

Attachment No#2

O.R. Air Handling Unit Replacement

DIVISION 1

GENERAL REQUIREMENTS

DIVISION 1 - GENERAL REQUIREMENTS

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01100 SUMMARY OF WORK

PART 1 - GENERAL

1.01 The requirements of the Instructions to Bidders, General Conditions, Supplementary Conditions, Agreement between Owner and Contractor, all Specification Divisions herein, and the accompanying Contract Drawings govern the work of this project.

- a. The Agreement, General Conditions, Supplementary Conditions and the Instructions to Bidders shall apply equally to all work under all Contracts noted herein.
- b. Where articles of the above documents are repeated in this Division; it is intended to elaborate or qualify such articles. It is not intended that other articles of the above documents shall be omitted or that additional requirements set forth in the above documents and noted herein shall be excluded from Contract requirements unless specifically noted as such hereinafter.

1.02 MULTI PRIME CONTRACTS

- A. This entire project is to be constructed under a Multi Prime Contract. The work shall be the responsibility of each Contractor skilled in the installation of the systems as described within each division. Each Contractor may subcontract such work as requires mechanics other than those he normally employs, but the entire responsibility for complete performance of each Prime Contract shall remain with the Prime Contractor of each trade**

1.03 DESCRIPTION OF WORK COVERED BY CONTRACT DOCUMENTS

- A. The work of this project covers the Operating Room Air Handler Replacements at the Site of the Nassau University Medical Center, located at 2201 Hempstead Turnpike, East Meadow, New York as more fully set forth in the Contract Documents.

1.04 OWNER FURNISHED EQUIPMENT

- A. Assignment
 1. The Owner shall assign responsibility for the two prepurchased LiBr absorption chillers and one 3 cell cooling tower over to the Installing Contractor under another Contract. The Installing Contractor shall then receive and be responsible for the prepurchased equipment as if he were the purchaser. The equipment supplier shall, therefore, coordinate the manufacture and delivery of equipment with the Owner and the Installing Contractor.

B. General

1. Owner furnished equipment and devices locations are shown on the Drawings. Copies of the manufacturers' drawings, installation instructions and literature obtained by the Owner will be furnished to the Contractor.

2. Contractor's Responsibility

- a. In submitting a signed Proposal Bid Form, the Contractor as the successful bidder has agreed to accept the assignment of the Purchase Orders by the Owner. Upon acceptance of the assignment, the Contractor shall assume complete responsibility for the prepurchased equipment in all respects as if the Contractor had done the original purchasing for the project.
- b. The work shall include expediting delivery, receiving, checking, unloading, rigging, transporting, assembly and installation of this equipment with all the responsibility, liability and care as though the Contractor were the original purchaser.
- c. Obtain, from the equipment manufacturers, all information concerning shipment dates, weights, installation details and requirements, mounting plate, anchor bolt and equipment base requirements.
- d. Coordinate the work with the equipment delivery schedule and project control schedules.
- e. Inspect shipped equipment and material prior to unloading. Notify carrier of any damage or missing parts, and issue any loss and damage reports required.
- f. Sign carrier's receiving receipts, verify the shipping list for each piece of equipment and material.
- g. Inspect equipment and material during unloading for overall conformance with the Specifications and Purchase Order descriptions.
- h. Unload prepurchased items from the carrier's transport at the job site, and move equipment to the final installation area.
- i. Review the manufacturer's instructions and store any equipment and materials which might be damaged by the elements in an interior storage area approved by the Owner.
- j. Accomplish the installation work without damage to equipment, roadways, buildings and/or structures. Immediately repair, to

original condition, any damaged portions at no additional cost to, and with the approval of the Owner.

- k. Preserve warranties for all prepurchased equipment and materials in full force.

1.05 DRAWINGS

- 4. This project includes work indicated in the Contract Drawings listed herein below:

- 1. General Contract Drawings (All Trades)

DWG. <u>NO.</u>	<u>TITLE</u>
T-001	Title Sheet

- 2. Architectural Contract Drawings (General Construction Contract)

DWG. <u>NO.</u>	<u>TITLE</u>
A-001	Partial Plan at Third Floor and Section 'B' at Ladder
A-002	Partial Plan at Roof and Roofing Details
A-003	Stair Elevation and Details

- 3. Structural Contract Drawings (General Construction Contract)

DWG. <u>NO.</u>	<u>TITLE</u>
S-001	General Notes and Typical Details
S-100	Existing Roof Framing Plan
S-101	Chiller and Tank Steel Dunnage Framing Plan
S-102	Penthouse Steel Dunnage Framing Plan
S-200	Framing Sections

- 4. Mechanical Contract Drawings (Mechanical Contract)

DWG. <u>NO.</u>	<u>TITLE</u>
M-001	Mechanical Legends Notes and Abbreviations
M-101	Mechanical Third Floor Demolition Part Plan
M-201	Mechanical Third Floor New Work Part Plan
M-202	Mechanical Third Floor Roof New Work Part Plan
M-203	Mechanical Penthouse Part Plan
M-204	Second Floor New Equipment Part Plan
M-301	Operating Room AHU Airflow Diagram
M-302	Chilled Water and Glycol Flow Diagram
M-303	Steam, Condensate, and Hot Glycol Flow Diagram

M-401	Mechanical Sections
M-501	Mechanical Details (1 of 3)
M-502	Mechanical Details (2 of 3)
M-503	Mechanical Details (3 of 3)
M-601	Mechanical Schedules (1 of 3)
M-602	Mechanical Schedules (2 of 3)
M-603	Mechanical Schedules (3 of 3)
M-701	Mechanical Controls (1 of 3)
M-702	Mechanical Controls (2 of 3)
M-703	Mechanical Controls (3 of 3)
M-801	Mechanical Sequence of Operations

5. Electrical Contract Drawings (Electrical Contract)

<u>DWG.</u> <u>NO.</u>	<u>TITLE</u>
E-001	Electrical Symbol List Abbreviations and Notes
E-101	Electrical Third Floor Existing and Demolition Part Plan
E-203	Electrical Third Floor Roof Power Part Plan
E-204	Electrical Penthouse Power Part Plan
E-205	Electrical Penthouse Lighting and Fire Alarm Part Plan
E-301	Electrical One-Line Diagram (1 of 2)
E-302	Electrical One-Line Diagram (2 of 2)
E-401	Electrical Panel Schedule
E-501	Electrical Details (1 of 3)
E-502	Electrical Details (2 of 3)
E-503	Electrical Details (3 of 3)
M-701	Mechanical Controls (1 of 3)
M-702	Mechanical Controls (2 of 3)
M-703	Mechanical Controls (3 of 3)
M-801	Mechanical Sequence of Operations

6. Plumbing Contract Drawings (Plumbing/Fire Protection Contract)

<u>DWG.</u> <u>NO.</u>	<u>TITLE</u>
P-001	Plumbing Legend Notes Details Riser Diagrams
P-101	Plumbing New Work Part Plans

7. Fire Protection Contract Drawings

<u>DWG.</u> <u>NO.</u>	<u>TITLE</u>
FP-001	Fire Protection Legend Notes Drawing List and Riser Diagram
FP-101	Fire Protection New Work Part Plans
FP-201	Fire Protection Details

1.06 SPECIFICATIONS

- A. Construct all project work as shown and described in the Contract Documents, under a multi-prime single contract.
- B. This project includes work indicated in the Contract Specification Divisions listed below:
 - 1. Division 1: General Requirements
 - 2. Division 5: Metals
 - 3. Division 6: Woods, Plastics and Composites
 - 4. Division 7: Thermal & Moisture Protection
 - 5. Division 9: Finishes
 - 6. Division 21: Fire Protection
 - 7. Division 22: Plumbing
 - 8. Division 23: Mechanical
 - 9. Division 26: Electrical

1.07 STANDARD SPECIFICATIONS AND ABBREVIATIONS

- A. The following abbreviations used in the Drawings and Specifications refer to organizations publishing specifications and standards. These shall be construed to mean the latest standard adopted and published at the date of advertisement for Bids and such specifications are made part of the Contract Documents to the same extent as if written out in full.

AAMA	-	Architectural Aluminum Manufacturers Association
ACI	-	American Concrete Institute
ADC	-	Air Diffusion Council
AGA	-	American Gas Association
AHDGA	-	American Hot Dip Galvanizing Association
AISC	-	American Institute of Steel Construction
AMCA	-	Air Moving and Conditioning Association
ANSI	-	American National Standards Institute
ARI	-	American Refrigeration Institute
ASE	-	American National Standard Safety Code for Elevators, ANSI A17.1
ASHRAE	-	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	-	American Society of Mechanical Engineers
ASSE	-	American Society of Sanitary Engineers
ASTM	-	American Society of Testing Materials
AWS	-	American Welding Society
AWWA	-	American Water Works Association
BOCA	-	Building Officials and Code Administrators
BS&A	-	Board of Standards and Appeals (New York City)
CBM	-	Certified Ballast Manufacturer
CISPI	-	Cast Iron Soil Pipe Institute

CRSI	- Concrete Reinforcing Steel Institute
EJMA	- Expansion Joint Manufacturers' Association
EPA	- Environmental Protection Agency
ETL	- Electrical Testing Laboratories
FAA	- Federal Aviation Authority
FDA	- Food and Drug Administration
FIA	- Factory Insurance Association
FM	- Factory Mutual
FS	- Federal Specifications
IEEE	- Institute of Electrical and Electronics Engineers
IES	- Illuminating Engineering Society
IPCEA	- Insulated Power Cable Engineers Association
IRI	- Industrial Risk Insurers
ISA	- Instrument Society of America
JIC	- Joint Industrial Council
MCAA	- Mechanical Contractors Association of America
MSS	- Manufacturers Standardization Society of Valve and Fittings Industry
NBPVI	- National Board of Boilers and Pressure Vessel Inspectors
NBFU	- National Board of Fire Underwriters
NCFPO	- Nassau County Fire Prevention Ordinance
NCPHO	- Nassau County Public Health Ordinance
NEC	- National Electrical Code
NEMA	- National Electrical Manufacturers Association
NESC	- National Electric Safety Code
NFPA	- National Fire Protection Association
NIST	- National Institute of Standards and Technology
NPT	- National Pipe Thread
NSF	- National Sanitation Foundation
NYSDEC	- New York State Department of Environmental Conservation
OSHA	- Occupational Safety Health Act
PDI	- Plumbing and Drainage Institute
PPI	- Plastics Pipe Institute
SCSC	- Suffolk County Sanitary Code
SDI	- Steel Deck Institute
SHEMA	- Steam Heating Equipment Manufacturers Association
SMACNA	- Sheet Metal and Air Conditioning Contractors National Association, Inc.
SSPC	- Steel Structures Painting Council
STI	- Steel Tank Institute
TEMA	- Tubular Exchangers Manufacturers Association
UL	- Underwriters Laboratories, Inc.
USDC	- United States Department of Commerce
USPHS	- United States Public Health Service

1.08 STANDARD DEFINITIONS

A. The following definitions apply to key words and phrases used in the Drawings

and Specifications. Whenever these words appear on the Drawings or in the Specifications, they shall be construed to have the meaning as defined in this Section.

- Amount - Used in reference to money.
- Approval - Final approval remains with the Owner. Engineer can approve submittals, applications and other Contractor requests within the conditions of the Contract.
- Balance - Refers to money left over or owed.
- Both - Means two, or requires two.
- Building - Individual or office responsible for Manager operation, maintenance and use of a facility.
- But Not Limited to - Other elements may be included.
- Clean - Means broom clean unless otherwise specified (e.g. vacuum, wipe, polish).
- Commissioner - The County Commissioner of Public Works of the County of Nassau or his duly authorized representative. **
- Cooperate - Work well with others (especially other prime contractors).
- Coordinate - Bring the work of others together with your own.
- Direct - Only the Owner has the authority to direct the Contractor. The Owner may delegate some of this direction to the Engineer.
- Either - Implies a choice (one of two).
- Engineer - Whenever the term "Engineer", or "Engineers", or a pronoun used in place thereof appears, it shall mean the Consulting Engineer retained by NUMC for the preparation of the Plans and Specifications for the Operating Room Air Handler Replacement Project and designated by the Owner to act with the powers and duties of the Engineer as defined in the Contract Documents.**
- Equipment - Furnishings, equipment and other items which have individual identity such as doors, pumps, cabinets, tools and machines necessary to do the work.

Equipment	- Contractor's property after the project is Construction completed.
Etc.	- A collective term which means: and other similar items.
Fabricate	- To manufacture or assemble a component off-the-project site, usually at the Contractor's or supplier's shop.
Furnish	- To supply and deliver new supplies, materials and equipment.
Herein	- Located within this Specification.
Hereinafter	- As stated after this point in this Specification.
Hereinbefore	- As stated before in this Specification.
Including	- To enclose as part of the whole. Use in the inclusive sense.
Install	- Operation at the project site including handling, storage, unpacking, assembly, erection, placing, anchoring, applying connecting, working to dimensions, finishing, curing, protecting, cleaning and similar operations, as applicable in each instance.
Materials	- Components, other than equipment, required to do the project. Includes items such as sand, steel, sheet rock, nails, pipe.
Or	- Refers to an alternate means. Use in the exclusive sense.
Owner	- Wherever the term "Owner" appears it shall mean NUMC.**
Prepare	- Make ready.
Products	- Includes supplies, materials and equipment needed to do the job.
Provide	- Furnish new materials or equipment and install them.
Quantity	- Used in connection with Volume such as pounds, gallons, cubic yards, pieces.
Remainder	- That which is left (e.g., work, materials).
Replace	- Reinstallation of material or equipment removed with refurbished or new material or equipment.
Restore	- To repair or alter the original form.

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|----------|---|
| Shall | - Used when directing Contractor's work. Identifies mandatory work by Contractor. |
| Suitable | - Means reasonable, proper, correct, safe and necessary for the purpose intended as required by the Contract Documents. |
| Supply | - Furnish supplies, materials or equipment. |
| Supplies | - Items other than materials and equipment required to do the job. These include items such as water, construction paper, burlap. |
| Will | - Used when describing activities of Owner and Engineer. |

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01120 PHASE SCHEDULE

PART 1 - GENERAL

- 1.01** Coordinate with the Owner's representative, Lizardos Engineering, in scheduling the work.**
- A. Owner will occupy the premises continuously during construction.
- 1.02** Plan and phase all work in the 3rd Floor Mechanical Room to minimize downtime of Air Handlers operation and disruption to the Operating Rooms.**
- 1.03** Plan and phase all work at the site to minimize disruption of ongoing Hospital functions.**
- 1.04 MAINTENANCE OF EXISTING FACILITIES AND CONDUCT OF THE WORK**
- A. The building will be occupied and in operation during the progress of the work. When necessary to temporarily halt building egress or flow of personnel traffic, confer with the Owner and arrange the period of interruption for a time mutually agreed upon. It is required that the work indicated and/or specified shall be carried out with a minimum of interference to the established routine of the building.
- B. No work shall be left incomplete nor any hazardous situations created which will affect the life or safety of the public and/or building occupants. At no time shall the work interfere with or cut off any of the existing services without the Owner's written permission.
- C. Materials required to be removed under this Division of work and turned over to the Owner have been indicated on the Drawings and in the Specifications. The Owner will designate the area or place the Contractor shall deliver and set in place any and all items.
- D. When necessary to temporarily disconnect any existing building utilities and service systems including feeder or branch circuiting supplying existing facilities, confer with the Owner and arrange the period of interruption for a time mutually agreed upon.
- E. Where replacement, relocation or modification of existing equipment is specified herein, provide and maintain all temporary services, connections, circuit protection and any other materials and appurtenances required for the uninterrupted operating condition of all affected systems.
- F. It is required that the work indicated and/or specified shall be carried out with a minimum of interference to the established routine of the building.
- G. The right is reserved to operate all existing electrical and mechanical

equipment, and perform all required servicing and repairs to this equipment at all times. Existing equipment and existing building utilities and supporting service systems shall be operational at all times.

