2 RELATED SECTIONS

- A. General Conditions Article 9 – Coordination and Cooperation.
- B. Section 01 33 00 – Submittal Procedures

1.3 DEFINITIONS

- A. ePM: defined as an internet-based information and project communication system that allows the entire project team to collaborate in a centralized and secured repository. All project-specific correspondence, workflow processes, and documentation will be stored and routed within the ePM system.

1.4 PROCEDURES

- A. Users will be provided a username and password. The Contractor shall log into the ePM system to enter the Project Documentation listed in section 2.0. All correspondence should be communicated through the e-PM system.
- B. Training
 - 1. The Owner will hold training sessions to familiarize team members with the system, and all Contractor staff are expected to attend one of these sessions or otherwise receive proper training on the system's use. All cost for personnel time and travel to attend the training as needed shall be included in the Contractor's proposal
- C. The Contractor shall provide on-site personnel with personal computer(s) and personal computer equipment that will allow the Contractor's personnel to access and use the ePM Website System in a timely and efficient manner. At a minimum the Contractor is to provide the following equipment and software:

1. Web Browser: with high-speed connection, up/downloading capability
2. Device that is able to scan documents and take photographs
3. Portable Document Format (PDF) Reader/writer software

D. Contractor shall log on to the ePM Website System on a daily basis, and as necessary to be kept fully apprised of the project developments, correspondence, assigned tasks and other matters that occur on the site. These may include but are not limited to RFI's, action items, meeting minutes, discussion threads, schedule updates, submittals, submittal log, punch list items, daily reports, site photos and/or videos and pre-construction surveys.

1.5 PROCESS OVERVIEW

- A. The Contractor is required to timely and accurately post, review, respond, and collaborate with other team members using the following features and/or workflow processes within the ePM system.
- B. Project Team Directory – Contractor shall provide an updated directory of contact information for all companies, Subcontractors and project team members who are engaged on this project.
- C. Request for Information (RFI): All project RFI's will be submitted using the ePM Website System. The submission of a Request for Information (RFI) is the Contractor's exclusive means of requesting information from the Owner and/or Architect. Attachments to RFI's (which may include sketches, photographs, documentation, and the like, will be uploaded to the ePM Website System and attached to the RFI electronically.
- D. Meeting Minutes: Contractor and/or Owner shall enter meeting agendas, records and minutes in the ePM system for all applicable meetings as designated by the Owner.
- E. General Communications, memorandums and Letters (Project Correspondence): Shall be created in or posted to the ePM Website System in PDF format electronically linked to action items. These action items shall include names of party (ies) required to respond, time frame within which action is to be taken and any solutions the Contractor recommends.
- F. Drawings and Specifications: The Contract Documents will be posted to the ePM Website System as directed by the Owner. The Owner shall retain the right to assign download rights to active CAD or model files. CAD or model files, in any format, posted to the ePM Website System are for viewing and printing only and cannot be edited.
- G. Submittals: All submittals shall be fully electronic. Reference Section 01 33 00.
- H. Submittal Schedule and Log: Contractor shall post and/or update on a daily basis.

- I. Field Reporting: The Contractor shall post and/or update on a daily basis all reports required by other specification sections. These reports include, but are not limited to, daily construction reports, material location reports, unusual event reports, safety and accident reports.
- J. Project Photographs: Contractor shall upload project photographs to the ePM system, field by date and type including but not limited to:
 - 1. General Progress Photographs
 - 2. RFI Issues
 - 3. Non-Conforming Work
 - 4. Special Events
 - 5. As required by individual Specification Sections
- K. Project Schedule: The contractor shall post, distribute, review, and/or respond to the project schedule, monthly updates, and any other schedule submittals onto the ePM in both native and PDF formats.
- L. Permits & Approvals: Contractor shall upload and maintain current copies of all permits and agency approvals that relate to the project.
- M. Issue Tracking: Contractor to log and respond to issues that are related and affect other stakeholders within the project team.
- N. Quality Assurance: The Owner and/or Architect will issue reports on conforming items in the ePM system. The Contractor is required to review and respond with corrective actions in the system.
- O. Change Management – Cost Events and Change Orders will be managed by the e-PM system and the Contractor shall be responsible for reporting potential changes and logging Requests for Change Orders in the system. The Contractor shall also upload and manage all documentation supporting Requested Change Orders.
- P. Pay Applications Requests (Invoices) – The Contractor shall create and submit invoices for review by the Owner. Once the invoices are agreed to by the Owner then the invoices should be submitted electronically per the instructions for the ePM system.
- Q. Budget and Cost Management – Contractor to provide estimates and Work Breakdown Structure (WBS) to provide Owner with accurate budget/cost analysis.

1.6 ADDITIONAL INFORMATION

- A. The Owner may change the standards for distribution and process prescribed above as required to suit the project.
- B. The Owner shall retain ownership of all data entered into either system and shall administrate and distribute all information contained therein.
- C. The Contractor shall make certain that all Subcontractors performing significant Work on the Project shall actively participate in the ePM system. Requirements for participation in the ePM system shall be made part of each bid document and final contract.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION – NOT USED

******END OF SECTION 01 31 50****

SECTION 01 32 16 CONSTRUCTION SCHEDULE

1.0 GENERAL

1.1 SUMMARY

- A. This Section establishes the Contractor's obligation to prepare, use and update a Critical Path Method ("CPM") network plan for the entire Work and related activities which are essential to the progress of the Work to be designated as the Project Schedule. This Section describes the requirements for development, approval, utilization, and updating of the Project Schedule.
- B. Submit monthly Project Schedule updates.
- C. Submit to Owner and Architect a cash flow projection in accordance with Schedule of Values.
- D. Submit electronic versions of all schedules, including updates, as well as all back-up to the submitted schedules.

1.2 RELATED SECTIONS

- A. General Conditions Article 5 – Time of Completion.
- B. General Conditions Article 9 – Coordination and Cooperation.
- C. Section 01 33 00 – Submittal Procedures.

1.3 DEFINITIONS

- A. Critical Path Method (CPM): A method of planning and scheduling a construction project where activities are arranged based on activity relationships and network calculations determine when activities can be performed and the critical path of the Project.
- B. Critical Path: The longest continuous chain of activities through the network at a given data date for the Schedule to a Contract Milestone or Contract Completion. Where the path to a specific Milestone has become negative, the Critical Path shall be the longest continuous chain of activities with the greatest amount of negative float.
- C. Near Critical Path: Any continuous series of activities through the network to the Contract Milestone or the Contract Completion Date where the Total Float of the activity at the data date along that path is within 10 days of the Total Float possessed by the activity at the data date along the Critical Path.

- D. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - 1. Critical activities are activities on the critical path.
 - 2. Predecessor activity is an activity that must be completed before a given activity can be started.
- E. Milestone: A key or critical point in time for reference or measurement.
- F. Float is the measure of flexibility in an activity. Float time belongs to the Project.
 - 1. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the following activity.
 - 2. Total float is the amount of time in starting or completing an activity without adversely affecting the planned project completion date, or an interim milestone that has a constraint.
- G. Fragnet: The sequence of new activity(ies) and/or activity revisions, logic or resource changes that are proposed to be added to the existing schedule to demonstrate the influence of impacts to the schedule. The Fragnet shall identify the predecessors to the new activities and demonstrate the impacts to successor activities.

2.0 PRODUCTS

2.1 SCHEDULING SOFTWARE

- A. The Contractor shall use the current version of Primavera Project Planner, Microsoft Projects, or other software approved in writing by the Owner to develop and update the Project Schedule, and all submissions of Project Schedule data in electronic form required in this Section shall be in Primavera Project Planner format. An alternate program may be proposed as a substitute “or equal” program to the Owner for review.
- B. In order to be acceptable as a substitute for the use of Primavera Project Planner, the Contractor's software must be capable of exporting all Project Schedule data in a format that may be opened, read, and modified using the current version of Primavera Project Planner without loss of functionality or information.
- C. Terms used herein with reference to the Project Schedule shall have the same definitions as those used within the Primavera Project Planner software.

3.0 EXECUTION

3.1 PROJECT SCHEDULE REQUIREMENTS MEETING

- A. The Contractor shall meet with the Owner within five (5) workdays after notice to proceed to conduct a joint review of the Project Schedule requirements in this section.

3.2 SCHEDULE SUBMISSIONS

A. General Requirements:

1. Prepare a Critical Path Method (CPM) Project Schedule
2. Activity durations shall be in units of whole workdays. Unless a longer duration is approved by the Owner, durations for activities other than submittal and procurement activities shall not exceed fifteen (15) workdays.
3. Except for the first and last activities in the Project Schedule, each activity shall have at least one predecessor and one successor relationship to form a logically connected network plan from Notice to Proceed (NTP) to the Contract completion date.
4. Each activity shall be cost and resource loaded. Labor, material and equipment shall be clearly identified and valued.
5. The Contractor shall provide the native electronic files of the CPM schedule, graphics, cost and resource reports required under this Section and/or as requested by the Owner at no additional cost throughout the entire project performance period until Project completion is achieved. Contractor shall also provide all documents in PDF electronically created from the native files to PDFs (not scans).

B. Preliminary Schedule:

1. Within twenty one (21) calendar days of Notice to Proceed ("NTP"), the Contractor shall submit a Preliminary Schedule in the form and requirements specified in 3.4 with respect to the planned work activities to be performed during the first one hundred twenty (120) calendar days following NTP. Activities beyond the first one hundred twenty (120) calendar days may be depicted in summary form.
2. The Owner will review schedules and return review copy within ten (10) days after receipt.
3. If required, resubmit within seven (7) days after return of review copy.

C. Baseline Project Schedule:

1. Within sixty (60) calendar days following NTP, the Contractor shall submit a proposed Project Schedule in the form specified in 3.4.
2. The Owner will review schedules and return review copy within ten (10) days after receipt.
3. If required, resubmit within seven (7) days after return of review copy.

D. Technical Requirements:

1. Show the complete sequence of construction by activity.

2. At a minimum show the dates for the beginning, and completion of, each major element of construction. Specifically list:
 - a. All submittal and review activities, including preparation of shop drawings, calculations, samples, and mockups, testing of mockups, and Owner review of submittals;
 - b. All procurement activities, including awarding of subcontracts and fabrication, testing, and delivery of materials and equipment;
 - c. All field activities, including mobilization, demobilization, construction, site clearing, site utilities, foundation work, structural framing, Subcontractor work, equipment installations, finishes, pre-installation meetings, start-up, testing, balancing, commissioning, and punchlist.
3. Show projected percentages of completion for each item, as of the first day of each month.
4. Show estimated dates for the beginning and completion of work which must be completed by or coordinated with the Owner such as hazardous materials abatement, moving, training and other such items as they are identified.
- E. Submittals Schedule for Shop Drawings, Product Data and Samples: Submit Submittals Schedule within thirty (30) calendar days after date of commencement of work. Confer with the Architect and agree on all elements of the Submittals Schedule. The schedule will be based on the understanding that minimum turn-around time in the Architect's office is ten (10) working days. Some submittals or groups of submittals may take longer to review. Submittals which do not conform to the agreed schedule may be subject to delays in processing. Show:
 1. The dates for Contractor's submittals.
 2. The dates reviewed submittals will be required from the Architect.
 3. Confirmed lead time for manufacturing, production, fabrication and shipment to the project site of all materials which have an impact on the critical path of the Project's construction schedule.

3.3 SCHEDULE UPDATES

- A. Submit progress update schedules to accompany each application for payment.
- B. Indicate progress of each activity to date of submission.
- C. Show changes occurring since previous submission of schedule:
 1. Major changes in scope
 2. Activities modified since previous submission
 3. Revised projections of progress and completion

4. Other identifiable changes
- D. When change orders are proposed, potential delays are anticipated, or delays are experienced, the Contractor shall submit a written Time Impact Analysis (TIA) describing the effect of each potential change order, potential delay, delay, or Contractor request on the Substantial Completion Date:
 1. The TIA shall meet the requirements for submittal of a Schedule Revision with sufficient supporting documentation to enable the Owner to make a determination on the Contractor's request for time extension.
 2. The TIA shall be performed by inserting a fragnet into a copy of the current schedule at the time the impact was identified or occurred.
 3. All TIAs shall be incorporated into the current schedule and not prior schedules. Thus, the current schedule shall be updated, accepted, and TIAs incorporated each month.
- E. All approved change orders must be incorporated in the following month's schedule update.

3.4 FORM OF SUBMISSION OF PROJECT SCHEDULE AND UPDATES

- A. All proposed versions of the Project Schedule shall be submitted as follows.
 1. The Contractor shall submit an electronic copy of native file and PDF versions of all generated reports.
 2. The Preliminary Schedule and proposed Project Schedules shall have the NTP date as the data date, and shall reflect no progress of work activities;
 3. Format of column listings: The chronological order of the start of each item of work, activity ID, activity description, early start, late start, early finish, late finish, original duration, remaining duration, percent completion, area code, responsibility code, total float, budgeted cost, budgeted quantity, and calendar ID.
 4. Narrative: The Contractor shall submit a narrative including explanation of the following:
 - a. The contract substantial completion date;
 - b. The approach used to plan and sequence the Work, including considerations of site logistics, Contract Milestones, and where applicable, phasing and coordination with other contractors;
 - c. Steps taken to address exceptions to prior submissions; and
 - d. Identification of all intentional deviations from the specific requirements of this Section, together with a justification for approval of the deviation.
 - e. Description of the activities on the primary and secondary critical paths.

B. Project Schedule Updates shall be submitted as follows:

1. The Contractor shall submit an electronic copy of the Project Schedule Update
2. The Contractor shall submit all proposed revisions after the initial Project Baseline Schedule submission in fragnet form.
3. The Contractor shall submit with all Preliminary Schedule and Project Schedule Updates a narrative addressing the following:
 - a. Current projected substantial completion date and the number of days ahead/behind the contract substantial completion date;
 - b. Variance from prior schedule forecasted (substantial) completion date
 - c. Progress achieved against the planned critical path during the period;
 - d. Description of major work activities performed during the month prior to the Update;
 - e. Description of major work activities anticipated to be performed during the month following the Update;
 - f. The approach used to plan and sequence the Work, including considerations of site logistics, Contract milestones, and where applicable, phasing and coordination with other contractors;
 - g. Description of the activities on the primary and secondary critical paths during the month prior to the Update. Any changes to the primary Critical Path since the prior month's update with reason as to why it is now the critical path;
 - h. Sources of potential Project delay, including activities or groups of activities whose float has diminished over the course of prior Updates and their potential impact on the schedule;
 - i. Pending items (submittal reviews, answers to requests for information, change orders, requests for time-extensions, etc.) affecting critical path activities and activities with limited or diminishing available float;
 - j. All revisions introduced into the Project Schedule since the prior Update, the reason for the revision, the Activity ID of all activities affected by the revision, and the impact, if any, to the float for each such activity, as well as the Project completion date; and
 - k. All exceptions taken by the Owner to the Contractor's prior Update and whether they were resolved or not.
 - l. Identification of all intentional deviations from the specific requirements of this Section, together with a justification for approval of the deviation
 - m. Steps taken to address exceptions to prior submissions;

n. The effect of new changes on schedule.

3.5 DISTRIBUTION

- A. Distribute copies of the reviewed schedules to:
 1. Owner Job Site personnel
 2. Subcontractors
 3. Other concerned parties
- B. Instruct recipients to report to the Contractor, in writing, any problems anticipated by the projections of the schedule.

*****END OF SECTION 01 32 16*****

SECTION 01 32 33 PHOTOGRAPHIC DOCUMENTATION

1.0 GENERAL

1.1 DESCRIPTION

- A. The Contractor shall provide existing condition photographs taken before commencement of Work, progress photographs taken periodically during progress of the Work, and final photographs upon completion and full occupancy of the building.

1.2 SUBMITTALS

A. Progress Submittals

- 1. Key Plan: Submit key plan of Project area and building with notation of vantage points marked for location and direction of each photograph.
- 2. Upload digital photograph electronic files, organizationally filed by week, to the ePM system within five (5) days of taking photographs.
- 3. Each photograph shall be identified with project title, date, and a description of the view.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION

3.1 EXISTING CONDITION PHOTOGRAPHS

- A. Before commencement of selective demolition, take photographs of Project area and surrounding areas, including existing items to remain during construction.

3.2 PROGRESS PHOTOGRAPHS

- A. Photographs shall be taken weekly in a manner which completely documents the Work.
- B. The photographs shall be submitted to the Owner at the end of the first week for review.
- C. Provide photographs of any wall, ceiling or floor assembly containing MEP, A/V or any infrastructure that will thereafter become concealed-prior to closure. Note location on Key Plan.

3.3 FINAL COMPLETION PHOTOGRAPHS

- A. Photographs shall be taken in a manner which completely documents the completed Work, for submission as project record documents.

*****END OF SECTION 01 32 33*****

SECTION 01 33 00 SUBMITTAL PROCEDURES

1.0 GENERAL

1.1 DESCRIPTION

- A. Section includes administrative and procedural requirements for submittals, including the following:
 - 1. Shop Drawings
 - 2. Product Data
 - 3. Samples and Mock-ups
 - 4. Quality Assurance and Quality Control Submittals
 - 5. Coordination Drawings
 - 6. Certification of Asbestos free products
 - 7. Post-Construction or Post-Renovation Asbestos survey, reference Section 01 35 29.
 - 8. Owner audio/visual
 - 9. Owner furnishings and fixed equipment
- B. Designate in the construction schedule, and/or in a separate Submittals Schedule, the dates for submission and the dates reviewed Shop Drawings, Product Data and Samples will be needed.
- C. With the exception of physical samples and color charts, or as otherwise approved by the Owner, all submittals shall be electronic images in PDF format created electronically (saved with commenting allowed) which shall be submitted for review and approval via the ePM web site. PDFs shall be created directly from the native file format electronically. Scanning of paper to PDF shall be used minimally. Any non-electronic submittals shall be approved on a case by case basis and logged into the electronic management system as directed by a Cornell representative.

1.2 SUBMITTAL REGISTRY AND SCHEDULE

- A. The Architect shall provide a draft submittal registry in the template needed to import into the ePM system. It will be part of the contract documents and turned over to the Contractor in native format for their use. The Contractor shall be responsible for review and completion of the registry including addition of dates identified below and other information as deemed necessary by the Owner.

B. The submittal registry and schedule shall list all submittals required by the specifications, listed in order by the specification section in which they are required. Coordinate the Submittal Schedule with the Contractor's Critical Path Method Construction Schedule and other related documents.

C. The Submittal Registry shall include the following information:

1. Title (*by Architect for Contractor review*)
2. Related specification section and paragraph numbers (*by Architect for Contractor review*)
3. Subsection (*by Architect for Contractor review*)
4. Category of Submittal (Certification, Mock-Up, Operations/Maintenance Manual, Product Data, Sample, Shop Drawing, Test Report, As Built, etc.) (*by Architect for Contractor review*)
5. Submittal Description including description of the part of the Work covered by the submittal (*by Architect for Contractor review*)
6. Name of Subcontractor, if applicable (*Contractor provided, optional*)
7. Date due from Subcontractor (*Contractor provided, optional*)
8. Date due to be submitted for review (*Contractor provided, required*)
9. Date due for submittal review to be completed (*Contractor provided, required*)
10. Date for transmittal to Subcontractor (*Contractor provided, optional*)
11. Date for material or product delivery to project (*Contractor provided, required*)
12. Priority. Low, normal or high (*Contractor provided, required*)

D. Schedule a resubmittal for each major submittal. Except where specified otherwise in the contract documents, provide review times for submittals in accordance with Submittal Procedures and Architect's Duties below.

E. Distribution: Initially submit the Submittal Schedule to the Owner for review via the ePM system. A submittal schedule compliant with the requirements of this section showing all submittals for the preliminary schedule submission duration shall be submitted with the Contractor's preliminary schedule submittal described in Section 01 32 16. The schedule shall also enumerate all submittals to be processed after the initial preliminary schedule submission duration period, although the date for these submittals does not have to be indicated. A final baseline submittal schedule showing all submittals for the entire project shall be included in the baseline schedule submittal described in section 01 32 16.

F. Updating: The Submittal Schedule shall be kept up-to-date by the Contractor until all submittals are approved. Failure to provide the requested information, or delay in submitting required submittals may result in the payment request being returned to the Contractor until the required schedule or submittals are received.

1.3 SHOP DRAWINGS

- A. Drawings shall be newly prepared information drawn accurately to scale by skilled draftsperson and presented in a clear and thorough manner.
 1. Highlight, encircle, or otherwise indicate deviations from Contract Documents.
 2. Do not reproduce Contract Documents or copy standard information as basis of Shop Drawings.
 3. Standard information prepared without specific reference to Project is not Shop Drawing.
- B. Shop Drawings include fabrication and installation Drawings, setting diagrams, schedules, patterns, templates and similar Drawings. Include the following information:
 1. Dimensions.
 2. Identification of products and materials included by sheet and detail number.
 3. Compliance with specified standards.
 4. Notation of coordination requirements.
 5. Notation of dimensions established by field measurements.
 6. Submittal:
 - a. For electronic transmittal, submittals shall be distributed electronically via the ePM system and will be reviewed and returned electronically marked with action taken.
 - b. Maintain returned document as a “Record Document”.

1.4 PRODUCT DATA

- A. Product Data includes brochures, diagrams, standard schedules, performance charts, and instructions that illustrate physical size, appearance and other characteristics of materials and equipment. All submittals shall identify all products as asbestos free, see Section 01 35 29.

B. Collect Product Data into a single submittal for each element of construction or system.

1. Clearly mark each copy to show applicable choices and options. Failure to do so will result in rejection of the submission.
2. Show performance characteristics and capacities.
3. Show dimensions and clearances required.
4. Show wiring or piping diagrams and controls.
5. Where Product Data includes information on products that are not required, eliminate or mark through information that does not apply.
6. Supplement standard information to provide information specifically applicable to the Work.
7. Preliminary Submittal: Submit single copy of Product Data where selection of options by Architect is required.
8. Submittals:
 - a. For electronic transmittal, submittals shall be distributed electronically via the ePM system and will be reviewed and returned electronically marked with action taken.

1.5 SAMPLES AND MOCK-UPS

A. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.

B. Office samples shall be of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of the product, with integrally related parts and attachment devices.
2. Full range of color, texture and pattern.

C. Field samples and mock-ups:

1. Contractor shall erect, at the Project site, at a location acceptable to the Architect.
2. Size or area: that specified in the respective specification section.
3. Fabricate each sample and mock-up complete and finished.
4. Remove mock-ups and turn over to the Owner when directed by the Architect/Owner.
5. Perform necessary work to bring any area disturbed by mock-ups to the areas original condition.

D. Submit fully fabricated Samples cured and finished as specified and physically identical with material or product proposed.

1. Mount or display Samples in manner to facilitate review of qualities indicated.
2. Identify Samples with generic description, product name, and name of manufacturer.
3. Submit Samples for review and verification of size, kind, color, pattern, and texture.
4. Where variation in color, pattern, texture, or similar characteristics is inherent in material or product represented, submit at least three (3) multiple units that show approximate limits of variations.
5. Preliminary Submittals: Submit one (1) full set of choices where Samples are submitted for Architect's selection of color, pattern, texture, or similar characteristics from a range of standard choices.
6. Submittals:
 - a. Submit electronic transmittal, photograph sample and its label and attached to the submittal item electronically via the ePM system. For physical samples, submit four (4) sets for Architect's review. Architect will return at least one (1) set marked with action taken. Maintain sets of Samples, as returned, at Project Site, for quality comparisons throughout course of construction.

1.6 QUALITY ASSURANCE AND QUALITY CONTROL SUBMITTALS

- A. Quality assurance and quality control submittals include design data, test reports, certifications, manufacturer's instructions, and manufacturer's field reports.
- B. Professional design services or certifications: Where Contract Documents require professional design services or certifications by a design professional, Contractor shall cause such services or certifications to be provided by a qualified design professional, whose registration seal shall appear on drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Architect shall be entitled to rely upon adequacy, accuracy, and completeness of services, certifications, or approvals performed by such design professionals.
- C. Inspection and Test Reports: Requirements for submittal of inspection and test reports from independent testing agencies as specified in the Contract Documents.
- D. Manufacturer's instruction: Preprinted instructions concerning proper application or installation of system or product.
- E. Manufacturer's field reports: Reports documenting testing and verification by manufacturer's field representative to verify compliance with manufacturer's standards or instructions.

F. Submittals:

1. For electronic transmittal, submittals shall be distributed electronically via the ePM system and will be reviewed and returned electronically marked with action taken.

1.7 CONTRACTOR RESPONSIBILITIES

- A. Review submittals for compliance with Contract Documents and approve submittals prior to transmitting to the Architect.
- B. Specifically record deviations from Contract Document requirements, including minor variations and limitation. Comply with requirements of Section 01 25 00 Substitutions and Product Options.
- C. Contractor's approval of submittals shall indicate that the Contractor has determined and verified materials, field measurements and field construction criteria, and has checked and coordinated information within each submittal with requirement of the Work and Contact Documents. Field conflicts which arise from the contractor's failure to fully review and approve submittals before ordering equipment, will result in the contractor being burdened with all costs to remediate the situation.
- D. Contractor shall be responsible for:
 1. Compliance with the Contract Documents
 2. Confirming and correlating quantities and dimensions
 3. Selecting fabrication processes and techniques of construction.
 4. Coordination of the work represented by each submittal with other trades.
 5. Performing the Work in a safe and satisfactory manner.
 6. Compliance with the approved Construction Schedule.
 7. All other provisions of the agreements.
- E. It is understood that the Architect's notation on the submittals is not to be construed as an authorization for additional work or additional cost.
- F. If any notations represent a change to the Contract Sum, submit a cost proposal for the change in accordance with procedures specified before proceeding with the Work.
- G. It is understood that the Architect's notation on the submittal is not to be construed as approval of colors. Make all color-related submittals at one time.
- H. Notify the Architect by letter of any notations made by the Architect which the Contractor finds unacceptable. Resolve such issues prior to proceeding with the Work.
- I. Begin no fabrication of work until all specified submittal procedures have been fulfilled.

- J. Do not submit shop drawings, product data or samples representing work for which such submittals are not specified. The Architect shall not be responsible for consequences of inadvertent review of unspecified submittals.
- K. The review of shop drawings shall not relieve the Contractor of the responsibility for proper construction and the furnishing of materials and labor required even though the same may not be indicated on the review shop drawings.
- L. Survey and report to designated Owner Representatives that only asbestos free material is used in the execution of Work. Reference Sections 01 35 29.

1.8 SUBMITTAL PROCEDURES

A. Coordination

- 1. Coordinate submittals with performance of construction activities in accordance with the Submittal Schedule approved by the Architect and Owner.
- 2. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
- 3. Prepare and transmit each submittal in accordance with the Submittals Schedule, agreed to by all entities involved.
- 4. Prepare, review, approve and transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
- 5. Architect's Review: Allow ten (10) working days for Architect's initial processing of each submittal requiring the Architect's review and response, except for longer periods required as noted below, and where processing must be delayed for coordination with subsequent submittals. The Architect will advise the Contractor promptly when it is determined that a submittal being processed must be delayed for coordination. Allow ten (10) working days for Architect's reprocessing of each submittal. Notify the Architect when processing time for a submittal is critical to the progress of the Work, and the work would be expedited if its processing time could be shortened.
- 6. Allow time for delivery in addition to review.
- 7. Allow time for reprocessing each submittal.
- 8. No extension of Contract Time will be authorized because of failure to prepare submittals sufficiently in advance of Work to permit processing.
- 9. Submittals made which do not conform to the schedule are subject to delays in processing by the Architect.
- 10. Refer to Section 01 32 16 Construction Schedules for requirements of the Submittals Schedule.
- 11. Failure of the Contractor to obtain approval of Shop Drawings shall render all work thereafter performed to be at Contractor's sole risk, cost and expense.

B. Submittal Preparation

1. Place permanent label or title block on each submittal for identification.
2. Indicate name of entity that prepared each submittal on label or title block.
3. Provide space on label or beside title block on Shop Drawings to record Contractor's stamp, initialed or signed, certifying to review of submittal, action taken, verification of products, field measurements and field construction criteria, and coordination of the information within the submittal with requirements of the Work and of Contract Documents.
4. Complete all fields on submittal item details in ePM system including meaningful description.
5. Include the following information on submittal documentation:
 - a. Drawing, detail or specification references, including section number, as appropriate to clearly identify intended use of product.
 - b. Field dimensions, clearly identified as such.
 - c. Relation to adjacent or critical features of the work or materials.
 - d. Applicable standards, such as ASTM or Federal Specification numbers.
 - e. Provide a blank space for the Architect's stamps
 - f. On transmittal, record relevant information including deviations from Contract Document requirements, including minor variations and limitations.
6. Identification of revisions on re-submittals, other than those noted by the Architect on previous submittals.
7. Shop drawings with the comment "by others" are not acceptable. All such work must specifically identify the related responsible Subcontractor.

C. Submittal Transmittal:

1. Transmit submittals via the ePM system to Architect unless otherwise noted or directed.
2. Prepare and generate transmittal in ePM system for submission of samples. Package sample and other each submittal appropriately for transmittal and handling.

1.9 RECORD SUBMITTALS

- A. Provide a record copy of the submittal (electronic format) for the O&M Manual.

1.10 RESUBMISSION REQUIREMENTS

- A. Make any corrections or changes noted on previous submittals.

- B. Shop Drawings and Product Data:
 - 1. Revise initial drawings or data, and resubmit as specified for the initial submittal.
 - 2. Indicate any changes which have been made other than those noted by the Architect.
- C. Samples: Submit new samples as required for initial submittal.

1.11 ARCHITECT'S DUTIES

- A. Review submittals with reasonable promptness as identified in 1.9, paragraph 5 of this Section.
- B. Notations on the Submittal Review Stamp or ePM file mean the following:
 - 1. "Approved (APP)" indicates that no deviations from the design concept have been found and Work may proceed.
 - 2. "Approved as Noted (AAN)" indicates that deviations from the design concept which have been found are noted, and the Contractor may proceed accordingly.
 - 3. "Revise and Resubmit (RAR)" indicates that Work covered by submittal, including purchasing, fabrication, delivery, or other activity may not proceed. Revise or prepare new submittal according to Architect's notations; resubmit without delay. Repeat if necessary to obtain different action mark.
 - 4. "Rejected (REJ)" indicates that Work covered by submittal, including purchasing, fabrication, delivery, or other activity may not proceed. Revise or prepare new submittal according to Architect's notations; resubmit without delay. Repeat if necessary to obtain different action mark.
 - 5. "On Hold (ONH)" is used in a very limited capacity and means that the Contractor should not take action until the reason for hold has been cleared and may be required to revise and resubmit.
 - 6. "Not Reviewed (NRV)" is used for submittals that were submitted in error, duplicate, or other reason that does not require review by the Architect but need to be closed by the Contractor upon return to them.
 - 7. "For Record Only (FRO)": Submittals for information or record purposes, including Quality Assurance and Quality Control Submittals, and Material Safety Data Sheets (MSDS), will not require responsive action by the Architect.
 - a. Architect will forward informational submittals without action.
 - b. Architect will reject and return informational submittals not in compliance with Contract Documents.
- C. Incomplete Submittals: Architect will return incomplete submittals without action.
- D. Unsolicited Submittals: Architect will return unsolicited submittals to sender without action.

E. Return submittals to Contractor for distribution, or for resubmission.

1.12 DISTRIBUTION

- A. Distribute reviewed Shop Drawings and copies of Product Data when possible via the ePM system to:
 - 1. Job site file
 - 2. Record Documents file
 - 3. Subcontractors
 - 4. Installers
 - 5. Suppliers
 - 6. Manufacturers
 - 7. Fabricators
 - 8. Architect
 - 9. Owner
- B. Do not permit use of unmarked copies or rejected copies of submittals in connection with construction at Project Site or elsewhere where Work is in progress.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION – NOT USED

*****END OF SECTION 01 33 00*****

SECTION 01 35 29 GENERAL HEALTH & SAFETY

1.0 GENERAL

1.1 DESCRIPTION

- A. This Section provides requirements for general health and safety during the project. The requirements of this Section shall apply to both Contractor and all tiers of Subcontractors involved in the project.
 - 1. General Emergency Information – It is recommended that both Contractor and all sub-tiers:
 - a. Sign up for Cornell Emergency Alerts. The instructions can be found at (use the visitors section): <https://emergency.cornell.edu/alert/>
 - b. Signup for Tompkins County Emergency alerts at:
<https://www2.tompkinscountyny.gov/doer/swift911alerts>
 - c. Cornell EHS has brief guidance on some emergency scenarios at:
<https://emergency.cornell.edu/eag/>
- B. In addition to the requirements of this Section, all laws and regulations by applicable local, state, and federal agencies shall apply to the Work of this contract. In some cases, the requirements of these Specifications may by intention exceed such legal requirements, but in no case shall this Specification be interpreted or understood to reduce or eliminate such requirements.

1.2 CONTRACTOR'S PROJECT SITE SPECIFIC PLAN

- A. Contractors are required to submit a Project Site Specific Plan (PSSP) for review by Cornell University representatives before commencement of work on the site. The PSSP should address site specific information, controls and or requirements as it relates to the entire scope of work for the Project. All contractors shall use the Project Site Specific Plan Template below to develop their Project's PSSP. The template may be downloaded at:
<https://ehs.cornell.edu/campus-health-safety/occupational-safety/contractor-safety>
 - 1. Within the PSSP template are example(s) to use as reference. The provided examples demonstrate Cornell University's expectations for providing detailed site-specific information, controls and requirements.
 - 2. Project Site Specific Plan's that inadequately address site specific operations will be returned with comments for resubmission. Failure to submit a PSSP may result in delay of project and/or denial of the payment.
 - 3. All projects must have the PSSP submitted via ePM for review and comment.

B. PSSP submittal should be submitted a minimum of ten (10) days prior to the commencement of work on site. The Contractor may opt to submit their PSSP in phases. The Contractor must submit a phase submission plan using the PSSP Submission table included in the PSSP template for approval by Owner's Representative with initial submission. Submit remaining phases no later than ten (10) days prior to the start of a new, predetermined project phase or milestone.

1. Projects having less than a ten (10) day turn-around shall coordinate their submittal with the Owner's Representative, who should coordinate with Occupational Health, Safety and Injury Prevention (OHSIP), the University Fire Marshall's Office (UFMO), applicable Authority Having Jurisdiction (AHJ) and Contract College's Codes Enforcement Official, if applicable.

C. The Contractor is responsible for its employees and its Subcontractors. Subcontractors are required to submit their PSSP to the General Contractor. The General Contractor is responsible to ensure all Subcontractor(s) PSSP's are adequate per their scope of work.

D. The General Contractor is required to ensure their project's PSSP is accurately maintained throughout the duration of the contract. Resubmission is required for any new scope elements not previously addressed by the Contractor's original PSSP.

