

PROJECT MANUAL

Renovations to:

AUBURN TERRACE APARTMENTS

Portland, Maine

For: G & S Associates of Saco

CPL 372-A-33
1998

Salmon Falls Architecture
Project No. 98 14
August 26, 1998

PROJECT MANUAL

Renovations to:

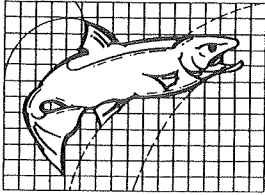
AUBURN TERRACE APARTMENTS

Portland, Maine

For: G & S Associates of Saco

	SIGNATURE	DATE
Architect:	_____	_____
Owner:	_____	_____
Contractor:	_____	_____
Bonding Company:	_____	_____
M.S.H.A.:	_____	_____

Salmon Falls Architecture
Project No. 98 14
August 26, 1998



August 27, 1998

Project: Auburn Terrace Apartments
Auburn Street
Portland, Me.

#98 14

 **Salmon Falls**
Architecture

For: G & S Associates of Saco
c/o Harbor Properties
23 Central Ave.
Lynn, MA 01901

ADDENDUM #1

Dear Contractor:

Please note the list of changes and clarifications to the package sent to you dated August 26, 1998 and acknowledge receipt of this Addendum on the Bid Form.

1. **CHANGE:** Mandatory site visit and walk-through from 9-4-98 to 9-8-98 at 10:00AM.
2. **TO CLARIFY:** Bid Date is Thursday, 9-17-98 at 2:00PM..
3. **TO CLARIFY:** Base Bid should not include any work in DIVISION 15 MECHANICAL or DIVISION 16 ELECTRICAL. This work will be included in a future Addendum.

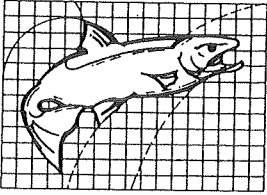
Respectfully Submitted;

Roger L. Rossignol
Paul G. Gosselin

Roger L. Rossignol
Architect/President

The Office Center
Suite 7
56 Industrial Park Road
Saco, Maine
04072

(207) 283-4247
(207) 284-4546 (Fax)
www.salmonfallsarch.com (E-Mail)



September 3, 1998

Project: Auburn Terrace Apartments
Auburn Street
Portland, Me.

#98 14

 **Salmon Falls**
Architecture

For: G & S Associates of Saco
c/o Harbor Properties
23 Central Ave.
Lynn, MA 01901

ADDENDUM #2

Dear Contractor:

Please note the list of changes and clarifications to the package sent to you dated August 26, 1998 and acknowledge receipt of this Addendum on the Bid Form.

1. CHANGE: Mandatory site visit and walk-through from 9-8-98 to 9-14-98 at 10:00AM.

Respectfully Submitted;

Roger L. Rossignol
Architect/President

Roger L. Rossignol
Paul G. Gosselin

The Office Center
Suite 7
56 Industrial Park Road
Saco, Maine
04072

(207) 283-4247
(207) 284-4546 (Fax)
www.salmonfallsarch.com (E-Mail)

September 9, 1998

PROJECT: Auburn Terrace Apartments #9814
Auburn Street
Portland, Maine.

FOR: G & S Associates of Saco.
C/o Harbor Properties
23 Central Ave.
Lynn, Ma. 01901

ADDENDUM # 3.

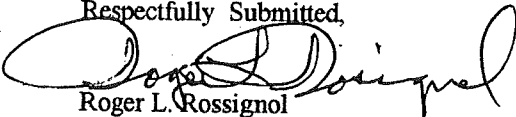
Dear Contractor,

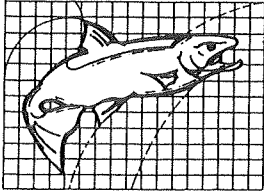
Please note the following list of changes and clarifications to the package sent to you dated August 26, 1998 and acknowledge receipt of this ADDENDUM on the BID FORM.