- H. All work is to be performed during normal business hours unless otherwise specified in the Contract Documents.
 - 1. If the Owner requires that any of the work be performed after normal business hours, on Sundays or legal Holidays, unless the work was specified as after-hours work in the Contract Documents, the Contractor shall notify the Owner in writing of the number of man hours required to perform the overtime work and the additional cost for premium labor charges prior to commencing work.
 - 2. The Contractor's allowance for overtime work, when such work is required by the Owner, shall be the difference between the labor cost as proposed in the base bid and the labor cost to perform the work on overtime, computed in man hours.
- I. The Contractor shall substantially complete his work within the number of calendar days as quoted by the Contractor in his proposal. Perform work after regular working hours, on Sundays or legal holidays, when necessary, without additional cost to the Owner in order to meet the proposed completion date.
- J. Work around-the-clock, as well as weekends, if any unscheduled interruption or work interference to the existing electrical or mechanical systems should occur, due to the Contractors work, until such existing systems are fully restored and operational. There shall be no additional cost to the Owner.
- K. All overtime work shall be approved by the Owner.
- L. If any unscheduled interruption or work interference to the existing electrical systems occur, the Contractor shall be prepared, at his own expense to work around-the-clock as well as weekends, until such existing electrical systems are fully restored and operational.
- M. Before shutting off a section of the fire service system to make sprinkler system connections, notify the authority having jurisdiction, plan the work carefully, and assemble all materials to enable completion in the shortest possible time. Work started on connections shall be rushed to completion without interruption, and protection restored as promptly as possible. During the impairment, provide emergency hose lines, additional fire pails and extinguishers, and maintain extra watch service in the areas affected.
- N. When changes involve shutting off water from any considerable number of sprinklers for more than a few hours, temporary water supply connections shall be made to sprinkler systems so that reasonable protection can be maintained. In adding to old systems or revamping them, protection shall be restored each

night. Notify the members of the private fire brigade as well as the public fire department as to conditions.

1.05 PHASING**

1. Phase I**: Furnish and Install Air Handling Units and associated Penthouse. Furnish and Install New Air Cooled Chiller and tie into Penthouse.
2. Phase II**: Bring Chilled Water, Steam, and Condensate from 3rd Floor MER to Penthouse. Connect Existing Ductwork to Penthouse, one AHU at a time.
3. Phase III**: Demolish Existing Air Handlers and all associated appurtenances.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01250 CHANGE ORDER PROCEDURES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Implement Change Order Procedures Promptly
 - 1. Provide full written data required to evaluate changes.
 - 2. Maintain detailed records of work done on a time-and-material basis.
 - 3. Provide full documentation to Owner on request.
- B. Designate in writing the member of Contractor's organization who:
 - 1. Accepts changes in the work as the Contractor's authorized representative.
 - 2. Informs others in the Contractor's employ of the authorization of changes in the work.
- C. Owner will designate in writing the person who is authorized to execute Change Orders.

1.02 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Review the Contractual Agreement for the amounts of established unit prices.
- B. Use the Contract's General Conditions for:
 - 1. Methods of determining cost or credit to Owner resulting from changes in work made on a time-and-material basis.
 - 2. Contractor's claims for additional costs.

1.03 PRELIMINARY PROCEDURES

- A. Owner or Engineer may initiate the change procedure by submitting a Proposal Request to Contractor. Such request is for information only, and is not an instruction to execute the changes, nor to stop work in progress. Request will include:
 - 1. Detailed description of the change, products, and location in the project.
 - 2. Supplementary or revised Drawings and Specifications.
 - 3. The projected time span for making the proposed change, and a specific statement as to whether or not overtime work is authorized.
- B. Respond to Owner's Change Order inquiry by submitting a written notice to

Owner, in which the Contractor will:

1. Describe the proposed changes.
2. State the reason for making the changes.
3. State the effect on the Contract Sum and the Contract Time, as well as the work of separate contractors.
4. Document with supporting data, any change in Contract Sum or Contract Time, as appropriate.

1.04 CONSTRUCTION CHANGE AUTHORIZATION

- A. In lieu of the response to the inquiry for the proposed change, Owner may issue a Construction Change Authorization for the Contractor to proceed with the change for subsequent inclusion as a Change Order.
- B. Authorization will include the following:
 1. Description of changes in the work, both additions and deletions.
 2. Attachments of revised Contract Documents to define details of the change.
 3. Designation of the method of determining any change in the Contract Sum and any change in Contract Time.
- C. Owner will sign and date the Construction Change Authorization as authorization for the Contractor to proceed with the changes.
- D. Sign and date the Construction Change Authorization to indicate agreement with the terms therein and return original copy to the Owner.

1.05 DOCUMENTATION OF PROPOSALS AND CLAIMS

- A. Support each quotation for a lump sum proposal, and for each unit price which has not previously been established, with sufficient substantiating data to allow Owner to evaluate the quotation.
- B. Provide, on request, additional data to support time and cost computations for the following requirements:
 1. Labor.
 2. Equipment.
 3. Products, including unit cost and quantities.
 4. Taxes, insurance and bonds.
 5. Credit for the work deleted from Contract, similarly documented.

6. Overhead and profit.
 7. Justification for any change in Contract Time.
- C. Support each claim for additional costs, and for work done on a time-and-material basis, with documentation as required for a lump sum proposal. Also include the following additional information:
1. Identify name of the Owner's authorized agent who ordered the work, and date of the order.
 2. Include dates and times work was performed, and by whom.
 3. Summarize time record of hours worked and hourly rates paid.
 4. Include receipts and invoices for equipment and products used, as well as those of subcontractors.
- D. Document requests for substitutions for products as specified herein.

1.06 PREPARATION OF CHANGE ORDERS

- A. Owner will prepare each Change Order.
- B. Change Order will describe changes in the work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.
- C. Use Change Order to provide an accounting input for the adjustment in the Contract Sum and in the Contract Time.

1.07 LUMP SUM/FIXED PRICE CHANGE ORDER

- A. Content of Change Orders will be based on either:
 1. Owner's proposal request and Contractor's responsive proposal as mutually agreed between Owner and Contractor.
 2. Contractor's proposal for a change, as approved by Owner.
- B. Owner will sign and date the Change Order as authorization for the Contractor to proceed with the changes.
- C. Owner and Contractor will sign and date the Change Order to indicate their agreement with the terms therein.

1.08 UNIT PRICE CHANGE ORDER

- A. Content of Change Orders will be based on one of the following:

1. Owner's definition of the scope of the required changes.
 2. Contractor's proposal for a change, as recommended by Owner.
 3. Survey of completed work.
- B. The Change Order unit prices to be those:
1. Stated in the Agreement; or,
 2. Mutually agreed upon between Owner and Contractor.
- C. When quantities of each of the items affected by the Change Order can be determined prior to start of the work:
1. Owner will sign and date the Change Order as authorization for Contractor to proceed with the changes.
 2. Owner and Contractor will sign and date the Change Order to indicate their agreement with the terms therein.
- D. When quantities of the items cannot be determined prior to start of the work:
1. Owner will issue a Construction Change Authorization directing Contractor to proceed with the change on the basis of unit prices, and will cite the applicable unit prices.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01300 CONTRACTOR'S ADMINISTRATIVE PROVISIONS

PART 1 - GENERAL

- 1.01** Drawings and Specifications identify general arrangement and locations of facilities, equipment and the work of various systems.
- 1.02** Reference Drawings (if any) accompany the Contract Drawings to provide the Contractor additional information concerning the work.
- 1.03** Avoid measuring any scale Drawings. All firm dimensions must be maintained.
- 1.04** Consult the Engineer for guidance as to interpretation of Drawings with regard to dimensions before laying out any of the work.
- 1.05** Make reasonable modifications in layout, with approval of Owner and without extra charge, needed to achieve symmetry with architectural elements in order to prevent conflict with work of other trades or for the proper execution of the work.
- 1.06** Check Drawings of other trades relating to work to verify spaces in which the work will be installed, in order to maintain headroom and space conditions at all points. Refer to architectural details in completing and correlating work.
- 1.07** Verify all measurements at the site. Be responsible for correctness of same as related to the work.
- 1.08** Study the Drawings and Specifications carefully; visit the site to ascertain actual conditions, as well as the nature and exact quantity of work to be performed. No extra will be allowed if the Contractor fails to examine the site, or having examined the site, the Contractor fails to notify the Owner in writing of any discrepancies that he may have noted between the existing conditions and the Drawings and Specifications.
- 1.09** Cooperate with all other Contractors who furnish and install work in connection with the work described herein, giving them complete data as to his requirements. Notify Engineer of any condition that will interfere with proper completion of this work. Cooperate in the scheduling of the work of this section with the work of other sections and/or contracts so as not to delay job progress.
- 1.10** Plan the work in advance, and coordinate all space requirements with the other trades involved. Where conflicts occur, request clarification through the Owner. Coordinate the work of this Division with the work of other trades with regard to:
- A. Heights above finished floors.
 - 1. Clearance for pipes, conduits, ducts and access doors/covers.
 - B. Location of equipment and system components.

- C. Providing building and equipment shelter prior, during and after rigging of equipment/materials.

1.11 Comply with Owner (Building Management) Regarding Maintenance of Existing Facilities and Conduct of the Work

- A. The building will be occupied and in operation during the progress of the work. When necessary to halt building egress or flow of personnel traffic temporarily, confer with the Owner and arrange the period of interruption for a time mutually agreed upon. It is required that the work indicated and/or specified shall be carried out with a minimum of interference to the established routine of the building.
- B. Avoid leaving work incomplete. Avoid creating any hazardous situations which could affect the life or safety of the public and/or building occupants. At no time shall the work interfere with or cut-off any of the existing services without the Owner's written permission.
- C. Provide and maintain all temporary services, connections, circuit protection and any other materials and appurtenances required for the uninterrupted operating condition of all existing systems which are replaced, relocated or modified as specified.
- D. Carry out the work with a minimum of interference to the established routine of the building.
- E. The Owner reserves the right to operate all existing electrical and mechanical equipment and perform all required servicing and repairs to this equipment at all times. Existing equipment and existing building utilities and supporting service systems shall be operational at all times.
- F. All work is to be performed during normal business hours unless otherwise specified in the Contract Documents.
 - 1. If the Owner requires that any of the work be performed after normal business hours, on Sundays or legal Holidays, unless the work was specified as after-hours work in the Contract Documents, the Contractor shall notify the Owner in writing of the number of man hours required to perform the overtime work and the additional cost for premium labor charges prior to commencing work.
 - 2. The Contractor's allowance for overtime work, when such work is required by the Owner, shall be the difference between the labor cost as proposed in the base bid and the labor cost to perform the work on overtime, computed in man hours.
- G. The Contractor shall substantially complete his work within the number of

calendar days as quoted by the Contractor in his proposal. Perform work after regular working hours, on Sundays or legal holidays, when necessary, without additional cost to the Owner in order to meet the proposed completion date.

H. Work around-the-clock, as well as weekends, if any unscheduled interruption or work interference to the existing electrical or mechanical systems should occur, due to the Contractors work, until such existing systems are fully restored and operational. There shall be no additional cost to the Owner.

I. All overtime work shall be approved by the Owner.

1.12 Provide and maintain all temporary services, connections, circuit protection and any other materials and appurtenances required for the uninterrupted operating condition of all systems when replacement, relocation or modification of existing equipment is required.

1.13 Provide, erect, maintain and be responsible for the safe and legal use of all scaffolding, hoisting and rigging or additional bracing and services required for the delivery or erection of the equipment and construction materials provided or installed under this Contract. Determine the specific arrangements for furnishing and use of all such scaffolding and hoisting equipment, and remove such equipment when it is no longer required.

1.14 Remove from the site all materials required to be removed and not reinstalled, under each Division of the work. Unless otherwise indicated, this material shall become the property of the Contractor. The expense of removing such materials, as well as the salvage value thereof, shall be considered in making up the Bid Proposal.

1.15 Turn over to the Owner, materials and equipment indicated on the Drawings and in the Specifications. The Owner shall designate the area or place the Contractor shall deliver and set in place any and all items.

1.16 Provide any and all safeguards required by any law or ordinance, including permits and insurance requirements. Take all proper precautions to prevent accidents or damage to persons or to public or private property about the premises and erect and maintain proper danger signs and temporary fencing.

A. The Contractor shall indemnify the Owner and the Engineer against all claims, suits, damages and judgments, including counsel fees and disbursements incurred in the defense of any action to which he may be subjected by reason of such negligence.

1.17 PROVIDE AND PAY FOR THE FOLLOWING, EXCEPT AS SPECIFICALLY NOTED:

A. Labor, materials and equipment.

B. Tools, construction equipment and machinery.

- C. Water, heat and utilities required for construction.
- D. Other facilities and services necessary for proper execution and completion of work.
- E. All legally required taxes, including sales, consumer and use, except where the Owner is exempt from sales tax or products permanently incorporated in the work. Contractor shall obtain the sales tax exemption certificate number from the Owner.
- F. All permits, fees, controlled inspections, tests, certificates of approval and licenses, as necessary for the proper execution and completion of the work, and as applicable at the time of receipt of bids.
- G. Administer all applicable notices.

1.18 CODES, REGULATIONS AND STANDARDS

- A. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on performance of the work. This includes, but is not limited to the following:
 - 1. Federal, state and local codes having jurisdiction.
 - 2. NFPA.
 - 3. NEC.
- B. Provide new and approved materials, as well as equipment for all applications, unless otherwise noted. Materials, equipment, sizes and methods of construction not described in the Specifications or detailed on the Drawings, shall conform with the applicable codes and standards. Defective or damaged materials shall be replaced or repaired in a manner approved by the Owner, at the Contractor's expense.
- C. Install the approved equipment and materials in strict accordance with all pertinent codes and regulations, the original design, and the manufacturer's recommendations.

1.19 INSPECT PREMISES BEFORE THE WORK BEGINS

- A. Inspect carefully, the installed work of all other trades, prior to starting work of each Division. Verify that all such work is complete and in accordance with all pertinent codes, regulations, original design, and referenced standards.
- B. Verify that the work may be installed in accordance with the original design, all pertinent codes and regulations; and the manufacturer's recommendations.
- C. Notify the Engineer if conditions or surfaces exist which are detrimental to the proper and expeditious installation of the work. Starting on the work shall imply

acceptance of the surfaces and conditions to perform the work as specified.

- D. Verify dimensions taken at the job site and affecting the work. Bring field dimensions which are at variance with the work to the attention of the Engineer.
- E. Notify the Engineer immediately of any discrepancy.
- F. Delay proceeding with installations in cases of discrepancies until all such discrepancies have been completely resolved.

1.20 QUALITY, WORKMANSHIP, MATERIALS AND SAFETY

- A. Provide all work as first-class in every respect.
 - 1. Perform the work neatly in a practical and workmanlike manner.
 - 2. Use sufficient mechanics skilled in their work, using the best practices of their trade.
 - 3. Provide competent supervision continuously.
 - 4. Organize the work in advance of execution.
 - 5. Carry out the work efficiently without delays which would impede progress or the quality of the work of other trades and the job as a whole.
- B. Avoid use of unfit means or employment of unskilled workers which could cause strikes, work stoppages, jurisdictional disputes, etc., on Owner's premises.
- C. Discharge from the work, any person identified by the Owner in writing, who is incompetent, careless, disorderly, or otherwise unsatisfactory. He shall not again be employed on this work, except with the consent of the Owner.
- D. Submit a report to the Owner each morning, if requested, showing the number of mechanics and foremen employed on the job.
- E. Submit catalogued materials for approval by catalog number or copies of catalog data as required by the Owner.
- F. Provide only acceptable materials for this work. Inspection tests, or acceptance of any materials prior to shipment shall not be deemed as a final acceptance of the materials. The Owner may inspect or require tests or analysis of any portion of the materials at any time after delivery to the site either before or after installation. Any material which is found to be defective or which does not otherwise conform to the requirements of the Specifications, shall be rejected and removed from the site.
- G. Avoid the use of any material which has not been inspected or tested, and

accepted.