E. Definitions:

1. Project Site Specific Plan (PSSP): A structured document that details the scope of the Contract Work and related site-specific controls, requirements and information for University and Contractor personnel. This document is not intended to be all inclusive of all applicable local, state and federal laws and regulations for which the General Contractor and its Subcontractor(s) are expected to comply.
2. Authority Having Jurisdiction (AHJ):
 - The organization, office or individual responsible for approving equipment, an installation or a procedure (NYS Fire Code).
 - The local government, county government or state agency responsible for the administration and enforcement of an applicable regulation or law (NYS Building Code-§202.2).
3. Occupational Health, Safety and Injury Prevention (OHSIP): A division of Cornell University's Environment, Health and Safety Department. The OHSIP division can be contacted at (607)-255-8200 or by email at askEHS@cornell.edu
4. SME: The University's subject matter expert.

1.3 AERIAL WORK PLATFORMS

- A. The preferred method for Aerial Work Platforms (AWPs) boom storage is fully retracted and fully lowered to the ground.
- B. In some circumstances booms may need to be stored in the air because of vandalism concerns, minimal size of storage location, etc.

1. If this is case, the area under the elevated boom must be blocked or arranged such that prevents people from walking, standing, working or parking vehicles underneath.
2. When booms are stored in the air consult the extended weather forecast. Booms should not be stored in the air during predicted high winds, or severe storms. AWPs become unstable at winds or gusts greater than 25 mph and must be fully lowered to prevent a tip-over.

1.4 ASBESTOS

- A. All building materials and products provided for use in construction at Cornell University are to be free of asbestos. Materials must be surveyed by a certified environmental consultant and analyzed by an accredited laboratory either prior to installation or post installation. The results of the survey are to be reported to Cornell University Facilities Management Asbestos Coordinator. The Contractor must attach applicable Safety Data Sheets / Material Safety Data Sheets for each product documenting a 100% asbestos free status. The University may provide random testing of products for asbestos content. Any Contractor installed building materials or products found to contain asbestos shall be classified as defective work. Defective work shall be corrected by the Contractor as specified in the General Conditions.
- B. Attached for the Contractor's information are asbestos reports which represent samples taken within the building.
- C. Based on the above, disposal of asbestos containing material is not anticipated.

1.5 LEAD

- A. Building may contain lead-based paint. The Contractor shall protect workers in accordance with OSHA regulations. The Contractor selects the means and/or methods to address the presence of lead-based paint, and must concurrently protect its workers based on the Contractor's means and/or methods. The Contractor is required to submit a lead plan that is site specific, indicating that the protective measures the Contractor proposes meet the OSHA standard 1926.62 "Lead in Construction Standards". This site-specific plan should address the particular methods the Contractor intends to protect its workers, the building occupants and the building structure based on its selection of addressing the presence of lead-based paint. The site-specific plan should be attached or written into the Lead Work Plan section of the Contractor's Project Site Specific Plan.

1.6 SITE VISITS

- A. The undertaking of periodic Site Visits by Architects, Engineers or the Owner shall not be construed as supervision of actual construction, or make them responsible for the safety of any persons; or make them responsible for means, methods, techniques, sequences or procedures of construction selected by the Contractor or its Subcontractors; or make them responsible for safety programs and precautions incident to the Work, or for the safe access, visit, use, work, travel or occupancy of any person.

1.7 CONFINED SPACE

A. The Contractor shall be responsible for the identification of confined space in accordance with OSHA requirements. It is the Contractor's responsibility to engage the Project Manager who will collaborate with Environment, Health and Safety regarding questions or concerns on the confined space.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION – NOT USED

*****END OF SECTION 01 35 29*****



November 4, 2025

Ms. Lynn Webster
MCWB | Architects
383 Broadway
Albany, NY 12207

**RE: Cornell University – West Campus Gothic Exterior Repairs
McFaddin Buttress Repair + Leaning Chimney Removal
117 Gothic Way, Ithaca, NY 14853
Asbestos Testing Letter Report**

Dear Ms. Webster:

Watts Architects & Engineers (Watts) was retained by MCWB | Architects (MCWB) to perform targeted testing for asbestos-containing materials (ACM) at McFaddin Hall on the Ithaca campus of Cornell University. The purpose of the survey was to test materials associated with the buttresses that may be impacted by the repairs. In addition, there are nine chimneys that are leaning throughout the Gothic Complex that will be removed down to the roof level.

This letter report contains the results of analytical testing of bulk samples collected by Watts. A field investigation and bulk sampling was conducted on October 17, 2025, and included the following:

- A visual site inspection to identify suspect ACMs within the scope of the work order;
- Collection of bulk material samples from identified suspect asbestos-containing materials that have not previously been tested and submission for laboratory analysis of asbestos content;
- Documentation of sample locations on a sample location drawing and a chain-of-custody form, and
- Inspection photo documentation.

ASBESTOS-CONTAINING MATERIALS

The inspection included the collection of two (2) bulk samples from one (1) homogeneous materials identified as suspect ACM. ACM is defined as any material containing more than one percent (1%) of asbestos. Based on the laboratory analysis of the bulk samples collected as part of this investigation and visual observations, no ACM has been identified.

NON-ASBESTOS CONTAINING MATERIALS

Based on laboratory analysis of samples collected as part of this investigation and previous sampling data, the following materials have been identified to be non-ACM:

- Mortar associated with the buttress

This section includes information on all suspect ACM sampled by Watts as part of this investigation, including the following: the homogeneous materials identified, corresponding sample numbers, analytical results and whether or not they are ACM.

Material Description	Sample Location	Type	Sample Number	Results (% Asbestos)		ACM
				PLM	TEM	
Mortar	McFaddin Buttress – North McFaddin Buttress – South	M	250657-01 250657-02	NAD NAD	NA NA	N

Abbreviations

NAD = No Asbestos Detected

M = Miscellaneous

Y = Yes

NA = Not Analyzed

N = No

Bulk samples were delivered with the chain-of-custody form to a New York State accredited laboratory that is a participant in the Environmental Laboratory Approval Program (ELAP) and National Voluntary Laboratory Approval Program (NVLAP). Friable materials were analyzed by Polarized Light Microscopy (PLM) using Method 198.1. Cellulose-containing ceiling tiles and non-friable organically bound (NOB) materials underwent gravimetric reduction prior to being analyzed by Polarized Light Microscopy (PLM) Method 198.6. In addition, if cellulose-containing ceiling tiles or NOB samples were negative by PLM, they were further analyzed by Transmission Electron Microscopy (TEM) Method 198.4.



Photo 1: View of McFaddin Hall. Mortar associated with the buttress was sampled as part of this investigation and was determined to be non-ACM.



Photo 2: View of a typical chimney at the Gothics Complex that is scheduled to be removed down to the roof level. Chimneys were not accessible for sampling during the inspection and will have to be inspected during construction for suspect asbestos-containing materials.

CONCLUSION

The nine chimneys at the Gothic Complex that are scheduled to be removed down to the roof level were not accessible for inspection during Watts' October 17, 2025 inspection. The chimneys will need to be inspected for suspect asbestos-containing materials during construction.

An asbestos bulk sample location drawing, laboratory report and chain-of-custody forms, laboratory accreditations, Watts' company asbestos handling license and personnel certifications are attached. Should you have any questions or need additional information, please contact me at (716) 472-4763.

Sincerely,

WATTS ARCHITECTS & ENGINEERS

Gregory A. Andrews, CHMM
Senior Associate

Attachments

Cornell University – West Campus Gothic Exterior Repairs
McFaddin Buttress Repair + Leaning Chimney Removal
117 Gothic Way, Ithaca, NY 14853
Asbestos Testing Letter Report

**Watts
Architects
&Engineers**

SAMPLE LOCATION DRAWING

Cornell University – West Campus Gothic Exterior Repairs
McFaddin Buttress Repair + Leaning Chimney Removal
117 Gothic Way, Ithaca, NY 14853
Asbestos Testing Letter Report

**Watts
Architects
&Engineers**

LABORATORY REPORT AND CHAIN-OF-CUSTODY FORMS



AmeriSci Richmond

13635 GENITO ROAD
MIDLOTHIAN, VIRGINIA 23112
TEL: (804) 763-1200 • FAX: (804) 763-0493

PLM Bulk Asbestos Report

Watts Architecture & Engineers
Attn: Ted Gorenflo
95 Perry Street
Suite 300
Buffalo, NY 14203

Date Received 10/23/2025 **AmeriSci Job #** 125101971
Date Examined 10/29/25 **P.O. #**
ELAP # 10984 **Page** 1 **of** 1
RE: 20250657; Cornell University West Campus Gothic; McFadden Hall, Cornell University, Ithaca, NY

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos	Notes
250657-01 1 Location: Mortar; Buttress - North	125101971-01	No	NAD (by NYS ELAP 198.1) by David W. Ralbovsky on 10/29/25	
Analyst Description: Gray, Heterogeneous, Non-Fibrous, Cementitious, Bulk Material Asbestos Types: Other Material: Non-fibrous 100%				
250657-02 1 Location: Mortar; Buttress - South	125101971-02	No	NAD (by NYS ELAP 198.1) by David W. Ralbovsky on 10/29/25	
Analyst Description: Gray, Heterogeneous, Non-Fibrous, Cementitious, Bulk Material Asbestos Types: Other Material: Non-fibrous 100%				

Reporting Notes:

Analyzed by: David W. Ralbovsky
Date: 10/29/2025

Reviewed by: Cory M. Parnell

*NAD = no asbestos detected, Detection Limit <1%, Reporting Limits: CVES = 1%, 400 Pt Ct = 0.25%, 1000 Pt Ct = 0.1%, "Present" or NVA = "No Visible Asbestos" are observations made during a qualitative analysis (Not covered by NVLAP or NY ELAP accreditations); NA = not analyzed; NA/PS = not analyzed / positive stop; PLM Bulk Asbestos Analysis using Olympus, Model BH-2 microscope, Serial #229707, by EPA 600/R-93/116 per 40 CFR 763 (NVLAP Lab Code 101904-0) and ELAP PLM Analysis Protocol 198.1 for New York friable samples which includes quantitation of any vermiculite observed (198.6 for NOB samples) or EPA 400 pt ct by EPA 600/M4-82-020 (NYSDOH ELAP Lab # 10984); CA ELAP Lab # 2508; Note: PLM is not consistently reliable in detecting asbestos in floor coverings and similar NOB materials. NAD or Trace results by PLM are inconclusive, TEM is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos-containing in New York State (also see EPA Advisory for floor tile, FR 59, 146, 38970, 8/1/94). NIST Accreditation requirements mandate that this report must not be reproduced except in full without the approval of the laboratory. This PLM report relates ONLY to the items tested.

125101971

**WATTS ARCHITECTS & ENGINEERS
ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY**

WATTS ARCHITECTS & ENGINEERS	
ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY	
Client:	Cornell University
Project:	Cornell University West Campus Gothic
Building / Location:	McFaddin Hall, Cornell University, Ithaca, NY
Contact:	Ted Gorenflo at 716-392-4556
Preliminary Results to:	<u>tgorenflo@watts-ae.com</u> and <u>Watts Architects & Engineers</u>
Mail Report & Invoice to:	95 Perry Street, Buffalo, NY 14203
Watts Project No.:	20250657
Page:	1 of 1
Date:	10/22/2025
Analysis Requested:	
198.1 X	198.4 X
198.8	198.6 X
Turnaround Requested:	
3 Hr.	48 Hr.
6 Hr.	72 Hr.
12 Hr.	4 Day
24 Hr.	5 Day

Sampled By: Ted Gorenflo Date: 10/17/2025 Time: N/A Received By: _____ Date: _____

Relinquished By: Ted Gorenflo Ted Gorenflo Date: 10/22/2025 Time: 1600 Received By: _____ Date: _____

Comments: If PLM NOB is negative, analyze by TEM. Stop at first positive for each homogeneous material description group.

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Cornell University – West Campus Gothic Exterior Repairs
McFaddin Buttress Repair + Leaning Chimney Removal
117 Gothic Way, Ithaca, NY 14853
Asbestos Testing Letter Report

**Watts
Architects
&Engineers**

LABORATORY ACCREDITATION

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2026
Issued April 01, 2025

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. CORY M. PARNELL
AMERISCI RICHMOND
13635 GENITO RD
MIDLOTHIAN, VA 23112

NY Lab Id No: 10984

*is hereby APPROVED as an Environmental Laboratory for the category
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved subcategories and/or analytes are listed below:*

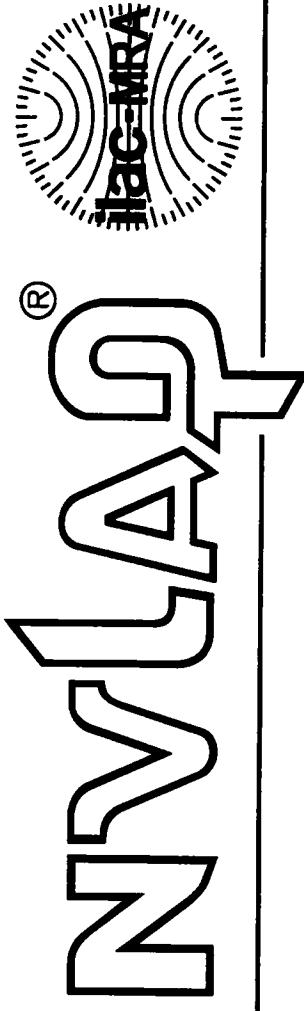
Miscellaneous

Asbestos in Friable Material	Item 198.1 of Manual EPA 600/M4/82/020
Asbestos in Non-Friable Material-PLM	Item 198.6 of Manual (NOB by PLM)
Asbestos in Non-Friable Material-TEM	Item 198.4 of Manual
Asbestos-Vermiculite-Containing Mate	Item 198.8 of Manual

Serial No.: 70357

Property of the New York State Department of Health. Certificates are valid only at the address shown and must be conspicuously posted by the laboratory. Continued accreditation depends on the laboratory's successful ongoing participation in the Program. Consumers may verify a laboratory's accreditation status online at <https://apps.health.ny.gov/pubdoh/applinks/wc/elappublicweb/>, by phone (518) 485-5570 or by email to elap@health.ny.gov.

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 101904-0

AmeriSci Richmond

Midlothian, VA

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-AF Communiqué on ISO/IEC 17025).*



2025-07-01 through 2026-06-30

Effective Dates

For the National Voluntary Laboratory Accreditation Program

A handwritten signature in black ink that reads 'Carol J. French'.

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

AmeriSci Richmond

dba AmeriSci Richmond

13635 Genito Road

Midlothian, VA 23112

Cory M. Parnell

Phone: 804-763-1200

Email: cparnell@amerisci.com

<http://www.amerisci.com>

ASBESTOS FIBER ANALYSIS

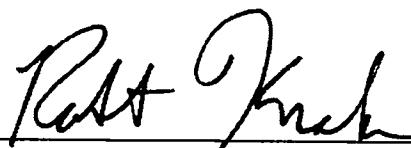
NVLAP LAB CODE 101904-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program

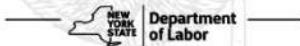
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**Watts
Architects
&Engineers**

WATTS' CERTIFICATIONS



WE ARE YOUR DOL



DIVISION OF SAFETY & HEALTH LICENSE AND CERTIFICATE UNIT, STATE OFFICE CAMPUS, BLDG. 12, ALBANY, NY 12226

ASBESTOS HANDLING LICENSE

Watts Architecture & Engineering, D.P.C.
95 Perry Street, Suite 300, Buffalo, NY, 14203

License Number: 68007

License Class: RESTRICTED

Date of Issue: 08/21/2025

Expiration Date: 09/30/2026

Duly Authorized Representative: Kevin Janik

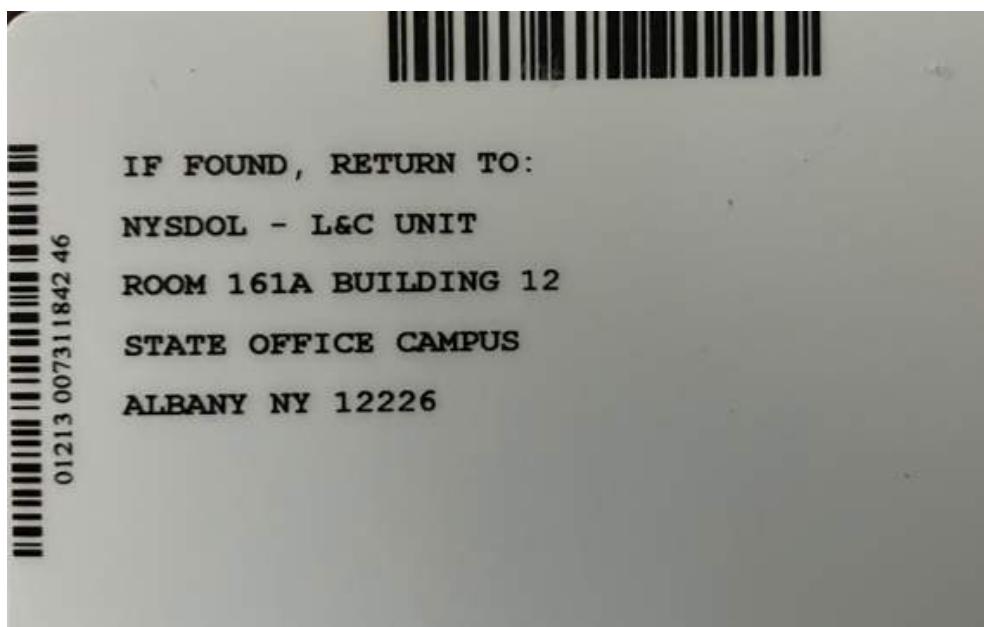
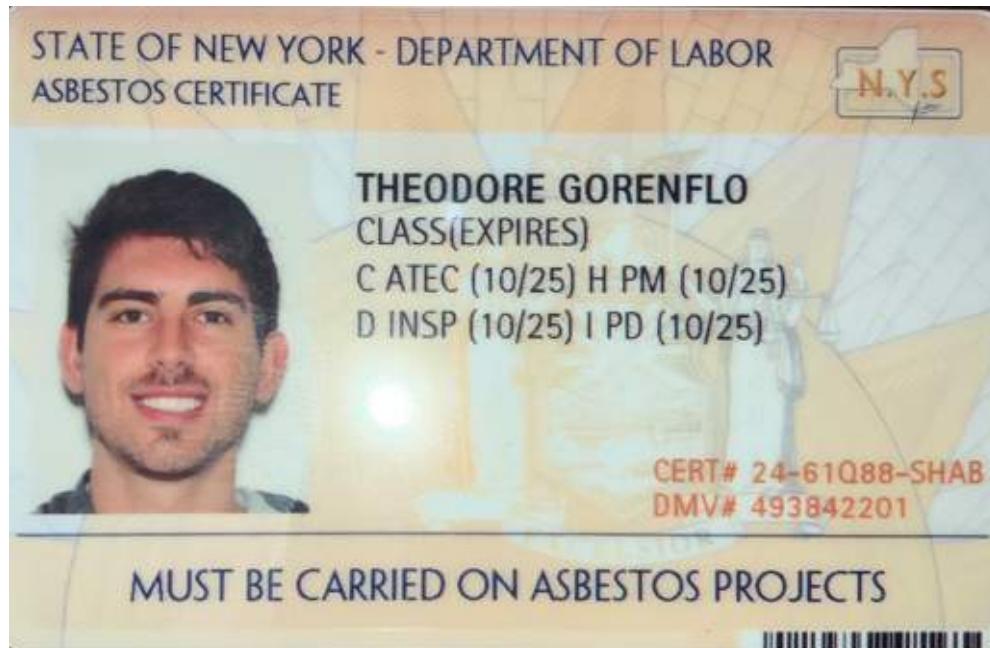
This license has been issued in accordance with applicable provisions of Article 30 of the Labor Law of New York State and of the New York State Codes, Rules and Regulations (12 NYCRR Part 56). It is subject to suspension or revocation for a (1) serious violation of state, federal or local laws with regard to the conduct of an asbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving asbestos or asbestos material.

This license is valid only for the contractor named above and this license or a photocopy must be prominently displayed at the asbestos project worksite. This license verifies that all persons employed by the licensee on an asbestos project in New York State have been issued an Asbestos Certificate, appropriate for the type of work they perform, by the New York State Department of Labor.


Amy Phillips, Director

For the Commissioner of Labor

04-1997-00001



Theodore Gorenflo

C - Air Sampling Technician
D - Inspector
H - Project Monitor
I - Project Designer

SECTION 01 35 43 GENERAL ENVIRONMENTAL REQUIREMENTS

1.0 GENERAL

1.1 DESCRIPTION

- A. This Section and the listed Related Sections provides minimum requirements for the protection of the environment during the project. The requirements of this Section shall apply to both Contractor and all tiers of Subcontractors involved in the project.
- B. In addition to the requirements of this Section and the listed Related Sections, all laws and regulations by applicable local, state, and federal agencies shall apply to the Work of this Contract. In some cases the requirements of these Specifications may by intention exceed such legal requirements, but in no case shall this Specification be interpreted or understood to reduce or eliminate such requirements.
- C. Prior to bidding, review the entire Bidding Documents and report in writing to the Owner's Representative any error, inconsistency, or omission that may have environmental impacts.

1.2 RELATED SECTIONS

- A. Section 01 35 44 – Spill Control
- B. Section 01 57 13 – Soil Erosion and Sediment Control

1.3 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00 – Submittals:
 - 1. Analytical laboratory sample results and material Certifications for all imported soil and granular materials (“borrow”).
 - 2. Contractor’s Waste Material Disposal Plan.
 - 3. Weight tickets from the Borrow Material Supplier.
 - 4. Proposed methods for dewatering and construction water management.
 - 5. Analytical laboratory sample results for all waste materials.
 - 6. Copies of manifests for all waste materials disposed of off-site.

1.4 JOB SITE ADMINISTRATION

- A. In accordance with Article 2 of the General Conditions, provide a competent supervisory representative with full authority to act for the Contractor at the site.

- B. If at any time operations under the representative's supervision do not comply with this Section, or the representative is otherwise unsatisfactory to the Owner, replace, if requested by the Owner, said representative with another representative satisfactory to the Owner. There shall be no change in superintendent without the Owner's approval.
- C. Remove from the Work any employee of the Contractor or any Subcontractor when so directed by the Owner. The Owner may request the removal of any employee who does not comply with these specifications.

1.5 CLEARING, SITE PREPARATION AND SITE USE

- A. In accordance with Section 01 14 00, only that portion of the working area that is absolutely necessary and essential for the Work shall be cleared for construction. All clearing should be approved and performed to provide minimum practical exposure of soils.
- B. The Contractor shall make every effort to avoid the destruction of plants, trees, shrubs and lawns outside the area of construction so as not to unduly disturb the ecological or environmental quality of the area.
- C. Topsoil excavated as part of the Project, which can be reused as part of the Project, shall be stockpiled for future use and temporarily stabilized to prevent erosion.

1.6 SPOIL AND BORROW

- A. Spoil
 - 1. Dispose of excavated material which, in the opinion of the Owner's Representative, is unfit to be used as backfill or embankment or which is in excess of the amount required under the Contract.
 - 2. All spoil areas shall be graded and seeded to match the surrounding area.
 - 3. Spoil areas shall be covered and protected from erosion into adjacent storm sewers, drainage ways, land areas, or water bodies.
- B. Borrow Material
 - 1. Borrow material shall be provided from a clean source. Submittals of proposed borrow material shall be reviewed by the Owner prior to delivery on-site. Submittals shall include the quantity of materials, source location and certification by the material supplier that it is free of chemicals or other foreign matter.

1.7 NOISE AND VIBRATION

- A. Limit and control the nature and extent of activities at all times to minimize the effects of noise and vibrations. Take adequate measures for keeping noise levels, as produced by construction related equipment, to safe and tolerable limits as set forth by the Occupational Safety and Health Administration (OSHA), the New York State Industrial Code Guidelines and Ordinances and all City, Town and Local ordinances. Equip all construction equipment presenting a potential noise nuisance with noise-muffling devices adequate to meet these requirements

1.8 DUST CONTROL

- A. Take adequate measures for controlling dust produced by drilling, excavation, backfilling, loading, saw cutting or other means. The use of calcium chloride or petroleum-based materials for dust control is prohibited. Dust control measures are required throughout the duration of construction.
- B. If, in the opinion of the Owner's Representative, the Contractor is not adequately controlling dust, the Owner will first notify the Contractor. If the Contractor does not take adequate actions necessary, the Owner may, at the Contractor's expense, employ alternative means to control dust.
- C. Erect, maintain, and remove when appropriate barriers or other devices, including mechanical ventilation systems, as required by the conditions of the Work for the protection of users of the project area, the protection of the work being done, or the containment of dust and debris. All such barriers or devices shall be provided in conformance with all applicable codes, laws, and regulations including OSHA.

1.9 PROTECTION OF THE ENVIRONMENT

- A. Construction procedures observed by the Contractor, its Subcontractors and other employees shall include protection of the environment, in accordance with all pertinent Cornell standards, policies, local laws, executive orders, ordinances, and federal and state regulations. Construction procedures that are prohibited in the undertaking of work associated with this Contract include, but are not limited to:
 1. Dumping of spoil material or any liquid or solid pollutant into any storm or sanitary sewer, drainage way, stream sewer, any wetlands (as defined by federal and state regulations), any surface waters, or at unspecified locations.
 2. Indiscriminate, arbitrary, or capricious operation of equipment in any stream corridors, any wetlands, or any surface waters.
 3. Pumping of any silt-laden water from trenches or other excavations into any storm sewers, sanitary sewers, drainage ways, wetlands, or surface waters.
 4. Damaging vegetation beyond the extent necessary for construction of the facilities.

5. Disposal of trees, brush, and other debris in any location on University property, unless such areas are specifically identified on the drawing or in the specifications or specifically approved by the Owner's site representative.
6. Permanent or unspecified alteration of the flow line of a stream.
7. Burning trash, project debris, or waste materials.

B. Take all necessary precautions to prevent silt or waste of any kind from entering any drainage or waterways or downstream properties as a result of the Work.

C. Runoff of potable water used for concrete curing or concrete truck or chute cleaning operations shall not be allowed to reach the storm water system or open water due to the levels of residual chlorine (New York State water quality standards, 6 NYCRR Part 703.5) and other potential contaminants. If necessary, obtain permission from the local sewer authority and collect and pump the runoff to the sanitary sewer.

D. Limit the nature and extent of any activities that could result in the release or discharge of pollutants. Report any such release or discharge immediately to the Owner's Representative and clean up spills immediately, as detailed in Section 01 35 44 – Spill Control Procedures.

1.10 TEMPORARY RE-ROUTING OF PIPING AND DUCTWORK

A. Obtain approval from the Owner's Representative prior to any temporary re-routing of piping and exhaust ductwork necessary for the completion of the Work. Submit re-routing plans to the Owner's Representative in writing.

The following shall require approval of the Owner:

1. Temporary storm, sanitary or water line connections.
2. Temporary exhaust ductwork connections where such connections may impact air emissions.

B. Instruct all personnel to observe extreme caution when working in the vicinity of mechanical equipment and piping. Personnel shall not operate or tamper with any existing valves, switches, or other devices or equipment without prior approval by the Owner's Representative.

1.11 HAZARDOUS OR TOXIC MATERIALS

A. Inform officers, employees, agents, contractors, subcontractors at every tier, and any other party which may come into contact with any hazardous or toxic materials as a result of its performance hereunder of the nature of such materials, and any health and safety or environmental risks associated therewith.

B. Do not use hazardous or toxic materials in a manner that will violate Cornell University Policies or any state, federal, or municipal environmental health and safety regulations. In situations where the risks are unclear consult with Environment, Health and Safety (EHS) for guidance.

- C. Provide complete care and treatment for any injury sustained by any parties coming into contact with any hazardous or toxic materials as a result of Contractor's performance or failure to perform hereunder.
- D. At the completion of project Contractor shall remove all unused chemical products and hazardous materials from campus. Transportation of these materials shall be in accordance with all federal, state, and local regulations. Request and receive written approval from EHS prior to disposal of any on-site disposal.

1.12 DISPOSAL OF WASTE MATERIAL AND TITLE

- A. Prior to start of work and first payment, Contractor shall prepare and submit "Contractor Waste Material Disposal Plan" to the Owner's Representative. The plan shall identify the waste transportation and treatment, storage or disposal (TSD) companies which will manage all waste material and any site(s) for disposal of the waste material. Contractor must use this form to document waste disposal methods and locations.

- B. The "Contractor Waste Material Disposal Plan" form, together with definitions associated with the form waste descriptions. Forms may be downloaded at:

<https://ehs.cornell.edu/environmental-compliance/solid-waste/construction-demolition-waste>

<https://ehs.cornell.edu/sites/default/files/FRM-CWMDP-Contractor-Waste-Material-Disposal-Plan-IPDF.pdf>

- C. Contractor shall be responsible for the proper cleanup, containment, storage and disposal of any hazardous material/chemical spill occurring during its work. For Cornell University owned hazardous waste EHS will oversee, approve or effect the proper disposal. Title, risk of loss, and all other incidents of ownership to the Waste Material, shall vest in Contractor at the time Contractor or any transporter acting on its behalf takes physical possession of Waste Material. Complete and maintain full records of the chain of custody and control, including certificates of disposal or destruction, of all Waste Materials loaded, transported and/or disposed of. Deliver all such records to the Owner in accordance with applicable laws and regulations and any instructions from the Owner in a timely manner and in any event prior to final payment(s) under this Contract.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION – NOT USED

*****END OF SECTION 01 35 43*****

SECTION 01 35 44 SPILL CONTROL

1.0 GENERAL

1.1 SPILL PREVENTION

- A. In order to minimize the potential for discharge to the environment of oil, petroleum, or hazardous substances on site, the following requirements shall apply to all projects:
 1. All oil, petroleum, or hazardous materials stored or relocated temporarily on site during the construction process shall be stored in such a manner as to provide protection from vehicular damage and to provide containment of leaks or spills. Horizontal diked oil storage tanks, temporary berms or barriers, or similar methods of providing secondary/spill containment shall be employed as appropriate at each site.
 2. Any on-site filling or dispensing activities shall occur within an area in which a temporary berm, boom, or similar containment barrier has been placed to prevent the inadvertent discharge to the environment of harmful quantities of any products.
 3. All oil, petroleum, or hazardous materials stored on site shall be located in such a manner as to minimize the potential of damage from construction operations or vehicles, away from drainage ways and environmentally sensitive areas, and in accordance with all fire and life safety codes and standards.
- B. Remove immediately from the site any storage, dispensing, or operating equipment that is leaking oil or hazardous substances or is in anyway unsuitable for the safe storage of such materials.

1.2 SPILL CONTROL PROCEDURES

All Contractor personnel working at the project site shall be knowledgeable of the potential health and safety concerns associated with petroleum and other hazardous substances that could potentially be released at the project site. Following are a list of activities that should be conducted by the Contractor in the event of an oil/petroleum spill or the release of any other hazardous substance. In the event of a large quantity spill that would require cleanup procedures that are beyond the means of the Contractor, an emergency spill cleanup contractor shall be hired by the Contractor. In the event the Contractor has the personnel necessary to clean up the spill, the following procedures shall be followed:

- A. Personnel discovering/responding to a spill shall:
 1. Identify and locate the source of the spill. If unsafe conditions exist, leave the area, inform nearby personnel, notify the site supervisor, and initiate spill reporting (Section 1.3).

2. Limit the discharge of product, if safely possible, by: (1) diverting discharge to a containment area; (2) creating temporary dikes with soils or other available materials; and (3) utilizing sorbent materials. If secondary containment is present, verify that valves and drains are closed prior to diverting the product to this area.
3. The individual discovering a spill shall initiate containment procedures to prevent material from reaching a potential migratory route, through implementation of the following actions, or any other methods necessary. Methods employed shall not compromise worker safety.
 - a. Stop the spill at once (if possible).
 - b. Extinguish sources of ignition (e.g., flames, sparks, hot surfaces, cigarettes, etc.).
 - c. Clear personnel from the spill location and cordon off the area.
 - d. Utilize available spill control equipment in an effort to ensure that fires, explosions, and releases do not occur, recur, or spread.
 - e. Use sorbent materials to control the spill at the source.
 - f. Construct a temporary containment dike of sorbent materials, cinder blocks, bricks, or other suitable materials to help contain the spill.
 - g. Attempt to identify the character, exact source, amount, and area of the released materials. Identification of the spilled material should be made as soon as possible so that the appropriate cleanup procedure can be identified.
 - h. Assess possible hazards to human health or the environment as a result of the release, fire, or explosion.
 - i. If spill response measures involve the temporary cessation of any operations, the Contractor shall monitor the affected equipment for: (1) leaks; (2) pressure buildup; (3) gas generation; or (4) ruptures in valves, pipes, or other equipment.

B. Spill Cleanup:

1. Following containment of the spill, the following spill cleanup procedures shall be initiated.
 - a. Use proper waste containers.
 - b. Remove bulk liquid and place material in properly labeled waste container. Be sure not to collect incompatible or reactive substances in the same container.
 - c. Cleanup materials not reclaimed on-site shall be disposed of in accordance with all applicable state and federal regulations.

- d. Apply sorbent materials to pick up remaining liquid after bulk liquid has been removed. The Contractor shall not walk over spilled material. Absorbed material shall be collected and placed in a separate waste container, and shall not be mixed with bulk liquid.
- e. Clean spill control equipment and containers. Replace equipment in its proper location. Restock or reorder any supplies used to clean up the spill.
- f. Carefully wash spilled product from skin and clothing using soap. Change clothes, if necessary, to avoid further contact with product.
- g. Disposal of all spilled product and waste generated by spill response activities shall be made off-site, and shall be arranged through the Contractor.
- h. A Spill Report shall be completed, including a description of the event. A sample Spill Documentation Form is available at:
<https://ehs.cornell.edu/campus-health-safety/emergency-services/fire-medical-spill-response/spill-cleanup-procedure>

C. Fire or Explosion:

1. In the event of a fire or explosion at the site, the Contractor shall:
 - a. Verify that the local fire department and the appropriate emergency response services (e.g., ambulance, police) have been notified. Confirm contact information for these services at Project Kick-off Meeting.
 - For projects on the Cornell Campus call Cornell Police at (607) 255-1111 who will notify the appropriate emergency response agencies
 - b. Report to the scene, if safe to do so, and evaluate the situation (e.g., spill character, source, etc.). Coordinate, as necessary, with other appropriate site and emergency personnel.
 - c. Ensure that people are cleared from the area and all accounted.
 - d. Ensure that fires are safely extinguished (if possible), valves closed, and other immediate actions necessary to mitigate the emergency are addressed, if safe to do so.
 - e. Initiate responsible measures necessary to prevent subsequent fires, explosions, or releases from occurring or spreading to other areas of the site. These measures include stopping processes or operations, collecting, and containing released oil, or removing and isolating containers.
 - f. Take appropriate action to monitor for: (1) leaks; (2) pressure build-ups; (3) gas generation; or (4) ruptures in pipes, valves, or other equipment.