1. ADD: The following Allowances to those listed in SECTION IF ALLOWANCES.
 - Allowance #2. : Landscaping furnished and installed: \$25,000.00.
 - Allowance #3. : Renovations to the existing Office/
Community Building: \$100,000.00.
2. ADD: 1A-32 WORK IN OCCUPIED UNITS, to SECTION 1A SPECIAL CONDITIONS:
"Work of this CONTRACT requires the CONTRACTOR to work in the existing living units while tenants occupy said units. There will be some units that will be vacant at the time the work is to be completed. The exact number of units open is not known, and should be assumed by the CONTRACTOR that all units are occupied. All workmen on the job will be required to wear identification badges while working at this site. Work within the units will only be performed between the hours of 9:00 AM and 5:00 PM. The OWNER will work with the CONTRACTOR to coordinate access to the units. The OWNER will be responsible to move or have the tenants move furnishings from the units to allow the CONTRACTOR to perform the work of this CONTRACT.
3. TO CLARIFY: ALLOWANCE #1: Carpeting: In order to estimate quantities of carpeting, each bidder should know that this complex is made up of 164 living units. The unit mix is as follows: 36 - 1 Bedroom Units, 104 - 2 Bedroom Units, & 24 - 3 Bedroom Units. Refer to the Unit Plans on the Drawings for dimensions.
4. TO CLARIFY: ALTERNATE #1: Kitchen refacing. It is the intent of this CONTRACT to install new kitchens in all the living units. As the work progress, the OWNER may elect to delete the replacement of certain kitchens that are in good condition and reface the existing as described in this Alternate. The intent is receive a deduct on the base price.
5. TO CLARIFY: All wood in contact with concrete or masonry shall be pressure preservative treated with CCA 0.40 minimum.
6. TO CLARIFY: Kitchen cabinets specified are as manufactured by Triangle Pacific Corp. (Tri-Pac), Omni series. A full box sample of the specified cabinet will be required to be submitted for approval.

7. TO CLARIFY: 7B-06 specifies IKO Aristocrat 25 roof shingles are Class A. This shingle is actually a Class C. product.
8. TO CLARIFY: 7F-07, Roof drip edge shall be aluminum 0.032 positive drip edge.
9. ADD: ALTERNATE #3: In lieu of Hardiplank siding at first floor level where shown on the Drawings, change to vinyl siding as specified.
10. TO CLARIFY: Elevation notes on Sheet A-7 of the Drawings, "Repair any damaged wall Sheathing before replacement." This is also intended to include any Damaged framing materials included but not limited to sill plates.
11. TO CLARIFY: All closet doors are to be replaced as is noted on the Door Schedule, Sheet A-15. The existing door openings are currently full height (Floor to Ceiling) The new doors will be 6'-8" high and therefore the door openings will have To be framed down to the appropriate height.
11. ADD: To SECTION 8G FINISH HARDWARE: Bi-Fold door track and hardware assembly Shall be Series 2600. Sliding door track and trolley assembly shall be Series 8900 Aluminum track with a 2 wheel trolley. Hardware shall be as manufactured by Stanley Hardware, New Britain, Conn.
12. TO CLARIFY: SECTION 8G FINISH HARDWARE: Door stops shall be wall mounted. Hinge pin door stops are not allowed.
13. CHANGE: SECTION 10B-05 ACCESSORIES SCHEDULE for grabrails at handicap baths To provide 2 - 24" grabrails where one is specified.
14. CHANGE: In the Bathroom of the new handicap units: Move medicine cabinet to the opposite wall and add one new 16" X 20", 1/4" mirror. Medicine cabinet shall be Model # 372P-ATM-W, as manufactured by: Basco Bohemia, N. Y.
15. ADD: In the Kitchens of the new Handicap units 2 new wall cabinets: a W3018 over the range and a W1230 along the open side of the range.
16. CHANGE: On Sheet A-7 Detail 1, above the 1X8 band board where a J channel is shown, Change to a standard starter strip.
17. CHANGE: On Sheet A-14, Detail 5: Deck boards shall be laid tight without spacing. Where 15# Asphalt felt strips on top of joists is shown, change to 55# smooth Surface roll roofing.
18. TO CLARIFY: Window elevation on Sheet A-15 is there to illustrate the interior trim. There are no double hung windows on this project. Refer to the Window Schedule and the Elevations for window types.
19. CHANGE: SECTION 8D P.V.C. WINDOWS AND DOORS. Add an intergral J channel to the interior head and jambs of each unit to receive drywall returns.

Respectfully Submitted,


Roger L. Rossignol
Architect/President.



September 14, 1998

 **Salmon Falls**
Architecture

PROJECT: Auburn Terrace Apartments #9814
Auburn Street
Portland, Maine

FOR: G & S Associates of Saco
C/o Harbor Properties
23 Central Ave.
Lynn, Ma.

ADDENDUM #4

Dear Contractor,

Please note the following list of changes and clarifications to the package sent to you dated August 26, 1998 and acknowledge receipt of the ADDENDUM on the BID FORM.