- H. Use expertise to prepare and execute all work with minimal interruptions. Techniques such as prefabrication, on or off site, is a responsibility of the Contractor and shall be used throughout all of the work, subject to written approval by the Owner.
- I. Install all materials and equipment in accordance with the manufacturer's recommendations.
- J. Store all materials, construction equipment, supplies and equipment to be incorporated in the work, in a safe manner so as not to injure the work. Storage should also provide free access at any time, to all parts of the work and to all installations in the vicinity of the work. Materials and equipment shall be kept neatly piled and compactly and conveniently stored so as not to hinder on-going operations.
- K. Provide suitable and adequate storage methods for materials and equipment during the progress of the work, including approved weathertight storage for all materials and equipment which might deteriorate or fail to function if left unprotected. Provide protection against damage or deterioration for all equipment during storage, and after installation, until the equipment and systems are put to use by the Owner.
- L. Provide the necessary protection for materials and equipment against adverse environmental conditions. When required, protection shall be provided by use of tarpaulins, wood, polyethylene plastic sheet shelters, or other approved means. The Owner may suspend construction operations at any time, when in his judgment, weather conditions are unsuitable or the proper precautions are not being taken.
- M. Install work so as to be readily accessible for operation, maintenance, and repair.
- N. The Owner reserves the right to make emergency repairs as required to keep equipment in operation without voiding the Contractor's guarantee bond, nor relieving the Contractor of his responsibilities during the bonding period.
- O. Agree to the most thorough inspection of the work at all times by the Owner or Engineer. This includes all labor performed and materials furnished, delivered, or intended to be used in the work, including manufacture, preparation, and testing. Keep the Owner advised of the progress of the off-site work requiring inspection or witnessing of tests, so that arrangements may be made for inspection at the proper time.
- P. Prepare schedules of proposed interruptions where delays are necessary, to avoid hazards to personnel, property or possible contamination. Provide Owner reasonable time to respond with written approval.

- Q. Verify, during installation, that all surfaces are dry and free of foreign materials, standing water or other conditions which would interfere with good application or installation practices.
- R. Provide labor, tools and all test equipment for the final inspection of the work. All failures detected in the final inspection shall be uncovered and repaired to the satisfaction of the Owner, and at the expense of the Contractor.
- S. Exercise special care if the facility processes a product for human consumption. If so, it is mandatory there be no contamination or possible causes of contamination. Further, all Contractor personnel must be directed to perform all work in such a manner as to preclude dirt, dust, odors and/or contamination. The Contractor shall police all his personnel and those servicing him in any capacity, to ensure cleanliness.
- T. Confine and contain operations involving dust generation, demolition, cleaning, and surface preparation operations. This will eliminate potential contamination, minimize hazards to Owner's employees and public, and safeguard surrounding facilities and operations.
- U. Broom clean the work area daily.

1.21 GUARANTEE

- A. Guarantee to the Owner, that all work provided under this Contract will perform safely, properly and continue to function as intended.
- B. Furnish, in writing, a complete guarantee, satisfactory to Owner, against defective materials and improper workmanship for all parts, components and operation for a period of one year from the date of acceptance of the complete installation by the Owner.
- C. Provide, to the Owner, all manufacturer's warranties for such warranted material, equipment and systems. Manufacturer's warranty for material, equipment and systems must extend directly to the Owner.
- D. Protect the work from damage by others.
- E. Repair, or if necessary, replace to the Owner's satisfaction, all defective work and all damaged adjacent work without additional cost to the Owner.

1.22 LUBRICATION AND ADJUSTMENT

- A. Lubricate properly, all furnished equipment and/or installed equipment when connected and before commencing equipment operation.
- B. Be responsible for any damage to new equipment operated without proper

lubrication.

- C. Adjust all equipment in this work, as required, to function properly.

1.23 CONTRACTOR USE OF PREMISES

- A. Confine operation at site to areas permitted by law, ordinances, permits, Contract Documents, and as identified by the Owner.
- B. Maintain site reasonably unencumbered of materials or equipment.
- C. Avoid loading structure with weight that will cause a dangerous condition.
- D. Assume full responsibility for protection and safekeeping of products stored on premises.
- E. Move any stored products which interfere with operations of Owner or other Contractors.
- F. Obtain and pay for use of additional storage or work areas needed for operations.
- G. Limit use of site to work and storage.
- H. Limit use of Owner's elevators as identified in Section 01 650 of this Division.
- I. Keep all fire exits clear at all times for emergency egress. Maintain access to project and facilities for fire fighting equipment and personnel.
- J. Protect, as directed by the Owner's Representative, all walls, floors, mail chutes and stair doors in public areas subject to construction traffic.
- K. Prohibit placement of materials, tools and equipment on window sills and other Owner equipment which is not part of the work.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01310 PROJECT COORDINATION (CONSTRUCTION MANAGEMENT)

PART 1 - GENERAL

1.01 Organize the work well in advance of operation, and carry out work efficiently to avoid delays which would impede progress of other trades and the job as a whole.

A. Plan the work in advance, and coordinate all space requirements with the other trades involved. Where conflicts occur, request clarification through the Owner. The work in each Division shall be coordinated with the work of other trades with regard to:

1. Heights above finished floors.
2. Clearance for pipes, conduits, ducts and access doors/covers.
3. Location of equipment and system components.

B. Lay out the work carefully in advance to avoid unnecessary cutting, channeling, chasing or drilling of floors, walls, partitions, ceilings or other surfaces. Where such work is necessary, however, the work shall be done carefully. Any damage to the building or equipment shall be patched and/or repaired in an approved manner by skilled mechanics at no additional cost to the Owner.

1.02 PROJECT COORDINATION

A. Coordination of the work of the several Prime Contractors for the project shall be the responsibility of the Construction Manager.

B. Each Prime Contractor shall:

1. Coordinate work of his own employees and subcontractors.
2. Expedite his work to assure compliance with schedules.
3. Coordinate his work with other Prime Contractors and work by Owner.
4. Comply with orders and instructions of the Construction Manager.

1.03 CONSTRUCTION ORGANIZATION AND START-UP

A. The Construction Manager shall establish the following on-site lines of authority and communications:

1. Schedule and conduct pre-construction meeting and progress meetings.
2. Establish procedures for intra-project communications, including but not limited to the following:

a. Submittals

- b. Reports and records
 - c. Recommendations
 - d. Coordination drawings
 - e. Schedules
 - f. Resolution of conflicts
3. Interpret Contract Documents
- a. Consult with Engineer to obtain interpretation.
 - b. Assist in resolution of questions or conflicts which may arise.
 - c. Transmit written interpretations to Prime Contractors, and to other concerned parties.
4. Assist in Obtaining Permits and Other Approvals
- a. Include building permits and special permits required for work or for temporary facilities.
 - b. Verify that Prime Contractors and subcontractors have obtained inspections for work and for temporary facilities.
5. Control the Use of Site
- a. Supervise field engineering and site layout.
 - b. Allocate space for each Prime Contractor's use for field offices, sheds, and work and storage areas.
 - c. Allocate field office and storage space, as well as, work and storage areas for the use of each Prime Contractor.
 - d. Establish access, traffic and parking allocations and regulations.
 - e. Monitor use of site during construction.

1.04 CONSTRUCTION MANAGER DUTIES

- A. Maintain Construction Schedules
- 1. Coordinate schedules of the several Prime Contractors.
 - 2. Prepare a detailed schedule of basic operations for all Prime Contractors.
 - a. Each Prime Contractor shall prepare subschedules to comply with planning for critical phases.

3. Monitor Schedules as Work Progresses
 - a. Identify potential variances between scheduled and probable completion dates for each phase.
 - b. Recommend to Owner adjustments in schedule to meet required completion dates.
 - c. Adjust schedules of Prime Contractors as required.
 - d. Document changes in schedule. Submit to Owner and to involved Prime Contractors.
 4. Observe Work of each Contractor to Monitor Compliance with Schedule
 - a. Verify that labor and equipment are adequate for the work and the schedule.
 - b. Certify that product procurement schedules are adequate.
 - c. Verify that product deliveries are adequate to maintain schedule.
 - d. Report non-compliance, to Owner, with recommendation for changes.
- B. Process Shop Drawings, Product Data and Samples
1. Prior to submittal to Engineer, review for compliance with Contract Documents, including but not limited to the following:
 - a. Field dimensions and clearance dimensions.
 - b. Relation to available space.
 - c. Relation to other contracts and to other trades.
 - d. Effect of any changes on the work of any other contracts or other trades.
- C. Review Coordination Drawings Prepared by Mechanical and Electrical Contractors
1. Review for compliance with Contract Documents, prior to submittal to Engineer.
- D. Prepare coordination drawings as required to resolve conflicts and to assure coordination of the work of, or affected by, mechanical and electrical trades, or by special equipment requirements.

- E. Provide the following necessary inspection and testing:
 - 1. Inspect work to assure performance in accord with requirements of Contract Documents.
 - 2. Administer special testing and inspections of suspect work.
 - 3. Reject work which does not comply with requirements of Contract Documents.
 - 4. Coordinate testing laboratory services.
 - a. Verify that required qualified laboratory personnel are present.
 - b. Verify that tests are made in accordance with specified standards.
 - c. Review test reports for compliance with specified criteria.
 - d. Recommend and administer any required retesting.
- F. Monitor the Use of Temporary Utilities
 - 1. Verify that adequate services are provided and maintained.
 - 2. Coordinate use of Owner's facilities.
- G. Monitor Contractors' Regular Cleaning of the Premises
 - 1. Enforce compliance with Specifications.
 - 2. Resolve any conflicts.
- H. Arrange for Delivery of Owner-Furnished Products
 - 1. Inspect condition of supplies, materials and/or equipment at delivery.
 - 2. Turn over to appropriate Contractor; and, obtain a receipt.
- I. Changes and Substitutions
 - 1. Recommend necessary or desirable changes to Owner.
 - 2. Review Contractors' requests for changes and substitutions; submit recommendations to Owner.
 - 3. Assist Owner in negotiating Change Orders.
 - 4. Promptly notify all Contractors of pending changes for substitutions.
- J. Provide Cost Control for the Project
 - 1. Revise and refine the approved estimate of construction cost periodically:

- a. Record actual costs, and estimates for uncompleted work.
 - b. Incorporate approved changes as they occur.
 - c. Develop cash flow reports and projections.
 2. Maintain cost accounting records for authorized work performed under:
 - a. Unit costs.
 - b. Actual costs for labor and materials.
 - c. Other basis requiring accounting records.
 3. Implement procedures for review and processing of Contractors' applications for progress payments and for final payments.
 - a. Review each application for payment. Submit recommendations to Owner.
- K. Maintain Reports and Records at Job Site
 1. Make reports and records available to Owner.
 2. Keep daily log of progress of work of each Contractor.
 3. Keep the following on file with the records:
 - a. Contracts.
 - b. Purchase orders.
 - c. Materials and equipment records.
 - d. Applicable handbooks, codes and standards.
 - e. Authorizations for change orders.
 4. Obtain information from Contractors, and maintain file of their record documents.
 5. Assemble documentation for handling of claims and disputes.

1.05 CONSTRUCTION MANAGER CLOSE-OUT DUTIES

- A. Monitor start-up of mechanical and electrical equipment.
 1. Coordinate check-out of utilities, operational systems and equipment.
 2. Assist in initial equipment/system start-up and testing.
 3. Record start dates of operation for systems and equipment.
 4. Submit to Owner written notice of beginning of warranty period for equipment put into service.

- B. Conduct an inspection at completion of work of each Contract, to assure that:
 - 1. Cleaning is complete as specified.
 - 2. Removal of temporary facilities from site is complete.
 - 3. Completion of work is in accordance with Contract Documents.

- C. Verify Substantial Completion
 - 1. Conduct an inspection to confirm or supplement to Contractor's list of work to be completed or corrected.
 - 2. Assist Owner in inspection.
 - 3. Supervise correction and completion of work as established in Certificate of Substantial Completion.

- D. Coordinate prior to Final Completion, the established responsibilities of the Contractor and the Owner, when Owner occupies a portion of project.

- E. Verify Final Completion
 - 1. Conduct an inspection to verify completion of work for each Contractor who determines his work is finally complete.
 - 2. Assist Owner in final inspection.

- F. Administer Contract Closeout
 - 1. Receive and review Contractors' final submittals.
 - 2. Transmit to Owner with recommendations for action.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01315 PROGRESS MEETINGS

PART 1 - GENERAL

1.01 Contractor shall schedule and administer progress meetings.

- A. Prepare agenda.
- B. Distribute written notice and agenda of regular and special meetings four working days in advance of scheduled date.
- C. Make physical arrangements for meetings.
- D. Preside at meetings.
- E. Record minutes; include significant proceedings and decisions.
- F. Distribute copies of minutes to participants, within four days after meetings.

1.02 Owner may attend all meetings to ascertain that work is expedited consistent with Construction Schedule and with Contract Documents.

1.03 PRECONSTRUCTION MEETING

- A. Contractor to schedule within 15 days after date of Notice to Proceed.
- B. Plan for the following attendance by others:
 - 1. Owner.
 - 2. Owner's consultants.
 - 3. Other Prime Contractors.
 - 4. Major subcontractors of all Prime Contractors.
 - 5. Representatives of governmental or other regulatory agencies having jurisdiction.
- C. Prepare agenda which should have at least the following items:
 - 1. Tentative Construction Schedule.
 - 2. List of major subcontractors.
 - 3. Explanation of items a. and b., immediately above, which should be distributed in advance for adequate preparation by participants.

4. Critical work sequencing.
5. Relation and coordination of Prime Contractors.
6. Designation of responsible personnel.
7. Processing of field decisions and Change Orders.
8. Adequacy of distribution of Contract Documents.
9. Submittal of shop drawings, project data and samples.
10. Procedures for maintaining record documents.
11. Use of premises:
 - a. Office and storage areas.
 - b. Owner's requirements.
 - c. Limitations and restrictions.
12. Major equipment deliveries and priorities.
13. Safety and first aid procedures.
14. Security procedures.
15. Housekeeping procedures.

1.04 PROGRESS MEETINGS

- A. Schedule regular project meetings with NUMC and Lizardos Engineering.
- B. Schedule special meetings as progress of work requires.
- C. Specify location of meetings: As indicated in notice.
- D. Include in attendance list:
 1. Owner and his consultants.
 2. Other Prime Contractors.
 3. Subcontractors, as pertinent to agenda.
 4. Representatives of governmental or other regulatory agencies.
- E. Include the following minimum agenda for each meeting:
 1. Review and approve minutes of previous meeting.
 2. Review work progress since last meeting.