1.3 SPILL REPORTING AND DOCUMENTATION

In the event of a spill CALL CORNELL POLICE AT 607-255-1111 who will notify the appropriate departments within the university and coordinate with the contractor for external reporting, if required.

The contractor shall be responsible for the initiation of spill reporting and documentation procedures. All petroleum spills must be reported to **NYSDEC Spill Hotline at 1-800- 457-7362**, less than two hours following discovery. Notification must be made to Cornell Environment, Health and Safety (EHS), 607-255-8200, within 24 hours of reporting the release. The Contractor will be expected to provide EHS with the DEC issued spill number. Any petroleum spill must be reported to NYSDEC unless **ALL** of the following criteria apply:

TABLE 1
CRITERIA TO EXEMPT SPILL REPORTING

CRITERIA	DESCRIPTION
Quantity	The spill must be known to be less than 5 gallons.
Containment	The spill must be contained on an impervious surface or within an impervious structure, such that it cannot enter the environment.
Control	The spill must be under control and not reach a drain or leave the impervious surface.
Cleanup	The spill must be cleaned-up within two hours of occurrence.
Environment	The spill must not have already entered into environmental media such as soil, surface water (including storm water conveyances), sanitary sewers, or ground water.

A release of a “reportable quantity” or unknown amount of a hazardous substance must also be immediately reported to NYSDEC Spill Hotline. Spills of reportable quantities of chemicals or “harmful quantities”² of oil to navigable waters must be reported to the federal **National Response Center, 1-800-424-8802**. Additional regulatory agency spill reporting requirements may apply depending on the material released and the media to which it is released to.

Spill Reporting Information: When making a telephone report, the caller should be prepared to provide the following information, if possible:

1. The date and time of the spill or release.
2. The identity or chemical name of the material released or spilled, including an indication of whether the material is defined as an extremely hazardous substance.
3. An estimate of the quantity of material released or spilled into the environment and the approximate duration of the event.
4. The exact location of the spill, including the name(s) of the waters involved or threatened, and/or other medium or media affected by the release or spill.
5. The source of the release or spill.

6. The name, address, and telephone number of the party in charge of, or responsible for, the facility or activity associated with the release or spill.
7. The extent of the actual and potential water pollution.
8. The name and telephone number of the person in charge of operations at the spill site.
9. The steps being taken or proposed to contain and cleanup the released or spilled material and any precautions taken to minimize impacts, including evacuation.
10. The extent of injuries, if any.
11. Any known or anticipated acute or chronic health risks associated with the emergency, and information regarding necessary medical attention for exposed individuals.
12. Assistance required, if any.

If the release of a hazardous substance or oil occurs in an amount which exceeds a reportable quantity (RQ) as defined in 40 CFR Part 110, 40 CFR Part 117, 40 CFR Part 302, or 6 NYCRR Part 597, then the Contractor shall do the following:

1. Call to the National Response Center shall be made by the person in charge of the site. The applicable phone numbers are 1-800-424-8802.
2. Within 14 days of the release, submit a written description of the release. The description should include: (1) a description of the release, (2) the type of material released, (3) estimated amount of the spill; (4) the date of the release, (5) an explanation of why the release occurred; and (6) a description of the measures to be implemented to prevent and control future releases.

⁽¹⁾Reportable Quantity: A Reportable Quantity is the quantity of a hazardous substance or oil that triggers reporting requirements under the Comprehensive Emergency Response, Compensation, and Liability Act (CERCLA) (USEPA, September 1992). While the Contractor is legally responsible for knowing the risks of materials that are part of construction, members of the owner's spill response team have access to information that may help identify these quantities with you.

⁽²⁾Harmful Quantity: A Harmful Quantity of oil includes discharges that violate applicable water quality standards; cause a film, sheen, or discoloration on a water surface or adjoining shoreline; or cause a sludge or emulsion to be deposited beneath the water surface or shoreline (40 CFR 110.3).

2.0 PRODUCTS – NOT USED

3.0 EXECUTION – NOT USED

*****END OF SECTION 01 35 44*****

SECTION 01 41 00 REGULATORY REQUIREMENTS

1.0 GENERAL

1.1 PERMITS AND LICENSES

- A. The Contractor shall obtain, maintain and pay for all permits and licenses necessary for the execution of the Work and for the use of such work when completed. Such permits shall include but are not limited to building, electrical, plumbing, backflow prevention, dig safe, fill, street use, pavement cuts and repairs, and building demolition.
 - 1. City of Ithaca building permit applications shall be presented for review at the regularly scheduled Owner's meeting with the Authority Having Jurisdiction (AHJ).
- B. For any projects which include demolition of a structure or load-bearing elements of a structure, the Contractor is required to complete a "Notification of Demolition and Renovation" and provide this notification to the United States Environmental Protection Agency (EPA) in advance of the work as specified in 40 CFR 61.145. The Contractor shall also provide a copy of this notification to the Owner's Representative prior to any demolition.
- C. All Construction / Building / Hot Work and Occupancy permits shall be issued and maintained through the City of Ithaca.
- D. Ithaca Fire Department Permitting:
 - 1. A permit is required from the Ithaca Fire Department to install or substantially repair a fire suppression, fire detection, or fire alarm system as such as defined under the Uniform Code of New York State.
 - 2. If the scope of work is classified under the Existing Building Code of NYS as Alteration –Level 1; Alteration – Level 2; Alteration – Level 3; or Addition; a permit from the Ithaca Fire Department is required for all work affecting the fire suppression, fire detection, or fire alarm system for that building. A building permit is also required for this type of work.
 - 3. Work classified as a 'Repair' under the Existing Building Code of NYS does not require a permit from the Ithaca Fire Department.

1.2 INSPECTIONS

- A. Apply for and obtain all required inspections, pay all fees and charges for same, include all service charges and other associated costs.

1.3 COMPLIANCE

- A. The Contractor shall give all notices, pay all fees and comply with all laws, rules and regulations applicable to the Work.

1. Any additional associated fees for permitting and regulatory fees due to changes in the Work shall be reconciled upon project completion per General Conditions Article 4 – Changes In Work.

1.4 OWNER'S REQUIREMENTS

- A. The Contractor, Subcontractors, and employees of the Contractor and Subcontractors shall comply with all regulations governing conduct, access to the premises, operation of equipment and systems, and conduct while in or near the premises and shall perform the Work in such a manner as not to unreasonably interrupt or interfere with the conduct of business of the Owner.
- B. Upon completion of the project, the Contractor agrees to provide the Owner with a summary of municipal permit fees paid. This shall include the name of the permits secured, the permit fees paid by the Contractor and a copy of the permit. If no permit fees were required, the Contractor shall so state, in writing, upon completion of the project.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION – NOT USED

*****END OF SECTION 01 41 00*****

SECTION 01 42 00 REFERENCES

1.0 GENERAL

1.1 INTENT OF CONTRACT DOCUMENTS

- A. Notes or instructions shown on any one Drawing, apply where applicable, to all other Drawings.
- B. All references to codes, specifications and standards referred to in the Specification Sections and on the Drawings shall mean, and are intended to be, the latest edition, amendment and/or revision of such reference standard in effect as of the date of these Contract Documents.
- C. Install All Work in Compliance with:
 - 1. NYS Uniform Code
 - a. International Building Code
 - b. International Residential Code
 - c. International Existing Building Code
 - d. International Fire Code
 - e. International Plumbing Code
 - f. International Mechanical Code
 - g. International Fuel Gas Code
 - h. International Property Maintenance Code
 - i. Uniform Code Supplement
 - 2. NYS Energy Code
 - a. International Energy Conservation Code
 - b. ASHRAE 90.1
 - c. Energy Code Supplement
 - 3. National Electric Code
 - 4. Occupational Safety and Health Administration (OSHA).
 - 5. Life Safety Code NFPA 101.
 - 6. All local ordinances

7. Plans and Specifications in excess of code requirements and not contrary to same.

1.2 RELATED DOCUMENTS

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

1.3 DEFINITIONS

- A. “General”: Basic Contract definitions are included in the Conditions of the Contract.
- B. “Contract Documents”: The Contract Documents consist of the Agreement between Owner and Contractor, General Conditions, General Requirements, Drawings, Specifications, addenda issued before execution of the Agreement, other documents listed in the Agreement, and modifications issued after execution of the Agreement.
- C. “The Contract”: The Contract Documents form the Contract for construction and represent the entire integrated Agreement between the Owner and Contractor.
- D. “The Work”: The work comprises the completed construction required by the Contract Documents and includes all labor necessary to produce such construction and all materials and equipment incorporated in such construction.
- E. “Owner”: Cornell University a New York corporation.
- F. “Architect/Engineer”: The Architect or Engineer is the person lawfully licensed to practice architecture and/or engineering in the state of New York, identified as such in the Owner Contractor Agreement, and is referred to throughout the Contract Documents as if singular in number. The terms Architect and/or Engineer mean the Architect and/or his authorized representative.
- G. “Contractor”: The Contractor, person, firm, or corporation with whom the Construction Agreement contract is made by Owner.
- H. “Subcontractor”: A person, firm, or corporation, supplying labor and/or materials for work at site of the project for and under separate contract or agreement with Contractor.
- I. “Delegated Design” describes a collaboration between a design professional and contractor (or subcontractor) where the contractor assumes allocated responsibility for an element or portion of the Project’s design. Delegated design allocation and assignment may occur in any project delivery method and will involve a licensed professional to perform the design. The Contractor or Subcontractor allocated an element or portion of the Project’s design, will submit its engineered, stamped plans to the primary design team, who will check for any conflicts with any other aspect of the Work and make new documents to be included in the Project’s design record. Contractor or Subcontractor allocated a delegated design element of the Project shall provide professional liability insurance for the design work in such amounts and as is required by Owner.
- J. “As Approved” or “Approved”: Architect’s or Owner’s approval.

- K. "As Directed": Owner's direction or instruction. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- L. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- M. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- N. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- O. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- P. "Reinstall". To place back into a former position.
- Q. "Replace". Provide a substitute for.
- R. "Provide": Furnish and install, complete and ready for the intended use.
- S. "Concealed": Work installed in pipe shafts, chases or recesses, behind furred walls, above ceilings, either permanent or removable.
- T. "Exposed": All capital Work not identified as concealed.
- U. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.
- V. "As-Built Documents": Drawings and other records that are maintained by the Contractor to record all conditions which exist when the building construction is completed. This includes both the elements of the project itself and existing elements that are encountered during the course of project construction.
- W. "Record Drawings": Shows construction changes in the project and the final location of all services, lines, outlets, and connections including underground and concealed items. The "record" drawings shall be compiled by the Architect based on the working as-built drawings and revised in accordance with the marked up drawings submitted by the Contractor.
- X. "Shop Drawings": Drawings, diagrams, illustrations, charts, brochures, and other data that are prepared by Contractor or any Subcontractor, manufacturer, supplier or distributor, for some portion of the Work.
- Y. "Samples": Physical examples furnished to illustrate materials, equipment or workmanship, and to establish standards by which the work will be judged.

- Z. "General Conditions": The standardized contractual provisions describing the responsibilities, rights and relationships of the Owner and Contractor under the construction contract.
- AA. "Contract Limit Lines": A limit line or perimeter line established on the drawings or elsewhere in the contract documents defining the boundaries of the site available to the contractor for construction purposes.
- BB. "to do", "provide", "furnish", "install", etc., in these Specifications or on Drawings are directions given to the Contractor;

1.4 OWNER AGREEMENTS

- A. Cornell University and the Tompkins-Cortland Counties Building Trades Council, Maintenance Division have entered into an agreement. The local unions which are members of the Tompkins-Cortland Counties Building Trades Council, Maintenance Division are as follows:

Local #241 - International Brotherhood of Electrical Workers
Local #267 - United Association of Plumbers and Steamfitters
Local #281 - United Brotherhood of Carpenters
Local #3NY - International Union of Bricklayers and Allied Craftworkers
Local #178 - International Union of Painters and Allied Trades
Local #112 - International Brotherhood of Sheetmetal Workers
Local #785 - Laborers International Union of North America

The definition of craft maintenance as applied to this agreement shall be as follows:

All work associated with the demolition, repair, replacement, improvement to or construction of equipment, buildings, structures, utilities, and/or system or components thereof. Craft maintenance for trades assistants shall be limited to work assigned to individuals employed as building trade laborers and which directly assists the craft work performed by other employees covered by this agreement; the Employer is free to assign such work; provided, however, such assignment does not fall within the craft performed by other employees covered by this agreement.

1.5 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.
- D. Abbreviations and Acronyms for Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the organizations responsible for the standards and regulations in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities Available from Access Board www.access-board.gov	(800) 872-2253 (202) 272-0080
CFR	Code of Federal Regulations Available from Government Printing Office www.gpoaccess.gov/cfr/index.html	(866) 512-1800 (202) 512-1800
FS	Federal Specification Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-6257
	Available from Defense Standardization Program www.dps.dla.mil	
	Available from General Services Administration www.gsa.gov	(202) 619-8925
	Available from National Institute of Building Sciences www.nibs.org	(202) 289-7800
UFAS	Uniform Federal Accessibility Standards Available from Access Board www.access-board.gov	(800) 872-2253 (202) 272-0080

1.6 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AA	Aluminum Association, Inc. (The) www.aluminum.org	(703) 358-2960
AAADM	American Association of Automatic Door Manufacturers www.aaadm.com	(216) 241-7333

AABC	Associated Air Balance Council www.aabchq.com	(202) 737-0202
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
AASHTO	American Association of State Highway and Transportation Officials www.transportation.org	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists (The) www.aatcc.org	(919) 549-8141
ABAA	Air Barrier Association of America www.airbarrier.org	(866) 956-5888
ABMA	American Bearing Manufacturers Association www.abma-dc.org	(202) 367-1155
ACI	ACI International (American Concrete Institute) www.aci-int.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
AEIC	Association of Edison Illuminating Companies, Inc. (The) www.aeic.org	(205) 257-2530
AF&PA	American Forest & Paper Association www.afandpa.org	(800) 878-8878 (202) 463-2700
AGA	American Gas Association www.agae.org	(202) 824-7000
AGC	Associated General Contractors of America (The) www.agc.org	(703) 548-3118
AHAM	Association of Home Appliance Manufacturers www.aham.org	(202) 872-5955
AI	Asphalt Institute www.asphaltinstitute.org	(859) 288-4960
AIA	American Institute of Architects (The) www.aia.org	(800) 242-3837 (202) 626-7300
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400

AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction www.aitc-glulam.org	(303) 792-9559
ALCA	Associated Landscape Contractors of America (Now PLANET - Professional Landcare Network)	
ALSC	American Lumber Standard Committee, Incorporated www.alsc.org	(301) 972-1700
AMCA	Air Movement and Control Association International, Inc. www.amca.org	(847) 394-0150
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
AOSA	Association of Official Seed Analysts, Inc. www.aosaseed.com	(505) 522-1437
APA	APA - The Engineered Wood Association www.apawood.org	(253) 565-6600
APA	Architectural Precast Association www.archprecast.org	(239) 454-6989
API	American Petroleum Institute www.api.org	(202) 682-8000
ARI	Air-Conditioning & Refrigeration Institute www.ari.org	(703) 524-8800
ARMA	Asphalt Roofing Manufacturers Association www.asphaltroofing.org	(202) 207-0917
ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers www.ashrae.org	(800) 527-4723 (404) 636-8400
ASME	ASME International (The American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763 (973) 882-1170
ASSE	American Society of Sanitary Engineering www.asse-plumbing.org	(440) 835-3040

ASTM	ASTM International (American Society for Testing and Materials International) www.astm.org	(610) 832-9585
AWI	Architectural Woodwork Institute www.awinnet.org	(800) 449-8811 (703) 733-0600
AWPA	American Wood-Preservers' Association www.awpa.com	(334) 874-9800
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association www.awwa.org	(800) 926-7337 (303) 794-7711
BHMA	Builders Hardware Manufacturers Association www.buildershardware.com	(212) 297-2122
BIA	Brick Industry Association (The) www.bia.org	(703) 620-0010
BICSI	BICSI www.bicsi.org	(800) 242-7405 (813) 979-1991
BISSC	Baking Industry Sanitation Standards Committee www.bissc.org	(866) 342-4772
CCC	Carpet Cushion Council www.carpetcushion.org	(203) 637-1312
CDA	Copper Development Association www.copper.org	(800) 232-3282 (212) 251-7200
CGA	Compressed Gas Association www.cganel.com	(703) 788-2700
CIMA	Cellulose Insulation Manufacturers Association www.cellulose.org	(888) 881-2462 (937) 222-2462
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(423) 892-0137
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org	(301) 596-2583

CPA	Composite Panel Association www.pbmdf.com	(301) 670-0604
CPPA	Corrugated Polyethylene Pipe Association www.cppa-info.org	(800) 510-2772 (202) 462-9607
CRI	Carpet & Rug Institute (The) www.carpet-rug.com	(800) 882-8846 (706) 278-3176
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(847) 517-1200
CSI	Cast Stone Institute www.caststone.org	(770) 972-3011
CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300
CSSB	Cedar Shake & Shingle Bureau www.cedarbureau.org	(604) 820-7700
CTI	Cooling Technology Institute www.cti.org	(281) 583-4087
DHI	Door and Hardware Institute www.dhi.org	(703) 222-2010
EIA	Electronic Industries Alliance www.eia.org	(703) 907-7500
EIMA	EIFS Industry Members Association www.eima.com	(800) 294-3462 (770) 968-7945
EJCDC	Engineers Joint Contract Documents Committee www.ejdc.org	(703) 295-5000
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org	(914) 332-0040
ESD	ESD Association www.esda.org	(315) 339-6937
FMG	FM Global www.fmglobal.com	(401) 275-3000
FSA	Fluid Sealing Association www.fluidsealing.com	(610) 971-4850
FSC	Forest Stewardship Council www.fsc.org	49 228 367 66 0

GA	Gypsum Association www.gypsum.org	(202) 289-5440
GANA	Glass Association of North America www.glasswebsite.com	(785) 271-0208
GS	Green Seal www.greenseal.org	(202) 872-6400
GSI	Geosynthetic Institute www.geosynthetic-institute.org	(610) 522-8440
HI	Hydraulic Institute www.pumps.org	(888) 786-7744 (973) 267-9700
HI	Hydronics Institute www.gamanet.org	(908) 464-8200
HPVA	Hardwood Plywood & Veneer Association www.hpva.org	(703) 435-2900
HPW	H. P. White Laboratory, Inc. www.hpwhite.com	(410) 838-6550
IBR	Institute of Boiler & Radiation Manufacturers	
ICEA	Insulated Cable Engineers Association, Inc. www.icea.net	(770) 830-0369
ICRI	International Concrete Repair Institute, Inc. www.icri.org	(847) 827-0830
IEC	International Electrotechnical Commission www.iec.ch	41 22 919 02 11
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The) www.ieee.org	(212) 419-7900
IESNA	Illuminating Engineering Society of North America www.iesna.org	(212) 248-5000
IEST	Institute of Environmental Sciences and Technology wwwiest.org	(847) 255-1561
IGCC	Insulating Glass Certification Council www.igcc.org	(315) 646-2234
IGMA	Insulating Glass Manufacturers Alliance www.igmaonline.org	(613) 233-1510

ILI	Indiana Limestone Institute of America, Inc. www.iliai.com	(812) 275-4426
ISO	International Organization for Standardization www.iso.ch	41 22 749 01 11
	Available from ANSI www.ansi.org	(202) 293-8020
ISSFA	International Solid Surface Fabricators Association www.issfa.net	(877) 464-7732 (702) 567-8150
ITS	Intertek www.intertek.com	(800) 345-3851 (713) 407-3500
ITU	International Telecommunication Union www.itu.int/home	41 22 730 51 11
KCMA	Kitchen Cabinet Manufacturers Association www.kcma.org	(703) 264-1690
LMA	Laminating Materials Association (Now part of CPA)	
LPI	Lightning Protection Institute www.lightning.org	(800) 488-6864 (804) 314-8955
MBMA	Metal Building Manufacturers Association www.mbma.com	(216) 241-7333
MFMA	Maple Flooring Manufacturers Association, Inc. www.maplefloor.org	(847) 480-9138
MFMA	Metal Framing Manufacturers Association www.metalframingmfg.org	(312) 644-6610
MHIA	Material Handling Industry of America www.mhia.org	(800) 345-1815 (704) 676-1190
MIA	Marble Institute of America www.marble-institute.com	(440) 250-9222
MPI	Master Painters Institute www.paintinfo.com	(888) 674-8937
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc. www.mss-hq.com	(703) 281-6613

NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org	(312) 332-0405
NACE	NACE International (National Association of Corrosion Engineers International) www.nace.org	(800) 797-6623 (281) 228-6200
NADCA	National Air Duct Cleaners Association www.nadca.com	(202) 737-2926
NAIMA	North American Insulation Manufacturers Association www.naima.org	(703) 684-0084
NBGQA	National Building Granite Quarries Association, Inc. www.nbgqa.com	(800) 557-2848
NCAA	National Collegiate Athletic Association (The) www.ncaa.org	(317) 917-6222
NCMA	National Concrete Masonry Association www.ncma.org	(703) 713-1900
NCPI	National Clay Pipe Institute www.ncpi.org	(262) 248-9094
NCTA	National Cable & Telecommunications Association www.ncta.com	(202) 775-3550
NEBB	National Environmental Balancing Bureau www.nebb.org	(301) 977-3698
NECA	National Electrical Contractors Association www.necanet.org	(301) 657-3110
NeLMA	Northeastern Lumber Manufacturers' Association www.nelma.org	(207) 829-6901
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200
NETA	International Electrical Testing Association www.netaworld.org	(888) 300-6382 (303) 697-8441
NFHS	National Federation of State High School Associations www.nfhs.org	(317) 972-6900
NFPA	NFPA (National Fire Protection Association) www.nfpa.org	(800) 344-3555 (617) 770-3000

NFRC	National Fenestration Rating Council www.nfrc.org	(301) 589-1776
NGA	National Glass Association www.glass.org	(866) 342-5642 (703) 442-4890
NHLA	National Hardwood Lumber Association www.natlhardwood.org	(800) 933-0318 (901) 377-1818
NLGA	National Lumber Grades Authority www.nlga.org	(604) 524-2393
NOFMA	NOFMA: The Wood Flooring Manufacturers Association www.nofma.org	(901) 526-5016
NRCA	National Roofing Contractors Association www.nrca.net	(800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(888) 846-7622 (301) 587-1400
NSF	NSF International (National Sanitation Foundation International) www.nsf.org	(800) 673-6275 (734) 769-8010
NSSGA	National Stone, Sand & Gravel Association www.nssga.org	(800) 342-1415 (703) 525-8788
NTMA	National Terrazzo & Mosaic Association, Inc. (The) www.ntma.com	(800) 323-9736 (540) 751-0930
NYBFU	New York Board of Fire Underwriters www.nybfu.org	(212) 227-3700
PCI	Precast/Prestressed Concrete Institute www pci.org	(312) 786-0300
PDCA	Painting & Decorating Contractors of America www pdca.com	(800) 332-7322 (314) 514-7322
PDI	Plumbing & Drainage Institute www pdionline org	(800) 589-8956 (978) 557-0720
PGI	PVC Geomembrane Institute http://pgi-tp ce uiuc edu	(217) 333-3929
PLANET	Professional Landcare Network www landcarenetwork org	(800) 395-2522

PTI	Post-Tensioning Institute www.post-tensioning.org	(602) 870-7540
RCSC	Research Council on Structural Connections www.boltcouncil.org	(800) 644-2400 (312) 670-2400
RFCI	Resilient Floor Covering Institute www.rfci.com	(301) 340-8580
RIS	Redwood Inspection Service www.calredwood.org	(888) 225-7339 (415) 382-0662
SAE	SAE International www.sae.org	(877) 606-7323 (724) 776-4841
SBI	Steel Boiler Institute	
SDI	Steel Deck Institute www.sdi.org	(847) 458-4647
SDI	Steel Door Institute www.steeldoor.org	(440) 899-0010
SEFA	Scientific Equipment and Furniture Association www.sefalabs.com	(516) 294-5424
SGCC	Safety Glazing Certification Council www.sgcc.org	(315) 646-2234
SIA	Security Industry Association www.siaonline.org	(703) 683-2075
SJI	Steel Joist Institute www.steeljoist.org	(843) 626-1995
SMA	Screen Manufacturers Association www.smacentral.org	(561) 533-0991
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org	(703) 803-2980
SMpte	Society of Motion Picture and Television Engineers www.smpte.org	(914) 761-1100
SPFA	Spray Polyurethane Foam Alliance www.sprayfoam.org	(800) 523-6154

SPIB	Southern Pine Inspection Bureau (The) www.spib.org	(850) 434-2611
SPRI	Single Ply Roofing Industry www.spri.org	(781) 647-7026
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630
SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(877) 281-7772 (412) 281-2331
STI	Steel Tank Institute www.steltank.com	(847) 438-8265
SWI	Steel Window Institute www.steelwindows.com	(216) 241-7333
SWRI	Sealant, Waterproofing, & Restoration Institute www.swrionline.org	(816) 472-7974
TCA	Tile Council of America, Inc. www.tileusa.com	(864) 646-8453
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance www.tiaonline.org	(703) 907-7700
TMS	The Masonry Society www.masonrysociety.org	(303) 939-9700
TPI	Truss Plate Institute, Inc. www.tpinst.org	(703) 683-1010
TPI	Turfgrass Producers International www.turfgrasssod.org	(847) 649-5555
TRI	Tile Roofing Institute www.tileroofing.org	(312) 670-4177
UFPO	Underground Facilities Protective Organization www.ufpo.org	(800) 962-7962 (800) 962-7811
UL	Underwriters Laboratories Inc. www.ul.com	(877) 854-3577 (847) 272-8800
UNI	Uni-Bell PVC Pipe Association www.uni-bell.org	(972) 243-3902

USGBC	U.S. Green Building Council www.usgbc.org	(202) 828-7422
WASTEC	Waste Equipment Technology Association www.wastec.org	(800) 424-2869 (202) 244-4700
WCSC	Window Covering Safety Council www.windowcoverings.org	(800) 506-4636
WDMA	Window & Door Manufacturers Association www.wdma.com	(800) 223-2301
WI	Woodwork Institute www.wicnet.org	(916) 372-9943
WMMPA	Wood Moulding & Millwork Producers Association www.wmmpa.com	(800) 550-7889 (530) 661-9591
WSRCA	Western States Roofing Contractors Association www.wsrca.com	(800) 725-0333 (650) 570-5441
WWPA	Western Wood Products Association www.wwpa.org	(503) 224-3930

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

IAPMO	International Association of Plumbing and Mechanical Officials www.iapmo.org	(909) 472-4100
ICC	International Code Council www.iccsafe.org	(888) 422-7233 (703) 931-4533
ICC-ES	ICC Evaluation Service, Inc. www.icc-es.org	(800) 423-6587 (562) 699-0543
NEC	National Electric Code	

C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CE	Army Corps of Engineers www.usace.army.mil	
CPSC	Consumer Product Safety Commission www.cpsc.gov	(800) 638-2772 (301) 504-7923
DOC	Department of Commerce www.commerce.gov	(202) 482-2000
DOD	Department of Defense http://.dodssp.daps.dla.mil	(215) 697-6257
DOE	Department of Energy www.energy.gov	(202) 586-9220
EPA	Environmental Protection Agency www.epa.gov	(202) 272-0167
FAA	Federal Aviation Administration www.faa.gov	(866) 835-5322
FCC	Federal Communications Commission www.fcc.gov	(888) 225-5322
FDA	Food and Drug Administration www.fda.gov	(888) 463-6332
GSA	General Services Administration www.gsa.gov	(800) 488-3111
HUD	Department of Housing and Urban Development www.hud.gov	(202) 708-1112
LBL	Lawrence Berkeley National Laboratory www.lbl.gov	(510) 486-4000
NCHRP	National Cooperative Highway Research Program (See TRB)	
NIST	National Institute of Standards and Technology www.nist.gov	(301) 975-6478
OSHA	Occupational Safety & Health Administration www.osha.gov	(800) 321-6742 (202) 693-1999
PBS	Public Building Service (See GSA)	
PHS	Office of Public Health and Science www.osophs.dhhs.gov/ophs	(202) 690-7694

RUS	Rural Utilities Service (See USDA)	(202) 720-9540
SD	State Department www.state.gov	(202) 647-4000
TRB	Transportation Research Board www.nas.edu/trb	(202) 334-2934
USDA	Department of Agriculture www.usda.gov	(202) 720-2791
USPS	Postal Service www.usps.com	(202) 268-2000

2.0 PRODUCTS - NOT USED

3.0 EXECUTION - NOT USED

END OF SECTION 01 42 00

SECTION 01 45 00 QUALITY CONTROL

1.0 GENERAL

1.1 DESCRIPTION

A. The Contractor shall provide and maintain an effective Contractor Quality Control (CQC) program and perform sufficient inspections and tests of all items of Work, including those of Subcontractors, to ensure compliance with Contract Documents. Include surveillance and tests specified in the technical sections of the Specifications. Furnish appropriate facilities, instruments, and testing devices required for performance of the quality control function. Controls must be adequate to cover construction operations and be keyed to the construction sequence. Construction shall not begin until the Owner has approved the CQC program.

1.2 CONTROL OF ON-SITE CONSTRUCTION

A. Include a control system for the following phases of inspection:

1. Pre-Installation Meeting. For all sections where pre-installations are defined, the Contractor shall arrange for a pre-installation meeting. When practical, pre-installation meetings shall be scheduled to take place on the same day as regularly scheduled progress meetings. The Contractor shall make available, during this meeting, all approved submittals and products.
 - a. Agenda to include the following:
 - i. Appointment
 - ii. Appointment of official representatives of participants in the Project.
 - iii. Review of existing conditions and affected work, and testing thereof as required.
 - iv. Review of installation procedures and requirements.
 - v. Review of environmental and site condition requirements.
 - vi. Schedule of the applicable portions of the Work.
 - vii. Schedule of submission of samples, color chips, and items for Owners consideration.
 - viii. Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences, Section 01 50 00.
 - ix. Requirements for notification for reviews. Allow a minimum of 48 hour notice to Architect for review of the Work.

- x. Requirements for inspections and tests, as applicable. Schedule and undertake inspections and tests in accordance with Section 01 41 00.
- xi. Delivery schedule of specified equipment.
- xii. Special safety requirements and procedures.

b. The following minimum personnel shall be at the meeting:

- i. Project Manager.
- ii. Project Field Supervisor
- iii. Subcontractor
- iv. Architect's Representative
- v. Owner's Representative
- vi. Commissioning Agent, when applicable
- vii. Testing Agency, when applicable

2. **Preparatory Inspection.** Perform this inspection prior to beginning work on any definable feature of Work. Include a review of contract requirements with the supervisors directly responsible for the performance of the Work; check to assure that materials, products, and equipment have been tested, submitted, and approved; check to assure that provisions have been made for required control testing; examine the work area to ascertain that preliminary work has been completed; physically examine materials and equipment to assure that they conform to shop drawings and data and that the materials and equipment are on hand.

3. **Initial Inspection.** Perform this inspection as soon as work commences on a representative portion of a particular feature of workmanship review control testing for compliance with contract requirements.

4. **Follow-up Inspections.** Perform these inspections on a regular basis to assure continuing compliance with contract requirements until completion of that particular work.

1.3 CONTROL OF OFF-SITE OPERATIONS

A. Perform factory quality control inspections for items fabricated or assembled off-site as opposed to "off-the-shelf" items. The CQC Representative at the fabricating plant shall be responsible for release of the fabricated items for shipment to the job site. The CQC Representative at the job site shall receive the item and note any damage incurred during shipment. The Contractor shall be responsible for protecting and maintaining the item in good condition throughout the period of on-site and during erection or installation. Although any item found to be faulty may be rejected before its use, final acceptance of an item by the Owner is based on its satisfactory incorporation into the Work and acceptance of the completed Project.

1.4 TESTING

A. The Owner may engage the services of an independent testing laboratory to confirm that an installed item or element of work conforms to the Specification and workmanship requirements.

1.5 OWNER'S REPRESENTATIVE

A. The Owner shall designate a Representative to monitor the progress and execution of the Work. The Representative shall have the authority to call for test samples, to approve or to reject work performed and to stop work in progress, if, in its opinion, the work is not in conformance with the Contract Documents. The Representative shall not be authorized to make changes or interpretations of the Contract Documents.

1. The Contractor shall maintain a project Deficiency/Issues Log in the ePM system to track non-conforming materials or sub-standard workmanship identified by Owner's Representative.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION – NOT USED

*****END OF SECTION 01 45 00*****

SECTION 01 45 29 TESTING LABORATORY SERVICES

1.0 GENERAL

1.1 DESCRIPTION

- A. The Owner will employ and pay for the services of an Independent Testing Laboratory to perform specified services.
 - 1. Contractor shall cooperate with the laboratory to facilitate the execution of its required services.
 - 2. Employment of the laboratory shall in no way relieve Contractor's obligations to perform the Work of the Contract.
- B. Testing Laboratory services are specified in connection with work including but not limited to the following:
 - 1. New York State Building Code, Chapter 17, Special Inspections
 - 2. Masonry: Section 04 01 40

1.2 QUALIFICATIONS OF LABORATORY

- A. Meet "Recommended Requirements for Independent Laboratory Qualification", latest edition, published by American Council of Independent Laboratories.
- B. Meet basic requirements of ASTM E329-05b, "Standard Specification for Agencies Engaged in Construction Inspection and/or Testing".
- C. Authorized to operate in the State of New York.
- D. Testing and inspections shall be performed under the direction of Licensed Professional Engineer registered in the State of New York who shall be responsible for administering all testing and inspections and shall certify any local agency requirements.
- E. Submit copy of report of inspection of facilities made by Materials Reference Laboratory of National Bureau of Standards during the most recent tour of inspection, with memorandum of remedies of any deficiencies reported by the inspection.
- F. Testing Equipment:
 - 1. Calibrated at maximum 12 month intervals by devices of accuracy traceable to either:
 - a. National Bureau of Standards
 - b. Accepted values of natural physical constants.