1. TO CLARIFY: Aluminum coil stock for wrapping exterior trim where shown on the drawings shall be standard 0.019 thickness.
2. TO CLARIFY: Demolition of existing mechanical and electrical fixtures and systems required to perform work of this CONTRACT is to be included in BASE BID. New mechanical and electrical work will be described under future bid documents after award of this CONTRACT.
3. ADD: The following UNIT PRICES on the PROPOSAL FORM. These prices will be used to calculate the cost for unforeseen conditions uncovered during the course of the work.
 1. Replacement of damaged roof sheathing: \$ per square foot.
 2. Replacement of damaged wall sheathing: \$ per square foot.
 3. Replacement of damaged wall or sill framing: \$ per square foot.
 4. Replacement of damaged floor Joists at existing second floors where decks are being replaced: \$ per linear foot.
4. TO CLARIFY: Existing fascias are to be wrapped with aluminum coil stock as specified. Existing soffits are to be perforated vinyl soffit material.
5. CHANGE: Interior ceilings of existing units that have a spray texture finish, to receive spot prime where needed, repair damaged texture where needed and apply 1 coat of ceiling flat white as specified. Delete specified 3-coat system. Interior walls of existing units to receive a 2-coat paint system in lieu of specified 3-coat system.

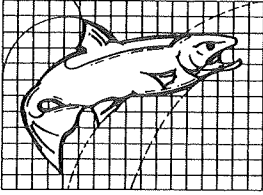
Roger L. Rossignol
Paul G. Gosselin

Respectfully submitted:

Roger L. Rossignol
Architect/President.

The Office Center
Suite 7
56 Industrial Park Road
Saco, Maine
04072

(207) 283-4247
(207) 284-4546 (Fax)
www.salmonfallsarch.com (E-Mail)



October 28, 1998

Salmon Falls
Architecture

PROJECT: Auburn Terrace Apartments
Auburn Street
Portland, Maine

FOR: G & S Associates of Saco
c/o Harbor Properties
23 Central Ave.
Lynn, Ma. 01901

CONTRACTOR: Portland Builders Inc.
63 Federal Street
P.O. Box 4902
Portland, Maine 04112

ADDENDUM # 5

The following is a list of modifications to the Contract Documents prepared to Value Engineer the Project:

1. Change specified windows to Certainteed brand: -\$86,000.
2. Delete directive to change 300 of the interior doors, Architect will determine which doors are to remain: -\$30,000.
3. Change brand of appliances to Frigidaire, Architect will verify specifications: -\$24,500.
4. Delete all carpeting in project with the exception of carpeting for the new handicap units: -\$90,400.
5. In lieu of wood trim wrapped in Alum. coil stock, use same profile vinyl accessory trim pieces to match design. Submit shop cuts as required in spec: -\$20,800.
5. Change interior painting spec. to a one coat system on existing units only. New handicap units are to remain as specified: -\$18,500.
6. Where roofs are to be completely stripped, change to strip only area where ice and water shield is to be installed. Shim to match original thickness and overlay new roof shingles: -\$18,300.

Roger L. Rossignol
Paul G. Gosselin

The Office Center
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56 Industrial Park Road
Saco, Maine
04072

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(207) 284-4546 (Fax)
www.salmonfallsarch.com (E-Mail)

7. Delete all garbage disposals: -\$6,437.
8. Provide one key masterkey system, supply 4 keys per lock for distribution to the Owner: +\$1,300.
9. Complete Mechanical and Electrical System as designed by M.E.P. Engineering Associates, Dated: 9-17-98: +\$235,000.
10. Complete site work as designed by Pinkham & Greer Engineers and as amended by P&G letter dated, 10-1-98: +\$23,425.
11. Seal all paved areas with coal tar sealer and paint all parking lot lines as required: +\$16,500.
12. Carry an ALLOWANCE to patch pavement as directed: +\$10,000.
13. Carry an ALLOWANCE to replace 40 concrete entry slabs at \$500. each: +\$20,000.
14. Add dishwashers to all 2 and 3 Bedroom units: +\$15,360.
15. Delete specified high efficiency boilers, add standard efficiency cast iron "Peerless" boilers: -\$7,800.

16. SUMMARY:

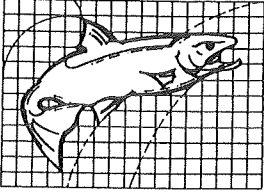
BASE BID: \$2,266,726.
DEDUCTIONS: \$302,737.
ADDITIONS: \$321,585.

REVISED CONTRACT PRICE: \$2,285,574.