3. Note field observations, problems, Change Orders and decisions.
 4. Identify problems which impede planned progress.
 5. Review off site fabrication problems.
 6. Develop corrective measures and procedures to regain planned schedule.
 7. Revise Construction Schedule as indicated.
 8. Plan progress during next work period.
 9. Coordinate projected progress with other Prime Contractors.
 10. Review submittal schedules, expedite as required to maintain Construction Schedule.
 11. Review maintaining of quality and work standards.
 12. Review changes proposed by Owner for:
 - a. Effect on Construction Schedule.
 - b. Effect on completion date.
 - c. Effect on cost.
 13. Complete other current business.
- F. Maintain minutes of all meetings on file and provide Owner/Engineer, attendants and other interested parties with a copy of all minutes.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01322 CONSTRUCTION PHOTOGRAPHS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Provide 8 inch x 10 inch construction photographs taken on first and 15th day of each month or as otherwise noted.
- B. Provide photographs, in addition to the above, when they do not coincide with scheduled times, at the following stages of construction: **
 - 1. After Phase 1.
 - 2. After Phase 2.
 - 3. After Phase 3.
- C. Provide the following views and quantities:
 - 1. Take photographs from three different views at each specified date.
 - 2. Furnish three prints of each view.
- D. Quote unit prices in bid.
- E. Selection of photographer by Owner. Also, Owner will direct photographer's activities.
- F. Provide access to site and to work for photographer and his personnel.
- G. Employ separate photographer, and pay for his services, for photography for Contractor's use.

1.02 NEGATIVES

- A. Give negatives to Owner upon substantial completion of entire project.
- B. Furnish additional prints prior to that time, to Owner and Engineer, at commercial rates applicable at time of purchase.

1.03 IDENTIFICATION

- A. Identify on the back of each print the following information:
 - 1. Name of project.
 - 2. Description of view.
 - 3. Time and date of exposure.

4. Key plan with North arrow, indicate location of camera with a direction of view arrow.
5. Name and address of photographer.
6. Photographer's numbered identification of exposure.

1.04 VIEWS REQUIRED

- A. Consult with Owner for instructions concerning views required at each specified visit to site.
- B. Photograph from locations to illustrate adequately state of project, or condition of construction.

1.05 DELIVERY OF PRINTS

- A. Deliver one set of prints to each of the following:
 1. Engineer.
 2. Owner.
 3. Project Record Documents File.
 4. Contractor.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01325 CONSTRUCTION SCHEDULES

PART 1 - GENERAL

1.01 Provide projected Construction Schedule for entire work at the beginning of the project. Revise periodically.

1.02 Coordinate the following:

- A. Schedules of other Prime Contractors. These shall be available for inspection.
- B. Schedule for this work with schedules of other Prime Contractors.
- C. Resolution of schedule conflicts of various Prime Contractors will be by the Owner's representative (Project Coordinator) (Construction Manager).**

1.03 FORM OF SCHEDULES

- A. Prepare a horizontal bar chart to display schedule of the work.
 - 1. Provide separate horizontal bar row for each trade or operation.
 - 2. List activities in the same sequence as in the Specification.
 - 3. Identify each row by major Specification Section Number.
 - 4. Identify first work day of each week in the horizontal time scale.
 - 5. Allow space for updating and correcting.

1.04 CONTENT OF SCHEDULES

- A. Provide complete sequence of construction by activity.
 - 1. Show the following for submittal of shop drawings, project data and samples:
 - a. Submittal dates.
 - b. Dates reviewed copies will be required.
 - 2. Identify decision dates for:
 - a. Products specified by allowances.
 - b. Selection of finishes.
 - 3. List product procurement and delivery dates.
 - 4. Identify scheduled dates for beginning and completion of each element of construction, specifically, but not limited to the following:
 - a. Concrete placement.
 - b. Subcontractor work.

- c. Equipment installations.
 - d. Equipment tests.
- B. Identify work of separate floors, or separate phases, or other logically grouped activities.
 - C. Show projected percentage of completion for each item of work as of first day of each month.
 - D. Provide separate subschedules, showing submittals, review times, procurement schedules and delivery dates.
 - E. Provide subschedules to define critical portions of entire schedule.

1.05 UPDATING

- A. Show all changes occurring since previous submission of updated schedule.
- B. Indicate progress of each activity, show completion dates, including the following:
 - 1. Major changes in scope.
 - 2. Activities modified since previous updating.
 - 3. Revised projections due to changes.
 - 4. Other identifiable changes.
- C. Provide narrative report, including the following:
 - 1. Discuss problem areas, such as current and anticipated delay factors, and their impact.
 - 2. Identify corrective action taken, or proposed, and its effect.
 - 3. Explain effect of changes in schedule on other Prime Contractors or subcontractors.
 - 4. Describe revisions to the following:
 - a. Effect on schedule due to change of scope.
 - b. Revisions in duration of activities.
 - c. Other changes that may affect schedule.

1.06 SUBMITTALS

- A. Submit initial schedules within 15 days after date of Notice to Proceed.
 - 1. Owner will review schedules and return review copy within ten days after receipt.

2. Resubmit, if required, within seven days after return of review copy.
- B. Submit periodically updated schedules accurately depicting progress as of first day of each month.
- C. Submit for distribution an ample supply of the reviewed schedules plus four copies to be retained by Owner.
- D. Make prints from reviewed transparency for distribution.

1.07 DISTRIBUTION

- A. Distribute copies of reviewed schedules to:
 1. Job site file.
 2. Subcontractors.
 3. Owner/Engineer.
 4. Other concerned parties.
- B. Instruct recipients to report any inability to comply, and provide detailed explanation, with suggested remedies.
- C. Distribute submittals, including narrative report by the fifth working day of each month.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01330 SHOP DRAWINGS, PROJECT DATA AND SAMPLES

PART 1 - GENERAL

- 1.01** Submit to the Engineer shop drawings, project data and samples required by Specifications.
- 1.02** Prepare and submit, with Construction Schedules, a separate schedule listing dates of submission and dates of reviewed shop drawings; project data and samples will be needed for each product.
- 1.03** Do not proceed with construction or installation until shop drawings are approved.
- 1.04** Identify shop drawing with more than one issue. Successive issues shall have nothing changed that has been previously accepted on earlier issues, unless such items are flagged or noted in an accompanying letter. Checking will be done only on that basis.
- 1.05 SHOP DRAWINGS**
- A. Submit within ten days after the award of the Contract, unless otherwise specified, a complete list of the manufacturers of materials and equipment to be incorporated in the work. Intention of using specified materials and equipment does not relieve submittal obligations.
 - B. Review and approve shop drawings before submittal to Engineer. Include manufacturer's name and catalog number, descriptive data, cuts, diagrams, drawings and such other information as may be required, by the Owner, to judge compliance with the requirements of the Contract Documents and suitability to the application. Items submitted shall be well organized and clearly identified as to proposed application.
 - C. Assume responsibility for deviations from Drawings or Specifications unless called to the Owner's attention in writing at the time of submission. Also responsible for errors of any sort in shop drawings or schedules. Owner's/Engineer's review of such drawings or schedules shall not relieve the Contractor of this responsibility.
 - D. Indicate on shop drawings all changes to meet space requirements, code requirements and as necessary to resolve all space conflicts.
 - E. Monitor original shop drawings, prepared by a subcontractor, supplier or distributor. Ascertain the shop drawings are prepared by a detailer qualified to illustrate, verify and/or layout applicable portions of the work showing fabrication, as well as setting or erection details to include the following:
 - 1. Identify details by reference to sheet and detail numbers shown on Contract Drawings.

2. Draw on minimum sheet size of 82 inches x 11 inches.
 3. Prepare reproductions for submittals including reproducible transparency (sepia) with three prints.
- F. Obtain all acceptances before ordering or installing any materials and equipment. Contractor shall be liable for removal and replacement at no charge if, in opinion of Owner, material or equipment does not meet intent of the Contract Documents.
- G. Any materials or equipment submitted for review which are not in accordance with the Specification requirements will be rejected and resubmitted until approved without change in construction schedule and without additional cost to Owner.

1.06 PROJECT DATA

- A. Provide manufacturer's standard schematic drawings:
1. Modify Drawings to delete information which is not applicable to project.
 2. Supplement standard information to provide additional information applicable to project.
- B. Provide manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data.
1. Clearly mark each copy to identify pertinent materials, products or models.
 2. Non-applicable material and data shall be struck prior to submittal.
 3. Show dimensions and clearances required.
 4. Identify performance characteristics and capacities.
 5. Include wiring diagrams and controls.

1.07 SAMPLES

- A. Furnish to the Engineer, for approval, samples of all materials to be used in this work.
- B. Provide physical examples to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged.
- C. Provide office samples, of sufficient size and quantity to clearly demonstrate:
1. Functional characteristics of product or material, with integrally related

parts and attachment devices.

2. Full range of color samples.

D. Use samples, after review; in construction of project.

E. Prepare field samples and mock-ups.

1. Erect on project site at location acceptable to Owner.

2. Construct each sample or mock-up complete, including work of all trades required in finished work.

1.08 CONTRACTOR RESPONSIBILITIES

A. Review shop drawings, project data and samples prior to submission.

B. Verify:

1. Field measurements and field construction criteria.

2. Catalog numbers and similar data.

C. Coordinate each submittal with requirements of work and of Contract Documents.

D. Responsible for deviations, errors and omissions in submittals. This responsibility is not relieved by another's review of submittals.

E. Notify Owner, in writing at time of submission, of deviations in submittals from requirements of Contract Documents.

F. Delay work which requires submittals, until return of approved submittals from Owner.

1.09 SUBMISSION REQUIREMENTS

A. Schedule submissions at least seven days before dates reviewed submittals will be needed.

B. Submit one sepia and three prints of architectural drawings, structural drawings, system fabrication drawings and automatic control system ladder diagrams. Partial submissions will be returned without action taken.

C. Submit six copies of manufacturer's submittal sheets or catalog cuts. Extraneous material on product data sheets shall be struck prior to submittal.

D. Submit number of samples specified in each of Specification Sections.

- E. Accompany submittals with transmittal letter, in duplicate, containing:
1. Date.
 2. Project title and number.
 3. Contractor's name and address.
 4. The number of each shop drawing, project datum and sample submitted.
 5. Notification of deviations from Contract Documents.
 6. Other pertinent data.
- G. Include the following information with submittals:
1. Date and revision dates.
 2. Project title and number.
 3. The names of:
 - a. Engineer.
 - b. Contractor.
 - c. Subcontractor.
 - d. Supplier.
 - e. Manufacturer.
 - f. Separate detailer, when pertinent.
 4. Identification of product or material.
 5. Relation to adjacent structure or materials.
 6. Field dimensions, clearly identified as such.
 7. Contract Specifications Section Number.
 8. Applicable standards, such as ASTM number or FS number.
 9. Identification of deviations from Contract Documents.
 10. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field measurements and compliance with Contract Documents.

1.10 RESUBMISSION REQUIREMENTS

A. Shop Drawings

1. Revise initial shop drawings as required and resubmit as specified for initial submittal.
2. Indicate on Drawings any changes which have been made other than

those requested by Owner.

B. Project Data and Samples

1. Submit new datum and samples as required for initial submittal.

1.11 DISTRIBUTION OF SUBMITTALS AFTER REVIEW

A. Distribute copies of shop drawings and project datum which carry Owner's notation to:

1. Contractor's file.
2. Job site file.
3. Record Documents file.
4. Other Prime Contractors.
5. Subcontractors.
6. Supplier.
7. Fabricator.

B. Distribute samples as directed.

1.12 ENGINEER'S (OWNER'S) DUTIES

A. Review submittals with reasonable promptness.

B. Review for:

1. Compliance with general design concept of project.
2. Information given in Contract Documents.

C. Review of separate item does not constitute review of an assembly in which item functions. Request assembly data from Contractor.

D. Affix stamp and initials or signature after review of submittal.

E. Return submittals to Contractor for distribution.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01350 ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Coordinate work of all trades. Schedule elements of alterations and renovation work by procedures and methods to expedite completion of the work.
- B. Perform specified demolition. Cut, move or remove items as necessary to provide access or to allow alterations and new work to proceed. Perform cutting work in accordance with Cutting and Patching Section in this Division. Include such items as:
 - 1. Repair or remove hazardous or unsanitary conditions.
 - 2. Remove abandoned items and items serving no useful purpose, such as abandoned piping, conduit and wiring.
 - 3. Remove unsuitable or extraneous materials not marked for salvage, such as abandoned furnishings and equipment, and debris such as rotted wood, rusted metals and deteriorated concrete.
 - 4. Clean surfaces, and remove surface finishes as needed to install new work and finishes.
- C. Patch, repair and refinish existing items to remain, to the specified condition for each material, with a workmanlike transition to adjacent new items of construction. Perform patching work in accordance with Cutting and Patching Section of this Division.

1.02 SEQUENCE AND SCHEDULES

- A. Schedule work in the sequences and within times specified in the Contract Documents.
- B. Submit separate detailed sub-schedule for alterations work that is coordinated with the construction schedules. The sub-schedule shall include the following:
 - 1. Each stage of work.
 - 2. Dates of occupancy of areas.
 - 3. Date of substantial completion for each area of alterations work, as appropriate.
 - 4. Trades and subcontractors employed in each stage.

- D. Schedule all work to avoid inconvenience or disturbance to client personnel or tenants. When necessary, schedule work before 8:00 a.m. or after 6:00 p.m. to avoid interferences. Owner reserves the right to stop any work during the normal working hours which causes a disturbance.

1.03 ALTERATIONS, CUTTING AND PROTECTION

- A. Assign the work of moving, removal, cutting and patching, to trades qualified to perform the work in a manner to cause least damage to each type of work, and provide means of returning surfaces to appearance of new work.
- B. Perform cutting and removal work to remove the minimum necessary and in a manner to avoid damage to adjacent work.
- C. Protect from damage, existing finishes, equipment, and adjacent work which is scheduled to remain.
- D. Protect existing and new work from weather and extremes of temperature.
 - 1. Maintain existing interior work above 60°F.
 - 2. Provide weather protection, waterproofing, heat and humidity control as needed to prevent damage to remaining existing work and to new work.
- E. Provide temporary enclosures as specified herein to separate work areas from existing building and from areas occupied by Owner, and to provide weather protection.
- F. Discoveries of construction, furnishings and articles having a historic or private value shall remain in possession of Owner.
 - 1. Promptly notify Engineer.
 - 2. Protect discovery from damage from elements or work.
 - 3. Engineer will promptly transmit Owner's decision for disposition of discovery.
 - 4. Store items to be retained by Owner in a safe, dry place on site; and, dispose of items which Owner releases.

PART 2 - PRODUCTS

2.01 SALVAGED MATERIALS

- A. Salvage sufficient quantities of cut or removed material to replace damaged work of existing construction, when material is not readily obtainable on current market.

- B. Use particular care in the removal and salvage of the following items:
 - 1. Ceramic tile
 - 2. Marble
 - 3. Limestone
- C. Store salvaged items in a dry, secure place on site.
- D. Return to the Owner items not required for use in repair of existing work.
- E. Avoid mixing salvaged or used material in new construction, except with permission of the Owner or Engineer.

2.02 Products for Patching, Extending and Matching

- A. Use the following general requirements for work to be complete:
 - 1. Provide same products or types of construction as that in existing structure, as needed to patch, extend or match existing work.
 - 2. Determine products by inspection and any necessary testing, and workmanship by use of the existing as a sample of comparison.
 - 3. Patch, extend, or match, as necessary, to make work complete and consistent to identical standards of quality. Use presence of product, finish or type of construction as a guide.

PART 3 - EXECUTION

3.01 PERFORMANCE

- A. Patch and extend existing work using skilled mechanics who are capable of matching existing quality of workmanship. Quality of patched or extended work shall not be less than that specified for new work.

3.02 ADJUSTMENTS

- A. Patch floors, walls, and ceilings where partitions are removed, with finish materials to match existing.
 - 1. Rework floors and ceilings to provide smooth planes without breaks, steps, or bulkheads where removal of partitions results in adjacent spaces becoming one.
 - 2. Request instructions from Engineer as to method of making transition where extreme change of plane of two inches or more occurs.

- B. Trim and refinish existing doors as necessary to clear new floors.