2. Submit copy of certificate of calibration made by accredited calibration agency.

1.3 LABORATORY DUTIES

- A. Cooperate with Owner, Architect and Contractor; provide qualified personnel promptly on notice.
- B. Perform specified inspections, sampling and testing of materials and methods of construction.
 - 1. Comply with specified standards, ASTM, other recognized authorities, and as specified.
 - 2. Ascertain compliance of materials with requirements of Contract Documents.
- C. Promptly notify Owner, Architect and Contractor of observed irregularities or deficiencies of work or products.
- D. Should Laboratory tests of material performed at specified intervals of time indicate that strengths do not meet Specification requirements, the Inspection Agency and Geotechnical Engineer shall IMMEDIATELY notify the Owner, Contractor, and Architect. The Architect shall determine whether remedial action is necessary.
- E. Promptly submit written report of each test and inspection; one copy each to Architect, Owner, Contractor, and one copy to Record Documents File. Each report shall include:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Testing laboratory name, address and telephone number.
 - 4. Name and signature of laboratory inspector.
 - 5. Date and time of sampling or inspection.
 - 6. Record of temperature and weather conditions.
 - 7. Date of test.
 - 8. Identification of product and specification section.
 - 9. Location of sample or test in the Project.
 - 10. Type of inspection or test.
 - 11. Observations on compliance with Contract Documents.
- F. Prepare a summary report for each category of inspection certifying that the work has been inspected and meets the Contract Documents. Specifically list all discrepancies found which have not yet been repaired or resolved.
- G. Perform additional tests as required by Architect or the Owner.

1.4 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. Laboratory is not authorized to:
 - 1. Release, revoke, alter or enlarge on requirements of Contract Documents.
 - 2. Approve or accept any portion of the Work.
 - 3. Perform any duties of the Contractor.

1.5 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel. Provide access to Work, and Manufacturer's operations.
- B. Secure and deliver to the laboratory adequate quantities of representative samples of materials proposed to be used and for which testing is specified.
- C. Provide to the laboratory the approved design mixes proposed to be used for concrete, and other material mixes which require control by the testing laboratory.
- D. Furnish copies of Products test reports as required.
- E. Furnish incidental labor and facilities:
 - 1. To provide access to work to be tested.
 - 2. To obtain and handle samples at the Project site or at the source of the product to be tested.
 - 3. To facilitate inspections and tests.
 - 4. For Laboratory's exclusive use for storage and curing of test samples.
- F. Notify laboratory a minimum of 24 hours in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.
 - 1. When tests or inspections cannot be performed after such notice, reimburse laboratory for personnel and travel expenses incurred due to Contractor's responsibility.
- G. Make arrangements with laboratory and pay for additional samples and tests required for Contractor's convenience.
- H. Employ and pay for the services of a separate, equally qualified independent testing laboratory to perform additional inspections, sampling and testing required when initial tests indicate work does not comply with Contract Documents.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION – NOT USED

*****END OF SECTION 01 45 29*****

SECTION 01 45 33 CODE REQUIRED SPECIAL INSPECTIONS AND PROCEDURES

1.0 GENERAL

1.1 REQUIREMENTS

- A. Special Inspections and Structural Testing shall be in accordance with Chapter 17 of the *Building Code of New York State* (BCNYS).
- B. Hold a Special Inspections preconstruction meeting at least seven (7) days prior to the initial planned date for start of construction.
 1. Discussion shall include the following:
 - a. Review of specifications and Schedule of Special Inspections for work requiring Special Inspections.
 - b. Responsibilities of Contractor, Owner, Testing Agency, Special Inspector, and Registered Design Professional.
 - c. Notification and reporting procedures.
 2. Attendees shall include the Contractor, Owner's representative, Testing Agency, Special Inspector, and Registered Design Professionals for Structural Engineering and for Architecture.

1.2 DEFINITIONS

- A. Registered Design Professional (RDP): The licensed Professional Engineer or Registered Architect whose seal appears on the Construction Drawings.
- B. Registered Design Professional in Responsible Charge (RDPRC): Professional Engineer or Registered Architect licensed in New York State, engaged by the Owner or the Owner's authorized agent to review, coordinate, and implement the Special Inspection program. The RDPRC may or may not be employed by the Approved Agency and may or may not be the Project RDP.
- C. Code Enforcement Official: The Officer or other designated authority charged with administration and enforcement of the BCNYS.
- D. Testing/Inspecting Agency: An agent retained by the Special Inspector or by the Owner and coordinated by the Special Inspector, to perform some of the inspection services on behalf of the Special Inspector. (An example of an Inspecting Agent is a Geotechnical Engineer.)
- E. Special Inspector: A qualified person employed or retained by the Approved Agency, approved by the Code Enforcement Official as having the qualifications required to perform inspections.

- F. Statement of Special Inspections: A document prepared by the Registered Design Professional and filed with and approved by the Code Enforcement Official that includes the Schedule of Special Inspections listing the materials and work requiring Special Inspections. This document includes the inspections and verifications required for the project and the individuals, agencies, and/or firms who will be retained to perform these services.
- G. Schedule of Special Inspections: An itemized list of inspections, verifications, and tests (including frequency) required for the project, and the minimum qualifications of the Special Inspectors who will perform these services. The Schedule of Special Inspections is located at the end of this specification.
- H. Continuous Special Inspection: The full-time observation of work by the Special Inspector or Testing Agency while the work is being performed.
- I. Periodic Special Inspections: The part-time or intermittent observation of work by the Special Inspector or Testing Agency for work that has been or is being performed and at the completion of the Work.

1.3 QUALIFICATIONS

- A. The Special Inspector and Testing/Inspecting Agency shall be accepted by the Owner.
- B. Special Inspections shall be performed by agents who have relevant experience for each category of inspections indicated in this specification.
- C. Minimum qualifications of inspection agents are indicated in this specification.

1.4 SUBMITTALS

- A. The Special Inspector and Testing/Inspecting Agency shall submit to the Registered Design Professional and Code Enforcement Official for review, a copy of their qualifications including the names and qualifications of each of the individual inspectors and technicians who will be performing inspections or tests.
- B. The Special Inspector and Testing/Inspecting Agency shall disclose any past or present business relationship or potential conflict of interest with the Contractor or any of the Subcontractors whose work will be inspected or tested.

1.5 PAYMENT

- A. The Owner will engage and pay for the services of the Special Inspector and Testing/Inspecting Agency.
- B. If any materials requiring Special Inspections are fabricated in a plant not located within 200 miles of the project site, the Contractor shall be responsible for the travel expenses of the Special Inspector or Testing/Inspecting Agency.
- C. The Contractor shall be responsible for the cost of any retesting or re-inspection of work failing to comply with the requirements of the Contract Documents.

1.6 OWNER RESPONSIBILITIES

- A. The Owner will provide the Special Inspector with a complete set of Contract Documents sealed by the Registered Design Professional and approved by the Code Enforcement Official.

1.7 CONTRACTOR RESPONSIBILITIES

- A. The Contractor shall cooperate with the Special Inspector and his agents so that Special Inspections and testing may be performed without hindrance.
- B. As indicated in the Schedule of Special Inspections, the Contractor shall notify the Special Inspector and/or Testing/Inspecting Agency at least 48 hours in advance of a required inspection or test.
- C. The Contractor shall provide incidental labor and facilities to provide access to the Work to be inspected or tested, to obtain and handle samples at the site or at source of products to be tested, to facilitate tests and inspections, and for storage and curing of test samples.
- D. If Special Inspections or testing require the use of the Contractor's scaffolding to access work areas, the Contractor shall provide a competent person to perform the daily evaluation of the scaffolding to verify that it is safe to use. The Contractor shall notify the Special Inspector and Testing Agent of this review before each use. The Contractor is responsible for the safe assembly and stability of the scaffolding.
- E. The Contractor shall keep the latest set of Construction Drawings, field sketches, accepted shop drawings, and specifications at the project site for field use by the Inspectors and Testing Technicians.
- F. The Contractor shall perform remedial work (if required) and sign non-conformance reports stating that remedial work has been completed. The Contractor shall submit signed reports to the Special Inspector as Work proceeds.
- G. The Special Inspection program shall in no way relieve the Contractor of his obligation to perform work in accordance with the requirements of the Contract Documents or from implementing an effective Quality Control program.
- H. The Contractor shall be solely responsible for construction site safety.

1.8 SPECIAL INSPECTOR RESPONSIBILITIES

- A. The RDPRC shall hold a Special Inspections preconstruction meeting at least 7 days prior to initial planned date for start of construction. Attendees shall include Contractors, Approved Agency, RDP, and Project Architect. Discussions shall include the following:
 1. Review of specifications and Schedule of Special Inspections for work requiring Special Inspections.
 2. Responsibilities of the RDPRC, Contractors, Owner, Approved Agency, Special Inspectors, and SEOR.

3. Notification and reporting procedures.
- B. RDPRC shall record and distribute minutes from the Special Inspection Preconstruction meeting.
- C. RDPRC shall review inspection and material testing reports and coordinate the services of the Approved Agency as follows:
 1. Verify inspections have been performed in accordance with the Schedule of Special Inspections.
 2. Verify reports are being distributed to the Contractor, Owner, Architect, Code Enforcement Official, and SEOR.
 3. Verify discrepancies have been recorded and are being tracked.
- D. Special Inspectors shall make site visits to inspect work as designated in the Statement of Special Inspections. Discrepancies will be brought to the attention of the Contractor, RDPRC and RDP.
- E. RDPRC shall keep records of inspections and tests.
- F. RDPRC shall review Certificates of Compliance for conformance with the standards specified in the Contract Documents. Discrepancies will be brought to the attention of the Contractor and SEOR.
- G. RDPRC shall submit a final report of Special Inspections in accordance with Section 3.4 of this specification.

1.9 LIMITS ON AUTHORITY

- A. The RDPRC, Special Inspector, or Testing/Inspecting Agency shall not release, revoke, alter, or enlarge on the requirements of the Contract Documents.
- B. The RDPRC, Special Inspector, or Testing/Inspecting Agency shall not have control over the Contractor's means and methods of construction.
- C. The RDPRC, Special Inspector, or Testing/Inspecting Agency shall not be responsible for construction site safety.
- D. The RDPRC, Special Inspector, or Testing/Inspecting Agency shall not have the authority to stop the Work.

2.0 INSPECTIONS AND TESTING

- A. The Contractor shall follow the Special Inspection requirements developed by the Registered Design Professional of Record.

SCHEDULE OF SPECIAL INSPECTIONS FOR BUILDING STRUCTURES

THE STATEMENT OF SPECIAL INSPECTIONS CONSISTS OF THIS SCHEDULE OF SPECIAL INSPECTIONS AND SPECIFICATION SECTION 014533. THESE DOCUMENTS MUST BE SUBMITTED FOR APPROVAL TO THE OWNER AND CODE ENFORCEMENT OFFICIAL AS A CONDITION OF OBTAINING A BUILDING PERMIT. THE AGENT WHO WILL BE PERFORMING SPECIAL INSPECTIONS HAVE NOT YET BEEN RETAINED BY THE OWNER. THE NAMES AND QUALIFICATIONS OF THE AGENTS MUST BE SUBMITTED TO THE CODE ENFORCEMENT OFFICIAL AND REGISTERED DESIGN PROFESSIONAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.

INSPECTION AGENTS
1. SPECIAL INSPECTOR, P.E.
2. GEOTECHNICAL ENGINEERING/INSPECTOR
3. TESTING/INSPECTING AGENCY
4. TESTING/INSPECTING AGENCY

THE OWNER OR THE OWNER'S REPRESENTATIVE SHALL RETAIN A SPECIAL INSPECTOR WHO WILL PERFORM INSPECTIONS AND TESTING AND/OR OVERSEE THE WORK OF AN INSPECTION AND TESTING AGENCY. THE SPECIAL INSPECTOR SHALL BE A PROFESSIONAL ENGINEER EXPERIENCED IN THE DESIGN OF BUILDINGS AND REGISTERED IN THE STATE OF NEW YORK [OR OTHER STATE].

THE CONTRACTOR OR SUBCONTRACTOR PERFORMING THE WORK CANNOT RETAIN THE SPECIAL INSPECTOR. ANY CONFLICT OF INTEREST MUST BE DISCLOSED TO THE CODE ENFORCEMENT OFFICIAL PRIOR TO COMMENCING CONSTRUCTION.

THE NAMES AND QUALIFICATIONS OF AGENTS MUST BE SUBMITTED TO THE CODE ENFORCEMENT OFFICIAL AND REGISTERED DESIGN PROFESSIONAL PRIOR TO COMMENCING CONSTRUCTION. THE QUALIFICATIONS OF ALL PERSONNEL PERFORMING INSPECTION AND TESTING ACTIVITIES ARE SUBJECT TO APPROVAL BY THE CODE ENFORCEMENT OFFICIAL. MINIMUM QUALIFICATIONS OF THE TESTING AGENTS ARE INDICATED IN THE SCHEDULE.

KEY OF MINIMUM QUALIFICATIONS OF INSPECTION AGENTS (MQIA)	
PE	NEW YORK STATE REGISTERED PROFESSIONAL ENGINEER
RDP	NEW YORK STATE REGISTERED DESIGN PROFESSIONAL
EIT	ENGINEER IN TRAINING SUPERVISED BY A PE – INTERN ENGINEER
ACI-CCI	AMERICAN CONCRETE INSTITUTE CERTIFIED CONCRETE CONSTRUCTION INSPECTOR
ACI-CFTT	AMERICAN CONCRETE INSTITUTE CERTIFIED CONCRETE FIELD TESTING TECHNICIAN – GRADE 1
ICC-RCSI	ICC REINFORCED CONCRETE SPECIAL INSPECTOR
ICC-RCC	ICC REINFORCED CONCRETE CERTIFICATION
ICC-SMC	ICC STRUCTURAL MASONRY CERTIFICATION
ICC-SSWC	ICC STRUCTURAL STEEL AND WELDING CERTIFICATION
AWS-CWI	AMERICAN WELDING SOCIETY CERTIFIED WELDING INSPECTOR
ICC-SAFC	ICC SPRAY-APPLIED FIREPROOFING CERTIFICATION
ASNT	AMERICAN SOCIETY OF NON-DESTRUCTIVE TESTING – LEVEL II OR III
ICC-PCC	ICC PRESTRESSED CONCRETE CERTIFICATION

CATEGORY	MINIMUM QUALIFICATIONS OF INSPECTION AGENTS (MQIA)
A. REINFORCED CONCRETE	<ol style="list-style-type: none"> 1. CURRENT ICC REINFORCED CONCRETE SPECIAL INSPECTOR OR ACI CONCRETE CONSTRUCTION INSPECTOR 2. CONCRETE FIELD TESTING CAN BE BY AN ACI CONCRETE FIELD TESTING TECHNICAL WITH GRADE 1 CERTIFICATION 3. INTERN ENGINEER WITH RELEVANT EXPERIENCE 4. NEW YORK STATE REGISTERED PROFESSIONAL ENGINEER (PE) WITH RELEVANT EXPERIENCE
B. PRE-STRESSED CONCRETE	<ol style="list-style-type: none"> 1. CURRENT ICC REINFORCED CONCRETE CERTIFICATION AND ACI CONCRETE FIELD TESTING TECHNICAL WITH GRADE 1 CERTIFICATION PLUS ONE YEAR OF RELEVANT EXPERIENCE 2. INTERN ENGINEER WITH RELEVANT EXPERIENCE 3. PE WITH RELEVANT EXPERIENCE
C. POST-TENSIONED CONCRETE	<ol style="list-style-type: none"> 1. CURRENT POST-TENSIONING INSTITUTE (PTI) CERTIFICATION 2. INTERN ENGINEER WITH RELEVANT EXPERIENCE 3. PE WITH RELEVANT EXPERIENCE
D. WELDING	<ol style="list-style-type: none"> 1. CURRENT AWS CERTIFIED WELDING INSPECTOR 2. CURRENT ICC STRUCTURAL STEEL AND WELDING CERTIFICATE PLUS ONE YEAR OF RELEVANT EXPERIENCE 3. CURRENT LEVEL II CERTIFICATION FROM THE AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING (NDT) 4. CURRENT LEVEL III PROVIDED PREVIOUSLY CERTIFIED AS NDT LEVEL II
E. HIGH-STRENGTH BOLTING AND STEEL FRAME INSPECTION	<ol style="list-style-type: none"> 1. CURRENT ICC STRUCTURAL STEEL AND WELDING CERTIFICATE PLUS ONE YEAR OF RELEVANT EXPERIENCE 2. INTERN ENGINEER WITH RELEVANT EXPERIENCE 3. PE WITH RELEVANT EXPERIENCE
F. MASONRY	<ol style="list-style-type: none"> 1. CURRENT ICC STRUCTURAL MASONRY AND ONE YEAR OF RELEVANT EXPERIENCE 2. INTERN ENGINEER WITH RELEVANT EXPERIENCE 3. RDP OR PE WITH RELEVANT EXPERIENCE
G. SPRAYED FIRE-RESISTANT MATERIALS	<ol style="list-style-type: none"> 1. CURRENT ICC SPRAY-APPLIED FIREPROOFING CERTIFICATION AND ONE YEAR OF RELEVANT EXPERIENCE 2. INTERN ENGINEER WITH RELEVANT EXPERIENCE 3. RDP WITH RELEVANT EXPERIENCE
H. EXCAVATION AND FILLING VERIFICATION OF SOILS PILES AND DRILLED PIERS MODULAR RETAINING WALLS	<ol style="list-style-type: none"> 1. CURRENT LEVEL II CERTIFICATION IN GEOTECHNICAL ENGINEERING TECHNOLOGY/CONSTRUCTION FROM THE NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES (NICET) 2. INTERN ENGINEER WITH RELEVANT EXPERIENCE 3. PE WITH RELEVANT EXPERIENCE
I. INSPECTION OF FABRICATORS	<ol style="list-style-type: none"> 1. PRECAST: CURRENT ICC REINFORCED CONCRETE CERTIFICATION PLUS ONE YEAR OF RELEVANT EXPERIENCE 2. BAR JOISTS: SEE WELDING REQUIREMENTS 3. METAL BUILDINGS: SEE WELDING REQUIREMENTS 4. STRUCTURAL STEEL: SEE WELDING REQUIREMENTS
J. EXTERIOR AND INTERIOR ARCHITECTURAL WALL	<ol style="list-style-type: none"> 1. INTERN ENGINEER WITH RELEVANT EXPERIENCE 2. RDP WITH RELEVANT EXPERIENCE
K. EXTERIOR INSULATION AND FINISH SYSTEM	<ol style="list-style-type: none"> 1. INTERN ENGINEER WITH RELEVANT EXPERIENCE 2. RDP WITH RELEVANT EXPERIENCE

L. SMOKE CONTROL	1. EXPERTISE IN FIRE PROTECTION ENGINEERING, MECHANICAL ENGINEERING, AND CERTIFIED AS AN AIR BALANCER 2. THE RDP RESPONSIBLE FOR DESIGN
M. SEISMIC RESISTANCE	1 SEE APPLICABLE CATEGORIES IN THIS TABLE
N. GENERAL	1. QUALIFIED PERSON WITH ONE YEAR OF RELEVANT EXPERIENCE 2. INTERN ENGINEER WITH RELEVANT EXPERIENCE 3. RDP OR PE WITH RELEVANT EXPERIENCE

<u>SPECIAL CASES: MASONRY RESTORATION AND REPAIRS</u>					
✓	TYPE	MQIA	CONT.	PERIODIC	REFERENCED STANDARD
✓	VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS.	F.2, F.3		X	
✓	INSPECT INSTALLATION OF ANCHORS.			X 50%	ACI 318 Ch.20, 25.2, 25.3, 26.6.1 - 26.6.3
✓	INSPECT MASONRY REMOVALS AND REPAIRS:				
✓	A. INSPECT REMOVAL AREAS.			X 100%	
✓	B. INSPECT INSTALLATION OF PATCHES AND CRACK REPAIRS.		X 50%		
✓	C. DOCUMENT QUANTITY OF REPAIRS.			X 100%	
✓	VERIFY COMPLIANCE OF SAMPLE PANEL/MOCKUP.			X	
✓	PERFORM PULL-OUT TESTS ON RESTORATION ANCHORS.				
✓	A. TEST THREE ANCHORS FOR EACH PLANE OF THE BUTTRESS.			X 100%	

3.0 DOCUMENTATION

3.1 RECORDS AND REPORTS

A. Detailed reports shall be prepared of each test or inspection. The reports shall include the following general information:

1. Project name and number.
2. Date of test or inspection.
3. Name of Testing Agency or Inspecting Agency.
4. Name of technician or inspector.

5. Weather conditions.
6. Locations and elevations of specific areas tested or inspected referenced to building elevations and levels.
7. Description of test or inspection.
8. Reference to applicable ASTM standard.
9. Summary of observations, results, and recommendations.
10. Description of any areas or materials requiring retesting or re-inspection.

B. Test reports for masonry materials shall include proportions, composition, and compressive strength.

3.2 COMMUNICATION

- A. The Testing/Inspecting Agency shall immediately notify the Owner, Contractor, Special Inspector, and Registered Design Professional by telephone or email of any test results failing to comply with the requirements of the Contract Documents.
- B. The RCPRC or Special Inspector shall immediately notify the Contractor of any work found to be in nonconformance with the Contract Documents during inspections. If the nonconforming work is not corrected while the Special Inspector is on-site, the Special Inspector shall notify the Owner and Registered Design Professional within 24 hours (one business day) and issue a nonconformance report. The Special Inspector may use the Special Inspection Non-Conformance Report form at the end of this section or other similar form.
- C. If the nonconforming work is not corrected at the time of substantial completion of the structure or other appropriate time, the Special Inspector shall notify the Owner.

3.3 DISTRIBUTION OF REPORTS

- A. The Testing/Inspecting Agency shall submit reports to the Owner, Special Inspector and the Registered Design Professional within seven (7) days of the inspection or test. Reports may be submitted in the ePM system.
- B. The RCPRC or Special Inspector shall submit reports to the Owner and Registered Design Professional within seven (7) days of the inspections. Reports may be submitted in the ePM system.
- C. If requested by the Code Enforcement Official, the RCPRC or Special Inspector shall submit interim reports which include all inspections and tests performed since the beginning of construction or since the previous interim report. Interim reports shall be addressed to the Code Enforcement Official with copies sent to the Registered Design Professionals (Structural Engineer and Architect) and Contractor. Interim reports shall be signed by the agent performing inspections.

3.4 FINAL REPORT OF SPECIAL INSPECTIONS

- A. At the completion of Work, each Testing/Inspecting Agency shall electronically submit an Agent's Final Report of Special Inspections to the RDPRC or Special Inspector stating that work was completed in substantial conformance with the Contract Documents and that appropriate inspections and tests were performed. The Testing/Inspecting Agency may use the Agent's Final Report of Special Inspections form provided at the end of this section or other similar form.
- B. At the completion of Work, the RDPRC or Special Inspector shall compile all inspection and test reports generated by each Agent into a Final Report of Special Inspections. The Final Report of Special Inspections shall state that required inspections have been performed and shall itemize any nonconforming work not corrected or resolved.
- C. The Special Inspector may use the Final Report of Special Inspections form provided at the end of this section or other similar form based on CASE Form 102-2001.
- D. The Special Inspector shall submit The Final Report of Special Inspections to the Owner, Registered Design Professional and Code Enforcement Official prior to issuance of a Certificate of Completion.

SPECIAL INSPECTION NON-CONFORMANCE REPORT NO.

DATE: _____

TO:

CC: Contractor:

FROM: _____, Special Inspector

PROJECT: _____

PART I: REFERENCE SPECIAL INSPECTION REPORT NO.

(Attach copy of report)

DESCRIPTION OF NON-CONFORMANCE:

RDP RESPONSE: (PROVIDE ATTACHMENTS IF NECESSARY)

RDP SIGNATURE _____ DATE _____

IS RE-INSPECTION BY SPECIAL INSPECTOR REQUIRED YES NO

PART II: CONTRACTOR VERIFICATION (To be completed by either the *[General Contractor or Construction Manager]* or Subcontractor and returned to the Special Inspector and the RDP.)

I verify that as of the date listed, the non-conforming item noted above has been corrected as required.

Date Completed _____ By _____
(Contractor's Site Representative)

**MCFADDIN BUTTRESS
REPAIR + LEANING
CHIMNEY REMOVAL**

**CODE-REQUIRED
SPECIAL INSPECTIONS AND PROCEDURES**

**01 45 33-10
OCTOBER 28, 2025**

AGENT'S FINAL REPORT OF SPECIAL INSPECTIONS

Project Name: _____ Special Inspector: _____

Location: _____ Agent: _____

Special Inspector's Project: _____

Agent's Project: _____

To the best of my information, knowledge, and belief, the Special Inspections or testing required for this project and designated for this Agent in the Statement of Special Inspections (which includes the Schedule of Special Inspections) submitted for permit have been performed and discovered discrepancies have been reported and resolved other than the following:

Comments:

[Attach continuation sheets if required to complete description of uncorrected discrepancies.]

Respectfully submitted,
Agent of the Special Inspector

(Type or print name)

Signature _____ Date _____

Address

City, State, Zip

Design Professional Seal or Certification

FINAL REPORT OF SPECIAL INSPECTIONS AND STRUCTURAL OBSERVATIONS

Project Name: _____

Registered Design Professionals

Location: _____

Architecture:

Name
Address

Owner: CORNELL UNIVERSITY

Owner's Address:

Structural Engineering:

Name
Address

Special Inspector:

Name
Address

To the best of my information, knowledge, and belief, the Special Inspections required for this project and itemized in the Statement of Special Inspections (which includes the Schedule of Special Inspections) submitted for permit have been performed and discovered discrepancies have been reported and resolved other than the following:

Comments:

[Attach continuation sheets if required to complete description of uncorrected discrepancies.]

Interim reports submitted prior to this final report form a basis for and are to be considered an integral part of this final report. Agent's Final Reports of Special Inspections are attached and are also a part of this Final Report.

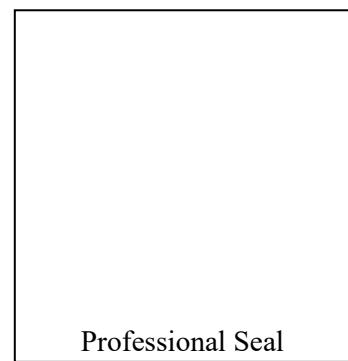
Respectfully submitted,

Special Inspector

(Type or print name)

Signature

Date



Professional Seal

END OF SECTION 01 45 33

SECTION 01 50 00 TEMPORARY FACILITIES AND CONTROLS

1.0 GENERAL

1.1 DESCRIPTION

- A. The Contractor shall furnish, install and maintain all temporary facilities and services of every kind, as required by the Contractor and by its Subcontractors for their performance of the Work and compliance with the Contract Documents, and shall remove such facilities and complete such services upon the completion of all other work, or as Cornell University may direct.
- B. The Contractor shall obtain all required permits and approvals for and shall provide, construct, or install, as well as operate, maintain, service and remove temporary facilities and services.

1.2 REQUIREMENTS OF REGULATORY AGENCIES

- A. Comply with Federal, State and local codes and safety regulations.

2.0 PRODUCTS

2.1 MATERIALS, GENERAL

- A. Choice of materials, as suitable for the accomplishment of the intended purpose, is the Contractor's option.
- B. Materials may be new or used, but must not violate requirements of applicable codes, standards and specifications.

2.2 TEMPORARY FIRST AID FACILITIES

- A. Provide first aid equipment and supplies, with qualified personnel continuously available to render first aid at the site.
- B. Provide a sign, posted at the telephone, listing the telephone numbers for emergency medical services: Physicians, ambulance services and hospitals.

2.3 TEMPORARY FIRE PROTECTION

A. Provide a fire protection and prevention program for employees and personnel at the site. Any fire watches as a result of construction operations are the responsibility of the Contractor. Comply with NFPA 241. Develop, manage, and supervise an overall fire-prevention and - protection program for personnel at Project site. Review needs with Cornell University Fire Marshall Office (UFMO) and local fire code official and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

1. Impairments “Fire Code of NYS Section 901.7”. Impairment; “the removal of fire alarm devices or sprinkler system coverage in a building.” There are two different levels of impairments
 - a. Partial Impairment. The removal of fire alarm devices or sprinkler system coverage via control valve in the immediate area of where work is to be performed.
 - Basic Impairment Notification will be sent to Local Authority Having Jurisdiction and FM Global.
 - No fire watch will be required unless the UFMO determines otherwise.
 - b. Full System Impairment. The complete removal of a fire alarm “system” or sprinkler “system”. Impairment of both the fire alarm system and sprinkler system at the same time is not allowed.
 - Full System Impairment Notification will be sent by the UFMO to local Authority Having Jurisdiction, FM Global, Ithaca Fire Department, Building Manager, Maintenance Manager, Customer Service, and Cornell Emergency Services.
 - Fire Watch staffing is the responsibility of the Contractor. The UFMO will require the Fire Watch person’s name(s) and contact information to prepare the required Fire Watch Documentation Form.

B. Equipment:

1. Provide and maintain fire extinguishing equipment ready for instant use at all areas of the Project and at specific areas of critical fire hazard.
2. Hand extinguishers of the types and sizes recommended by the National Board of Fire Underwriters to control fires from particular hazards.
3. Construction period use of permanent fire protection system.
4. Water hoses connected to an adequate water pressure and supply system to reach each area or level of construction upon building enclosure or heating of the building.

5. Maintain existing standpipes and hoses for fire protection. Provide additional temporary hoses where required to comply with requirements. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles. Provide hoses of sufficient length to protect construction areas.
6. Maintain unobstructed access to fire extinguishers, fire hydrants, fire department connections, standpipes, temporary fire-protection facilities, stairways, and other access routes for emergency response personnel.
7. Where existing or temporary fire protection services are being replaced with new fire protection services, do not remove or impair existing or temporary services until new services are tested, accepted, placed into operation and use, and directed by the UFMO and AHJ.
8. At earliest feasible date in each area of Project, complete installation of permanent fire-protection facility and systems, including connected services, and place into operation and use. Instruct key personnel on use of facilities. Protect and maintain permanent fire protection system. Repair or replace any components damaged during construction.

C. Enforce fire-safety discipline:

1. Store combustible and volatile materials in an isolated, protected location.
2. Avoid accumulations of flammable debris and waste in or about the Project.
3. Prohibit smoking in the vicinity of hazardous conditions.
4. There is NO SMOKING allowed on construction sites located in any occupied building. Smoking is prohibited in all Cornell University buildings.
5. Closely supervise welding and torch-cutting operations in the vicinity of combustible materials and volatile conditions.
6. Supervise locations and operations of portable heating units and fuel.

D. Maintain fire extinguishing equipment in working condition, with current inspection certificate attached to each extinguisher.

E. Welding or burning operations shall be conducted under a Hot Work Permit issued in accordance with Section 01 41 00. Where such work is permitted, the Contractor shall comply with Cornell EHS's *Contractor Guidelines for Hot Work* and provide an approved fire extinguisher in good operating condition within easy reach of the operating personnel. In each instance, obtain prior approval of Cornell University Environment, Health & Safety.

Contractor Guidelines for Hot Work, <https://ehs.cornell.edu/campus-health-safety/fire-and-life-safety/hot-work-and-welding-safety/general-contractor-guidelines-for-hot-work>

F. Advise Cornell University Environmental Health and Safety of any items affecting Life Safety, e.g., inoperable safety devices or systems, road blockages, exit closing, etc.

2.4 CONSTRUCTION AIDS

- A. Provide construction aids and equipment required to assure safety for personnel and to facilitate the execution of the Work; Scaffolds, staging, ladders, stairs, ramps, runways, platforms, railings, hoists, cranes, chutes, fall protection, harness, tie-off points, and other such equipment.
- B. When permanent stair framing is in place, provide temporary treads, platforms and railings, for use by construction personnel.
- C. Maintain all equipment in a safe condition.

2.5 SUPPORTS

- A. The Contractor shall include cost of all materials and labor necessary to provide all supports, beams, angles, hangers, rods, bases, braces, etc. to properly support the Contract Work. All supports, etc. shall meet the approval of the Architect.
- B. Any and all supports that are of "custom" fabrication or installation shall be designed by the Contractor's NYS licensed PE with stamped & signed shop drawings and calculations provided for same.

2.6 TEMPORARY ENCLOSURES

- A. Provide temporary weather-tight enclosure for building exterior, maintain in-place until installation of permanent enclosures. Provide temporary weather-tight enclosure of exterior walls as work progresses for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities, and as necessary to provide acceptable working conditions, provide weather protection for interior materials, provide weather protection for occupied areas, allow for effective temporary heating, and to prevent entry of unauthorized persons.
 1. Provide temporary exterior doors with self-closing hardware and padlocks or locksets.
 2. Other enclosures shall be removable as necessary for work and for handling of materials.
 3. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.
 4. Coordinate enclosure with ventilation requirements, material drying or curing requirements, and specified environmental limitations to avoid dangerous or detrimental conditions and effects.