Respectfully submitted,



Roger L. Rossignol
Architect/President



December 28, 1998

Salmon Falls
Architecture

PROJECT: Auburn Terrace Apartments
Auburn Street
Portland, Maine

#9814

OWNER: Auburn Terrace, LLC, a Maine Limited Liability Co.
C/o Harbor Management
Lynn, Ma. 01901

CONTRACTOR: Portland Builders Inc.
63 Federal Street (04101)
P.O. Box 4902 (04102)
Portland, Maine

ADDENDUM # 6

The following changes are being made to the Contract as final revisions to the Contract Documents:

1. ADD: Plumbing connections to install new dishwashers in all 2 & 3 Bedroom units:
128 dishwashers x \$90.00 each = +\$11,520.00.
2. ADD: Electrical connections to install new dishwashers in all 2 & 3 Bedroom units:
128 dishwashers x \$100.00 each = +\$12,800.00.
3. REVISED CONTRACT PRICE PER ADDENDUM #5 = \$2,285,574.00
4. Additional Plumbing from Item 1 above = + \$11,520.00
5. Additional Electrical from Item 2 above = + \$12,800.00
6. REVISED CONTRACT THIS DATE = \$2,309,894.00

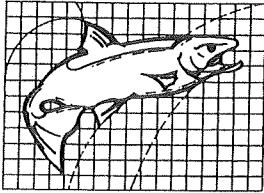
Roger L. Rossignol
Paul G. Gosselin

Respectfully Submitted,

Roger L. Rossignol
Architect/President

The Office Center
Suite 7
56 Industrial Park Road
Saco, Maine
04072

(207) 283-4247
(207) 284-4546 (Fax)
www.salmonfallsarch.com (E-Mail)



December 29, 1998

 **Salmon Falls**
Architecture

PROJECT: Auburn Terrace Apartments
Auburn Street
Portland, Maine

OWNER: Auburn Terrace LLC., a Maine Limited Liability Co.
C/o Harbor Management
Lynn, Ma. 01901

CONTRACTOR: Portland Builders Inc.
63 Federal St. (04101)
P.O. Box 4902 (04102)
Portland, Maine

ADDENDUM #7

The following changes are being made to the Contract as final revisions to the Contract Documents:

1. DELETE: Previous ADDENDUM #6 in its entirety.
2. **THE REVISED CONTRACT PRICE IS:** **\$2,285,574.00**
3. NOTE: Work to connect the proposed dishwashers to electric power and to the plumbing systems will be negotiated at a later date.

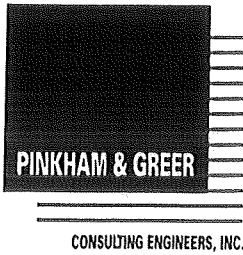
Respectfully submitted:

Roger L. Rossignol
Architect/President

Roger L. Rossignol
Paul G. Gosselin

The Office Center
Suite 7
56 Industrial Park Road
Saco, Maine
04072

(207) 283-4247
(207) 284-4546 (Fax)
www.salmonfallsarch.com (E-Mail)



170 U.S. Route One
Falmouth, Maine 04105
Tel: 207.781.5242
Fax: 207.781.4245

October 1, 1998
File: 98165

Mr. Roger Rossignol
SALMON FALLS ARCHITECTURE
56 Industrial Park Road, Suite 7
Saco, ME 04072

RE: AUBURN TERRACE

Dear Roger:

This letter is a follow up to our conversation concerning the drainage system at Auburn Terrace. As you know, the existing system does not handle the water it is currently receiving. The pipes are too small and the existing catch basins and pipes are clogged with sticks, gravel and debris. Our recommendations were to upgrade the system to help relieve flooding in certain areas. The system would still be inadequate for a 10-year storm, resulting in overland flow in some areas. In my opinion, the design improvements are a good blend of repairs at reasonable cost.

Recognizing the need to better serve the project, budgets need to be adjusted. As such, the following items are what I would consider a priority:

1. Clean all catch basins and pipes. This will allow the existing system to function the best it can.
2. Add Catch Basin #16 and connect it to Catch Basin #3. This area floods during many storms. I suspect the capacity of the system is limited by the capacity of the catch basin grate. Two grates will help remove the water at a faster rate.
3. Replace the 10" pipe between Catch Basin #2 and Catch Basin #13. This section of pipe severely limits the capacity of the system, so you will get a significant improvement in total capacity.

PINKHAM & GREER

CONSULTING ENGINEERS, INC.

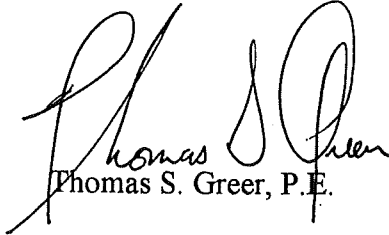
Mr. Roger Rossingol
SALMON FALLS ARCHITECTURE
October 1, 1998
Page 2

4. The last section of pipe between Catch Basin #13 and Catch Basin #9 changes size from 15" to 18" along its length. During the flushing and cleaning operation this section should be investigated to make sure gravel isn't washing into the system. Replacement of this pipe should be the next location of repair.