2. **3.03 DAMAGED SURFACES**

- A. Patch and replace any portion of an existing finished surface which is found to be damaged, lifted, discolored, or which shows other imperfections with matching material.
- B. Provide adequate support of substrate prior to patching and finishing.
- C. Refinish patched portions of painted or coated surfaces in a manner to produce uniform color and texture over entire surface.
- D. Refinish entire surface to nearest intersections when existing surface finish cannot be matched.

3. **3.04 TRANSITION FROM EXISTING TO NEW WORK**

- A. Make a smooth and workmanlike transition when new work abuts or finishes flush with existing work. Make patch work match existing adjacent work in texture and appearance so that the patch or transition is invisible at a distance of five feet.
- B. Terminate existing surface in a neat manner along a straight line at a natural line of division, and provide trim appropriate to finished surface, when finished surfaces are cut in such a way that a smooth transition with new work is not possible.

4. **3.05 CLEANING**

- A. Perform regular and final cleaning as specified herein.
 - 1. Clean Owner-occupied areas daily.
 - 2. Clean spillage, overspray, and heavy collection of dust in Owner-occupied areas immediately.
- B. Clean area and make surfaces ready for work of successive trades at completion of work of each trade.
- C. Provide final cleaning and return space to a condition suitable for use by Owner at completion of alterations work in each area.

END OF SECTION

01355 SECURITY

PART 1 - GENERAL

1.01 Consult with Owner to determine the extent and kinds of security required for the project. Coordinate with the Owner's ongoing security programs, and keep informed of ongoing security requirements and of responsibilities resulting from any changes.

1.02 REQUIREMENTS INCLUDED

A. Provide a project security program to:

1. Protect the work, stored products and construction equipment from theft and vandalism.

2. Protect premises from entry by unauthorized persons.

B. Protect Owner's operations at site from theft, vandalism or damage from Contractor's work and employees.

1.03 MAINTENANCE OF SECURITY

A. Initiate security program in compliance with Owner's system, prior to job mobilization.

B. Maintain security program throughout construction period, until Owner occupancy or Owner acceptance precludes the need for Contractor security.

1.04 PERSONNEL

A. Employ a System of Identification

1. Provide an identification badge to each person authorized to enter the project premises, showing:

- a. Personal photograph.
- b. Name of the individual, and assigned number.
- c. Name of employer.

2. Maintain a current list of accredited persons. Submit a copy of the list to Owner on request.

3. Require that identification be displayed by all persons entering and leaving the premises.

C. Exclude from project site personnel not properly identified.

1.05 ENTRANCE CONTROL

- A. Provide control of all persons and vehicles entering and leaving project site.
 - 1. Require display of proper identification by each person.
 - 2. Allow no visitors except with issuance of identification.
 - 3. Maintain log of visitors.
- B. Provide passage for deliveries and vehicles related to Owner's operations. Owner will control scheduling of these vehicles.

1.06 PATROL/GUARD SERVICE

- A. Employ a recognized patrol/guard service to provide a watch service, which shall be in effect at all times, day or night, when general construction work is not in progress.

1.07 MISCELLANEOUS RESTRICTIONS

- A. Prohibit cameras on, in or near project site. No photograph of any kind shall be taken without the approval of the Owner.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01510 TEMPORARY LIGHTING AND POWER

PART 1 - GENERAL

1.01 DESCRIPTION OF SYSTEM

- A. The work shall consist of all labor and materials required to provide a complete system of temporary light and power for all project construction purposes, the Contractor's field office, other field offices, and other temporary storage and construction buildings.
- B. Relocate the temporary light and power system as required to meet the phasing aspects of the project.
- C. Provide temporary lighting in accordance with the following:
 - 1. Lighting in Contractor's field office of not less than ten footcandles in working area.
 - 2. Lighting in building areas of 2 Watt per square foot minimum with additional lighting at entrances, stair landings, etc.
 - 3. Lighting on open deck areas of 2 Watt per square foot.
 - 4. Safety and security lighting of all barricades, passageways, etc., as required for public safety and for watch service, as directed.
 - 5. Adequate illumination for public safety.
 - 6. Special warning lighting for hazardous conditions.
- D. Maintain strict supervision of use of temporary lighting and power.

1.02 COSTS OF INSTALLATION AND OPERATION

- A. Furnish and install meter for temporary electrical power used to maintain Owner's occupancy.

1.03 REQUIREMENTS OF REGULATORY AGENCIES

- A. Obtain and pay for permits as required by governing authorities.
- B. Obtain and pay for temporary easements required across property, other than that of Owner.
- C. Comply with all applicable codes.

1.04 USE OF OWNER'S EXISTING SYSTEM

- A. Use existing system for temporary electricity, with Owner's permission.
- B. Modify, supplement, and extend system as necessary to meet temporary electricity requirements.
- C. Regulate any part of the existing system used for construction purposes.
 - 1. Prevent interference with Owner's normal use of system.
 - 2. Prevent interference with safety and orderly progress of work.
 - 3. Do not use Computer Room panels which supply power to data processing equipment, unless approved by Owner.
- E. Upon completion of work, restore electrical services to specified, or original condition.

1.05 USE OF PERMANENT SYSTEM

- A. Secure Owner's written permission for connection and use of system, indicating conditions of use.
- B. Modify and extend system as necessary to meet temporary electricity requirements.
- C. Return electrical system to original state at the completion of the work.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General
 - 1. Comply with Division 26 - Electrical.
 - 2. Use materials which are new or used, but must be adequate in capacity for required purposes; and must not create unsafe conditions or violate requirements of applicable codes.
- B. Provide required facilities, including transformers, conductors, poles, conduits, raceways, breakers, fuses and switches.

2.02 EQUIPMENT

- A. Provide appropriate enclosures for environment in which used, in compliance with NEC and NEMA standards.

PART 3 - EXECUTION

3.01 Comply with applicable sections of Division 26 - Electrical.

3.02 Install work in neat and orderly manner.

3.03 Make structurally and electrically sound throughout.

3.04 Maintain to give continuous service and to provide safe working conditions.

3.05 INSTALLATION

A. Locate to avoid interference with:

1. Traffic and work areas.
2. Cranes.
3. Materials handling equipment.
4. Storage areas.
5. Work under other Contracts.

B. Avoid running branch circuits on floor or on ground.

C. Install lighting switches at entrance to each area, or successive areas, so that progress to all areas of project may be made through lighted areas.

D. Install exterior security lighting.

1. Illuminate entire project site.
2. Control lighting by photoelectric cell.

3.06 PERIOD OF SERVICE

A. Provide continuous lighting and power from 30 minutes prior to 30 minutes past scheduled work hours on scheduled work days and at any other times work is being performed at the project site.

3.07 REMOVAL

A. Completely remove from the site temporary materials and equipment upon completion of construction.

B. Repair damage caused by installation and restore to specified or original condition.

END OF SECTION

01513 TEMPORARY WATER

PART 1 - GENERAL

1.01 DESCRIPTION OF SYSTEM

- A. Furnish and install temporary water service for use throughout construction period.
 - 1. Provide Water for Construction Purposes
 - a. Install service standpipe, centrally located in project.
 - 2. Provide Water for Other Purposes
 - a. Temporary sanitary and first aid facilities.
 - b. Temporary fire protection.
 - c. Temporary field offices.
 - d. Cleaning.
 - 3. Provide Non-Potable Water
 - a. Use only for industrial, cleaning and fire fighting purposes.
 - b. Identify outlets for Non-Potable water with signs, to indicate clearly that water is unsafe, and shall not be used for drinking, washing or cooking purposes.
 - 4. Provide Potable Water for Construction Personnel
 - a. Use portable containers to dispense drinking water.
 - b. Provide sanitary bubbler drinking fountains, served by central potable water system.
- B. Maintain adequate supply of water for all purposes.
- C. Provide Preliminary Water Source
 - 1. Furnish trucked-in service prior to availability of piped source of supply.
 - 2. Install temporary elevated storage tanks on site.
 - 3. Provide separate supply and storage for potable water.
- D. Maintain strict supervision of use of temporary services.
 - 1. Enforce conformance with applicable codes and standards.
 - 2. Enforce sanitary practices and prevent abuse of services.

1.02 COSTS OF INSTALLATION AND OPERATION

- A. Pay costs of temporary water services, including costs of installation, maintenance and removal of pipe and equipment.
- B. Pay costs for water used by all trades.
- C. Share water cost proportionately, at an agreed unit cost, should Owner occupy part of facility during construction.

1.03 REQUIREMENTS OF REGULATORY AGENCIES

- A. Obtain, pay for permits, fees, deposits required by governing authorities.
- B. Obtain and pay for temporary easements required across property other than that of Owner.
- C. Comply with Federal, State and local codes, and utility company regulations.

1.04 USE OF OWNER'S EXISTING SYSTEM

- A. Use existing system for temporary water for construction, with Owner's permission.

1.05 USE OF PERMANENT SYSTEM

- 1. Extend system as necessary to meet temporary water requirements.
- 2. Provide maintenance of system.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Comply with Division 22 - Plumbing.

2.02 Provide materials which may be new or used, but must be adequate for purpose required. Potable water and sanitation systems must not violate requirements of applicable codes.

2.03 Provide required facilities, including piping, valves, pumps, pressure regulators, tanks and other appurtenances.

2.04 Provide backflow protection on all connections to existing water system.

PART 3 - EXECUTION

3.01 Comply with applicable Sections of Division 15 - Mechanical.

3.02 Install work in a neat and orderly manner.

3.03 Make installations structurally and mechanically sound throughout.

3.04 Maintain to provide continuous service.

3.05 INSTALLATION

A. Locate piping and outlets to:

1. Provide service convenient to work stations.

2. Avoid interference with:

- a. Traffic and work areas.
- b. Materials handling equipment.
- c. Storage areas.
- d. Work under other Contracts.

B. Do not run piping on floor or on ground.

C. Provide drip pan under each hose bibb located within building.

D. Connect drain to sewer.

E. Provide insulation, or other means, to prevent pipes from freezing.

F. Provide temporary pumps, tanks and compressors when necessary to maintain pressure.

3.06 LOCATION

A. Locate drinking water at places convenient to work stations.

3.07 REMOVAL

A. Completely remove temporary materials and equipment upon completion of construction.

B. Clean and repair damage caused by installation and restore to specified or original condition.

3.08 DRINKING WATER FACILITIES

A. Provide portable containers as follows:

1. Tightly closed, and equipped with dispensing tap.
 2. Clearly label contents.
 3. Do not use for other purposes.
 4. Provide single-service disposable cups, with sanitary container for unused cups, and receptacles for used cups.
- B. Install temporary drinking fountains.
1. May be new or used.
 2. Do not use for permanent installation.
- C. Furnish and install sanitary bubbler drinking fountains when potable water service is available.
1. Sterilize piping prior to use.
 2. Do not allow open or potential cross connections between potable water system and non-potable water system.

END OF SECTION

01520 TEMPORARY SANITARY FACILITIES

PART 1 - GENERAL

1.01 DESCRIPTION OF SYSTEM

- A. Furnish and install temporary sanitary facilities for use throughout construction period.
 - 1. Provide enclosed toilet facilities for construction personnel.
 - 2. Include sanitary services at the following locations:
 - a. First aid station.
 - b. Temporary field offices.
 - 3. Provide general employee washing facilities.
 - 4. Provide special washing facilities for employees engaged in application of paints, coatings, herbicides, insecticides and other injurious substances. **
- B. Provide, as a minimum, the following number of fixtures:
 - 1. Toilets and urinals
 - i. a. For less than 20 employees: One toilet.
 - ii. b. For 20 or more employees: One toilet and one urinal per 40 workers.
 - iii. c. For 200 or more employees: One toilet and one urinal per 50 workers.
 - 2. Provide washing facilities adequate for number of employees and for type of work performed.
- C. Provide for Sewage Disposal
 - 1. Install specified sewage disposal system within 60 days, complete to sufficient extent to serve temporary sanitary facilities.
- D. Maintain Strict Supervision of Use of Facilities
 - 1. Enforce conformance with applicable standards.
 - 2. Maintain, service and clean facilities.
 - 3. Enforce proper use of sanitary facilities.

1.02 WATER

- A. As specified in this Division under Temporary Water.

1.03 COSTS OF INSTALLATION AND OPERATION

- A. Pay costs of temporary sanitary facilities, including costs of installation, maintenance and removal.
- B. Pay costs for water as specified in this Division under Temporary Water.
- C. Pay service charges for use of portable units.
- D. Pay service charges for connection and use of sewerage system.

1.04 FACILITY LOCATIONS

- A. Locate temporary toilet and washing facilities within the project site as follows:
 - 1. Secluded from public observation.
 - 2. Convenient for use of personnel in relation to work stations.
- B. Obtain approval of Owner for location of all sanitary facilities.
- C. Relocate, as required, as work progress requires.

1.05 ENCLOSURES FOR TOILET AND WASHING FACILITIES

- A. Provide weatherproof, sightproof, ventilated, sturdy temporary enclosures.
- B. Provide privacy screens for each toilet fixture in enclosures accommodating two or more persons.

1.06 REQUIREMENTS OF REGULATORY AGENCIES

- A. Obtain and pay for permits as required by governing authorities.
- B. Obtain and pay for temporary easements required across property other than that of Owner.
- C. Comply with Federal, State and local codes, and utility company regulations.

1.07 USE OF OWNER'S EXISTING SYSTEM

- A. Use only sanitary facilities designated in writing by Owner.
- B. Clean rooms and fixtures daily.
- C. Restore system and surrounding areas to specified or original condition, upon

completion of work.

1.08 USE OF PERMANENT FACILITIES

- A. Secure Owner's written permission for use of system, indicating conditions of use.
- B. Clean rooms and fixtures daily.

PART 2 - PRODUCTS

3.01 MATERIALS

- A. Comply with Division 15 - Mechanical.
- B. Provide new or used equipment which must be adequate for purposes intended and must not create unsanitary conditions nor violate requirements of applicable codes.

3.02 TOILET FACILITIES

- A. Provide any of the following type of portable toilets:
 - 1. Privies.
 - 2. Chemical toilets.
 - 3. Recirculating toilets.
 - 4. Combustion toilets.
- B. Provide Temporary Flush Toilets
 - 1. May be new or used.
 - 2. Do not use for permanent installation.
- C. Provide Toilet Tissue
 - 1. Provide at each toilet, on suitable dispenser.

3.03 WASHING FACILITIES

- B. Provide temporary lavatories or sheet metal basins.
- C. Provide single-service paper towels, in dispenser, with receptacle for used towels.

PART 3 - EXECUTION

- 3.01** Comply with applicable sections of Division 15 – Mechanical.

3.02 Install work in a neat and orderly manner.

3.03 Make structurally and mechanically sound throughout.

3.04 Maintain, clean and service as required to provide sanitary conditions.

3.05 Modify and extend service as work progress requires.

3.06 INSTALLATION

A. Provide Portable Toilets

1. Erect securely and anchor to prevent dislocation.
2. Service as often as necessary to prevent accumulation of wastes and creation of unsanitary conditions.
3. Use only until sewer and water service can be provided to project site.

B. Utilize Temporary Flush Toilets

1. Provide water and sewer services, and install toilets within 60 days after date of execution of Contract.
2. Relocate toilets as work progress requires.
3. Connect to permanent piping after installation and testing of permanent sewerage and water piping, relocate toilets within building.

C. Install Temporary Washing Facilities

1. Provide faucet.
2. Connect drain to sewer.

D. Provide insulation, or other means, to prevent water and sewer pipes from freezing.

3.07 REMOVAL

A. Remove portable units when piped units are connected.

B. Remove temporary flush toilets when rooms are required for finishing and adequate facilities are provided elsewhere.

C. Remove all temporary materials and equipment on completion of construction.

D. Clean and repair permanent facilities used for temporary purposes and surrounding areas. Replace damaged fixtures.

END OF SECTION

01525 - FIELD OFFICES AND STORAGE SHEDS

PART 1 - GENERAL

1.01 Furnish, install and maintain field offices to provide specified services, furnishings and equipment for:

- A. Owner and Engineer.
- B. Contractor's use.
- C. Allocate three reserved parking spaces, convenient to offices, for use of Owner and Engineer.