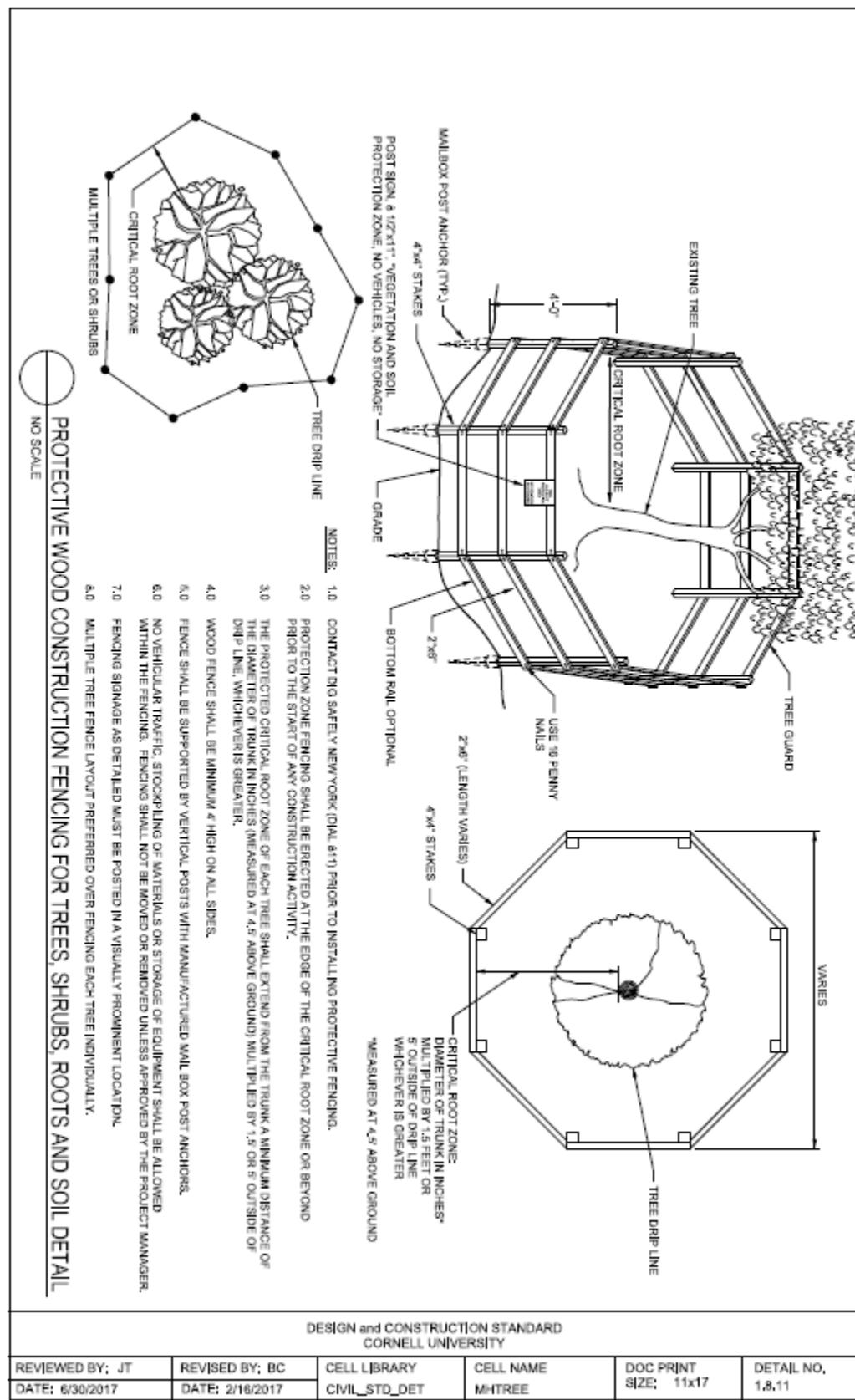
2.7 TEMPORARY WATER CONTROL

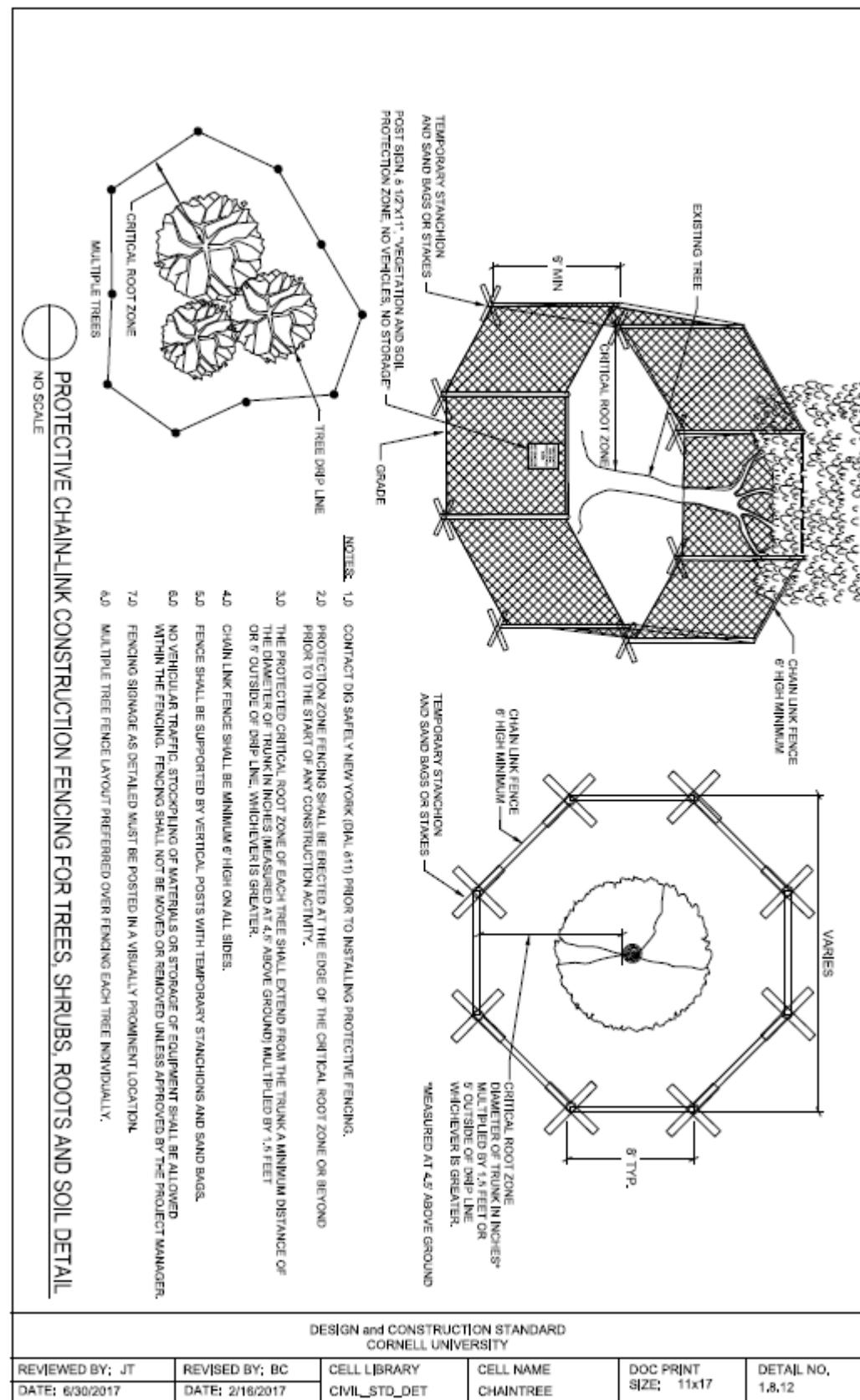
- A. The Contractor shall provide, maintain and operate pumps required to keep the Work free of water at all times.

B. Dispose of all water with due care and shall not infringe on the rights of others on the Site, of adjacent property owners and of the public. All cost in connection with the removal of such water shall be paid by the Contractor.

2.8 TREE, PLANT AND LAWN PROTECTION

- A. Preserve and protect existing trees, plants and lawns at the site which are designated to remain, and those adjacent to the site.
- B. Consult with Owner, and remove agreed-on roots and branches which interfere with construction.
 - 1. Employ certified arborist to remove, and to treat cuts.
- C. Provide temporary fences to a height of six feet, around each, or around each group of trees and plants. Provide temporary lawn protection to prevent soil compaction. Reference Cornell University Design Standards and Details for wood and chain fencing below.
- D. Protect root zones of trees, plants and lawn areas:
 - 1. Do not allow vehicular traffic or parking.
 - 2. Do not store materials or products.
 - 3. Prevent dumping of refuse or chemically injurious materials or liquids.
 - 4. Prevent puddling or continuous running water.
- E. Carefully supervise excavating, grading and filling, and subsequent construction operations to prevent damage.
- F. Replace, or suitably repair, trees, plants and lawn areas designated to remain which are damaged or destroyed due to construction operations.
- G. Roots 2 inches or larger that are damaged or cut during construction are to be sawed off close to the tree side of the excavation by certified arborist.
- H. During the leafing-out period in the spring, extra care should be exercised to reduce root damage such as keeping exposed roots wet, saturating soil when backfilling around roots, and backfilling as soon as possible.
- I. Consult Cornell University Grounds Department for mitigation of root or tree damage.





2.9 PERSONNEL, PUBLIC AND EMPLOYEE PROTECTION

- A. Provide guardrails, barricades, fences, footways, tunnels and other devices necessary to protect all personnel, employees, and the public, against hazards on, adjacent to or accessing the construction site.
 - 1. Provide signs, warning lights, signals, flags and illumination as necessary to alert persons to hazards and to provide safe, adequate visibility in areas of hazards.
 - 2. Closed sidewalks need to be indicated with OSHA-approved signs, as well as, proper barricades.
 - 3. Provide flag personnel as necessary to guide vehicles, protect personnel, public and employees.

2.10 ACCESS ROADS AND PARKING AREAS

- A. Provide adequate temporary roads and walks to achieve all-weather access into the site from public thoroughfares, and within and adjacent to the site as necessary to provide uninterrupted access to field offices, work and storage areas.
- B. Grade and provide drainage facilities to assure runoff of rainwater and to avoid blockage of flow from adjacent areas.
- C. During dry weather wet down temporary unpaved areas when necessary to prevent blowing dust.

2.11 PROJECT IDENTIFICATION AND SIGNS

- A. No Contractor signs to be displayed at the project site, unless authorized by the Owner.
- B. Owner Construction Project Sign. The Contractor shall install Owner provided project identification signage.

2.12 SECURITY

- A. The Contractor shall provide security services as required to protect the interests of the Owner.
- B. Locks applied to construction site gates and other access entrances shall be coordinated through the Project Manager to allow keys for emergency services.

2.13 FIELD OFFICES

- A. Provide a Field office facility as required to support the Contractor's and Owner's activity on the job site, including space, office equipment and utility hookups. Facilities shall be maintained in a condition so as not to detract from the overall Campus appearance. Installation shall be in a suitable location on the site as agreed to by the Owner.

- B. Costs shall be based on either purchase price or total anticipated rental, whichever is lower. The quantity and rental rates of all Field office facilities, whether rented from third parties or owned by the Contractor, shall be subject to the prior written approval of Cornell.
- C. Field Office shall include at a minimum the following:
 - 1. Furnishings and space for small progress meetings.
 - 2. Provide office equipment (conference table and chairs; and desks and chairs) as needed and required by Contractor.
 - 3. Provide adequate artificial lighting, heating and cooling to provide comfortable conditions for occupants.
 - 4. Provide data and internet connections as required. Connection and disconnection fees, as well as monthly charges for data are the responsibility of Contractor.
 - 5. Provide janitorial services
 - 6. Skirting shall be required on all temporary job site trailers.
 - 7. Provide adequate parking for three (3) Cornell University employees. The field office shall accommodate private space for three (3) staff members and conference space.
- D. Provide a designated break area within the project site limits to minimize interaction between construction personnel and the Campus community.
- E. Within fifteen (15) days of execution of the contract, contact Cornell Facilities Inventory Office to acquire a valid facility code and address for all on-site construction trailers. Such identification is required for the Campus Police 911 Emergency Response System.

3.0 EXECUTION

3.1 PREPARATION

- A. Consult with Owner, review site conditions and factors which affect construction procedures and temporary facilities, including adjacent properties and public facilities which may be affected by execution of the Work.
 - 1. Designate the locations and extent of temporary construction, storage, and other temporary facilities and controls required for the expeditious accomplishment of the Work.
 - 2. Allow space for use of the site by Owner and by other contractors, as required by Contract Documents.

3.2 GENERAL

- A. Comply with applicable requirements specified in sections of Division 02 through 40.

- B. Make work structurally, mechanically and electrically sound throughout.
- C. Install work in a neat and orderly manner.
- D. Maintain, clean, service and repair facilities to provide continuous usage, and to the quality specified for the original installation.
- E. Relocate facilities as required by progress of construction, by storage or work requirements, and to accommodate requirements of Owner and other contractors employed at the site.
- F. Keep the site, at all times during the progress of the Work, free from accumulation of waste matter or rubbish and shall confine its apparatus, materials and operations of its workers to the limits prescribed except as the latter may be extended with the approval of the Owner's Representative. Cleaning of the structure or structures must be performed daily and removal of waste matter or rubbish must be performed at least once a week.
- G. Contractor shall at all times keep access road and public roads clean of mud and construction debris and maintain dust control to the satisfaction of the Owner.

3.3 REMOVAL

- A. Completely remove temporary structures, materials, equipment and services:
 - 1. When construction needs can be met by use of permanent construction.
 - 2. At completion of the Project.
- B. Repair damage caused by installation or use of temporary facilities. Clean after removal.
- C. Restore existing or permanent facilities used for temporary purposes to specified, or to original condition.
 - 1. Remove foundations and underground installations for temporary construction and utilities.
 - 2. Grade the areas of the site affected by temporary installations to required elevations and slopes, and clean the area.

*****END OF SECTION 01 50 00*****

SECTION 01 51 00 TEMPORARY UTILITIES

1.0 GENERAL

1.1 DESCRIPTION

- A. The Contractor shall furnish, install and maintain temporary utilities required by all trades for construction. Remove on completion of the Work.
- B. The Contractor shall provide all labor and materials for temporary connections and distribution.

1.2 REQUIREMENTS OF REGULATORY AGENCIES

- A. Comply with National Electric Code, current edition.
- B. Comply with Federal, State and local codes and safety regulations and with utility company requirements.

2.0 PRODUCTS

2.1 MATERIALS, GENERAL

- A. Materials may be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

2.2 TEMPORARY ELECTRICITY, LIGHTING AND WATER

- A. The Contractor shall have access to the Owner's water and electric power for constructing the Work. Temporary utility connections shall be made by the Contractor as close to its operations as possible as long as such connections do not over-load the capacity of the Owner's utilities or interfere with its customary utilization thereof. Utility access points shall be determined in cooperation with and acceptable to the Owner.
- B. The Contractor shall be responsible for the economic use of the Owner's Water and Power. The Owner will pay for the water and power consumed in the construction of the Work as long as economical usage of these utilities is maintained. The Owner reserves the right to meter and charge for the power and water consumed if in the opinion of the Owner the usage of these utilities is not economically conducted by the Contractor. In such an event, the Owner shall give three (3) days written notice to the Contractor of its intentions to meter and charge for temporary utilities used by the Contractor.
- C. All temporary power systems including wiring shall be removed by the Contractor when no longer required.

D. The minimum temporary lighting to be provided is at the rate of fifty foot candles, is to be maintained in each room and changed as required when interior walls are being erected. The required temporary lighting must be maintained for twenty-four (24) hours a day and seven (7) days a week at all stair levels and in all corridors below ground; in any and all egress; in all other spaces temporary lighting is to be maintained only during working hours. All temporary wiring and equipment shall be in conformity with the National Electric Code.

E. The minimum temporary outdoor security lighting to be provided is as follows:

1. Along the perimeter of the site fence, consisting of vandal-resistant light fixtures with HID lamps, located 150 foot center, mounted on the inside of the construction fence.
2. Lighting for temporary pedestrian paths and roadways, to provide a minimum of 0.1 foot-candle on the path of travel.

F. Three-phase temporary power circuits shall be installed as required to operate construction equipment of the various trades and to install and test equipment such as pumps and elevators. The Contractor shall install and maintain temporary or permanent service for the permanently installed building equipment such as sump pumps, boilers, boiler controls, fans, pumps, so that such equipment may be operated when required and so ordered by the Owner's Representative for drainage or for temporary heat.

G. Except as otherwise provided in the Contract, the Contractor shall submit to the Owner or the Owner's Representative for approval a proposed schedule of all utility shutdowns and cutovers of all types which may be required in connection with the Work. Such schedule shall provide a minimum of two (2) weeks advance notice to the Owner prior to the time of the proposed shutdown and cutover. The Contractor shall be responsible for all charges relating to shutdowns.

H. Discontinuance, Changes and Removal

The Contractor shall:

1. Discontinue all temporary services required by the Contract when so directed by the Owner or the Owner's Representative. The discontinuance of any such temporary service prior to the completion of the Work shall not render the Owner liable for any additional cost entailed thereby.
2. Remove and relocate such temporary facilities as directed by the Owner or the Owner's Representative, and shall restore the Site and the Work to a condition satisfactory to the Owner.

2.3 TEMPORARY CONTRACTOR TELEPHONE SERVICE

- A. Site Superintendent or their Representative shall carry a cellular telephone at all times.
- B. Provide phone number to Cornell project representatives for communication during Work.

2.4 TEMPORARY SANITARY FACILITIES

- A. Provide adequate toilet and washing facilities for the use of personnel and employees; locate convenient to work stations.
- B. Existing plumbing facilities shall not be used by construction personnel.
- C. Facilities may be portable chemical-type toilets or temporary flush toilets connected to sanitary sewer, screened for privacy.
- D. Service, clean and maintain facilities and enclosures in a neat, clean and sanitary condition.

3.0 EXECUTION

3.1 REMOVAL

- A. Completely remove temporary materials and equipment when their use is no longer required.
- B. Clean and repair damage caused by temporary installations or use of temporary facilities.
- C. Restore existing and permanent facilities used for temporary services to specified, or to original, condition.

*****END OF SECTION 01 51 00*****

SECTION 01 57 13 SOIL EROSION AND SEDIMENT CONTROL

1.0 GENERAL

1.1 DESCRIPTION

- A. The Contractor shall be responsible for preparing and implementing an Erosion and Sediment Control Plan.
- B. This Section describes minimum standards for the prevention and control of erosion during the construction process and may not be sufficient for all sites. The Contractor shall remain responsible for the means and methods of preventing erosion and may be required to employ additional means and methods as required to prevent violations of local, state, or federal standards.
- C. Contractor shall be responsible for regulatory fines and/or delays resulting from Contractor's failure to adhere to the plan or correct deficiencies identified during inspections.

1.2 SUBMITTALS

- A. Submit an Erosion and Sediment Control Plan, as specified herein.
- B. Refer to Section 01 33 00 – Submittal Procedures.

1.3 PLAN AND IMPLEMENTATION GENERAL REQUIREMENTS

- A. Plan shall comply with design specifications in the New York Guidelines for Urban Erosion and Sediment Control, NYS Stormwater Management Design Manual, NYSDEC Technical and Operational Guidance Series, local storm water codes, good engineering practices, and this Section.
- B. Erosion and Sediment Control Plan shall be reviewed and approved by the Environment, Health and Safety Office, and implemented prior to any site work. Contact information for EHS can be found at: <https://ehs.cornell.edu/about-us/contact-us>
- C. Maintain Erosion and Sediment Control measures throughout the course of site construction activities until vegetative growth is established to the Owner's satisfaction.
- D. At conclusion of the Project, remove all remaining temporary erosion control structures and properly dispose of accumulated sediment on-site in areas approved by the Owner.

1.4 PERFORMANCE STANDARDS

- A. At no time shall construction operations or any related disturbance of the site result in the impairment of local waterways. "Impairment" is defined by regulations as including, but not limited to, the following:

1. The release of water into receiving waters that causes a substantial visible contrast to natural conditions; or
2. The deposition of significant sediment into such waters.

B. Such deficiencies shall be corrected immediately by the Contractor to prevent further impairment.

C. In addition, and without notice to the Contractor, the Owner shall also have the right, based on the Owner's independent assessment, to stop work or engage other contractor(s) to construct or correct such work as may be necessary to prevent the impairment of waterways, and to charge all costs related to such corrective or additional actions against the Contract.

D. Acceptance of an Erosion and Sediment Control plan shall not in any way imply that the plan will be adequate in preventing impairment of waters, or that maintenance and modification will not be necessary. Rather, acceptance of the plan authorizes the Contractor to begin installation of the control measures under the assumption the appropriate maintenance and modification will be required throughout the life of the project to meet the project requirements.

E. The Contractor's responsibilities under this Section shall end upon final completion and payment of the Work of the entire Contract.

1.5 EROSION AND SEDIMENT CONTROL PLAN COMPONENTS

A. The Erosion and Sediment Control Plan submitted shall specifically address project measures, features, and areas critical to proper site erosion and sediment control. The Plan shall specifically include, but are not limited to, the following:

1. Site Map, to scale;
2. Measures to prevent stormwater from running onto the disturbed areas of the site;
3. Inlet protection for storm sewers and catch basins;
4. Measures to be used for dewatering; and
5. Measures to be used for soil stabilization, runoff control, and sediment control, including specific measures for the following:
 - a. Site entrance stabilization
 - b. Staging areas
 - c. Material and soil stock piles
 - d. Concrete curing operations
 - e. Disturbed areas of the site

In addition to the requirements included in these specifications, specific erosion control measures shown on the Contract Drawings, if any, shall also be required.

- B. All features shall be designed and installed in accordance with the references included in Paragraph 1.3 – Plan and Implementation General Requirements of this Section.
- C. Keep access roads and public roads clear of mud and construction debris at all times. Maintain dust control measures throughout construction.

1.6 INSPECTIONS

- A. At the sole discretion of the Owner, inspections may be performed by a third party or on-staff representative of the Owner.
 - 1. The Owner may inspect the site at any time, without prior notification, for compliance with the Erosion and Sediment Control Plan and applicable local, state and federal regulations. Any instances of non-compliances or failure to meet the performance standards found must be resolved within 24 hours, with more immediate responses as required to mitigate active erosion during storm events or similar instances.
 - 2. Modify the Erosion and Sediment Control Plan as necessary, to provide full compliance with the performance standards.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION – NOT USED

*****END OF SECTION 01 57 13*****

SECTION 01 66 00 STORAGE AND PROTECTION

1.0 GENERAL

1.1 DESCRIPTION

- A. Receive, pile, store and handle all materials, equipment and other items incorporated or to be incorporated in the Work, including items furnished by the Owner in a careful and prudent manner and shall protect them against loss or damage from every source.
- B. Obscure from public view, in a manner acceptable to the Owner, staging and storage areas.

1.2 TRANSPORTATION AND HANDLING

- A. Transport and handle products in accordance with manufacturer's instructions; using means and methods that will prevent damage, deterioration, and loss, including theft.
- B. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction space.
- C. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
- D. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installation.
- E. Promptly inspect shipments to assure that products comply with requirements, quantities are correct and products are undamaged.
- F. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement or damage.

1.3 ON-SITE STORAGE

- A. Materials stored on the Site shall be neatly piled and protected, and shall be stored in a neat and orderly manner in locations that shall not interfere with the progress of the Work or with the daily functioning of the Institution.
- B. Materials subject to weather damage shall be protected against the weather by floored weatherproof temporary storage sheds.
- C. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.

- D. Storage piles and sheds shall be located within the area designated as the Staging Area. The Contractor shall work to ensure that the condition of the staging area has no negative impact on the Campus, visually or otherwise; and that outside of that area. The Contractor has no impact at all on the Campus.
- E. Materials stored within the building shall be distributed in such a manner as to avoid overloading of the structural frame, and never shall be concentrated in such a manner as to exceed the equivalent of 50 pounds per square foot uniformly distributed loading. Stored materials shall be moved if they interfere with the progress of the Work.
- F. Should it become necessary during the course of the Work to move stored materials or equipment, the Contractor, at the direction of the Owner or the Owner's Representative, shall move such materials or equipment.

1.4 CAMPUS SITE / BOOKBANK DRIVE STORAGE

- A. All property including construction materials and equipment stored at the Bookbank Drive or other Campus site, shall be stored at the Contractor's sole risk. The Contractor is solely responsible for repair or replacement of property due to any cause of loss. Due to work at the Bookbank Drive lot, staging space is limited and not guaranteed to be provided. If staging space is needed, a request should be submitted to the Project Manager.
- B. The Contractor agrees to hold Cornell harmless from any accident or injury occurring at Bookbank Drive storage or other assigned Campus site associated with the Contractor's storage.
- C. The Contractor understands that Cornell makes "no" warranty regarding any security at the Bookbank Drive or other assigned Campus site.
- D. The Contractor agrees that it is solely responsible for any cleanup of any site contamination caused by the Contractor's storage or storage operations and the Contractor agrees to pay for cleanup of any contamination and restore the site back to the same condition it was found.
- E. It shall be assumed that the Contractor is responsible for site contamination unless the Contractor has reported condition prior to moving storage materials and equipment onto the site. Each Contractor shall be responsible for their own general area whether defined formally or not but in cases where pollutants have traveled or are found in the public areas used by all contractors, the Contractor agrees as follows:
 - 1. If it cannot be determined who is responsible for site contamination after an investigation, all contractors who could be responsible based upon location of the incident agree to share the expense of cleanup equally.
- F. No storage of hazardous materials or environmental contaminants is permitted at the Bookbank Drive or any Campus site. All barrels must have labels affixed identifying contents.

- G. The Contractor will be responsible for securing and maintaining any Campus site area designated to them. All contractor trailers or storage containers located on Cornell Campus Property will need to file for a building permit with the Town of Ithaca. If the trailer/container is there longer than 180 days, the trailer/container will need to meet the Building Code requirements of a permanent structure. The trailer/container will need a means of egress that can be operated from the inside and a fire extinguisher. The contractor will also need to file for a demolition permit when the trailer/container is removed
- H. Unoccupied storage containers not within the project fence shall be labeled in the Cornell standard.

1.5 PROTECTION

- A. The Contractor shall provide security personnel and adopt other security measures as may be necessary to adequately protect materials and equipment stored at the site. The Contractor shall be obligated to replace or pay for all materials and equipment including items furnished by the Owner which have been damaged or stolen prior to completion of the Work.
- B. Protection of Utilities
 - 1. If during the course of the Project, it is necessary to work adjacent to existing utilities, pipelines, structures and equipment, the Contractor shall take all necessary precautions to protect existing facilities from damage.
 - 2. Locations of utilities as shown on the Contract Documents are approximate only. The Contractor shall excavate or otherwise locate to verify existing utilities in advance of its operation.
- C. Protective Covering
 - 1. All finished surfaces shall be protected by the Contractor as follows:
 - a. Door and windowsills and the jambs and soffits of openings used as passageways or through which material is handled, shall be cased and protected adequately against possible damage resulting from the conduct of the work of all trades.
 - b. All surfaces shall be clean and not marred upon delivery of the building to the Owner. The Contractor shall, without extra compensation, replace all blocks, gypsum board, plaster, paint, tile, and all other surfaces, whether or not protected, which are damaged, and shall refinish (including painting as specified) to satisfaction of Owner.
 - c. Tight wood sheathing shall be laid under any materials that are stored on finished concrete surfaces and planking must be laid before moving any materials over these finished areas. Wheelbarrows used over such areas shall have rubber tires on wheels.
 - d. Contractor has the responsibility for protection of carpeting and all finish flooring during all phases of the Work including after installation.

- e. All floors exposed to view as a floor finish shall be protected by overlaying with plywood in all areas subject to construction traffic within and without the building, special care shall be taken to protect all stair finish surfaces including but not limited to flooring, wood in-fill stairs, cabinetry, counters, equipment, etc.

1.6 PROTECTION AFTER INSTALLATION

- A. Protect installed products, including Owner-provided products, and control traffic in immediate area to prevent damage from subsequent operations.
- B. Provide protective coverings at walls, projections, corners, and jambs, sills, and soffits of openings in and adjacent to traffic areas.
- C. Cover walls and floors of elevator cabins, and jambs of cab doors, when elevators are used by construction personnel.
- D. Protect finish floors and stairs from dirt, wear, and damage:
 1. Secure heavy sheet goods or similar protective materials in place, in areas subject to foot traffic.
 2. Lay planking or similar rigid materials in place, in areas subject to movement of heavy objects.
 3. Lay planking or similar rigid materials in place, in areas where storage of products will occur.
- E. Protect waterproofed and roofed surfaces:
 1. Restrict use of surfaces for traffic of any kind, and for storage of products.
 2. When an activity is mandatory, obtain recommendations for protection of surfaces from manufacturer. Install protection and remove on completion of activity. Restrict use of adjacent unprotected areas.
- F. Restrict traffic of any kind across planted lawn and landscape areas.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION – NOT USED

*****END OF SECTION 01 66 00**

SECTION 01 73 29 CUTTING, PATCHING AND REPAIRING

1.0 GENERAL

1.1 DESCRIPTION

- A. The Contractor shall be responsible for all cutting, fitting and patching, including excavation and backfill, required to complete the Work or to:
 - 1. Make sure several parts fit together properly.
 - 2. Uncover portions of the Work to provide for installation of ill-timed work.
 - 3. Remove and replace defective work.
 - 4. Remove and replace work not conforming to requirements of Contract Documents.
 - 5. Remove samples of installed work as specified for testing.
 - 6. Repair or restore existing or new surfaces and finishes to match adjacent existing or new surfaces and finishes.
- B. Upon written instructions of the Owner's Representative:
 - 1. Uncover designated portions of Work for Architect's observation of covered work.
 - 2. Remove samples of installed materials for testing beyond that specified.
 - 3. Remove Work to provide for the alteration of previously incorrectly installed work.
 - 4. Patch work uncovered or removed.
- C. Do not damage or endanger any Work by cutting or altering the Work or any part thereof.
- D. Do not cut or otherwise alter the Work of the Owner except with the written consent of the Owner's Representative.
- E. Where cutting and patching involves adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with the original structure.
- F. Openings and Chases
 - 1. Build openings, including but not limited to channels, chases and flues as required to complete the Work as set forth in the Contract.
 - 2. After installation and completion of any work for which openings have been provided, build in, over, and around and finish all such openings as required to complete the Work.

3. Furnish and install all sleeves, inserts, hangers and supports required for the execution of the Work.

1.2 SUBMITTALS

- A. Submit a written request to the Architect prior to executing any cutting, alteration or excavation which affects the Work of the Owner, or which may affect the structural safety of any portion of the Project. Include:
 1. Identification of the Project.
 2. Description of the affected Work.
 3. The necessity for doing the cutting, alteration or excavation.
 4. The effect on the Work of the Owner's property, or on the structural integrity of the Project.
 5. Description of the proposed Work:
 - a. The scope of cutting, patching, alteration, or excavation.
 - b. Contractor and trades who will execute the work.
 - c. Products proposed to be used.
 - d. The extent of refinishing to be done.
 6. Alternatives to cutting, patching or excavation.
 7. Designation of the responsibility for the cost of cutting and patching.
 8. Written permission of any separate contractor whose work will be affected.
- B. Should conditions of the Work or the schedule indicate a change of products from the original installation, submit a request for substitution as specified in Section 01 25 00 - Substitutions and Product Options.
- C. Submit a written notice to the Architect and the Owner designating the date and the time the Work will be uncovered.

1.3 QUALITY ASSURANCE

- A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would change their load-carrying capacity for load-deflection ratio.
 1. Obtain written approval of the cutting and patching proposal before cutting and patching structural elements, including but not limited to the following:
 - a. Foundation construction

- b. Bearing and retaining walls
- c. Structural concrete
- d. Structural steel and lintels
- e. Structural decking
- f. Miscellaneous structural metals
- g. Exterior wall back-up supports and anchoring systems
- h. Piping, ductwork, vessels, and equipment supports
- i. Equipment supports

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

1. Obtain written approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:
 - a. Primary operational systems and equipment
 - b. Air or smoke barriers
 - c. Water, moisture, or vapor barriers
 - d. Membranes and flashings
 - e. Fire protection systems
 - f. Control systems
 - g. Communication systems
 - h. Electrical wiring systems
 - i. Operating systems of special construction for MEP work

C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in the Owner's opinion, reduce the building's aesthetic qualities. Do not cut and patch construction in a manner that would result in visual evidence of cutting and patching. Remove and replace construction which was cut and patched in a visually unsatisfactory manner at no expense to the Owner.

D. Waterproofing and Water Tightness: Do not cut or alter waterproofed walls or floors or any structural members without written permission of the Owner.

1. Waterproofing and Roofing Membranes

- a. Employ qualified contractors to accomplish all required cutting, patching, or repairing of existing waterproofing and roofing membranes.
- b. Before beginning cutting, patching or repairing of existing waterproofing and roofing membranes, obtain approval of all materials, methods and contractor to be used from the Owner and agency, or agencies, holding bond or guarantee/warranty in force for membrane.

2. Water Tightness
 - a. The Contractor shall be responsible for water tightness of product, materials, and workmanship, including work specified to be watertight and inferred by general practice to be watertight.
 - b. All floors (slabs), walls, roof, glazing, windows, doors, sleeves through foundation walls, flashings, and similar items shall be watertight.
 - c. If details or materials shown or specified are felt not satisfactory to produce water tightness, the Contractor shall inform the Owner's Representative before installation and submit proposed substitution or alternative method for review and approval. The Contractor shall execute approved change and make watertight at no additional cost to the Owner.

1.4 WARRANTIES

- A. Replace, patch, and repair material and surfaces cut or damaged by methods and with materials in such a manner as not to void any warranties required or existing.

2.0 PRODUCTS

2.1 MATERIALS

- A. Comply with the Contract Documents for each product involved.
- B. Use materials identical to in-place or existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible. If identical materials are unavailable or cannot be used, use materials whose installed performance will equal or surpass that of in-place or existing materials, and will match visual appearance of in-place or existing materials.

3.0 EXECUTION

3.1 INSPECTION

- A. Inspect existing conditions of the Project, including elements subject to damage or to movement during:
 1. Cutting and patching.

2. Excavation and backfilling.
- B. After uncovering Work, inspect the conditions affecting the installation of products, or performance of the Work.
- C. Report unsatisfactory or dubious conditions to the Architect in writing; do not proceed with the Work until the Architect has provided further instructions.

3.2 PREPARATION

- A. Provide shoring, bracing and other support as necessary to assure the structural safety of that portion of the Work.
- B. Provide devices and methods to protect other portions of the Project from damage.
- C. Provide for vertical and lateral support required to protect adjacent buildings and properties.
- D. Provide protection from the elements for that portion of the Project which may be exposed by cutting and patching work, including but not limited to pumping to maintain excavations free from water.
- E. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- F. Avoid cutting existing pipe, conduit, or ductwork serving the building but scheduled to be removed or relocated until provisions have been made to bypass them.

3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
 1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction using methods which will assure safety, will be least likely to damage elements retained or adjoining construction, and will provide proper surfaces to receive new work.
 1. In general, where cutting, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
 3. Cut through concrete and masonry using a cutting machine, such as a carbon saw or a diamond-core drill.

4. Comply with the requirements of applicable MEP work where cutting and patching of services is required.

C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.

1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.

2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

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

3. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes:

- a. For continuous surfaces, refinish to nearest intersection.

- b. For an assembly, refinish the entire unit.

4. When patching existing plaster finished walls and partitions, the Contractor shall utilize plaster trim, lath and other metal components to match the integrity of the existing system. All plaster finishes shall match existing finishes so as to provide a uniform visual appearance.

5. Floors and Walls: Where walls or partitions that are demolished extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

- a. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.

6. Ceilings: Patch, repair, or re-hang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

7. Concrete Masonry Units: Patch walls by toothng-in units using salvaged or new CMU units matching in-place units for type and size. Match coursing patterns, mortar joint profiles, and other features of in-place CMU walls. Use accessory materials compatible with in-place materials.

8. Brick and Masonry: Patch walls by toothng-in units using salvaged or new brick and masonry matching in-place brick and masonry units. Match coursing patterns, mortar joint profiles, and other features of in-place brick and masonry walls. Use accessory materials compatible with in-place materials.

9. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weather-tight condition.
 - a. Existing Roofing: Comply with requirements of existing roofing manufacturer for cutting and patching existing roofing system. Provide flashing and trim, base sheets, base flashing, adhesives, insulation, blocking, substrate boards, accessories, and other required items to patch roofing at penetrations and roof-top mounted items.
- D. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
 1. Completely fill holes and depressions in existing masonry walls that are to remain with an approved masonry patching material applied according to manufacturer's written recommendations.
- E. Execute excavating and backfilling by methods which will assure safety, will prevent settlement or damage to other work.
- F. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances and finishes.
- G. Restore Work which has been cut or removed; install new products to provide completed Work in accordance with requirements of Contract Documents.
- H. The Contractor shall replace, repair and patch all surfaces of the ground, and of any structure disturbed by its operations and its Work, which surfaces and structures are intended to remain, even if such operations and work are outside the property lines. Such replacement, repair and patching shall be with like material and shall restore surfaces as they existed.