1.02 Provide and maintain separate offices for subcontractors, in one or more buildings, at Contractor's option.

1.03 Furnish, install and maintain storage sheds needed for construction supplies and materials.

1.04 CONSTRUCTION

- A. Provide structurally sound foundation and superstructure.
- B. Make weathertight, with raised floors.
- C. Provide compatibility for occupancy and storage requirements.
- D. Use, at Contractor's option, portable buildings or mobile homes for offices.

1.05 STORAGE SHEDS

- A. Provide the number of sheds required to meet the needs of various trades.
- B. Provide proper size necessary to meet storage requirements of products.
- C. Ventilate sheds to meet specified code requirements for products stored.
- D. Heat sheds to maintain temperatures specified in respective Sections for products stored.
- E. Furnish fire extinguishers on the basis of one standard dry chemical (ABC) type for each office and each storage shed.

1.06 IDENTIFICATION

- A. Provide a sign on each office structure to identify occupants and function.
- B. Furnish a large "EMERGENCY FIRST AID" sign at the proper location.

1.07 REQUIREMENTS OF REGULATORY AGENCIES

- A. Comply with requirements of regulatory agencies having jurisdiction.
- B. Obtain and pay for permits as required by governing authorities.

1.08 SUBMITTALS

- A. Submit drawings showing:
 - 1. Locations allocated for offices and storage sheds on the site.
 - 2. Plan of office for Engineer at 3 inch scale, showing furnishings, services and equipment.
- B. Provide description of construction of offices and storage sheds.
- C. Identify colors for exterior and interior surfaces.

1.09 JOB CONDITIONS

- A. Locate temporary structures to avoid interference with work.
- B. Relocate temporary structures as required by progress of the work.

PART 2 - PRODUCTS

- 2.01** Provide new or used materials, equipment and furnishings, but they must be serviceable and adequate for required purpose. They must not create unsafe conditions or violate applicable codes.

2.02 PREPARATION

- A. Fill and grade sites to provide drainage for temporary structures.

2.03 INSTALLATION

- A. Construct temporary field offices and storage sheds on fixed foundations, with connections for services.
 - 1. If used, raise portable buildings or mobile homes. Install on fixed foundations.
 - 2. Provide steps and landings at entrance doors.
 - 3. Provide weather-impervious surfaced walkways between offices and adjacent parking area.

- B. Mount thermometer at convenient location on the field office, but not in direct sunlight.
- C. Mount fire extinguishers in prominent locations with clear access for use.
- D. Mount signs in conspicuous locations adjacent to entrance doors of appropriate structures.

2.04 MAINTENANCE AND CLEANING

- A. Provide continuous maintenance for temporary structures, services and furnishings.
- B. Repair or refinish damaged or weathered portions of structures as required to maintain in specified condition.
- C. Repair or replace defective services and furnishings.
- D. Provide daily janitorial service for office of Owner and Engineer.
- E. Clean other offices and storage sheds at least once each week.

2.05 REMOVAL

- A. Remove temporary field offices, contents and services at completion of construction operations.
- B. Remove storage sheds when they are no longer required.
- C. Remove foundations and debris. Grade to required elevations, clean area and restore to original condition.

PART 3 - EXECUTION

Not used.

END OF SECTION

01540 SCAFFOLDING

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Standard scaffolding
- B. Hung scaffolds
- C. Planking, toe boards, railing, tie-ins, connections, supports, suspension system
- D. Tests required

1.02 EXISTING CONDITIONS AND COORDINATION

- A. Visit the site, verify existing conditions, and coordinate with Owner and other contractors.
- B. Prior to all work of this Division, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where scaffolding will not interfere with ongoing work.
- C. Make all required measurements in the field to ensure proper and adequate fit.

1.03 QUALITY ASSURANCE

- A. All scaffolds shall be properly erected and maintained so that the safety of the public and property will not be impaired by falling material, tools or debris or by collapse of the scaffold.
- B. All scaffolding shall conform to requirements of local governing codes. Records of inspection servicing and maintenance of all scaffolds shall be kept by the user.
- C. Prefabricated metal or metal standard scaffolds shall comply with the provisions of (Sub-Article 1906 of the NYC Building Code).

PART 2 - PRODUCTS

2.01 GENERAL

- A. Materials and Construction
 - 1. All lumber used in scaffolds or their supports shall be at least equal in strength and quality to construction grade Douglas fir.
 - 2. All lumber and timber shall be fastened at the various joints with sufficient nails or bolts of a suitable size to produce a secure joint capable of withstanding the design load.

3. All nails shall be driven full length.
 4. Any other suitable material, or dimensions other than those indicated, may be used for scaffold construction provided it is at least equivalent in strength and suitability to the comparable wood scaffold it is designated to replace.
- B. Loading and Design
1. All other scaffolding shall be constructed of sizes and numbers of members as hereinafter required or, in the absence of such requirements shall be demonstrated to be capable of supporting, without collapse, not less than four times the maximum weight required to suspend therefrom, or placed thereon, when in use.
 2. No standard scaffold shall be loaded in excess of the maximum load for which it is designed for. Loads shall not be concentrated so as to cause stresses in excess of the allowable values.
 3. The footing and anchorage for every scaffold shall be sound and rigid, capable of carrying the maximum load without settlement or deformation, and secure against movement in any direction.
 4. Supports such as barrels, boxes, loose brick, loose stone, or other unstable constructions shall not be used.
- C. Planking
1. The minimum width of every planked platform shall be 18 inches, except as otherwise noted hereinafter. Unless otherwise indicated, the sizes in this article for load-bearing planks shall denote undressed lumber, full thickness.
 2. Except as otherwise indicated in this Division, planks shall overhang their end supports at least six inches, or they shall be securely fastened to prevent dislodgement. In no case shall the overhang exceed 18 inches. Planks shall be laid tight and inclined planking shall be fastened in place.
- D. Erection and Removal
1. Only workmen with experience in erecting or removing scaffolds shall be employed. They shall work under the supervision of a designated superintendent or foreman who shall enforce such measures as necessary for the protection of public and property.
- E. Maintenance and Repair
1. All scaffolds shall be maintained in safe condition. No scaffold shall be

altered, removed, or partially dismantled while it is in active use.

2. Every damaged or weakened scaffold shall be immediately repaired and shall not be used until such repairs have been completed, and, in the case of suspended scaffolds, tested as required (under Section C26-1907.4(b) of the NYC Building Code).

F. Fire Retardant Construction

1. With the exception of the planking all scaffolds shall be noncombustible material when used in the following application:
 - a. Exterior scaffolds exceeding 75 feet in height.
 - b. Interior scaffolds exceeding 21 feet in height.

G. Guard Rails and Toeboards

1. Except for scaffold platforms ten feet, or less, above the ground or for scaffolds used on the interior of the building at a height of ten feet, or less, above a floor, the open sides and ends of every scaffold platform shall be provided with a standard guard rail and toeboard unless otherwise specified for the particular type of scaffold.
2. Where it is possible for the public to pass under, or next to, a scaffold, the space between the top rail and toeboard shall be enclosed with a wire screen composed of not less than No. 18 steel wire gauge with a maximum 2 inch mesh. Toeboards shall be installed so that no open space exists between the platform and the toeboard.

PART 3 - EXECUTION

Not used.

END OF SECTION

01560 TEMPORARY PARTITIONS AND PROTECTION

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Coordinate protection, demolition and new installations.
- B. Provide positive methods and apply dust control materials to minimize raising dust from construction operations. Provide positive means to prevent airborne dust from dispersing into the atmosphere.
- C. Erect temporary dusttight partitions capable of withstanding reasonable use. Install, as required, to properly conduct the work with a minimum of interference to the operation and cleanliness of the building.
- D. Provide temporary protection for (Boiler House roof). **
- E. Take all measures necessary to protect finishes, flooring, walls and furnishings from damage.
- F. Establish work practices so that noise control shall prevail.
- G. Provide methods to control surface water to prevent damage to the work, the project site and adjoining properties.
- H. Provide, operate and maintain hydraulic equipment of adequate capacity to control surface and water.
- I. Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site or to adjoining areas.
- J. Provide legal and safe methods, means and facilities required to prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations.
- K. Provide equipment and personnel to perform emergency measures required to contain any spillages, and to remove contaminated soils or liquids.
- L. Take special measures to prevent harmful substances from entering public waters, including the ground water system.
- M. Provide systems for control of atmospheric pollutants.
 - 1. Prevent concentrations of toxic chemicals.
- N. Maintain all areas, under Contractor's control, free of extraneous debris.

- O. Initiate and maintain a specific program to prevent accumulation of debris at construction site, storage and parking areas, and along access roads and haul routes.
 - 1. Provide containers for deposit of debris as specified herein.
 - 2. Prohibit overloading of trucks to prevent spillages on access and haul routes.
- P. Schedule regular collection and disposal of debris daily and weekly as required.

1.02 QUALITY ASSURANCE FOR TEMPORARY PARTITIONS

- A. Material selected shall be resistant to abrasion and able to withhold dust and other foreign matter.

PART 2 - PRODUCTS

2.01 TEMPORARY PARTITIONS

- A. Use only new materials, unless otherwise approved by the Owner, to protect existing work as shown on the Drawings, specified or listed in the Schedules herein.
- B. Select protective materials to withstand abrasion and to withhold dust and other foreign matter.
- C. Use masonite, kraft paper, taped joints and polyvinyl draping to protect existing work.
- D. Use exterior grade and fire-retardant plywood when it is required.

PART 3 - EXECUTION

3.01 TEMPORARY PARTITIONS

- A. Install and maintain all necessary coverings, boarding and partitioning to protect existing work and finishes during construction.
- B. Seal dusttight protective barriers that separate the work area from the occupied area.
- C. Cover materials brought in or out of the work area to prevent introduction of dust and debris to the occupied space.
- D. Broom clean and daily vacuum periodically to clean construction dust from the

work area as well as from nearby occupied spaces.

- E. Install new doors and/or openings in protective partitions. Seal existing doors with tape.
- F. Take all measures necessary to protect finishes, flooring and furnishing from damage. Provide coverings to protect windows.
- G. Protect existing floors with reinforced kraft paper and hardboard. Maintain protection covering during construction.
- H. Assume responsibility for any damage caused by improper protection. Repair and restore any damaged area at no additional cost to the Owner and to the satisfaction of the Owner.
- I. Remove all protection and restore the area upon completion of the work.

END OF SECTION

01570 TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Provide and maintain methods, equipment, and temporary construction, as necessary to provide controls over environmental conditions at the construction site and related areas under Contractor's control. Remove physical evidence of temporary facilities at completion of work.

1.02 RELATED REQUIREMENTS

- A. Project coordination.
- B. Temporary utilities.
- C. Traffic regulation.
- D. Cleaning.

1.03 DUST CONTROL

- A. Provide positive methods and apply dust control materials to minimize raising dust from construction operations, and provide positive means to prevent airborne dust from dispersing into the atmosphere.

1.04 WATER CONTROL

- A. Provide methods to control surface water to prevent damage to the project, the site or adjoining properties.
 - 1. Control fill, grading and ditching to direct surface drainage away from excavations, pits, tunnels and other construction areas. Direct drainage to proper runoff.
 - 2. Provide, operate and maintain hydraulic equipment of adequate capacity to control surface and water.
 - 3. Dispose of drainage water in a manner to prevent flooding, erosion or other damage to any portion of the site and to adjoining areas.

1.05 RODENT CONTROL

- A. Provide rodent control as necessary to prevent infestation of construction and storage area.
 - 1. Employ methods and use materials which will not adversely affect conditions at the site or adjoining properties.
 - 2. Should the use of rodenticides be considered necessary, submit an

informational copy of the proposed program to Owner with a copy to Engineer. Clearly indicate:

- a. Area or areas to be treated.
 - b. Rodenticides to be used, with a copy of the manufacturer's printed instructions.
 - c. Pollution preventive measures to be employed.
- B. Use rodenticide in full accordance with the manufacturer's printed instructions and recommendations.

1.06 POLLUTION CONTROL

- A. Provide methods, means and facilities required to prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations.
- B. Provide equipment and personnel to perform emergency measures required to contain any spillages, and to remove contaminated soils or liquids.
1. Excavate and dispose of any contaminated earth off site, and replace with suitable compacted fill and topsoil.
- C. Take special measures to prevent harmful substances from entering public waters.
1. Prevent disposal of wastes, effluents, chemicals or other such substances adjacent to streams or in sanitary or storm sewers.
- D. Provide systems for control of atmospheric pollutants.
1. Prevent toxic concentrations of chemicals.
 2. Prevent harmful dispersal of pollutants into the atmosphere.

1.07 EROSION CONTROL

- A. Plan and execute construction and earth work by methods to control surface drainage from cuts and fills, and from borrow and waste disposal areas, to prevent erosion and sedimentation.
1. Hold the areas of bare soil exposed at one time to a minimum.
 2. Provide temporary control measures such as berms, dikes and drains.
- B. Construct fills and waste areas by selective placement to eliminate surface silts or clays which will erode.

- C. Periodically inspect earth work to detect any evidence of the start of erosion, apply corrective measures as required to control erosion.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01580 PROJECT IDENTIFICATION SIGNS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Furnish, install and maintain project identification signs.
- B. Include the following information on signs:
 - 1. Title of project as listed on Contract Documents.
 - 2. Name of Owner as listed on Contract Documents.
 - 3. Titles and names of authorities.
 - 4. Titles and names of:
 - a. Engineers.
 - b. Architect.
 - c. Project Coordinator (Construction Manager).
 - d. Consultants.
 - e. Prime Contractors.
 - f. Owners.

1.02 QUALITY ASSURANCE

- A. Design all supports, framing and surfaces to resist 50 MPH wind velocity. **
- B. Material Standards
 - 1. Provide adequate painting and finishes to resist weathering and fading for scheduled construction time period.
- C. Meet All Requirements of Regulatory Agencies
 - 1. Comply with requirements of authorities having jurisdiction.
 - 2. Obtain and pay for required permits.

1.03 SUBMITTALS

- A. Submit Drawings showing:
 - 1. Structure and framing.
 - 2. Sizes and grades of members.
 - 3. Foundation.
 - 4. Surface material for sign.
 - 5. Layout of signs, showing sizes and styles of letters.
 - 6. Colors.
 - 7. Lighting and controls.

PART 2 - PRODUCTS

2.01 STRUCTURAL MATERIALS

- A. Provide adequate supports which may be new or used, but must be sound, and structurally adequate.
- B. Include preservative treatment for wood supports, in contact with ground, as required, to prevent deterioration during specified period of use.

2.02 FRAMING MATERIALS

- A. Provide wood or steel which may be new or used and in sound condition.

2.03 SURFACE MATERIAL FOR SIGNS

- A. Provide the following materials:
 - 1. Plywood: A-C DFPA, with Medium Density Overlay.
 - 2. Particleboard: CS 236-__, Type 2, Density B, Class 1. **
- B. Maintain the following size and thickness:
 - 1. Sizes: Maximum standards permitted locally.
 - 2. Thickness: As required to provide even, level, durable surface.

2.04 ROUGH HARDWARE

- A. Provide galvanized, aluminum or brass hardware.

2.05 PAINTING

- A. Use product of nationally recognized paint manufacturer.
- B. Use colors designated by Owner in writing.
- C. Paint all exposed surfaces with one coat of primer and at least one coat of exterior enamel, except creosoted poles.
- D. Paint lettering in styles, sizes and colors as indicated on Owner reviewed and approved submittal.

2.06 INSTALLATION OF SUPPORTS

- A. Set pole type supports into excavations.

1. Install to a depth equal to 25% of height from ground to top of sign, with a minimum of three feet.
 2. Plumb poles, backfill, tamp earth around poles.
- B. Use braced framing.
1. Drive stakes, sized to loading requirements, to secure setting to a minimum depth of two feet, six inches.
 2. Secure framing members to stakes, cut tops of stakes to even line, flush with framing members.

2.07 FRAMING

- A. Install frame members, secure to supports and meeting local code requirements and applicable trade standards.
- B. Space framing members to widths of surfacing material, maximum 24 inches on centers.

2.08 SURFACING

- A. Install sheets vertically, in one piece, for height of sign.
- B. Butt joints and nail securely.
- C. Install trim.

2.09 MAINTENANCE

- A. Repair damages to structure, framing or sign during entire length of project.
- B. Repaint surfaces, lettering, logotypes, or perspectives, which show severe weathering.
- C. Maintain sign and supports in neat and clean condition.

2.10 REMOVAL

- A. Remove sign, framing supports and foundations at completion of project or when directed by Owner.
- B. Dispose of sign as directed by Owner.

PART 3 - EXECUTION

Not used.

END OF SECTION

01630 SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. General

1. Submit, for consideration by the Owner, products or materials equal in all respects to that specified as substitutes only under the following conditions:
 - a. Verify the item proposed for substitution is equal to and/or superior to the item named, in construction, efficiency and utility. Further, verify the item named in the Specifications cannot be delivered to the site in time to complete the work in proper sequence.
 - b. Submit formal requests for substitutions within 30 days following signing of Contract. Each request shall be accompanied by documentary proof of equality and/or difference in price and delivery, if any, in form of certified quotations from suppliers of both specified and proposed items.
 - c. After end of that period, requests will be considered by the Owner only in the event of product unavailability or other limiting conditions beyond control of Contractor.
 - d. Credit the Owner with the savings obtained from price differential. The Owner shall receive all benefits of the difference in cost involved in any substitution and the Contract altered by Change Order.
 - e. All substitutions shall be covered by a Change Order because the Contract is altered.
2. Submit a separate request for each equipment/product, supported with complete product description, reference standards and performance/test data, with drawings and samples as appropriate, including the following:
 - a. Compare the qualities of the proposed substitution with that specified.
 - b. Identify changes required in other elements of the work because of the substitution.
 - c. Show the effect on the Construction Schedule.

- d. Compare cost data of the proposed substitution with the product specified.
 - e. Describe availability of maintenance service and source of future replacement materials.
 - f. List names and addresses of similar projects on which product has been used and date of each installation.
 - g. Provide complete data substantiating compliance of proposed substitution with requirements stated in Contract Documents:
 - 1) Product identification, including manufacturer's name and address.
 - 2) Manufacturer's literature which contains:
 - a) Product description.
 - b) Reference standards and performance test data.
 - 3) Samples, as applicable.
 - 4) Name and address of similar projects on which product has been used and date of each installation.
3. Provide the following as a result of a request for a substitution:
- a. Investigate the proposed product and determine that it is equal to or superior, in all respects, to the item specified.
 - b. Provide the same warranties or bonds for the substitution as for the product specified.
 - c. Coordinate the installation of an accepted substitution into the work, and make such other changes as may be required to make the work complete in all respects.
 - d. Accept all claims for additional costs from other Contractors should the substitution affect his or their work.
4. Prepare itemized comparison of the proposed substitution with product specified. List significant variations.
5. Submit data relating to changes in Construction Schedule.
6. Identify any effect of substitution on separate Contracts.

7. List changes required in other work or products.
 8. Provide accurate cost data comparing proposed substitution with product specified. Show amount of any net change to Contract sum.
 9. Identify required license fees or royalties.
 10. Identify availability of maintenance services and sources of replacement materials.
- B. Furnish and install only those products or materials specified, except under options and conditions for substitutions as stated in this Section.
- C. Substitutions will not be considered for acceptance when:
1. They are indicated or implied on shop drawings or product data submittals without a formal request from Contractor.
 2. They are requested directly by a subcontractor or supplier.
 3. Changes in acceptance procedure will require substantial revision of Contract Documents.
- D. Place orders for substitute products only with the written acceptance of Owner.
- E. Owner will determine acceptability of proposed substitutions.

PART 2 - PRODUCTS

- 2.01** Submit to Owner, within ten days after award of Contract, five copies of complete list of major products which are proposed for installation.
- 2.02** Tabulate products by Specification Section number and title.
- 2.03** List the following for each product specified only by reference standards:
- a. Name and address of manufacturer.
 - b. Trade name.
 - c. Model or catalog designation.
 - d. Reference standards and performance test data.

2.04 CONTRACTOR'S OPTIONS

- a. Select, for products specified only by reference standard, product of any manufacturer meeting the standard.
- b. Select, for products specified by naming several products or manufacturers, any

one of these products and manufacturers named which complies with Specifications.

- c. Submit a request for substitutions, for any product or manufacturer which is not specifically named in a group of products specified, by naming one or more products or manufacturers and stating "or equal".
- d. For products specified by naming only one product and manufacturer, there is no option and no substitution will be allowed.

PART 3 - EXECUTION

Not used.

END OF SECTION

01650 TRANSPORTATION AND HANDLING

PART 1 - GENERAL

1.01 REQUIREMENTS

- A. Provide for expeditious transportation and delivery of products to project site, undamaged, and on a schedule to avoid delay of the work, or the work of other Contractors.
- B. Supply equipment and personnel at the project site, to unload and handle products in a manner to avoid damage to products.

1.02 DELIVERY

- A. Arrange deliveries of products in accordance with the Construction Schedule. Receive deliveries in ample time to facilitate inspection prior to installation.
- B. Coordinate deliveries to avoid conflict with work and conditions at site, including, but not limited to, the following:
 - 1. Work of other Contractors, or Owner.
 - 2. Limitations of storage space.
 - 3. Availability of equipment and personnel for handling products.
 - 4. Owner's use of premises.
 - 5. Vehicular and storage weight load restrictions at the site.
- C. Deliver products in undamaged condition in original containers or packaging. Identifying labels should be intact and legible showing manufacturer's name and product designation.
- D. Receive, unload and handle all materials pertaining to the work. Properly store and protect all materials against loss and damage.
- E. Inspect shipment immediately on delivery to assure:
 - 1. Product complies with requirements of Contract Documents and reviewed submittals.
 - 2. Quantities are correct.
- F. Store materials and equipment in location identified by the Owner.
- G. Avoid storing materials and equipment on loading platforms, lobbies, corridors or other public areas.

1.03 PRODUCT HANDLING

- A. Provide equipment and personnel necessary to handle products, including those provided by Owner, by methods which prevent soiling or damage to products or packaging.
- B. Provide additional protection during handling as necessary to prevent scraping, marring or otherwise damaging products or surrounding surfaces.
- C. Handle products by proper methods to prevent bending or over-stressing.

1.04 USE OF EXISTING ELEVATORS

- A. Provide the Owner, one week in advance, with a work schedule showing required use of freight elevators for delivery of materials and equipment. Also provide a schedule for refuse removal.
- B. Full time use of the service elevator will be available only before 6:00 a.m. and after 6:00 p.m. weekdays and all day Saturday and Sunday.
- C. Elevator will be available at other times for short periods on an approved schedule basis.
- D. There will be a charge of \$_____ per hour for use of elevators.**
- E. Stack all materials to be loaded into elevators on moveable carts or containers for rapid "roll-on/roll-off" loading and off-loading of elevator car.
- F. Make sure all dollies, carts, trucks and containers are in good condition and have rubber wheels and bumpers.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01660 STORAGE AND PROTECTION

PART 1 - GENERAL

1.01 REQUIREMENTS

- A. Provide secure storage and protection for products to be incorporated into the work. Also provide maintenance and protection for products after installation and until completion of the work.

1. Interior and exterior storage areas shall be designated by the Owner.
2. Restrict storage weight and do not exceed load limitations.

1.02 STORAGE

- A. Store products immediately on delivery and protect products until installed in the work. Then protect finished work until completion of the project.

1. Store in accordance with manufacturer's instructions, with seals and labels intact and legible.
2. Store unpacked products on shelves, in bins or in neat piles, accessible for inspection.

- B. Store all materials under cover in a safe, dry location, and off the ground. Provide raised platform and waterproof covers to protect the materials from the weather, contamination, dirt, etc.

- C. Store products subject to damage by elements in substantial weathertight enclosures.

1. Maintain temperature and humidity within ranges identified in manufacturer's instructions.

- D. Provide suitable protection for products stored outside:

1. Provide substantial platforms, blocking or skids to support fabricated products above ground. Prevent soiling or staining, and cover products subject to discoloration or deterioration with impervious sheet coverings.
2. Store loose granular materials on solid surfaces such as paved areas, or, provide plywood or sheet materials to prevent mixing with foreign matter.
3. Provide surface drainage to prevent flow or ponding of rainwater near stored materials or products.

- E. Arrange storage in manner to provide easy access for inspection and physical inventory.

1.03 MAINTENANCE OF STORAGE

- A. Maintain periodic system of inspection and maintenance of stored products on scheduled basis to assure that:
 - 1. State of storage facilities is adequate to provide required conditions and protection.
 - 2. Required environmental conditions are maintained on continuing basis.
 - 3. Surfaces of products exposed to elements are not adversely affected.
- B. Make sure mechanical and electrical equipment which require servicing during long term storage, have complete manufacturer's instructions for servicing accompanying each item. Assure notice of enclosed instructions is shown on exterior of package.
 - 1. Comply with manufacturer's instructions on scheduled basis.

1.04 PROTECTION DURING INSTALLATION

- A. Take every precaution not to mar or damage finishes.
- B. Provide protection for installed products to prevent damage from subsequent operations. Remove prior to completion of work when no longer needed.
- C. Control traffic to prevent damage to equipment and surfaces.
- D. Install materials only when weather conditions ensure proper application of all materials.
- E. Provide coverings to protect finished surfaces from damage.
 - 1. Cover projections, wall corners, jambs, sills and soffits, in areas used for traffic and for passage of products in subsequent work.
 - 2. Protect finished floors and stairs from dirt and damage.
- F. Protect waterproofed and roofing surfaces.
 - 1. Prohibit use of surfaces for traffic of any kind, and for storage of any products.
 - 2. Obtain recommendations of installer, for protection of surface, when some activity must take place in order to carry out the Contract.
 - a. Install recommended protection and remove on completion of

that activity.

b. Restrict use of adjacent unprotected areas.

G. Lawns and Landscaping

1. Prohibit traffic of any kind across planted lawn and landscaped areas.

1.05 REMOVALS

A. Remove materials which are damaged or otherwise not suitable for installation from the project site and replace with acceptable materials at the Contractor's expense.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used:

END OF SECTION

01730 CUTTING AND PATCHING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Description

1. Provide all cutting, drilling, rough and finish patching required for the work.
2. Install all required sleeves, forms and inserts before walls, partitions, floors, or roofs are built. Subsequent cutting and patching of walls, partitions, ceilings and floors necessary for reception of work, caused by failure to provide or properly locate sleeves, forms and inserts, incorrect location of work, or failure to cooperate with other trades, shall be done at expense of Contractor.
3. Cut beams, floors or walls for piping or conduit, only with approval of the Engineer and in a careful manner. Use core drills, so as not to seriously impair the appearance or strength of the structure.
4. Cut finish surfaces such as masonry, tile, plaster or metals, by methods to terminate surfaces in a straight line at a natural point of division.
5. Obtain approval from the Engineer, where the work pierces waterproofing or roofing. Furnish all necessary sleeves, caulking and flashing required to make openings absolutely watertight.
6. Provide all drilling and patching for expansion bolts, hangers and other supports for proper and safe installation of work.
7. Execute cutting (including excavating), fitting or patching of work required to:
 - a. Make several parts fit properly.
 - b. Uncover work to provide for installation of ill-timed work.
 - c. Remove and replace defective work.
 - d. Remove and replace work not conforming to requirements of Contract Documents.
 - e. Remove samples of installed work as specified for testing.
 - f. Install specified work in existing construction.

8. Perform the following work, in addition to Contract requirements, upon written instructions of Owner:
 - a. Uncover work to provide Owner's observation of covered work.
 - b. Remove samples of installed materials for testing.
 - c. Remove work to provide for alteration of existing work.
9. Avoid endangering work caused by cutting or altering any part of it.
10. Obtain written approval from Owner before cutting or altering work of another Contractor.

B. Submittals

1. Submit written notice to Owner, requesting written consent to proceed with cutting which affects structural safety of project, or work of another Contractor. Notice should include the following:
 - a. Identification of project.
 - b. Description of affected work.
 - c. Identify necessity for cutting.
 - d. List affects on other work and on structural integrity of project.
 - e. Describe proposed work, designating the following:
 - 1) Scope of cutting and patching.
 - 2) Contractor and trades to execute work.
 - 3) Products proposed to be used.
 - 4) Extent of refinishing.
 - f. Identify alternatives to cutting and patching.
 - g. Identify the party responsible for cost of cutting and patching.
2. Submit cost estimate prior to cutting and patching for work executed on instructions of Owner.
3. Submit written recommendation to Owner, when conditions of work, or schedule, indicate change of materials or methods. Include the following:
 - a. Identify reasons for change.
 - b. Recommendations for alternative materials or methods.
 - c. Submittals as required for substitutions.

4. Submit written notice to Owner, designating time work will be uncovered, to provide for Owner observation.

C. Payment for Costs

1. Identify costs caused by ill-timed or defective work, or work not conforming to Contract Documents. This should include costs for additional services of Engineer. These costs to be borne by party responsible for ill-timed, rejected or non-conforming work.
2. List work done on instructions of Engineer, other than defective or non-conforming work. Costs to be borne by Owner.

PART 2 - PRODUCTS

- 2.01** Comply with Specifications for materials in replacement of work or for type of work to be done.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Inspect existing conditions of work, including elements subject to movement or damage during:
 1. Cutting and patching.
 2. Excavating and backfilling.
- B. Inspect conditions, after uncovering work, affecting installation of new products.

3.02 MAKE PREPARATIONS PRIOR TO CUTTING

- A. Provide shoring, bracing and support as required to maintain structural integrity of project.
- B. Provide protection for other portions of project.
- C. Provide protection from elements.

3.03 PERFORMANCE

- A. Execute fitting and adjustment of products to provide finished installation to comply with specified tolerances and finishes.
- B. Execute cutting and demolition by methods which will prevent damage to other work, and will provide proper surfaces to receive installation of repairs and new

work.

- C. Restore work which has been cut or removed. Install new products to provide completed work in accord with requirements of Contract Documents.
- D. Refinish entire surfaces as necessary to provide an even finish.
 - 1. Provide continuous surface to nearest intersection.
 - 2. Complete entire refinishing of each assembly.

END OF SECTION

01740 CLEANING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Initiate and maintain a specific program to prevent accumulation of debris caused by operations at construction site, storage areas, parking areas, or along access roads and haul routes.
 - 1. Provide containers for deposit of debris at locations agreed to with the Owner.
 - 2. Prohibit overloading of trucks to prevent spillages on access and haul routes.
- B. Schedule regular collection and disposal of debris as specified herein.
 - 1. Remove all construction debris and excess materials from the project site before 8:00 a.m. or after 6:00 p.m. each day.
 - 2. Remove containers from the sidewalk and public areas by 8:00 a.m. Keep these areas clear of refuse containers from 8:00 a.m. until 6:00 p.m. **
- C. Remove waste materials, rubbish, tools, equipment machinery and surplus materials at completion of work. Clean all sight-exposed surfaces and leave project clean and ready for occupancy.