3.4 CLEANING

- A. Clean area and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar items. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.
- B. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

*****END OF SECTION 01 73 29*****

SECTION 01 77 00 PROJECT CLOSEOUT

1.0 GENERAL

1.1 INSPECTIONS

A. Substantial Completion:

1. Within a minimum of five (5) days prior to substantial completion, when the Work has reached such a point of completion that the building or buildings, equipment and apparatus can be occupied and used for the purpose intended, the Contractor shall conduct a detailed inspection of the Work to ensure that all requirements of the Contract have been met and that the Work is complete and is acceptable. Contractor shall prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
2. After receipt of the Contractor's initial punch list, the Architect will make an inspection of the Work to determine that the Work is substantially complete and that requirements of the Contract have been met and that the Work is sufficiently complete and is acceptable for use. The Architect will submit a marked-up list of items to be completed and/or corrected, inclusive of the Contractor's punch list, with an estimated dollar value for each item.
3. The Architect shall prepare a Certificate of Substantial Completion, template provided by the Owner, on the basis of an inspection, when the Architect has determined that the Work is substantially complete.
4. A copy of the report of the inspection will be furnished to the Contractor as the inspection progresses so that the Contractor may proceed without delay with any part of the Work found to be incomplete or defective.
5. All work performed under a Fire Protection System Installation/Alteration Operating Permit shall be inspected by the Ithaca Fire Department, or if so delegated by the Ithaca Building Department and the Owner's Environmental Health and Safety Department.
 - a. A member of the Ithaca Fire Department shall witness all acceptance or reacceptance testing of work performed under a Fire Protection System Installation Operating Permit. All testing and inspections shall be in compliance with the applicable NFPA codes as referenced by Section 906.1 of the Fire Code of NYS.
 - b. Work classified as a 'Repair' under the Existing Building Code does not require the Ithaca Fire Department to witness the testing of the affected systems. Systems that have been repaired must still be tested as required by the Fire Code of NYS and NFPA.
 - c. The Ithaca Fire Department Shall Witness the Acceptance or Reacceptance Testing for the Following Conditions:

- Testing of any new installation of a fire alarm, fire suppression, or fire detection system as required by the Fire Code of New York State.
- Hydrostatic testing of sprinkler system where the modification affects more than twenty (20) sprinkler heads and the modified area can be isolated from the rest of the system
- Installation or replacement of a fire pump or drive elements of the fire pump.
- A Fire Alarm System with added or deleted components.
- A Fire Alarm System where the wiring or control circuits have been modified.
- A Fire Alarm System where the control unit (Fire Alarm Panel) has been replaced or the control unit software has been replaced.
- A smoke control system where the master control unit, individual fan control unit, or fan drive unit has been replaced or modified.
- An alternative fire suppression system that has been replaced or the actuation elements have been modified. Except: fusible link replacement.
- A modification or extension of the piping for a fire standpipe system where a hydrostatic test is required by NFPA 14.

B. Final Acceptance:

1. When the items appearing on the report of inspection have been completed or corrected, the Contractor shall so advise the Architect. After receipt of this notification and Contractor's certified list of completed items, the Owner's Representative will inform the Contractor of the date and time of final inspection. A copy of the report of the final inspection containing all remaining contract exceptions, omissions and incomplete Work will be furnished to the Contractor.
2. After receipt of notification of completion and all remaining contract exceptions, omissions and incomplete Work from the Contractor, the Architect will make an inspection to verify completion of the exception items appearing on the report of final inspection.

1.2 SUBMITTALS

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

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor, listing by room or space number. Organize items applying to each space by major element, including categories for individual exterior face elevations, ceilings, individual walls, floors, doors, roof levels, casework, equipment, and building systems.

- B. Contractor's Certified List of Completed Items: Final signed punch list submittal at Final Completion.
- C. Certificates of Release: Occupancy permits from authorities having jurisdiction.

1.3 FINAL CLEAN UP

- A. Upon completion of the Work covered by the Contract the Contractor shall leave the completed Project ready for use and occupancy without the need of further cleaning of any kind and with all Work in new condition and in perfect order. In addition, upon completion of all Work, the Contractor shall remove from the vicinity of the Work all plant, buildings, rubbish, unused materials, concrete forms and other materials belonging to him or used under its direction during construction or impairing the use or appearance of the property and shall restore such areas affected by the Work to their original condition, and, in the event of its failure to do so, the same shall be removed by the Owner at the expense of the Contractor, and the Contractor and/or its surety shall be liable therefore. Final clean-up shall include but not be limited to the following:
 - 1. All finished surfaces shall be swept, dusted, washed and polished. This includes cleaning of the Work of all finishing trades where needed, whether or not cleaning by such trades is included in their respective sections of the specifications.
 - 2. Roofs, utility tunnels, manholes and pipe trenches and spaces between the new and existing Work shall be left thoroughly cleaned.
 - 3. Finished flooring shall be thoroughly cleaned in accordance with the manufacturer's recommendations.
 - 4. Where the finish of floors has been marred or damaged in any space or area, the entire floor of that space or area shall be refinished as recommended by the manufacturers of the flooring.
 - 5. All equipment shall be in an undamaged, bright, clean, polished and new appearing condition.
 - 6. All new glass shall be washed and polished, both sides. The Contractor shall be responsible for all breakage of glass in the area of the Work from the commencement of its activities until the building is turned over to Owner. The Contractor shall replace all broken glass and deliver the entire building with all glazing intact and clean.
 - 7. Provide new filters for all fan convectors after final cleaning.
 - 8. Refer to exterior clean up. Remove paint and glazing compound from surfaces.
- B. Clean adjacent structures and improvements of dust, dirt, and debris caused by construction operations. Return adjacent areas to condition existing before construction operations began.

1.4 MAINTENANCE STOCK

A. Turn over to Owner's Representative the maintenance stock specified. Contractor shall obtain signed receipt from Owner's Representative for all maintenance stock.

1.5 ON-SITE CONSTRUCTION TRAILER REMOVAL

A. Within fifteen (15) days of removal of on-site construction trailers, contact Cornell Facilities Inventory Office to notify them of removal to allow for updating of Campus Police 911 Emergency Response System.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION – NOT USED

END OF SECTION 01 77 00

SECTION 01 78 36 WARRANTIES AND BONDS

1.0 GENERAL

1.1 DESCRIPTION

The Contractor shall:

- A. Compile specified warranties and bonds.
- B. Compile specified service and maintenance contracts.
- C. Co-execute submittals when so specified.
- D. Review submittals to verify compliance with Contract Documents.
- E. Submit to Architect for transmittal to Owner.

1.2 SUMMARY

- A. This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturers standard warranties on products and special warranties.
 1. Refer to the General Conditions for terms of the Contractor's special warranty of workmanship and materials.
 2. General closeout requirements are included in Section 01 77 00 - "Project Closeout."
 3. Specific requirements for warranties for the Work and products and installations that are specified to be warranted, are included in the individual Sections of Divisions 2 through 40.
 4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.
- B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and Subcontractors required to countersign special warranties with the Contractor.

1.3 DEFINITIONS

- A. Standard Product Warranties are pre-printed written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.

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

1.4 QUALITY ASSURANCE

- A. Use adequate care and diligence to review Contract Documents to identify detailed requirements relating to warranties and bonds.
- B. Verify that each item required for this submittal conforms with specified requirements.

1.5 WARRANTY REQUIREMENTS

- A. In addition to standard and special warranties described in Divisions 2 through 40, Contractor shall warrant work included in this Project, for a minimum period of one (1) year following acceptance of a Certificate of Substantial Completion by Owner, to cover performance, materials, workmanship and compliance with Contract Documents.
- B. Corrective Work: Provide service within thirty (30) calendar days when requested by Owner. Perform services during normal working hours, unless specifically directed otherwise by Owner. Coordinate with Owner's representative to schedule performance of corrective work. Where designated service providers cannot perform corrective work within the Owner's required time frame, engage another qualified service provider. Submit a written statement to Owner upon completion of corrective work; document work performed and list outstanding items, if any.
 1. When a completed breakdown of a piece of equipment occurs of the malfunction of a system affects the environment or program involving 50 or more persons at a time (employees and students combined), or creates a safety or security risk to the Owner, an EMERGENCY may be declared by the Owner. The Owner may declare an emergency as defined above at which time the service response must be within 4 hours and may require action during non-normal working hours.
 2. When an emergency condition occurs, the Owner may take immediate corrective action to relieve the problem by making, a minimum as possible, temporary adjustments and/or repairs when necessary to decrease the problem until the designated Contractor's representative can respond. These temporary adjustments and repairs will in no way jeopardize the existing warranty.
 3. The Owner's service staff will advise the Contractor's Representative of all temporary adjustments and repairs done in relation to the malfunctioning equipment or facility.
 4. If the Contractor fails to respond with actual service within four (4) hours, and/or the necessary repairs or adjustments are not satisfactorily complete twenty-four (24) hours, the Owner will have the authority to make the necessary repairs or adjustments and charge the Contractor for parts and labor.
 5. If all adjustments and repairs done by the Owner in relation to the above conditions are done by authorized district personnel, there will be no negative effect of future warranty claims.

- C. Related Damages and Losses: When correcting failed or damaged warranted work, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted work.
- D. Reinstatement of Warranty: When work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- E. Replacement Cost: Upon determination that work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.
- F. Owner's Recourse: Expressed warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.
- G. Contractor's Procurement Obligations: Do not purchase, subcontract for, or allow others to purchase or subcontract for materials or units of work for Project where a special project guaranty, specified product warranty, certification, or similar commitment is required until it has been determined that entities required to sign or countersign such commitments are willing to do so.
- H. Specific Warranty. Where a special warranty, certification, or similar commitment is required on such work or part of the Work, the Owner reserves the right to refuse to accept the Work until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

1.6 SUBMITTAL REQUIREMENTS

- A. Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect or Owner.
 - 1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect and Owner within fifteen (15) days of completion of that designated portion of the Work.

B. When a special warranty is required to be executed by the Contractor, or the Contractor and a Subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Architect for acceptance prior to final execution.

1.7 SUBMITTALS REQUIRED

A. Submit warranties, bonds, and service and maintenance contracts as specified in the respective sections of Specifications. Submit a list of all required warranties.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION

3.1 FORM OF SUBMITTALS

A. The Warranties and Bonds shall be in electronic pdf format. Each submission shall include the title of the Project and the name of the Contractor.

B. Provide a series of files organized in subdirectories with a summary index with hyperlinks to the various documents and or references.

C. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers and subcontractors.

D. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.

1. Product or work item.
2. Item description.
3. Notation of what the equipment serves (e.g. – Provides perimeter heat)
4. Warranty Provider. Is the warranty provided by a manufacturer or installer?
5. Firm, with name of principal and responsible party, address and telephone number.
6. Scope.
7. Duration.
 - a. Date of beginning of warranty, bond or service and maintenance contract
 - b. End date of warranty, bond or service and maintenance contract.

8. Provide information for Owner's personnel:
 - a. Proper procedure in case of failure.
 - b. Instances which might affect the validity of warranty or bond.
9. Contractor, name of responsible principal, address and telephone number.

3.2 TIME OF SUBMITTALS

- A. Make final submittals within ten (10) days after Date of Substantial Completion, prior to final request for payment.
- B. For items of work when acceptance is delayed materially beyond the Date of Substantial Completion, provide updated submittal within ten (10) days after acceptance, listing the date of acceptance as the start of the warranty period.

*****END OF SECTION 01 78 36*****

SECTION 01 78 39 RECORD DOCUMENTS

1.0 GENERAL

1.1 DESCRIPTION

- A. The Contractor shall maintain at the site, during construction, one record copy of:
 1. Drawings
 2. Specifications
 3. Addenda
 4. Change Orders and other Modifications to the Contract
 5. Architect's Field Orders or written instructions.
 6. Final Shop Drawings, Product Data and Samples
 7. Field Test records
 8. Construction photographs

1.2 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in Contractor's field office apart from documents used for construction.
- B. File documents and samples in accordance with the Owner's electronic project management system document structure.
- C. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- D. Make documents and samples available at all times for review by the Owner's Representative and the Architect.

1.3 RECORDING

- A. Label each document "AS BUILT" in neat large printed letters.
- B. Record information concurrently with construction progress.
 1. Do not conceal any Work until required information is recorded.
- C. Drawings

As built drawings shall consist of making any changes neatly and clearly on the Contract Drawings using colored ink or pencil, shall be kept current by the contractor on a day-to-day basis in concert with the progress of the Work. Where applicable, the change marked on a drawing is to carry the notation "per Change Order No. X", or similar reference which cites the reason for the change. As an alternative approach the Contractor can submit a plan for producing the "As-Built" drawings via electronic mark-up in Bluebeam, Adobe Professional, or other similar program as an alternative to colored pencil or ink mark-ups. Such plan shall be subject to approval of the Owner.

The day-to-day construction as built drawings shall be made available to the Architect or Owner's Representative for review upon request. The "As built" drawings shall show all changes to the following areas of construction:

1. Architectural:
 - a. Modifications to components dictated by the building code
 - b. Wall, door, window locations
 - c. Built in casework locations
 - d. New rated door and wall schedules/ locations
 - e. Material and products where submittals are requested
2. Civil and Structural
 - a. Dimensions for load carrying elements, both horizontal and vertical
 - b. Materials and products where submittals are requested
 - c. Load carrying elements and foundation systems
 - d. Site related elements including:
 - Building outlines, entranceways, areaways, roof overhangs, downspouts, significant architectural projections and other pertinent data.
 - e. All significant changes in foundations, columns, beams, openings, concrete reinforcing, lintels, concealed anchorages and "knock-out" panels made during construction.
 - f. Building envelope systems including roofing systems and building shell systems
 - g. Geotechnical subsurface information
 - h. Items that will require future maintenance
 - i. Life safety critical items
3. Mechanical (HVAC, Plumbing and Fire Protection)

- a. Products where submittals are requested
- b. Final locations of all equipment.
- c. Final sizes and materials of piping and ductwork.
- d. Final locations of inaccessible piping and ductwork.
- e. Final locations of all controls equipment, including all sensors and actuators.
- f. Final locations of all valves and dampers, including all shutoff valves, balance dampers and fire dampers.
- g. Location of access doors for all equipment in concealed locations.
- h. Final location and arrangement of all mechanical equipment and concealed gas, sprinkler, domestic, sanitary and drainage systems piping and other plumbing, including, but not limited to, supply and circulating mains, principal valves, meters, clean-outs, drains, pumps and controls, vent stacks, sanitary and storm water drainage.

4. Electrical

- a. Products where submittals were requested.
- b. Circuit (wire and raceway) size, number, and type.
- c. Main circuit pathways for Fire Alarm, Emergency Power, and Access Control/Security systems.
- d. Final locations of equipment and devices, interior and exterior luminaires, and power supplies.
- e. Final location of electric signal system panels, final arrangement of all circuits and any significant changes made in electrical signal system design as a result of Change Order or job conditions.

5. Environmental

- a. Utility related elements and supporting infrastructure
- b. Storm water maintenance/testing access points
- c. Location of unusual excavation findings / contaminated soil (i.e. mercury uncovered during excavation, also on-site spills during construction), including quantity excavated/disposed.

D. Specifications and Addenda

Legibly mark each section to record:

1. Manufacturer, trade name, catalog number, and Supplier of each product and item of equipment actually installed.
2. Changes made by Field Order or by Change Order.

1.4 SUBMITTAL

- A. After completion of Punchlist, deliver copies of all record documents to the Owner's Representative.
- B. Accompany submittal with transmittal letter in duplicate, containing:
 1. Date
 2. Project title and number
 3. Contractor's name and address
 4. Title and number of each record document
 5. Certification that each document is complete and accurate
 6. Signature of Contractor or its authorized representative.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION – NOT USED

END OF SECTION 01 78 39

TECHNICAL SPECIFICATIONS

FOR

**MCFADDIN BUTTRESS REPAIR
+ LEANING CHIMNEY REMOVAL**

**CORNELL UNIVERSITY
ITHACA, NEW YORK**

SECTION 024119 - SELECTIVE REMOVALS

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of this Section Includes:

1. Selective removal of selected portions of exterior of building or structure.
2. Removal and salvage of existing items for delivery to Owner and removal of existing items for reinstallation.

B. Related Requirements:

1. Section 011000 "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
2. Section 017300 "Execution" for cutting and patching procedures.

1.2 DEFINITIONS

- A. Remove:** Detach items from existing construction and legally dispose of off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage:** Detach items from existing construction, in a manner to prevent damage, and deliver to Owner as indicated.
- C. Remove and Reinstall:** Detach items from existing construction, in a manner to prevent damage; prepare for reuse; and reinstall where indicated.
- D. Existing to Remain:** Existing items of construction that are not to be removed.

1.3 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.**
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during removals remain the property of Owner.**
 - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.**

1.4 COORDINATION

A. Arrange selective removals schedule so as not to interfere with Owner's operations.

1.5 PREINSTALLATION MEETINGS

A. Pre-removals Conference: Conduct conference at Project site.

1. Inspect and discuss the condition of construction to be selectively removed.
2. Review sequencing of buttress removals.
3. Review temporary shoring needs to permit removal of stone.
4. Review sequencing of chimney removals.
5. Review and finalize selective removals schedule and verify availability of masons, equipment, and facilities needed to make progress and avoid delays.
6. Review requirements of work performed by other trades that rely on substrates exposed by selective removals operations.
7. Review photographs of existing conditions to ensure they capture areas required.
8. Review areas where existing construction is to remain and requires protection.
9. Review requirement to inspect each chimney flue via video camera. Coordinate schedule to allow Owner representation during survey of flues.
10. Review potential areas for hazardous materials that may need to be tested.
11. Review and finalize protection requirements.
12. Review procedures for noise control and dust control.
13. Review storage, protection, and accounting for items to be removed for salvage or reinstallation.

1.6 INFORMATIONAL SUBMITTALS

A. Survey of Existing Conditions / Photos of Existing Conditions: Submit photos of each chimney and buttress areas to be removed. Submit photos of all adjacent construction that may be effected by work, including but not limited to the roof of the war memorial.

B. Survey of Existing Chimney Flues / Video Camera Inspection: Submit field survey information obtained from video camera, as well as recording video inspection for each chimney flue.

C. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for dust control and for noise control. Indicate proposed locations and construction of barriers.

D. Selective Removals Procedures: As component of Restoration Program specified in 040140 Stone Masonry Restoration, indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
2. Procedures for Temporary Protection of exposed back-up from weather during construction.
3. Coordination of Owner's continuing occupancy of portions of existing building and of

Owner's partial occupancy of completed Work.

1.7 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

1.8 FIELD CONDITIONS

A. Owner will not occupy portions of building immediately adjacent to selective removals area if work is conducted during the summer months. Conduct selective removals so Owner's operations will not be disrupted.

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

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

D. Hazardous Materials:

1. McFaddin Scope of Work: It is not expected that hazardous materials will be encountered in the Work.

a. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials encountered will be tested by Owner under a separate contract. Coordinate access with A/E Consultant for testing.

2. Chimneys Scope of Work: Hazardous materials may be present in structures to be selectively removed. Sealants and any suspected flashings encountered will need to be tested. Contractor shall allow for time, access and testing by A/E consultant during the work.

a. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials encountered will be tested by Owner under a separate contract. Coordinate access with A/E Consultant for testing.

b. For bidding purposes Contractor shall assume sealants requiring removal at chimney's contain hazardous materials.

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

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective removals. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSP A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.
- B. Perform survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building removals operations.
 - 1. Perform surveys as the Work progresses to detect hazards resulting from selective removals activities.
- C. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.
 - 1. Inventory and record the condition of items to be removed for salvage or reinstallation. Photograph or video conditions that might be misconstrued as damage caused by removal.
 - 2. Photograph or video existing conditions of adjoining construction including finish surfaces, that might be misconstrued as damage caused by selective removals operations or removal of items for salvage or reinstallation.
- D. Survey of Chimney Flues: Record existing conditions by use of video camera inspection.
 - 1. Record size, condition and material type for each flue.
 - 2. Record any plumbing vents, bathroom exhaust vents or any other components that occupy or connect to flues.
 - 3. Record any flues that have been capped off, infilled or eliminated.
 - 4. Record any other information that would be affected by the dismantling and capping of each chimney.

3.2 PREPARATION

- A. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
 - 1. Strengthen or add new supports when required during progress of selective removals.
- B. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 1. Provide protection to ensure safe passage of people around selective removals area and to and from occupied portions of building.
 - 2. Provide temporary weather protection, during interval between selective removals of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective removals operations.
 - 4. Comply with requirements for temporary enclosures, dust control, heating, and cooling.
- C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective removals. When permitted by Architect, items may be removed to a suitable, protected storage location and cleaned and reinstalled in their original locations after selective removals operations are complete.

3.3 UTILITY SERVICES AND BUILDING SYSTEMS

- A. Existing Services/Systems to Remain: Maintain utilities and building systems and equipment to remain and protect against damage during selective removals operations.
 - 1. Maintain fire-protection facilities in service during selective removals operations.
 - 2. Venting that exists in chimneys to be retained.

3.4 SALVAGE/REINSTALL

- A. Removed and Salvaged Items:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
 - 3. Palletize masonry and wrap to protect.
 - 4. Store items in a secure area until delivery to Owner.
 - 5. Transport items to Owner's storage area designated by Owner.
 - 6. Protect items from damage during transport and storage.

B. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Protect items from damage during storage.
3. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

3.5 SELECTIVE REMOVALS, GENERAL

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

1. See Stone Dismantling and Reconstruction Article under Section 040140.
2. Proceed with selective removals systematically, from higher to lower level.
3. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
4. Avoid marring existing finished surfaces to remain.
5. Locate selective removals equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

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

1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed trafficways if required by authorities having jurisdiction.
2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

3.6 SELECTIVE REMOVALS PROCEDURES

- A. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts.
- B. Stones that are lugged deeply into existing construction and are in good condition shall remain to engage existing stones with new buttress stones.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

3.8 CLEANING

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

3.9 SELECTIVE REMOVALS SCHEDULE

- A. Remove:
 - 1. See drawings for chimneys and buttresses to be removed.
 - 2. Free standing pre-construction stone mock-up
- B. Remove and Salvage:
 - 1. Unique moulded bricks: All moulded bricks in good condition.
 - 2. Standard chimney bricks: Five per chimney in good condition, representative of size and color.
 - 3. Limestone chimney cap: One example of best condition.
 - 4. McFaddin Sandstone: Only stone in good condition that was not used in project.
- C. Remove and Reinstall:
 - 1. Any existing sandstone that is removed and is in good condition may be reinstalled.
 - 2. Limestone trim pieces.
- D. Existing to Remain: See drawings.

END OF SECTION 024119

SECTION 040140 - STONE MASONRY RESTORATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Rebuilding stone masonry.
2. Repairing stone masonry.
3. Repointing joints with mortar.

B. Related Requirements:

1. Division 01 Section "Unit Prices" for unit prices for stone restoration work.
2. Division 01 Section "Allowances" for descriptions of allowance work.
3. Section 024119 Selective Removals for removal of existing buttresses.
4. Section 057000 Decorative Metal for chimney cap fabrication.
5. Section 076200 Sheet Metal Flashing for metal flashings standards and requirements.
6. Section 079200 "Joint Sealants" for sealing joints in restored stone construction.

1.2 ALLOWANCES

A. Allowances for replacing stone are specified in Section 012100 "Allowances."

1.3 UNIT PRICES

A. Work of this Section is affected by unit prices specified in Section 012200 "Unit Prices."

1. Unit prices apply to authorized work covered by quantity allowances.
2. Unit prices apply to additions to and deletions from Work as authorized by Change Orders.

1.4 DEFINITIONS

- A. Jumpers** - Refers to a stone whose vertical height in a stone facade is between 4" and 7".
- B. Bars** - Refers to a stone whose vertical height in a stone facade is between 1" and 4".
- C. Quarry bedded** - Refers to a stone whose natural bed planes are oriented horizontally when laid in a facade.
- D. Face bedded** - Refers to a stone whose natural bed planes are oriented vertically and parallel to the exposed face of the stone.

- E. Seam face - The face of a stone that is a product of nature. Face has formed in a vertical fissure in the quarry. Sometimes it exhibits a range of colors from minerals deposited on the surface.
- F. Pointed face - A rustic finish created manually with a point chisel to create a stippled surface.
- G. Split face – The finished face of stone that is formed by splitting with a guillotine.
- H. Face - The exposed surface of stone on a façade.
- I. Low-Pressure Spray: 100 to 400 psi; 4 to 6 gpm.
- J. Rebuilding (Setting) Mortar: Mortar used to set and anchor masonry in a structure, distinct from pointing mortar installed after masonry is set in place.

1.5 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to rebuilding and repointing stonework including, but not limited to, the following:
 - a. Verify stone masonry specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
 - b. Materials, material application, sequencing, tolerances, and required clearances.
 - c. Quality-control program.
 - d. Coordination with building occupants.
 - e. Review stone details, finishes and coordination with adjacent construction.
 - f. Review existing pre-construction mock-up and project intent for execution of masonry work. Not all aspects of pre-construction mock-up are approved.
 - g. Discuss location and schedule for freestanding and In-situ Mock-Up.
 - h. Review plan for temporary shoring and removals. See Div 02 Selective Removals.
 - i. Review construction schedule for masonry work.

1.6 SEQUENCING AND SCHEDULING

- A. Work Sequence: Perform work in the following sequence, which includes work specified in this and other Sections:
 - 1. Remove plant growth.
 - 2. Rake out mortar from joints surrounding stone to be replaced and from joints adjacent to stone repairs along joints.
 - 3. Remove existing masonry in areas as indicated on the drawings.
 - 4. Repair and rebuild stonework, including replacing existing stone with new stone.
 - 5. Rake out mortar from joints to be repointed.
 - 6. Point mortar and sealant joints.
 - 7. Repoint limestone chimney course to remain and install weather caps. See Div 05 Decorative Metal for fabrication requirements.
 - 8. Clean as work progresses.

9. After repairs and repointing have been completed and cured, perform a final cleaning to remove residues from this work.
10. As scaffolding is removed, patch anchor holes used to attach scaffolding. Patch holes in stone according to Part 3 "Stone Dutchman Repair" Article. Patch holes in mortar joints according to Part 3 "Pointing and Repointing Stone Masonry"
11. Remove both preconstruction and free standing mock-up at end of project.

1.7 ACTION SUBMITTALS

- A. Product Data: For each variety of stone, stone accessory, and manufactured product.
- B. Restoration Program: For each phase of the restoration process, provide detailed description of materials, methods, equipment, and sequence of operations to be used for each phase of restoration work including protection of surrounding materials on building and Project site.
 1. Include sequencing schedule.
 2. Include "Selective Removals Procedures" specified under 024119 Selective Removals.
 3. Include methods for keeping pointing mortar damp during curing period.
 4. If materials and methods other than those indicated are proposed for any phase of restoration work, provide a written description, including evidence of successful use on comparable projects, and a testing program to demonstrate their effectiveness for this Project.
 5. Include methods for protecting adjacent stonework from contact with mortar during pointing work.
 6. Include shoring design and procedures.
- C. Shop Drawings:
 1. Include plans, elevations, sections, and locations of stone repair work on the structure. Include both limestone components and sandstone components.
 2. Show locations of sealant joints.
 3. Show provisions for flashing.
 4. Show replacement and repair anchors, including drilled-in pins. Include details of anchors within individual stone units, with locations of anchors and dimensions of holes and recesses in stone required for anchors, including direction and angle of holes for pins.
 5. Show locations of scaffolding and points of scaffolding in contact with masonry. Include details of each point of contact or anchorage.
- D. Samples for Initial Selection: For each type of mortar:
 1. Stone Pointing Mortar: Provide a minimum of five samples of mortar for color and texture. Match sample (area of existing building) as directed by Architect. 6 inches long and one-inch-wide set-in rigid channels.
 2. Limestone Mortar: Provide a minimum of three samples in color range (match as directed by architect. 6 inches long and one-half inch wide set-in in rigid channels.
- E. Samples for Verification:

1. For each stone type include at least five samples in each set and show the full range of color and other visual characteristics in completed Work.
 - a. Exception: For limestone, include at least two samples in each set.
2. For each color and texture of mortar required. Label Samples to indicate types and amounts of pigments used to confirm selections made under initial selection.

F. Mock-Ups:

1. See Part 1 "Quality Assurance" article for details.
 - a. Freestanding mock-up similar to the existing preconstruction mock-up onsite, 4 feet wide by 4 feet high.
 - b. In-situ Mock-Up of buttress stone re-build 4 feet by 6 feet.
 - c. In-situ Stone Repairs including Replacement, Partial Stone Replacement, Crack Injection and Tooling back stone surface.

G. Construction Procedures: Submit cold-weather construction and hot-weather construction procedures evidencing compliance with requirements specified.

H. Delegated Design Submittals: For temporary shoring system and scaffolding, including analysis data signed and sealed by the qualified NYS professional engineer responsible for their preparation.

1.8 SPECIAL INSPECTIONS

A. Refer to Specification Section 014533 and Schedule of Special Inspections.

1.9 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Qualification Data: For Delegated Design Engineer(s)

C. Material Test Reports:

1. Stone Test Reports: For limestone proposed for use on Project, by a qualified testing agency, indicating compliance with required physical properties, other than abrasion resistance, according to referenced ASTM standards. Base reports on testing done within previous three years.
2. Sealant Compatibility and Adhesion Test Report: From sealant manufacturer indicating that sealants will not stain or damage stone. Include interpretation of test results and recommendations for primers and substrate preparation needed for adhesion.
3. Stone Testing for quartz based stone: Owner will engage testing agency at beginning of project to verify physical properties of stone selected. Contractor to allow Owner to select random pieces from pallets arriving at the site, up to 10 samples.
4. Mortar and Aggregates.

1.10 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate stone cladding assemblies similar to that required for this Project and whose products have a record of successful in-service performance.
- B. Installer Qualifications: A qualified installer who employs experienced stonemasons and stone fitters with a minimum five years' experience on similar stone masonry projects. Include list of completed projects with project names, addresses, telephone numbers, names of Architects and Owners, and other relevant experience information.
- C. Quality-Control Program: Prepare a written quality-control program for this Project to systematically demonstrate the ability of personnel to properly follow methods and use materials and tools without damaging stonework. Include provisions for supervising performance and preventing damage.
- D. Field Supervision: Retain an experienced full-time supervisor on the project site at all times when masonry restoration is in progress. A single individual shall be responsible for supervising masonry restoration work throughout the duration of project.
- E. Restoration Anchors: Manufacturer's Representative shall visit site to instruct workers as to proper installation techniques for placing and testing anchors. Manufacturer's Representative shall prepare a written report and submit to Contractor, Owner's Representative, Engineer, and Architect.
- F. Delegated Design Engineer: A professional engineer who is legally qualified to practice in New York State and who is experienced in providing engineering services of the type indicated.
- G. Mockups: Build mockups to demonstrate aesthetic effects and to set quality standards for materials and execution.
 - 1. Build free standing mockup of buttress stone, a minimum of 4 feet wide by 4 feet high by 1 foot deep. Reference existing preconstruction mock-up on-site and mock-up report to understand design intent. Not all aspects of existing pre-construction mock-up are acceptable. Include tooling corners with point chisel, and technique for finishing joints to match existing. Pattern, color (including using mix from both quarries), bed orientation and all other specifications in the contract shall be followed for the mock-up. Submit mortar joint color samples prior to mock-up construction so that mortar color options can be assessed adjacent to the stone. Mock-up to remain throughout project and removed before final completion. Contractor is also responsible for removing pre-construction mock-up.
 - 2. Build in-situ mockup of buttress stone, a minimum of 4 feet wide by 6 feet high, include tooling corners with point chisel, restoration anchors, pull out test, and finished pointing. If accepted, mock-up may become part of work.
 - 3. Stone Repair: Prepare sample areas for each type of stone indicated to have repair work performed. If not otherwise indicated, size each mockup not smaller than two adjacent whole units. Construct sample areas in locations in existing walls where directed by Architect unless otherwise indicated. Demonstrate quality of materials, workmanship, and blending with existing work. Include the following as a minimum:

- a. Replacement: Four stone units replaced in face of north wall between buttresses.
- b. Partial Stone Replacement: One partial stone replacement (dutchman repairs).
- c. Crack Injection: Apply crack injection in one area, approximately 12 inches long.
- d. Tooling back loose surface stone: One area approximately 12 inches by 24 inches on West-South Buttress.

4. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

1.11 PRECONSTRUCTION TESTING

- A. Preconstruction Sealant Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for compatibility and adhesion testing according to sealant manufacturer's standard testing methods and Section 079200 "Joint Sealants," Samples of materials that will contact or affect joint sealants.
- B. Preconstruction Mortar Testing: Contractor shall employ and pay qualified independent Testing Agency to perform preconstruction testing indicated and other inspecting and testing services required for source and field quality control.
 - 1. Test mortar composition and properties in accordance with ASTM C 270 if Property Specification is used.
 - 2. Evaluate mortar proportions in accordance with ASTM C 270 if Proportion Specification is used.
 - 3. Test mortar properties for approved mix in accordance with ASTM C780 (Compressive Strength Method) to determine a base line for field mortar tests.
- C. Anchorage Tests: For each combination of stone variety, orientation of cut, finish, and anchor type proposed for use on Project, tested according to ASTM C1354/C1354M.

1.12 DELIVERY, STORAGE, AND HANDLING

- A. Deliver stone units to Project site strapped together in suitable packs or pallets or in heavy-duty crates and protected against impact and chipping.
- B. Deliver packaged materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.
- C. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- D. Store hydrated lime in manufacturer's original and unopened containers. Discard lime if containers have been damaged or have been opened for more than two days.
- E. Store sand where grading and other required characteristics can be maintained and contamination avoided.
- F. Handle stone to prevent overstressing, chipping, defacement, and other damage.

- G. Deliver preblended, dry mortar mix in moisture-resistant containers designed for use with dispensing silos. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, in a dry location, or in covered weatherproof dispensing silos.
- H. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.13 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit stone repair work to be performed according to product manufacturers' written instructions and specified requirements.
- B. Temperature Limits, General: Repair stone units only when air temperature is between 40 and 90 deg F and is predicted to remain so for at least seven days after completion of the Work unless otherwise indicated.
- C. Cold-Weather Requirements: Comply with the following procedures for stone repair and repointing unless otherwise indicated:
 - 1. When air temperature is below 40 deg F, heat mortar ingredients, repair materials, and existing stone to produce temperatures between 40 and 120 deg F.
 - 2. When mean daily air temperature is below 40 deg F, provide enclosure and heat to maintain temperatures above 32 deg F within the enclosure for seven days after repair.
 - 3. Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace stone masonry damaged by frost or freezing conditions. Comply with cold-weather construction requirements contained in TMS 602.
 - a. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and above and will remain so until masonry has dried, but not less than seven days after completing cleaning.
- D. Hot-Weather Requirements:
 - 1. Protect stone repairs and repointing when temperature and humidity conditions produce excessive evaporation of water from mortar and patching materials. Provide artificial shade and wind breaks, and use cooled materials as required to minimize evaporation. Do not apply mortar to substrates with temperatures of 90 deg F and above unless otherwise indicated.
 - 2. Comply with hot-weather construction requirements contained in TMS 602.
- E. For manufactured repair materials, perform work within the environmental limits set by each manufacturer.
- F. Protection of Stone Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed stone masonry when construction is not in progress.
 - 1. Extend cover a minimum of 36 inches down both sides and hold cover securely in place.

2. Cover face of wall exposed after removals with waterproof sheeting at end of each work day.

G. Stain Prevention: Immediately remove mortar and soil to prevent them from staining stone masonry face.

1. Protect base of walls from rain-splashed mud and mortar splatter using coverings spread on the ground and over the wall surface.
2. Protect sills, ledges, and projections from mortar droppings.
3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
4. Turn scaffold boards near the wall on edge at end of each day to prevent rain from splashing mortar and dirt on completed stone masonry.

1.14 COORDINATION

- A. Advise installers of adjacent Work about specific requirements for placement of reinforcement, veneer anchors, relieving angles, lintels, flashing, and similar items to be built into stone masonry.
- B. Coordinate installation of inserts that are to be engaged with masonry, flashing reglets, and similar items to be used by stone cladding Installer for anchoring, supporting, and flashing of stone cladding assembly. Furnish setting drawings, templates, and directions for installing such items and deliver to Project site in time for installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations for Stone: Obtain each variety of stone, from quarries with resources to provide materials of consistent quality in appearance and physical properties.
- B. Source Limitations for Mortar Materials: Obtain mortar ingredients of uniform quality for each cementitious component from single manufacturer and each aggregate from single source or producer.

2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer to design stone shoring and scaffolding system.
- B. Corrosion and Staining Control: Prevent galvanic and other forms of corrosion as well as staining by isolating metals and other materials from direct contact with incompatible materials. Materials do not stain exposed surfaces of stone and joint materials.

2.3 LIMESTONE

- A. Material Standard: Comply with ASTM C568/C568M.
 - 1. Classification: II Medium Density, except as follows: absorption, 5 percent by weight maximum; density, 150 lb/cu. ft. minimum; compressive strength, 8000 psi minimum; and modulus of rupture 800 psi minimum or III High Density.
- B. Description: Dolomitic limestone.
- C. Match existing limestone color and texture on building.

2.4 QUARTZ-BASED STONE < SANDSTONE >

- A. Material Standard: Comply with ASTM C616/C616M, Classification III Quartzite.
- B. Varieties and Sources: Subject to compliance with requirements, provide the following:
 - 1. Predominately Green, Gray, Light Blue Colored Stone as part of "Stone Blend" specified on drawings shall be by Meshoppen Stone, Inc. consisting of 70% total stone supplied as distributed by:
 - a. Paragon Supply, Inc.
1300 West Fayette St.
Syracuse, NY 13204
Office: (315) 475-5115
Tim Kellish: tkellish@paragonsupply.com
 - 2. Predominately Rust, Yellow, Cream Colored Stone as part of "Sone Blend" specified on drawings shall be "Indian Fields Stone" consisting of 30% of total stone supplied from:
 - a. New York Quarries
305 County Route 111
Alcove, NY 12007
(518) 756-3138
Nancy O'Brien nancy@newyorkquarries.com
- C. The intention of the project is to match the stone on McFaddin Tower for color, finish, pattern and other stone characteristics relating to aesthetic effects. See Drawings for detailed requirements including mix, color, finish, bedding, sizes, etc.
 - 1. Contractor shall review the completed pre-construction mock-up and corresponding field report for additional information related to accepted and rejected components of the on-site free-standing mock-up.
- D. Conditions for Consideration of Comparable Stone Source Substitutions: Owner, Architect and Engineer will consider Contractor's request for use of a comparable stone source only when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with the following requirements:
 - 1. Evidence that proposed substitution does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work.
 - 2. Evidence that proposed substitution will not affect the project schedule.

3. Detailed comparison of significant qualities of proposed stone source with those of the named stone sources. Significant qualities include attributes such as physical properties, compressive strength, hygrothermal properties, freeze-thaw characteristics, visual characteristics such as color and surface texture, and other specific features and requirements. Testing results submitted must be current and specific to this project.
4. The Contractor shall submit the proposed testing agency to the Owner for approval. The Contractor is responsible for the costs of testing. The following firm is pre-approved to conduct the testing: RDH Building Science Laboratories 167 Lexington Court, Unit 6 Waterloo ON
5. List of similar installations for completed projects, with project names and addresses and names and addresses of architects and owners, if requested.
6. Photographs and samples of the proposed stone.

2.5 MORTAR MATERIALS

- A. Portland Cement: ASTM C150/C150M, Type I except Type III may be used for cold-weather construction; natural color or white cement may be used as required to produce mortar color indicated.
 1. Alkali Cement content: Not more than 0.10 percent total alkali when tested according to ASTM C114.
- B. Hydrated Lime: ASTM C207, Type S.
- C. Mortar Cement: ASTM C1329/C1329M.
- D. Masonry Cement: Not Permitted
- E. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C979/C979M. Use only pigments with a record of satisfactory performance in stone masonry mortar.
- F. Aggregate: ASTM C144 and as follows:
 1. For pointing mortar, for joints less than $\frac{1}{4}$ " use aggregate graded with 100 percent passing No. 16 sieve.
 - a. The aggregate source for sands shall be tested and pass as per ASTM C295 Petrographic Examination of Aggregates for Concrete to determine if ASR is present, on a biennial basis.
 2. For stone veneer with joints between $\frac{3}{4}$ " and 1-1/4" use aggregate as approved during samples and in-situ mock-up.
 3. White Aggregates: Natural white sand or ground white stone for limestone.
 4. Colored Aggregates: Natural-colored sand or ground marble, granite, or other sound stone; of color necessary to produce required mortar color for veneer stone.
- G. Water: Potable.

2.6 ANCHORS

- A. Materials:
 - 1. Stainless Steel Wire: ASTM A580/A580M, Type 304.
 - 2. Stainless Steel Sheet: ASTM A240/A240M or ASTM A666, Type 304.
- B. Stone Anchors and Pins: Type and size indicated or, if not indicated, to match existing anchors in size and type. Fabricate from Type 304 stainless steel.
- C. Corrugated-Metal Veneer Anchors: Not permitted
- D. Helical (Restoration) Anchors:
 - 1.
 - 1. Helical Pins:
 - a. Helical Bar - Stainless Steel Type 304, 8mm diameter, Length Varies.
Acceptable Products:
 - 1) Hohmann & Barnard Inc "Spir-Lok Helical Wall Tie System"
 - 2) Helifix "DryFix"
 - b. Length of Pins: Sufficient to extend at least 3 inches into existing masonry wall and extending into rebuilt stone by at least three-quarters the depth of the stone (not less than 1-1/2 inches), with at least a 5/8-inch cover on exterior face.
 - 2. Helical Anchors:
 - a. Three Piece System: Helical Pins with Seismic Connector and Helical Reinforcing Bar
 - b. Acceptable Products:
 - 1) Helifix "DryFix" Pins: Stainless Steel Type 304, 8mm diameter
 - 2) Helifix "Seismic Connector": Stainless Steel Type 304
 - 3) Helifix "Helibar": Stainless Steel Type 304, 3/16" diameter
 - c. Length of Pins: Sufficient to extend at least 3 inches into existing masonry wall and extending into rebuilt stone by at least three-quarters the depth of the stone (not less than 1-1/2 inches), with at least a 5/8-inch cover on exterior face. Adjust length to accommodate length of connector.
 - d. Length of Reinforcing Bar: Extend full width of piers with at least a 5/8-inch cover on exterior face.

2.7 STONE TRIM ANCHORS

- A. Stone Trim Anchors: Units fabricated with tabs or dowels designed to engage kerfs or holes in stone trim units and holes for fasteners or postinstalled anchor bolts for fastening to substrates or framing as indicated.
 - 1. $\frac{1}{4}$ inch diameter stainless steel, Type 304. Length as required to suit conditions.
 - 2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. Heckmann Building Products, Inc.
 - b. Hohmann & Barnard, Inc.

- B. Provide anchoring systems that comply with the Building Code Requirements for Masonry Structures TMS 402-16.
- C. Materials: Fabricate anchors from stainless steel, ASTM A240/A240M or ASTM A666, Type 304. Fabricate dowels from stainless steel, ASTM A276, Type 304.
- D. Fasteners for Stone Trim Anchors: Annealed stainless steel bolts, nuts, and washers; ASTM F593 for bolts and ASTM F594 for nuts, Alloy Group 1.
- E. Postinstalled Anchor Bolts for Fastening Stone Trim Anchors: Chemical anchors, torque-controlled expansion anchors or undercut anchors made from stainless steel components complying with ASTM F593 and ASTM F594, Alloy Group 1 or 2 for bolts and nuts; ASTM A666 or ASTM A276, Type 304 or Type 316, for anchors.

2.8 EMBEDDED FLASHING MATERIALS

- A. Metal Flashing: Provide metal flashing, where flashing is exposed or partly exposed and where indicated, complying with SMACNA's "Architectural Sheet Metal Manual" and as follows:
 1. Copper (Lead coated): ASTM B370, Temper H00 or H01, cold-rolled copper sheet, 10-oz./sq. ft weight or 0.0135 inch thick for fully concealed flashing; 16-oz./sq. ft weight or 0.0216 inch thick elsewhere.
 2. Fabricate continuous flashings in sections 96 inches long minimum, but not exceeding 12 feet. Provide splice plates at joints of formed, smooth metal flashing.
 3. Metal Drip Edges: Fabricate from copper. Extend into wall with at least a 2-inch upturned back dam and 1/2 inch out from wall, with outer edge bent down 30 degrees and hemmed.
- B. Flexible Flashing (Fabric Flashing): For flashing unexposed to the exterior, use the following unless otherwise indicated:
 1. Stainless Steel-Laminated Flashing: 2 mil sheet of type 304 stainless steel laminated on one side to a polymer fabric and drainage fabric on the opposite side. Use only where flashing is fully concealed in masonry.
 - a. Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following:
 - 1) York Flashings, Sanford ME, SS Flash-Vent
 - b. Accessories: Provide preformed corners, end dams, other special shapes, and seaming materials produced by flashing manufacturers.
 - c. Termination bars: Composed of stainless steel 1" high with sealant lip at top.
- C. Application: Unless otherwise indicated, use the following:
 1. Where flashing is indicated to receive counterflashing, use metal flashing.
 2. Where flashing is indicated to be turned down at or beyond wall face, use metal flashing.
 3. Where flashing is partly exposed and is indicated to terminate at wall face, use metal flashing with a drip edge or flexible flashing with a metal drip edge.
 4. Where flashing is fully concealed, use flexible flashing.

D. Solder and Sealants for Sheet Metal Flashings:

1. Solder for Stainless Steel: ASTM B32, Grade Sn60, with acid flux of type recommended by stainless steel sheet manufacturer.
2. Solder for Copper: ASTM B32, Grade Sn50.
3. Elastomeric Sealant: ASTM C920, chemically curing sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
 - a. Product standard of quality is York Manufacturing, Inc.; UniverSeal US100.
 - b. Type: One part 100% solids, solvent-free formulated silyl-terminated polyether (STPE), ASTM C920-11, Type S, Grade NS, Class 50.

E. Splice material: Product standard of quality is York304 SA by York. Manufacturer's standard self-adhered metal material.

F. Adhesives, Primers, and Seam Tapes for Flexible Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.

2.9 CRACK REPAIR AND INJECTION GROUT MATERIALS

- A. Stone crack repair and joint injection grout consisting only of Natural Hydraulic Lime (NHL 3.5) and water. No additives such as pozzolans, gypsum, air entrainers, colorants, ash, cement, or sand will be permitted in grout mix.
 1. Crack repair material shall consist of four (4) types of mixes as follows:
 - a. Type I: For cracks less than 0.0125 inch (10 mils): St. Astier NHL 3.5 (pre-mixed NHL 3.5 – 40-60 microns)
 - b. Type II: For cracks between 0.0125 inch (10 mils) and 1/8 inch: St. Astier NHL 3.5 (pre-mixed NHL 3.5 – 300 microns)
 - c. Type III: For cracks between 1/8 inch and 1/4 inch: St. Astier NHL 5 (pre-mixed NHL 3.5 – 600 microns)
 - d. Type IV: For cracks between 1/4 inch and 1/2 inch: St. Astier NHL 5 (pre-mixed NHL 3.5 – 800 microns)
 2. Available Products:
 - a. Pre-bagged injection grout: St. Astier NHL 3.5, Chaux 100 Naturelle Pure (NHL 3.5), distributed by deGruchy's Lime Works, P.O. Box 151, Milford Square, PA, 18935. Tel. (215) 536-6706.
 - b. Pre-bagged injection grout mixed and bagged in controlled environment, measured in weight, and marked with date and batch number on each container delivered to project site. Manufacturer shall retain a grout sample of each batch, identified with date and batch number, for quality control reference.
 - c. Provide manufacturer's written recommendation for specific material constituents and proportions of each prior to manufacturing of material.'
 3. Water: Potable. Water shall not contain any minerals that will result in staining of the stonework. Water shall have iron content less than 2 parts per million.

2.10 STONE ADHESIVE MATERIALS

- A. Dutchman Stone-to-Stone: 2-part polyester or epoxy-resin stone adhesive with a 15 to 45-minute cure at 70 deg F, recommended by adhesive manufacturer for type of stone repair indicated, and matching stone color.
 - 1. Akemi North America; Akepox.
 - 2. Bonstone Materials, Inc.; A-199-T/B-439-T.
 - 3. Edison Coatings, Inc.; Flexi-Weld 520T.
- B. Stone-to-Stone Adhesive: (Loose original stone that can be re-installed in original position or dutchman)
 - 1. Products: Subject to compliance with requirements, provide products of one of the following or equivalent:
 - a. "Akepox 1000" or "Akepox 1005", a two-part polyester or epoxy as manufactured by Akemi North America
 - b. "Jahn Restoration Adhesive," a mineral-based stone-to-stone glue as manufactured by Cathedral Stone Products, Inc., Tel: (800) 782-9150
- C. Anchor Embedment: Epoxy used in conjunction with steel anchor components:
 - 1. Epoxy for pin installation: HIT-HY xxx adhesive system as manufactured by Hilti, Tulsa, Oklahoma appropriate for the substrate and loads or approved equal.

2.11 MISCELLANEOUS MASONRY ACCESSORIES

- A. Stone Repair Anchors and Pins: Mechanical fasteners and pins of Type 304 stainless steel; designed for stone stabilization and pinning stone pieces; matching shape and size of existing anchors unless otherwise indicated.
- B. Setting Shims: Strips of resilient plastic [or] vulcanized neoprene, Type A Shore durometer hardness of 50 to 70, nonstaining to stone, of thickness needed to prevent point loading of stone on anchors and of depths to suit anchors without intruding into required depths of pointing materials.
- C. Setting Buttons: Resilient plastic buttons, nonstaining to stone, sized to suit joint thicknesses and bed depths of stone units without intruding into required depths of pointing materials.
- D. Bituminous Coating: Cold-applied asphalt emulsion in accordance with ASTM D1187.

2.12 MASONRY CLEANERS

- A. pH neutral detergent.
- B. Proprietary Acidic Cleaner: Not to be used unless approved during mock-up. Manufacturer's standard-strength cleaner designed for removing mortar and grout stains, efflorescence, and other new construction stains from stone masonry surfaces without discoloring or damaging masonry surfaces; expressly approved for intended use by cleaner manufacturer and stone producer. Do not use on limestone or allow products to flow on to adjacent limestone.

2.13 FABRICATION

- A. General: Fabricate stone units in sizes and shapes required to comply with requirements indicated.
 - 1. For limestone, comply with recommendations in ILI's "Indiana Limestone Handbook."
- B. Cut Split and Select stone to produce pieces of thickness, size, and shape indicated, including details on Drawings and pattern specified in "Setting Stone Masonry" Article.
 - 1. Shape stone specified to be laid in random ashlar pattern with split beds.
- C. Dress joints (bed and vertical) straight and at right angle to face unless otherwise indicated. Shape beds to fit supports.
 - 1. Exception: See drawings for details of joints in random ashlar veneer.
- D. Cut and drill sinkages and holes in stone for anchors and supports.
- E. Carefully inspect stone at quarry or fabrication plant for compliance with requirements for appearance, material, and fabrication. Replace defective units before shipment.
 - 1. Clean sawed backs of stone to remove rust stains and iron particles.
- F. Thickness of Stone: Provide thicknesses indicated on Drawings.
- G. Contiguous Work: Provide chases, reveals, reglets, openings, and similar features as required to accommodate contiguous work.
- H. Fabricate molded work, including washes and drips, to produce stone shapes with a uniform profile throughout entire unit length, with precisely formed arris slightly eased to prevent snipping, and with matching profile at joints between units.
- I. Finish exposed stone faces and edges to comply with requirements indicated for finish and to match approved samples and mockups.
 - 1. See Drawings for finishes required.

2.14 MORTAR MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
 - 1. Do not use calcium chloride.
 - 2. Use portland cement-lime mortar unless otherwise indicated.
 - 3. Mixing Pointing Mortar: Thoroughly mix cementitious and aggregate materials together before adding water. Then mix again, adding only enough water to produce a damp, unworkable mix that will retain its form when pressed into a ball. Maintain mortar in this dampened condition for one to two hours. Add remaining water in small portions until mortar reaches required consistency. Use mortar within 30 minutes of final mixing; do not retemper or use partially hardened material.

- B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in the form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
- C. Mortar for Stone Masonry: Comply with ASTM C270, Proportion Specification.
 - 1. Mortar for Setting and Pointing Stone: Type N. 1 part cement, 1 part lime, 6 parts sand
- D. Pigmented Mortar: Use colored cement product or select and proportion pigments with other ingredients to produce color required. Do not add pigments to colored cement products.
 - 1. Pigments shall not exceed 10 percent of portland cement by weight.
 - 2. Pigments shall not exceed 5 percent of mortar cement by weight.
 - 3. Mix to match approved sample. Aesthetic intention is to match mortar on McFaddin Tower.
- E. Colored-Aggregate Mortar: If required based on sample submittal and mock-up, in lieu of or in addition to pigmented mortar, produce required mortar color by using colored aggregates and natural color or white cement as necessary.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces indicated to receive stone masonry, with Installer present, for compliance with requirements for installation tolerances, and other conditions affecting performance of stone masonry and building envelope.
- B. Examine substrate to verify that existing back-up is sound and ready to receive new stone.
 - 1. Verify that removals work has been satisfactorily completed and that engagement and embedment depth requirements for new stone can be achieved.
 - 2. See Div 02 Selective Removals and Stone Dismantling and Reconstruction article.
- C. Examine substrate to verify that slots, inserts, reinforcement, veneer anchors, flashing, and other items installed in substrates and required for or extending into stone masonry are correctly installed.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean dirty or stained stone surfaces by removing soil, stains, and foreign materials before setting. Clean stone by thoroughly scrubbing with fiber brushes and then drenching with clear water. Use only mild cleaning compounds that contain no caustic or harsh materials or abrasives.

3.3 STONE DISMANTLING AND RECONSTRUCTION (REBUILD & RESET)

- A. At locations indicated, remove stone masonry. Carefully remove entire units from joint to joint, without damaging masonry to remain.
 - 1. Remove and rebuild one buttress at a time.
 - 1. Remove mortar, loose particles, and soil from stone by cleaning with hand chisels, brushes, and water.
 - 2. Remove sealants by cutting close to stone with utility knife and cleaning with solvents.
 - 3. Sort, store and protect any existing stone that can be reused.
 - 4. All engaged stones that are in good condition (without cracks, spalls or crazing) shall remain in place. Do not remove existing stones, in good condition, that are embedded into main façade.
- B. Support and protect the remaining masonry that surrounds removal area. Maintain existing flashing, reinforcement, lintels, and adjoining construction in an undamaged condition unless indicated to be replaced.
- C. Notify Architect of unforeseen detrimental conditions including voids, cracks, bulges, and loose masonry units in existing masonry, corroded metal, and other deteriorated items.
- D. Clean stone surrounding removal areas by removing mortar, dust, and loose particles in preparation for replacement. Inner wythes of existing masonry wall where disassembled can be replaced with new masonry of similar type, size and performance characteristics when reconstructed.
- E. If any removed stone is in good condition, clean all stone salvaged for reinstallation by methods established under cleaning test procedures.
- F. Repair all damaged stones including crack repair, patching and Dutchman repair as identified on the Drawings.
- G. Repair masonry backup wall and rebuild areas of removals. Butter vertical joints for full width before setting and set units in full bed of mortar, unless otherwise indicated. Install anchors with size, spacing and type indicated. Install flashings.
 - 1. Tool exposed mortar joints in repaired areas to match joints of surrounding existing stonework.
 - 2. Rake out mortar used for laying stone before mortar sets and point new mortar joints in repaired area to comply with requirements for repointing existing stone, and at same time as repointing of surrounding area.

3.4 INSTALLATION OF STONE MASONRY

- A. Sort stone before it is placed in wall to remove stone that does not comply with requirements relating to aesthetic effects, physical properties, or fabrication, or that is otherwise unsuitable for intended use.

- B. Arrange stones in random ashlar pattern with random course heights, and random lengths (with interrupted courses and angled bed joints) with joint widths within tolerances indicated on drawings and as approved in mock-up.
 - 1. Arrange stones with color and size variations uniformly dispersed for an evenly blended appearance to match McFaddin Tower and approved mock-up.
 - 2. See drawings for "Stone specifications and dimensions table", "Stone blend", "Relationship of Jumpers to Bars" and "Stone General Notes".
- C. Place sedimentary stone on building with layers bedded horizontally, also known as quarry bedded. Do not allow face bedding of stone.
- D. Set stone accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances.
- E. Field cut stones to fit in place with no mortar filled voids greater than 2 inches in any direction.
- F. Mortar voids in wall solid, with no open voids or air space. .
- G. Maintain joint width for replacement stone to match existing joints.
- H. Do not lay stones in wall with visible cracking. Stones with horizontal cracking may be split and used for bars.
- I. Perform necessary field cutting and trimming as stone is set.
 - 1. Exposed faces will be natural seam face from quarry- not split. At corners of buttresses and where stone requires fitting to engage with existing masonry:
 - a. Use power saws to cut stone.
 - b. Use hammer and chisel to split stone.
- J. Set stone in full bed of mortar with full head joints unless otherwise indicated. Build anchors into mortar joints as stone is set.
- K. Anchor stone masonry to backup with anchors specified and approved on shop drawings.
- L. Space anchors to provide not less than one anchor per 1.75 sq. ft. (16" o.c. each way) of wall area. Install additional anchors within 12 inches of openings, sealant joints, and perimeter at intervals not exceeding 12 inches.
- M. Anchor stone trim with stone trim anchors as approved on shop drawings. Install anchors by fastening to substrate and inserting tabs and dowels into kerfs and holes in stone units. Provide compressible filler in ends of dowel holes and bottoms of kerfs to prevent end bearing of dowels and anchor tabs on stone. Fill remainder of anchor holes and kerfs with mortar.
 - 1. Shim and adjust anchors, supports and accessories to set stones accurately in locations indicated with uniform joints of widths indicated and with edges and faces aligned according to established relationships and indicated tolerances.
- N. See POINTING AND REPOINTING STONE MASONRY in Article 3 repointing procedures.

- O. For Limestone: Maintain uniform joint widths except for variations due to different stone sizes and where minor variations are required to maintain bond alignment if any.
 - 1. Joint Size: 1/4" Joints plus or minus 1/16 inch
- P. For face stone: Lay walls with joints not less than 3/4 inch at narrowest points or more than 1-1/2 inches at widest points. See drawings for details.
- Q. Set stone in full bed of mortar with head joints filled unless otherwise indicated.
 - 1. Use setting buttons of adequate size, in sufficient quantity, and of thickness required to maintain uniform joint width and to prevent mortar from extruding. Hold buttons back from face of stone a distance at least equal to width of joint, but not less than depth of pointing materials.
 - 2. Do not set heavy units or projecting courses until mortar in courses below has hardened enough to resist being squeezed out of joint.
 - 3. Support and brace projecting stones until wall above is in place and mortar has set.
 - 4. Provide compressible filler in ends of dowel holes and bottoms of kerfs to prevent end bearing of dowels and anchor tabs on stone. Fill remainder of anchor holes and kerfs with mortar.
 - 5. See drawings for description of stone joint profile.
- R. Provide sealant joints of widths and at locations indicated.
 - 1. Keep sealant joints free of mortar and other rigid materials.
 - 2. Sealant joints are specified in Section 079200 "Joint Sealants."

3.5 HELICAL / RESTORATION ANCHOR INSTALLATION

- A. Helical tie installation as used for "Restoration Pinning" as indicated on drawings:
 - 1. Select proper anchor length by field verification.
 - 2. Drill proper pilot hole size per the anchor type. See manufacturer's product data for recommendations.
 - 3. Install helical tie into the dry setting tool mounted in an SDS drill.
 - 4. Drive the helical tie anchor in the pilot hole and into the backup material.
 - 5. The setting tool will recess the helical tie approximately 3/8 inch from the surface.
 - 6. Space anchors in a staggered pattern not more than 16 inches on center vertically and 16 inches on center horizontally. Install additional anchors within 12 inches of openings at intervals, not exceeding 8 inches around the perimeter. Due to irregular joints anchors will not be in a regular pattern,
- B. Helical tie installation as used for "Restoration Anchors" as indicated on drawings:
 - 1. Select proper anchor length by field verification.
 - 2. Drill proper pilot hole size per the anchor type. See manufacturer's product data for recommendations.
 - 3. Install helical tie into the dry setting tool mounted in an SDS drill.
 - 4. Drive the helical tie anchor in the pilot hole and into the backup material, leaving enough room to install the seismic coupler.
 - 5. Install seismic coupler and thread helical reinforcing bar through couplers.
 - 6. Install mortar bed and replacement stone.

7. Space anchors in a staggered pattern not more than 16 inches on center vertically and 16 inches on center horizontally. Install additional anchors within 12 inches of openings at intervals, not exceeding 8 inches around the perimeter. Due to irregular joints anchors will not be in a regular pattern

3.6 INSTALLATION OF FLASHING

- A. Install embedded flashing under limestone cap pieces, and where indicated.
 1. Extend flashing through stone masonry, up face of wall at least 8 inches,
 2. Unless noted otherwise on drawings, install metal drip edges beneath flexible flashing at exterior wall face. Stop flexible flashing 1/2 inch back from exterior wall face and adhere flexible flashing to top of metal drip edge.
 3. Cut flexible flashing flush with wall face after completing masonry wall construction.
- B. Metal protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating by applying self-adhering sheet underlayment to each contact surface or by other permanent separation as recommended in SMACNA's Architectural Sheet Metal Manual.
- C. Cover flashing within a few days of installation to protect it from damage from the different trades, the environment and falling debris. If flashing is left unprotected and it is punctured, torn, or has loose scrim you should contact the manufacturer for repair instructions.
- D. Install exposed flashing over top of existing shelves in locations indicated on drawings.

3.7 STONE DUTCHMAN REPAIR

- A. Dutchman repair is indicated for damaged stone in locations shown on Drawings.
 1. Rectangular Dutchman: Carefully remove stone by making vertical and horizontal saw cuts at face of stone to depth required for fitting Dutchman. Make edges of stone at cuts smooth and square to each other and to finished surface. Make back of removal area flat and parallel to stone face.
 2. Fabricate Dutchman to match existing sill profile.
- B. Review all Dutchman locations with Architect prior to beginning work. Inform Architect of any additional Dutchman's that may be required but are not designated.
- C. Remove mortar from joints that abut area of stone removal to same depth as stone was removed. Remove loose mortar particles and other debris from surfaces to be bonded and surfaces of adjacent stone units that will receive mortar by cleaning with stiff-fiber brush or water/compressed air. Ensure that no ferrous metal filings remain after removals.
- D. Fabricate and trim Dutchman to accurately fit area where stone was removed.
 1. Rectangular Dutchman: Joints between rectangular Dutchman and mother stone shall not exceed 1/16".

2. Profile shall align with existing adjacent to remain.
- E. Stone Dutchman: Set with epoxy. Coat all sides of Dutchman to set against mother stone with epoxy as specified in Article for Dutchman Repair Materials in this Section. Where small Dutchman have two or more exposed faces, set the back face only in epoxy, with other joints set in lime grout.
- F. Provide stainless steel threaded pin anchors for Dutchman with two (2) or more exposed faces. Provide one (1) pin anchor for every square foot of surface area to be repaired.
- G. Allow 3 weeks for curing prior to tooling the face of the Dutchman if required. Grind where possible and only use impact tools for final surface texturing where required.
- H. Clean residual grout from exposed surfaces and patch chipped areas.
- I. Where applicable, apply stone-to-stone adhesive to comply with adhesive manufacturer's written instructions. Coat bonding surfaces of mother stone and Dutchman, completely filling all crevices and voids.
- J. Apply partial replacement while adhesive is still tacky and hold securely in place until adhesive has cured. Use shims, clamps, wedges, or other devices as necessary to align face of partial replacement with face of stone unit being repaired.

3.1 STONE CRACK REPAIR

- A. General: Comply with Natural Hydraulic Lime manufacturers or distributor's instructions.
- B. Review all cracks designated for injection with Architect prior to proceeding with Work. Inform Architect of any additional cracks that may require injection but are not designated.
- C. For cracks greater than 0.0125 (1/64) inches, repair method shall involve the process of working grout/mortar into cracks using fine tools (trowels and dental tools) and hypodermic syringe injection where cracks are thin.
 1. Clean out cracks with compressed air and water or syringe where cracks are thin. Remove dirt and organic matter, loose material, sealants, and failed crack repair materials.
 2. Determine appropriate mortar type for each crack. A variety of types may be necessary in any individual crack if width of crack varies.
 3. Wet surface of stone adjacent to crack and inside crack, using syringe where necessary. Allow surface water to absorb or evaporate, proceed with pointing when stone is wet to the touch without standing water on surface.
 4. Work mortar into crack using fine tools. In case of finer cracks, mortar can be laid into crack using syringe and worked with fine tools. Compress grout into cracks using tools.
 5. Clean excess from stone surfaces.
 6. Strike mortar at face of crack repair to flush condition, texture mortar to simulate texture of adjacent stone.

D. For cracks smaller than 0.0125 (1/64) inches, repair method shall involve the process of working grout into cracks using fine tools (trowels and dental tools) and hypodermic syringe injection where cracks are thin.

1. Clean out cracks with compressed air and water or syringe where cracks are thin. Remove dirt and organic matter, loose material, sealants, and failed crack repair materials.
2. Provide minimal diameter portholes, approximately 1/16 inch diameter, 1/2 into crack with a downward sloping orientation to allow grout to flow into crack.
3. Place non-staining clay pack over crack leaving port openings clear.
4. Wet surface of stone adjacent to crack and inside crack, using syringe where necessary. Allow surface water to absorb or evaporate, proceed with pointing when stone is wet to the touch without standing water on surface.
5. Starting from lowest port, inject grout Type I into ports using #50 hypodermic syringe until grout backflows out of injection port or adjacent port. Cover port with clay pack. Proceed to next port and repeat process.
6. Clean excess from stone surfaces.
7. Remove clay pack within 24 hours. Clean all surfaces of grout and clay.

3.2 TOLERANCES

A. Variation from Plumb: For vertical lines and surfaces, do not exceed 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch in 40 feet or more. For external corners, expansion joints, control joints, and other conspicuous lines, do not exceed 1/4 inch in 20 feet or 1/2 inch in 40 feet or more.

B. Variation from Level: For horizontal bed joints and lines of exposed lintels, sills, parapets, horizontal grooves, and other conspicuous lines, do not exceed 1/4 inch in 20 feet or 1/2 inch in 40 feet or more.

1. Exception: For veneer stones see drawings.

C. Variation of Linear Building Line: For position shown in plan, do not exceed 1/2 inch in 20 feet or 3/4 inch in 40 feet or more.

D. Measure variation from level, plumb, and position shown in plan as a variation of the average plane of each stone face from level, plumb, or dimensioned plane.

E. Variation in Mortar-Joint Thickness: Do not vary from joint size range indicated.

F. Variation in Plane between Adjacent Stones: Do not exceed one-half of tolerance specified for thickness of stone.

1. Exception: For veneer stone see drawings.

3.1 POINTING AND REPOINTING STONE MASONRY

- A. Rake out and repoint mortar joints in areas indicated on exterior elevation drawings.
- B. Do not rake out and repoint joints where not indicated unless directed by Architect.

C. Mock-ups of both hand and power tool repointing performed in accordance with the procedures specified herein will be conducted as part of the Project work of this Section. The samples will represent the standard for all repointing to be performed by this Contract.

D. Mortar Preparation:

1. Pre-blended Pointing Mortar: Blend in controlled environment, measured in weight, and marked with date and batch number on each container delivered to project site. Manufacturer shall retain a mortar sample of each batch, identified with date and batch number, for quality control reference.
2. Provide manufacturer's written recommendation for specific material constituents and proportions of each prior to manufacturing of material.
3. Mix cementitious materials and aggregate for at least five (5) minutes in a drum type mixer, adding minimum amount of water consistent with proper workability.
4. Empty and clean tools after each use.
5. Mixing batches is prohibited.

E. Rake out joints as follows:

1. Remove mortar from joints to minimum depth of 2 to 2-1/2 times the width of the joint, but not less than 2 inches, unless noted otherwise, using a combination of approved hand and power tools for stonework.
2. Remove mortar from stonework surfaces within raked-out joints to provide reveals with square backs and to expose stone for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
3. Do not spall edges of stone units or widen joints. Do not use power tools on vertical joints. Replace or patch damaged stone units as directed by Architect.
 - a. Strictly adhere to written quality-control program. Quality-control program includes provisions for demonstrating ability of operators to use tools without damaging stone, supervising performance, and preventing damage due to worker fatigue.

F. Notify Architect of unforeseen detrimental conditions including voids in mortar joints, cracks, loose stone, corroded metal, and other deteriorated items.

G. Point joints as follows:

1. Rinse stonework joint surfaces with water to remove dust and mortar particles. Time rinsing to coincide with pointing; joint surfaces must be damp but free of standing water. If rinse water dries, dampen stonework joint surfaces before pointing.
2. Deep point by applying pointing mortar first to areas where existing mortar was removed to depths greater than 1-1/2" inch. Apply in layers not greater than 1/4 to 3/8 inch until a uniform depth is formed. Fully compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.
3. After deep pointing required areas to same depth as remaining joints, point all joints by placing mortar in layers not greater than 1/4 to 3/8 inch. Fully compact each layer and allow to become thumbprint hard before applying next layer.
4. Tool joints to match the original appearance of joints as demonstrated in approved mockup. Tool joints, when pointing mortar is thumbprint hard, with a smooth jointing tool to produce the following joint profile:
 - a. Sandstone Buttresses and Fields:
 - 1) Develop the technique to point joints to match existing on McFaddin. The following concept shall be used as a starting point:

- 2) Fill joints flush with finished plane of stone wall
- 3) 'Score' all bed joints with a level line near top bed of stone 'score' all head joints (vertical and angled) near left side of stones
- 4) Remove mortar below and to the right of scored lines, angled to meet face of adjacent stone flush
- b. Limestone: Smooth, Flat Face, Flush
 - 1) Remove excess mortar from edge of joint by brushing.
5. Hairline cracking within mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.