1.02 SAFETY REQUIREMENTS

- A. Maintain project standards in accordance with applicable safety and insurance requirements.
- B. Provide proper hazard controls.
 - 1. Store volatile wastes in covered metal containers. Remove from premises daily.
 - 2. Prevent accumulation of wastes which create hazardous conditions.
 - 3. Alert Engineer for prior approval and provide adequate ventilation during use of volatile or noxious substances.
- D. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - 1. Avoid burning or burying rubbish and waste materials on project site.

2. Avoid disposal of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains, or waterways.

1.03 MATERIALS

- A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

1.04 DURING CONSTRUCTION

- A. Clean regularly to ensure that building, equipment, mechanical/electrical systems, grounds and public properties are maintained free from accumulations of waste materials and rubbish.
- B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
- C. Clean site and public properties, and dispose of waste materials, debris and rubbish at reasonable intervals during progress of work.
- D. Remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off Owner's property.
- E. Vacuum clean interior building areas prior to painting. Continue vacuum cleaning on an as-needed basis until building is ready for Final Completion of the work or occupancy.
- F. Handle materials in a controlled manner with as few handlings as possible. Do not drop or throw materials from heights.
- G. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.
- H. Clean equipment and systems, as directed, prior to testing for acceptance.

1.05 FINAL CLEANING

- A. Employ experienced workers for final cleaning.
- B. Conduct final inspection of sight-exposed interior and exterior surfaces, and of concealed spaces in preparation for final completion of the work.
- C. Remove grease, dust, dirt, stains, labels, fingerprints and other foreign materials from finished surfaces.
- D. Repair, patch and touch-up marred surfaces to specified finish, to match adjacent surfaces.
- E. Broom clean paved surfaces; rake clean other surfaces of grounds.

- F. Remove snow and ice from access to building.
- G. Replace air conditioning filters, if units were operated during construction.
- H. Clean ducts, blowers and coils, if air conditioning units were operated without filters during construction.
- I. Owner will assume responsibility for cleaning as of time designated on Certificate of Final Completion of the work for Owner's acceptance of project or portions thereof.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01750 STARTING OF MECHANICAL/ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 REQUIREMENTS

- A. Provide material and labor required to perform start-up and test of each respective item of equipment and system. Prior to beginning of test, complete procedures for adjustment and balancing.
 - 1. Provide information and assistance as required during start-up.
 - 2. Cooperate and coordinate with Owner, manufacturer, equipment vendor, insurance underwriter and utility company.
 - 3. Provide all inspection, test, adjustment and balancing services.
- B. Comply strictly with specified procedures in starting-up mechanical/electrical systems.

1.02 DEMONSTRATION TO OWNER

- A. Include Owner's appropriate personnel during start-up procedures. Demonstrate methods of starting up equipment and normal operating techniques.
- B. Schedule the start-up period to accommodate Owner's personnel.
- C. Furnish and use all tools, ladders, etc. as required in starting all equipment and clean up of debris. Leave site in its original condition.
- D. Describe any required settings of equipment system gauges, dials, etc., during training of Owner's representative(s).
- E. Identify, for the Owner, the equipment/component manufacturer's service requirements. Also, indicate how to perform mechanical work procedures properly.
- F. Identify Owner's required operating and preventive maintenance tasks, e.g., weekly or monthly exercising, etc.
- G. Provide Owner, in writing within five days of the commencement of start-up procedures, a list of equipment deficiencies and corrective steps which the Owner should take. Also, provide a copy of a checklist to the Owner indicating repair/service measures to be taken. Also identify outside service agency available to do the work.
- H. Provide recommended spare parts list with accompanying unit cost and total

costs.

- I. Describe the guarantee and identify the guarantee period for each piece of equipment.
- J. At conclusion of the start-up, Owner will indicate acceptance of the components of the systems in their present physical and operating condition.

1.03 START-UP PROCEDURES

A. Make Sure Bearings are Performing Properly

1. Inspect bearings for cleanliness. Clean and remove foreign materials.
2. Verify alignment.
3. Replace defective bearings, including those which run "rough" or noisy.
4. Provide lubrication as necessary and in accordance with manufacturer's recommendations.

C. Check All Drives

1. Adjust tension in V-belt drives. Adjust vari-pitch sheaves and drives for proper equipment speeds.
2. Adjust drives for alignment of sheaves and V-belts.
3. Clean and remove foreign materials before starting operation.

D. Inspect All Motors

1. Check each motor for amperage comparison to nameplate value.
2. Correct conditions which produce excessive current flow and which exist due to equipment malfunction.

E. Check All Pumps

1. Check mechanical seals for cleanliness and adjustment before running pump.
2. Inspect shaft sleeves for scoring.
3. Inspect mechanical faces, chambers and seal rings. Replace if defective.
4. Verify that piping system is free of dirt and scale before circulating liquid through the pump.

- F. Check All Control Valves
 - 1. Inspect both hand and automatic control valves. Clean bonnets and stems.
 - 2. Tighten packing glands to assure no leakage. Permit valve stems to operate without galling.
 - 3. Replace packing in valves to retain maximum adjustment after system is judged complete.
 - 4. Replace packing on any valve which continues to leak.
 - 5. Remove and repair bonnets which leak.
 - 6. Coat packing gland threads and valve stems with a surface preparation of "Moly-Cote" or "Fel-Pro", after cleaning.
- G. Verify that control valve seats are free from foreign material and are properly positioned for intended service.
- H. Tighten flanges after system has been placed in operation. Replace flange gaskets which show any sign of leakage after tightening.
- I. Inspect screwed joints for leakage. Promptly remake each joint which appears to be faulty; do not wait for rust to form. Clean threads on both parts. Apply compound and remake joints.
- J. Clean strainers, dirt pockets, orifices, valve seats and headers in pneumatic/fluid systems after system has been placed in operation to assure being free of foreign materials.
- K. Open steam traps and air vents. Remove operating elements. Clean thoroughly. Replace internal parts and put back into operation.
- L. Remove rust, scale and foreign materials from equipment and renew defaced surfaces.
- M. Set and calibrate draft gauges of air filters and other equipment.
- N. Inspect and properly adjust fan wheels for clearance and balance.
- O. Check each electrical control circuit to assure that operation complies with Specifications and requirements to provide desired performance.
- P. Inspect each pressure gauge and thermometer for calibration. Replace items which are defaced, broken or which read incorrectly.

- Q. Repair damaged insulation.
- R. Vent gasses trapped in any part of systems. Verify that liquids are drained from all parts of gas or air systems.
- S. Check piping for leaks at every joint, and at every screwed, flanged or welded connection, using "Leak-Tek" or other approved compound.

1.04 ADJUSTMENTS

- A. Provide such periodic continuing adjustment services as necessary to ensure proper functioning of mechanical systems upon occupancy of the project site and for a period of one year after date of final completion of the work.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01770 PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 SUBSTANTIAL COMPLETION

- A. Submit written certification to Owner that project, or designated portion of project, is substantially complete. Include a list of major items to be completed or corrected.
- B. Provide Owner the opportunity to make an inspection within seven days after receipt of certification.
- C. Perform the following when Owner agrees work is substantially complete:
 - 1. Prepare, and submit to Owner, a list of items to be completed or corrected, as determined by the inspection.
 - 2. Sign the Certificate of Substantial Completion. Engineer will prepare and issue a Certificate of Substantial Completion, complete with signatures of Owner and Contractor, accompanied by Contractor's list of items to be completed or corrected, as verified and amended by Owner.
 - 3. Perform final cleaning in accordance with Specifications.
 - 4. Obtain Certificate of Occupancy.
 - 5. Complete work listed for completion or correction, within designated time.
- D. Perform the following, when Owner considers work is not substantially complete:
 - 1. Accept in writing, the Owner's immediate notification stating the reasons work is not substantially complete.
 - 2. Complete the work, and send a second written notice to Owner, certifying project, or designated portion of project, is substantially complete.
 - 3. Re-inspect work with the Owner.
- E. Owner will occupy project premises under provisions stated in Certificate of Substantial Completion.

1.02 FINAL INSPECTION

- A. Submit written certification to the following:
 - 1. Review of Contract Documents is completed.
 - 2. Inspection of project for compliance with Contract Documents is

completed.

3. Work is completed in accordance with Contract Documents.
 4. Test of equipment and systems in presence of Engineer are completed and they are operational.
 5. Completed project is ready for final inspection.
- B. Schedule final inspection with Owner within seven days after receipt of certification.
- C. Make project closeout submittals, at the request of the Owner, following Owner's consideration that work is finally complete in accordance with requirements of Contract Documents.
- D. Complete the following, should Owner consider that work is not finally complete:
1. Receive in writing from the Owner reasons for the work not being finally complete.
 2. Take immediate steps to remedy the stated deficiencies, and send second written notice to Owner certifying that work is complete.
 3. Make arrangements with Owner to re-inspect the work.

1.03 RE-INSPECTION COSTS

- A. Pay additional service costs. Should Owner be required to perform second inspections because of failure of work to comply with original certifications of Contractor, Owner will be compensated for additional services, and deduct amount paid from final payment to Contractor.

1.04 SERVICE MANUALS AND INSTRUCTIONS

- A. Instruct Owner's personnel in operation of all systems, mechanical, electrical and other equipment.
- B. Fully instruct the Owner, upon completion of the work, as to the operation and maintenance of all material, equipment and systems.
- C. Provide three complete bound sets of instruction manuals for operating and maintaining all systems and equipment.
- D. Include the following in each manual:
1. For each item, the manufacturer's name, address and telephone number.

2. Brief description of each equipment item and basic operating features.
 3. Limiting conditions.
 4. Start-up instructions.
 5. Routine and normal operating instructions.
 6. Regulation and control.
 7. Shutdown.
 8. Emergency procedures.
 9. Lubrication and maintenance instructions.
 10. Guide to troubleshooting.
 11. Parts lists.
 12. Drawings.
 13. Wiring diagrams.
 14. Test data and performance curves.
 15. Copies of written guarantee and manufacturer's warranties.
- E. Provide complete descriptions and instructions for maintenance of the systems and equipment, including replacement parts, all labor and materials to maintain the system in proper operating condition for the guarantee period.

1.05 AS-BUILT DRAWINGS

- A. Provide Owner with a complete set of as-built drawings covering every aspect of the work. The complete set shall include a set of mylars or quality sepias capable of producing quality prints and two full sets of all as-built drawings.
- B. The as-built drawings will be delivered to the Owner within 30 days of completion of the work.

1.06 CLOSEOUT SUBMITTALS

- A. Submit the following to the Owner:
1. Project record documents.
 2. Operation and maintenance data.
 3. Guarantees and bonds as specified.
 4. Keys and keying schedules.
 5. Parts and materials as specified.
- B. Deliver evidence of compliance with requirements of governing authorities:
1. Certificates of Inspection **
 1. Mechanical
 2. Electrical
 3. Fire Protection

- C. Deliver Certificate of Insurance for products and completed operations.

1.07 EVIDENCE OF PAYMENTS AND RELEASE OF LIENS

- A. Submit Contractor's affidavit of payment of debts and claims.
- B. Submit Contractor's affidavit of release of liens. Also include:
 - 1. Consent of surety to final payment.
 - 2. Contractor's release or waiver of liens.
 - 3. Separate releases of waivers of liens for subcontractors, suppliers, and others with lien rights against property of Owner, together with list of those parties.

1.08 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit final statement of accounting to Owner.
- B. Reflect all adjustments in the statement including the following:
 - 1. Original Contract sum.
 - 2. Additions and deductions resulting from the following:
 - a. Previous Change Orders.
 - b. Cash allowances.
 - c. Unit prices.
 - d. Other adjustments.
 - e. Deductions for uncorrected work.
 - f. Penalties and bonuses.
 - g. Deductions for liquidated damages.
 - h. Deductions for reinspection payments.
 - 3. Total Contract sum, as adjusted.
 - 4. Previous payments.
 - 5. Sum remaining due.
- C. Owner will prepare a final Change Order reflecting the approved adjustments to the Contract sum not previously made by Change Orders.

1.09 FINAL APPLICATION FOR PAYMENT

- A. Submit final application in accordance with requirements of the General

Conditions and the Supplemental General Conditions.

1.10 FINAL CERTIFICATE FOR PAYMENT

- A. Owner will issue a final certificate in accordance with provisions of the General Conditions.
- B. Should the final completion be materially delayed through no fault of the Contractor, the Owner may make payment for that portion of the work fully completed and accepted, in accordance with the provisions of the General Conditions.

1.11 POST-CONSTRUCTION INSPECTION

- A. Make visual inspection of the project with the Owner prior to expiration of the one-year guarantee. Determine whether correction of work is required in accordance with the provisions of the General Conditions.
- B. For guarantees beyond one year, the Owner will make inspections after notification to the Contractor.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01780 PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 MAINTENANCE OF DOCUMENTS

- A. Maintain at project site, one copy of each of the following:
 - 1. Contract Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Reviewed and approved shop drawings.
 - 5. Change Orders.
 - 6. Other modifications to Contract.
 - 7. Field test records.
 - 8. Minutes from progress meetings.
- B. Store documents in a location directed by Owner, apart from documents used for construction.
- C. Provide files and racks for storage of documents.
- D. File documents in accordance with project filing format of Specification Division and Section numbers.
- E. Maintain documents in clean, dry, legible condition.
- F. Avoid use of record documents for construction purposes.
- G. Make documents available at all times for inspection by Owner/Engineer.

1.02 RECORDING

- A. Label each document PROJECT RECORD in two-inch high printed letters.
- B. Keep record documents current.
- C. Avoid permanently concealing any work until required information has been recorded.
- D. Mark Contract Drawings legibly to record the following actual construction data:
 - 1. Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure.
 - 2. Field changes of dimension and detail.

3. Changes made by Change Order.
 4. Details not on original Contract Drawings.
- E. Mark Specifications and Addenda legibly to record the following:
1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
 2. Changes made by Change Order.
 3. Other matters not originally specified.
- F. Maintain shop drawings as record documents. Legibly annotate following Drawings to record changes made after review:
1. Cut stone details.
 2. Structural steel.
 3. Ornamental metals.

1.03 SUBMITTALS

- A. At completion of the project, deliver record documents to Owner.
- B. Provide an accompanying submittal with transmittal letter, in duplicate, containing the following:
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 as submitted is complete and accurate.
 6. Signature of Contractor, or his authorized representative.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01900 ASBESTOS WORK

WARNING! The handling, removal or encapsulation of any asbestos or asbestos products does not fall within the scope of this work. In the event the Contractor discovers asbestos or asbestos products during the course of his work, or has reason to suspect that asbestos or asbestos fibers may be contained within existing ductwork, air handling units or other enclosures, the Contractor shall immediately stop work in the immediate area and shall notify the Owner of his findings.

It is understood that the handling, removal or encapsulation of asbestos involves certain health risks which require specific procedures and safety measures. The Contractor agrees and understands that the Owner and Engineer shall not be responsible for the safety and safety measures, including measures for the protection of employees of the Contractor or his subcontractors, nor for the protection of the general public.

Such responsibility for safety and safety measures is and shall remain that of the Contractor. Therefore, the Contractor agrees to hold harmless, defend and indemnify the Owner and the Engineer from and against all claims, suits, expenses or damages arising from, or alleged to arise from, exposure to asbestos or asbestos fibers, in connection with the Contractor's work.

Prior to commencing any work relating to or involving asbestos handling, removal or encapsulation, the Contractor, in conjunction with the Owner, shall consult with an independent consultant specializing in such asbestos handling, removal or encapsulation. The cost of retaining the services of such independent consultant, as well as the cost of arranging for the handling, removal or encapsulation of the asbestos or asbestos fibers shall be borne by the Owner and shall be treated as a separate Contract.

All such asbestos work, if required, shall be performed in accordance with all federal, state and local laws, rules, regulations and ordinances.

END OF SECTION