H. Cure mortar by maintaining in thoroughly damp condition for at least 72 hours, including weekends and holidays.

1. Acceptable curing methods include covering with wet burlap and plastic sheeting, periodic hand misting, and periodic mist spraying using system of pipes, mist heads, and timers.
2. Adjust curing methods to ensure that pointing mortar is damp throughout its depth without eroding surface mortar.

I. Pointing with Sealant: Comply with Section 079200 "Joint Sealants" and as follows:

1. After raking out, keep joints dry and free of mortar and debris.
2. Clean and prepare joint surfaces. Prime joint surfaces unless sealant manufacturer recommends against priming. Do not allow primer to spill or migrate onto adjoining surfaces.
3. Fill sealant joints with specified joint sealant.
 - a. Install cylindrical sealant backing beneath the sealant. Where space is insufficient for cylindrical sealant backing, install bond-breaker tape.
 - b. Install sealant using only proven installation techniques that ensure that sealant is deposited in a uniform, continuous ribbon, without gaps or air pockets, and with complete wetting of the joint bond surfaces equally on both sides. Fill joint flush with surrounding stonework and matching the contour of adjoining mortar joints.
 - c. Install sealant as recommended in writing by sealant manufacturer but within the following general limitations, measured at the center (thin) section of the bead:
 - 1) Fill joints to a depth equal to joint width, but not more than 1/2 inch deep or less than 1/4 inch deep.
 - d. Tool sealant to form smooth, uniform beads, slightly concave. Remove excess sealant from surfaces adjacent to joint.
 - e. Sanded Joints: Immediately after first tooling, apply ground-mortar aggregate to sealant, gently pushing aggregate into the surface of sealant. Lightly retool sealant to form smooth, uniform beads, slightly concave. Remove excess sealant and aggregate from surfaces adjacent to joint. Sanded joints shall be used in all joints in masonry.
 - f. Do not allow sealant to overflow or spill onto adjoining surfaces, or to migrate into the voids of adjoining surfaces, particularly rough textures. Remove excess and spillage of sealant promptly as the work progresses. Clean adjoining surfaces by the means necessary to eliminate evidence of spillage, without damage to adjoining surfaces or finishes, as demonstrated in an approved mockup.

3.2 ADJUSTING AND CLEANING

- A. Remove and replace stone masonry of the following description:
 - 1. Broken, chipped, stained, or otherwise damaged stone. Stone may be repaired if methods and results are approved by Architect.
 - 2. Defective joints.
 - 3. Stone masonry not matching approved samples and mockups.
 - 4. Stone masonry not complying with other requirements indicated.
- B. Replace in a manner that results in stone masonry matching approved samples and mockups, complying with other requirements, and showing no evidence of replacement.
- C. In-Progress Cleaning: Clean stone masonry as work progresses. Remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean stone masonry as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Test cleaning methods on mockup; leave one-half of panel uncleared for comparison purposes. Obtain Architect's approval of sample cleaning before cleaning stone masonry.
 - 3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.
 - 4. Wet wall surfaces with water before applying cleaner; remove cleaner promptly by rinsing thoroughly with clear water. Work from the bottom of the building up.
 - 5. Clean stone masonry by bucket and brush hand-cleaning method described in BIA Technical Note No. 20, Revised II, using job-mixed detergent solution.
 - 6. If efflorescence is present, allow to dry and remove with stiff brush.
 - 7. Staining that occurs during the work, not removed with the above methods, shall be cleaned with proprietary acidic cleaner applied according to manufacturer's written instructions.
 - 8. Clean limestone masonry to comply with recommendations in ILI's "Indiana Limestone Handbook."

3.3 EXCESS MATERIALS AND WASTE

- A. Excess Stone: Palletize excess stone as directed by Owner for Owner's use.

END OF SECTION 040140

SECTION 057000 - DECORATIVE METAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Chimney weather caps.

1.2 COORDINATION

A. Coordinate installation of anchorages for decorative metal items. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product, including finishing materials.

B. Shop Drawings: Show fabrication and installation details for decorative metal.

1. Include plans, elevations, component details, and attachment details.
2. Indicate materials and profiles of each decorative metal member, fittings, joinery, finishes, fasteners, anchorages, and accessory items.

C. Samples for selection of finish and color of aluminum and stainless steel components.

1. Initial submission for selection: Raw materials (4x4 aluminum plate) and color chart.
2. Second submission: Finished aluminum sample for confirmation of selected color.

D. Mock-Up: After approval of shop drawings, metal finish and color, install one chimney weather cap for approval before fabricating other caps. Approved mock-up may become part of the work.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For fabricator.

B. Mill Certificates: Signed by manufacturers of stainless steel certifying that products furnished comply with requirements.

C. Welding certificates.

1.5 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.6/D1.6M, "Structural Welding Code - Stainless Steel."
2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."

1.6 MOCKUPS

A. Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.

1. Build mockups for the following types of decorative metal:
 - a. Chimney Weather Cap - One location.
2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store decorative metal in a well-ventilated area, away from uncured concrete and masonry, and protected from weather, moisture, soiling, abrasion, extreme temperatures, and humidity.

1.8 FIELD CONDITIONS

A. Field Measurements: Verify actual size of chimney limestone base and other construction contiguous with decorative metal by field measurements before fabrication and indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 METALS, GENERAL

A. Metal Surfaces, General: Use materials with smooth, flat surfaces unless otherwise indicated. Use materials without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

2.2 ALUMINUM

A. Fabricate products from alloy and temper recommended by aluminum producer and finisher for

type of use and finish indicated, and with strength and durability properties for each aluminum form required not less than that of alloy and temper designated below.

Retain required forms in remaining paragraphs. Revise alloy and temper designation to suit structural performance requirements if any.

Yield strength for Alloy 6063-T5/T52 is 15 to 16 ksi (105 to 110 MPa).

- B. Bars and Shapes: ASTM B221, Alloy 6063-T5/T52.
- C. Plate and Sheet: ASTM B209 Alloy 6061-T6.

2.3 STAINLESS STEEL

- A. Tubing: ASTM A554, Grade MT 304.
- B. Pipe: ASTM A312/A312M, [Grade TP 304][Grade TP 316][Grade TP 316L].
- C. Plate, Sheet, and Strip: ASTM A240/A240M or ASTM A666, Type 304.
- D. Flat Bar: ASTM A666, Type 304.
- E. Bars and Shapes: ASTM A276, Type 304.

2.4 FASTENERS

- A. Fastener Materials: Unless otherwise indicated, provide the following:
 - 1. Aluminum Items: Type 304 stainless steel fasteners.
 - 1. Stainless Steel Items: Type 304 stainless steel fasteners.
 - 2. Dissimilar Metals: Type 304 stainless steel fasteners.
- B. Fasteners for Anchoring to Other Construction: Unless otherwise indicated, select fasteners of type, grade, and class required to produce connections suitable for anchoring indicated items to other types of construction indicated.
- C. Provide concealed fasteners for interconnecting components and for attaching decorative metal items to other work unless otherwise indicated.
- D. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC193[or ICC-ES AC308].
 - 1. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless steel bolts, ASTM F593, and nuts, ASTM F594.

2.5 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
 - 1. For aluminum, provide type and alloy as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.
- B. Epoxy Zinc-Rich Primer: Complying with MPI#20 and compatible with topcoat.
- C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.

2.6 FABRICATION, GENERAL

- A. Assemble items in the shop to greatest extent possible to minimize field splicing and assembly.
 - 1. Disassemble units only as necessary for shipping and handling limitations.
 - 2. Clearly mark units for reassembly and coordinated installation.
 - 3. Use connections that maintain structural value of joined pieces.
- B. Make up wire-rope assemblies in the shop to field-measured dimensions with fittings machine swaged.
 - 1. Minimize amount of turnbuckle take-up used for dimensional adjustment so maximum amount is available for tensioning wire ropes.
 - 2. Tag wire-rope assemblies and fittings to identify installation locations and orientations for coordinated installation.
- C. Form decorative metal to required shapes and sizes, true to line and level with true curves and accurate angles and surfaces. Finish exposed surfaces to smooth, sharp, well-defined lines and arrises.
- D. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing the Work.
- E. Form simple and compound curves in bars, pipe, tubing, and extruded shapes by bending members in jigs to produce uniform curvature for each configuration required; maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces.
- F. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- G. Mill joints to a tight, hairline fit. Cope or miter corner joints. Fabricate connections that will be exposed to weather in a manner to exclude water.
- H. Provide weep holes where water may accumulate. Locate weep holes in inconspicuous

locations.

- I. Provide necessary rebates, lugs, and brackets to assemble units and to attach to other work. Cut, reinforce, drill, and tap as needed to receive finish hardware, screws, and similar items unless otherwise indicated.
- J. Comply with AWS for recommended practices in shop welding]. Weld behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded joints of flux, and dress exposed and contact surfaces.
 - 1. Where welding cannot be concealed behind finished surfaces, finish joints to comply with NOMMA's "Voluntary Joint Finish Standards" for Type 3 Welds: partially dressed weld with spatter removed
- K. Provide castings that are sound and free of warp, cracks, blowholes, or other defects that impair strength or appearance. Grind, wire brush, sandblast, and buff castings to remove seams, gate marks, casting flash, and other casting marks.

2.7 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

2.8 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. As selected during sample submittals:
 - 1. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm thicker.
 - 2. Color Anodic Finish: AAMA 611, AA-M12C22A42/A44, Class I, 0.018 mm or thicker.
 - a. Color: As selected by Architect from full range of industry colors and color densities.

2.9 FINISHES

- A. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
- B. Stainless Steel Tubing Finishes:
 - 1. 180-Grit Polished Finish: Uniform, directionally textured finish.

- C. Stainless Steel Sheet and Plate Finishes:
 - 1. Dull Satin Finish: ASTM A480/A480M, No. 6.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of decorative metal.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Provide anchorage devices and fasteners where needed to secure decorative metal to in-place construction.
- B. Perform cutting, drilling, and fitting required to install decorative metal. Set products accurately in location, alignment, and elevation, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items to be built into concrete, masonry, or similar construction.
- C. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.
 - 1. Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

3.3 INSTALLATION OF CHIMNEY CAPS

- A. Micro-core existing limestone caps for threaded anchor rods..
- B. Review conditions and ensure limestone cap has been pointed and sloped wash installed on top before proceeding.
- C. Locate anchor rods in center of limestone caps.
- D. Set plate caps over spacer sleeves and set threaded rods in epoxy.
- E. Install bird screening around ventilation space, attaching to mounting posts with stainless steel wires.

3.4 CLEANING AND PROTECTION

- A. Unless otherwise indicated, clean metals by washing thoroughly with clean water and soap, rinsing with clean water, and drying with soft cloths.
- B. Protect finishes of decorative metal from damage during construction period with temporary protective coverings approved by decorative metal fabricator. Remove protective covering at time of Substantial Completion.
- C. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION 057000

SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Custom flashing and trim fabrications, made from the following:
 - 1. Sheet metal materials.
- B. Related Requirements:
 - 1. Section 040140 Stone Masonry Restoration for embedded flashing.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review sheet metal flashing observation and repair procedures after flashing installation.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For sheet metal flashing and trim.
 - 1. Plans, elevations, sections, and attachment details.
 - 2. Details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
 - 3. Details of termination points and assemblies.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Statements: For fabricator.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For sheet metal flashing and trim, and its accessories.

1.6 QUALITY ASSURANCE

- A. Fabricator Qualifications: Entity that employs skilled workers who custom fabricate sheet metal

flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

B. **Installer Qualifications:** Entity that employs a supervisor who is an NRCA ProCertified Roofing Foreman or installers who are NRCA ProCertified Architectural Metal Flashings and Accessories Installers.

1.7 MOCKUPS

A. Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.

1. Build mockup of sill flashing, on north facade sill, including supporting construction cleats, seams, attachments, and accessories.
2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Owner specifically approves such deviations by Change Order.
3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

1. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
2. Protect stored sheet metal flashing and trim from contact with water.

B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

1.9 COORDINATION

A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.

B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Sheet metal flashing and trim assemblies, including cleats, anchors, and fasteners, are to

withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim are not to rattle, leak, or loosen, and are to remain watertight.

- B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual: Architectural Metal Flashing, Condensation and Air Leakage Control, and Reroofing" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
- C. Sheet Metal Standard for Copper: Comply with CDA's "Copper in Architecture Design Handbook." Conform to dimensions and profiles shown unless more stringent requirements are indicated.
- D. SPRI Wind Design Standard: Manufacture and install roof edge flashings and copings tested in accordance with ANSI/SPRI/FM 4435/ES-1 and capable of resisting the following design pressure:
 - 1. Design Pressure: [As indicated on Drawings]<Insert design pressure>.
- E. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
 - 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 FABRICATION, GENERAL

- A. Custom fabricate sheet metal flashing and trim to comply with details indicated and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required.
 - 1. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
 - 2. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
 - 3. Verify shapes and dimensions of surfaces to be covered and obtain field measurements for accurate fit before shop fabrication.
 - 4. Form sheet metal flashing and trim to fit substrates without excessive oil-canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
 - 5. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.
- B. Fabrication Tolerances:
 - 1. Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 ft. on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
 - 2. Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified.

- C. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.
 - 1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
 - 2. Use lapped expansion joints only where indicated on Drawings.
- D. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal in accordance with cited sheet metal standard to provide for proper installation of elastomeric sealant.
- E. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
- F. Fabricate cleats and attachment devices of sizes as recommended by cited sheet metal standard[and by FM Global Property Loss Prevention Data Sheet 1-49] for application, but not less than thickness of metal being secured.
- G. Seams:
 - 1. Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.
 - 2. Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use.[Rivet joints where necessary for strength.]
 - 3. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer.[Rivet joints where necessary for strength.]
- H. Do not use graphite pencils to mark metal surfaces.
- I. SILL FLASHING: Fabricate in minimum 96-inch- long, but not exceeding 12 ft.- long, sections. Fabricate joint plates of same thickness as copings. Furnish with continuous cleats to support edge of external leg.
 - 1. Profile: in accordance with SMACNA's "Architectural Sheet Metal Manual."
 - 2. Fabricate from the following materials:
 - a. Copper: Lead-coated 20 oz./sq. ft..

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, substrates, and other conditions affecting performance of the Work.
 - 1. Verify compliance with requirements for installation tolerances of substrates.
 - 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely

anchored.

3. Verify that air- or water-resistant barriers have been installed over substrate to prevent air infiltration or water penetration.

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

3.2 INSTALLATION OF SHEET METAL FLASHING AND TRIM, GENERAL

A. Install sheet metal flashing and trim to comply with details indicated and recommendations of cited sheet metal standard that apply to installation characteristics required unless otherwise indicated on Drawings.

1. Install fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
2. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder and sealant.
3. Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement.
4. Install sheet metal flashing and trim to fit substrates and to result in watertight performance.
5. Install continuous cleats with fasteners spaced not more than 12 inches o.c.
6. Space individual cleats not more than 12 inches apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
7. Install exposed sheet metal flashing and trim with limited oil-canning, and free of buckling and tool marks.
8. Do not field cut sheet metal flashing and trim by torch.
9. Do not use graphite pencils to mark metal surfaces.

B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.

1. Coat concealed side of sheet metal flashing and trim with bituminous coating where flashing and trim contact wood, ferrous metal, or cementitious construction.
2. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.

C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.

1. Space movement joints at maximum of 10 ft. with no joints within 24 inches of corner or intersection.
2. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.
3. Use lapped expansion joints only where indicated on Drawings.

D. Fasteners: Use fastener sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.

- E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.
- F. Seal joints as required for watertight construction.
 - 1. Use sealant-filled joints unless otherwise indicated.
 - a. Embed hooked flanges of joint members not less than 1 inch into sealant.
 - b. Form joints to completely conceal sealant.
 - c. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way.
 - d. Adjust setting proportionately for installation at higher ambient temperatures.
 - 1) Do not install sealant-type joints at temperatures below 40 deg F.
 - 2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."
- G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter.
 - 1. Pretin edges of sheets with solder to width of 1-1/2 inches; however, reduce pretinning where pretinned surface would show in completed Work.
 - 2. Do not solder [metallic-coated steel][and][aluminum] sheet.
 - 3. Do not pretin zinc-tin alloy-coated copper.
 - 4. Do not use torches for soldering.
 - 5. Heat surfaces to receive solder, and flow solder into joint.
 - a. Fill joint completely.
 - b. Completely remove flux and spatter from exposed surfaces.
 - 6. Copper Soldering: Tin edges of uncoated sheets, using solder for copper.

3.3 INSTALLATION OF SLOPED ROOF SHEET METAL FABRICATIONS

- A. Install sheet metal flashing and trim to comply with performance requirements[, sheet metal manufacturer's written installation instructions,] and cited sheet metal standard.
 - 1. Provide concealed fasteners where possible, and set units true to line, levels, and slopes.
 - 2. Install work with laps, joints, and seams that are permanently watertight and weather resistant.
- B. Copings:
 - 1. Install copings in accordance with ANSI/SPRI/FM 4435/ES-1.
 - 2. Anchor to resist uplift and outward forces in accordance with recommendations in cited sheet metal standard unless otherwise indicated.
 - a. Interlock exterior bottom edge of coping with continuous cleat anchored to substrate at 16-inch centers.

3.4 INSTALLATION TOLERANCES

- A. Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 ft. on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.5 CLEANING

- A. Clean and neutralize flux materials. Clean off excess solder.
- B. Clean off excess sealants.

3.6 PROTECTION

- A. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.
- B. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended in writing by sheet metal flashing and trim manufacturer.
- C. Maintain sheet metal flashing and trim in clean condition during construction.
- D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures, as determined by Architect.

END OF SECTION 076200

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes sealants for the following applications. Including those specified by reference to this section.
- 1. Exterior joints in the following vertical surfaces and horizontal surfaces as indicated on the Drawings:
 - a. Joints in stone masonry.
 - b. Joints between metal and masonry.
- B. Related Requirements:
 - 1. Section 040140 Stone Masonry Restoration" for procedures for pointing with joint sealants.

1.2 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint sealants without staining or deteriorating joint substrates.

1.3 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch wide joints formed between two 6-inch long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
 - 1. Include samples with sanded joints as required for matching texture of mortar.
- D. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.
- E. Warranties: Sample of special warranties.
- F. Joint-Sealant Schedule: Include the following information:
 - 1. Joint-sealant application, joint location, and designation.
 - 2. Joint-sealant manufacturer and product name.
 - 3. Joint-sealant formulation.
 - 4. Joint-sealant color.

1.4 CLOSEOUT SUBMITTALS

- A. Manufacturers' special warranties.
- B. Installer's special warranties.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.
- B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.
- C. Pre-installation Conference: Conduct conference at Project site.
- D. Testing Agency Qualifications: Qualified in accordance with ASTM C1021 to conduct the testing indicated.

1.6 MOCKUPS

- A. Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1.7 PRECONSTRUCTION TESTING

- A. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates as follows:
 1. Locate test joints where indicated on Drawings or, if not indicated, as directed by Architect.
 2. Conduct field tests for each kind of sealant and joint substrate.
 3. Notify Architect seven days in advance of dates and times when test joints will be erected.
 4. Test Method: Test joint sealants in accordance with Method A, Tail Procedure, in ASTM C1521.
 - a. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
 5. Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
 6. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multi-component materials.
- B. Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.9 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with installation of joint sealants under the following conditions:
 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer.
 2. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg.
 3. When joint substrates are wet.
 4. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 5. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.10 WARRANTY

- A. General Warranty: Special warranties specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period:
 1. Warranty Period: Five (5) years from date of Substantial Completion.
- C. Special Manufacturer's Warranty: Written warranty, signed by elastomeric sealant manufacturer agreeing to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period:
 1. Warranty Period: Twenty (20) years from date of Substantial Completion.
- D. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
 1. Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
 2. Disintegration of joint substrates from natural causes exceeding design specifications.

3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Available Products: Products that may be incorporated into the Work are named herein. Use of manufacturer's product designating material or system is not intended to limit use of equivalent products from other manufacturers. Any proposed substitution shall be equivalent to named products by meeting or exceeding specified requirements. Failure to meet such requirements, as evaluated by the Architect, shall be sufficient reason for rejection.
- B. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- C. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.
- D. Elastomeric Sealant Standard: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses.
 1. Provide sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- E. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be non staining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

2.2 NON-STAINING SEALANTS FOR VERTICAL SURFACES

- A. Nonstaining Joint Sealants: No staining of substrates when tested in accordance with ASTM C1248.
- B. Silicone, Nonstaining, S, NS, 100/50, NT: Nonstaining, single-component, nonsag, plus 100 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 100/50, Use NT. Sealant shall be tested to show no staining and no bleeding into the Onondaga Limestone on the building.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:
 - a. Sika Corporation - Building Components; Sikasil WS-290.
 - b. Pecora Corporation 890 FTS and 890 TXTR
 - c. Tremco Spectrem 3
 - d. The Dow Chemical Company Dowsil 790

C. Application: Provide at exterior locations at vertical and nontraffic horizontal joints in and between the following substrates:

1. Stone and brick masonry
2. Metal

2.3 JOINT SEALANT BACKER RODS

A. General: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin) Type O (open-cell material), or Type B (bicellular material with a surface skin, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.4 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

D. Compressible Filler: Expanded, closed cell, plank, polyethylene foam, ASTM D-3575 and ASTM D-1056, compatible with backer rod and sealant.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

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

3.2 PREPARATION

A. Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean, porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Stone.
 - b. Brick.
3. Remove laitance and form-release agents from concrete.
4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability:

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 1. Place sealants so they directly contact and fully wet joint substrates.
 2. Completely fill recesses in each joint configuration.
 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
 4. Sealant Joint Depth: Maximum depth of one-half the joint width with a minimum joint depth of $\frac{1}{4}$ -inch.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 1. Remove excess sealant from surfaces adjacent to joints.
 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
 4. Provide flush joint profile where indicated per Figure 8B in ASTM C 1193.
 5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 8C in ASTM C 1193.
 - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Tests and Inspections:
 1. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
 - a. Extent of Testing: Test completed and cured sealant joints as follows:
 - 1) Perform 5 tests for the first 500 feet of joint length for each kind of sealant and joint substrate.
 - 2) Perform one test for each 500 feet of joint length thereafter or one test per each elevation.
 - b. Test Method: Test joint sealants in accordance with Method A, Tail Procedure, in ASTM C1521.
 - 1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
 - c. Inspect tested joints and report on the following:
 - 1) Whether sealants filled joint cavities and are free of voids.
 - 2) Whether sealant dimensions and configurations comply with specified requirements.
 - 3) Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. Compare these results to determine

if adhesion complies with sealant manufacturer's field-adhesion hand-pull test criteria.

- d. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant material, sealant configuration, and sealant dimensions.
- e. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.

2. Evaluation of Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

C. Prepare test and inspection reports.

3.5 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 079200

SECTION 101600 – CONSTRUCTION PROJECT SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Construction Project Signage
2. Miscellaneous Project Signage

B. Related Requirements:

1. Section 01 "Temporary Facilities and Controls" for temporary Project identification signs and for temporary information and directional signs.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For signs.

1. Show sign locations and mounting heights.
2. Show half size image of sign layout in final colors from sign vendor.
 - a. Cornell will provide a template Adobe Illustrator file of typical sign graphics to Architect, then sign layout with rendered building image in pdf format will be provided by Architect.

1.3 QUALITY ASSURANCE

A. All project and construction signage must conform to the requirements of the Building Code of New York State (BCNYS) and the American National Standards Institute (ANSI), DOT and OSHA. For the purposes of this Standard, all references to "ADA compliance" shall include compliance with ICC/ANSI A117.1-2003 and compliance with the ADA Accessibility Guidelines (ADAAG).

PART 2 - PRODUCTS

2.1 SIGN VENDOR

A. Provide products from: Image Press, 6333 Daedalus Drive, Cicero, NY 13039, tel: 315-699-7109, fax: 315-6997494 (or approved equal)

2.2 EXTERIOR CONSTRUCTION SIGNAGE

- A. Sign Type 1: Primary Project Construction Sign:**
 - 1. Graphic Image Panel shall be 2'-0" high and 4'-0" in length, on .75" MDO wood board, primed and painted white with a graphic panel printed on 3M 180C control tac vinyl with UV inks, UV vinyl mounted on the MDO board, and wrap edges with vinyl. Provide and install two 4" x 4" x 12'-0" pressure treated posts painted white and associated fasteners for attaching MDO to posts.
- B. Miscellaneous Project Signage:**
 - 1. Signs are required by the project to communicate re-routing of pedestrians and vehicles, sidewalk and road closures, parking designation changes, OSHA required signage, hazmat signage, etc.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Appearance Standard:** Completed sign work shall have a sharp and uniformly delineated appearance as viewed by Architect from building exterior at 20 feet away from painted surface.
- B. Review locations on-site with Architect and Owner prior to installing.**
- C. Install signs level, plumb, true to line, with uniform delineation and borders, and at locations and heights indicated.**
- D. Install each sign with two 4"x4"x 12'0" painted wood posts. Posts shall be painted white to match board.**
- E. Remove signs at end of project as directed by Owner.**

END OF SECTION 101600

SECTION 329200 – TURF AND GRASSES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Seeding.
 - 2. Turf renovation.

1.2 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
- C. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
- D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
- E. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

1.3 SUBMITTALS

- A. Product data and certificates: For each type of manufactured product, submit data and certificates that the product meets the specification requirements, signed by the product manufacturer, and complying with the following:
 - 1. Fertilizer, Biological, and Other Amendments; Existing Soil; and Modified Existing Soil.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful turf establishment.
 - 1. The installer shall be a firm having at least 5 years of experience of a scope similar to that required for the work, including the preparation, mixing and installation of soil mixes to support planting.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.
- B. Bulk Materials:
 - 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
 - 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
 - 3. Accompany each delivery of bulk materials with appropriate certificates.

1.6 FIELD CONDITIONS

- A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of planting completion.
 - 1. Seed immediately after preparation of seed bed. Seeding shall be done between April 1 and June 1, or between August 15 and September 30
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 SEED

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.
- B. Seed Species:
 - 1. Quality, Non-State Certified: Seed of grass species as listed below for solar exposure, with not less than **85** percent germination, not less than 95 percent pure seed, and not more than 0.5 percent weed seed:
- C. Grass-Seed Mix: Proprietary seed mix as follows:
 - 1. Products: Subject to compliance with requirements, provide the following:
 - a. Type 5: P-5 Premium Ryegrass turf blend:
This grass seed may be used for repair and overseeding as specified by the

Cornell Grounds Department.

b. This seed mix will consist of the following, or at least 3 approved endophyte enhanced ryegrasses. Blends are available through Banfield-Baker, Lakeside Sod, Winfield or Crosman Seed Company or may be blended at vendor of your choice

- 20% Palmer IV
- 20% Prelude IV
- 20% Dazzle
- 20% Quest II
- 20% Drifter

or that have performed in the top statistical grouping form the most recent NTEP trials conducted for the species.

c. Seed may NOT be mixed on site. If seed mixed by a dealer, the contractor shall furnish the owner the dealer's guaranteed statement of the composition of the mixture. A sufficient number of All seed labels for seed used on campus will be furnished to the Owner's Representative for review, and then incorporated into the owner's project files.

2.2 FERTILIZERS

A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:

1. Composition:
 - a. Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

B. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:

1. Composition:
 - a. 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.
 - b. Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

2.3 MULCHES

A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.

B. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of **2 to 5** decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:

1. Organic Matter Content: **50 to 60** percent of dry weight.

2.4 PESTICIDES

- A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

2.5 MISCELLANEOUS MATERIALS

- A. Erosion-Control Mulch: Provide clean, seed-free salt hay or threshed straw of wheat, rye, oats or barley
- B. Filtration/Separation Fabric: Water permeable filtration fabric of fiberglass or polypropylene fabric.
- C. Temporary Lawn Protection: Shall include 1" x 1" hardwood stakes, 4' (four feet) high a maximum of 10' (ten feet) apart with a single line of double stranded white polypropylene twine, flagged with 1" wide red weather resistant flag tape. The maximum length of the flagging tapes will be 4" (four inches).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.
 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
 2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
 3. Uniformly moisten excessively dry soil that is not workable or which is dusty.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.

3.2 SITE PREPARATION

- A. Protect adjacent walls, walks and utilities from damage or staining by the soil. Use 1/2 inch plywood and or plastic sheeting as directed to cover existing concrete, metal and masonry work and other items as directed during the progress of the work.
- B. At the end of each working day, clean up any soil spilled on any paved surface.
- C. Any damage to the paving or site features or work shall be repaired at the Contractor's expense.
- D. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
 1. Protect grade stakes set by others until directed to remove them.
- E. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 TURF AREA PREPARATION

- A. General:
 1. Fine grade lawn areas to smooth, even surface with loose, uniformly fine texture. Rake and drag lawn areas, remove ridges and fill depressions, as required to meet finish grades. Limit fine grading to areas which can be planted immediately after grading.
 2. Allow for soil settlement. Placing Planting Soil: Blend planting soil in place in place with soil removed from work area.
 3. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
 4. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.
- B. Preparation where lawn areas have been disturbed by construction alterations:
 1. Renovate existing turf that is disturbed around perimeter of building. Renovation may require repair and amendment of soil in place or removal and re-spreading of amended soil.
 2. Install the Planting Soil in a minimum of 6 inches deep and in a maximum of 12 inch lifts to the required depths. Apply compacting forces to each lift as required to attain the required compaction.
 3. Ensure subsurface drains, drainage fill and filter fabric are installed prior to re-establishing turf.
 4. Prior to installing any Planting Soil from stockpiles or Planting Soil Mixes blended off site, the Owner's Representative will approve the condition of the subgrade.
 5. Renovate turf damaged by Contractor's operations, such as storage of materials or equipment and movement of vehicles.
 6. Reestablish turf where settlement or washouts occur or where minor regrading is required.
 7. Install new planting soil as required.
 8. Remove sod and vegetation from diseased or unsatisfactory turf areas; do not bury in soil.
 9. Apply seed and protect with straw mulch as required for new turf.

10. Water newly planted areas and keep moist until new turf is established.

3.4 SEEDING

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph.
 1. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
 2. Do not use wet seed or seed that is moldy or otherwise damaged.
 3. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.
- B. Sow grass seed at rate specified for seed mixture type. Increase by 20% for new seeding on slopes in excess of a 3:1 ratio. And when expecting significant seed loss.
- C. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.
- D. Protect seeded areas with slopes exceeding **1:3 with erosion-control blankets** installed and stapled according to manufacturer's written instructions.
- E. Protect seeded areas with slopes not exceeding 1:6 by spreading straw mulch. Spread uniformly at a minimum rate of **2 tons/acre** to form a continuous blanket **1-1/2 inches** in loose thickness over seeded areas. Spread by hand, blower, or other suitable equipment.
 1. Anchor straw mulch by crimping into soil with suitable mechanical equipment.

3.5 PREPARATION FOR EROSION-CONTROL MATERIALS

- A. Prepare area as specified in "Site and Turf Area Preparation" Article.
- B. For erosion-control mats, install planting soil in two lifts, with second lift equal to thickness of erosion-control mats. Install erosion-control mat and fasten as recommended by material manufacturer.
- C. Fill cells of erosion-control mat with planting soil and compact before planting.
- D. For erosion-control blanket or mesh, install from top of slope, working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material manufacturer.
- E. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

3.6 TURF MAINTENANCE

- A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll,

regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.

1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
3. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.

B. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.

1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
2. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.

3.7 SATISFACTORY TURF

A. Turf installations shall meet the following criteria as determined by Architect:

1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.

B. Use specified materials to reestablish turf that does not comply with requirements, and continue maintenance until turf is satisfactory.

3.8 PESTICIDE APPLICATION

A. Apply pesticides and other chemical products and biological control agents according to requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.

B. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations.

3.9 FINISH GRADING

A. Grade the finish surface of all planted areas to match the existing grades, allowing for settling. Except as noted:

1. Where existing slope is towards building on west side, raise grade to create positive slope away from structure.

- B. Utilize hand equipment, small garden tractors with rakes, or small garden tractors with buckets with teeth for fine grading to keep surface rough without further compaction. Do not use the flat bottom of a loader bucket to fine grade, as it will cause the finished grade to become overly smooth and or slightly compressed.
- C. Provide for positive drainage from all areas toward the existing inlets, drainage structures and or the edges of planting beds. Adjust grades as directed to reflect actual constructed field conditions of paving, wall and inlet elevations. Notify the Owner's Representative in the event that conditions make it impossible to achieve positive drainage.
- D. Provide smooth, rounded transitions between slopes of different gradients and direction. Modify the grade so that the finish grade -- before adding mulch and after the soil has settled -- is one or two inches below all paving surfaces or as directed by the drawings.

3.10 CLEANUP AND PROTECTION

- A. Protect installed and/or modified Planting Soil from damage including contamination and over compaction due to other soil installation, planting operations, and operations by other Contractors or trespassers. Maintain protection during installation until acceptance. Utilize fencing and matting as required or directed to protect the finished soil work. Treat, repair or replace damaged Planting Soil immediately
- B. Provide Plant and Root Protection around all trees. Maintain protection during installation until the substantial completion. Treat, repair or replace damaged work immediately.
- C. Provide temporary erosion control as needed to stop soil erosion until the site is stabilized with mulch, plantings or turf.
- D. Damage done by the Contractor or any of their sub-contractors to existing or installed plants, or any other parts of the work or existing features to remain including those on adjacent property, shall be cleaned, repaired or replaced by the Contractor at no expense to the Owner. The Owner's Representative will determine when such cleaning, replacement or repair is satisfactory.
- E. A certified arborist shall assess damage to existing trees. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- F. During installation, keep the site free of trash, pavements reasonably clean and work area in an orderly condition at the end of each day. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, no less than once per week and legally dispose of them off Owner's property. No debris is to be buried on-site
- G. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.
- H. Remove nondegradable erosion-control measures after grass establishment period.

- I. Immediately clean up any spilled or tracked soil, fuel, oil, trash or debris deposited by the Contractor from all surfaces within the project or on public right of ways and neighboring property.
- J. Equipment and vehicles shall not be washed on-site.
- K. Once installation is complete, wash all soil from pavements and other structures. Ensure that mulch is confined to planting beds and that all tags and flagging tape are removed from the site.
- L. Make all repairs to grades, ruts, and damage to the work or other work at the site. Other work to include compaction relief.

END OF SECTION 329200