Hopefully, this letter gives you the guidance necessary to budget the project.

Sincerely,

PINKHAM & GREER


Thomas S. Greer, P.E.

TSG/dp

Enclosure: Invoice

FORM OF PROPOSAL

OWNER - G & S ASSOCIATES OF SACO

ARCHITECT- SALMON FALLS ARCHITECTURE

1. BASE BID

A. The undersigned, having familiarized themselves with all conditions affecting cost of the WORK; carefully reading and examining the General Documents, SPECIFICATIONS, DRAWINGS, and other CONTRACT DOCUMENTS such as ADDENDA, etc., for the construction of and entitled "RENOVATIONS to AUBURN TERRACE APARTMENTS", prepared by Salmon Falls Architecture, hereby propose to furnish all labor, materials, equipment, and related items necessary to complete all WORK required by said Documents for the Lump Sum of:

\$ - 2,266,726.00

Two million two hundred sixty-six thousand seven hundred twenty-six dollars

2. ALLOWANCES

- 1. CARPET \$94,600.00
- 2. LANDSCAPING \$25,000.00
- 3. OFFICE/COMMUNITY BLDG \$100,000.00

3. ALTERNATES

- 1. KITCHEN REFACING Deduct \$300 per kitchen
- 2. DISHWASHERS Add \$120.00 each
- 3. VINYL IN PLACE OF HARDIPLANK Deduct \$35,000
- 4. CERTINTEED WINDOWS AND SLIDERS WITHOUT DRYWALL RETURNS Deduct \$90,000.00

3A.

- Replacement of damaged roof sheathing 2.00 per sq ft
- Replacement of damaged wall sheathing 1.75 per sq ft
- Replacement of wall or sill framing 1.75 per sq ft
- Replacement of damaged floor joists at existing second floors where decks are being replaced 1.75 per linear ft.

AUBURN TERRACE APARTMENTS
PORTLAND, MAINE

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August 26, 1998

INVITATION TO BID

Dear CONTRACTOR:

I am pleased to offer you this opportunity to submit a Proposal for construction of the following project. Please examine the enclosed material carefully and feel free to call this office with any questions.

PROJECT: AUBURN TERRACE APARTMENTS

LOCATION: Auburn Street
Portland, Maine

OWNER: G & S Associates of Saco
c/o Harbor Management
23 Central Ave.
Lynn, MA. 01901

ARCHITECT: Salmon Falls Architecture
56 Industrial Park Rd. Suite #7
Saco, Maine 04072
207-283-4247
207-284-4546 (fax)

1. Work consists of Renovations to the existing 164 unit housing complex as follows: New roofing, siding, windows, decks, entry roofs, boilers, conversion of 7 units to handicap accessible and miscellaneous site work.
2. Bidding Documents may be obtained by requesting sets from the Architect for a non-refundable charge of \$ 65.00 per set.
3. Bids will be received at Salmon Falls Architecture, 56 Industrial Park Rd., Saco, Me. 04072, Telephone 283-4247 on September 17, 1998 at 2pm.
4. Bids will be opened Privately.
5. No substitutions will be approved for items specified or shown in the Bid Documents prior to receipt of the Bids. Any substitutions proposed by Bidder must be listed as Alternates and noted on the Bid Form. Any and all substitutions will be considered by the Owner and Architect prior to the award of the Contract.
6. All bids will have to be accompanied by a Bid Bond or certified check in the amount of 5% of base bid.

FORM OF PROPOSAL

OWNER ~ G & S ASSOCIATES OF SACO

ARCHITECT- SALMON FALLS ARCHITECTURE

1. BASE BID

A. The undersigned, having familiarized themselves with all conditions affecting cost of the WORK; carefully reading and examining the General Documents, SPECIFICATIONS, DRAWINGS, and other CONTRACT DOCUMENTS such as ADDENDA, etc., for the construction of and entitled "RENOVATIONS to AUBURN TERRACE APARTMENTS", prepared by Salmon Falls Architecture, hereby propose to furnish all labor, materials, equipment, and related items necessary to complete all WORK required by said Documents for the Lump Sum of:

\$ - _____

2. ALLOWANCES

1. _____

2. _____

3. _____

3. ALTERNATES

1. _____

2. _____

3. _____

4. _____

4. ADDENDUM RECEIPT

A. BIDDERS shall confirm below the receipt of any and all ADDENDA to the SPECIFICATIONS and DRAWINGS, listing the ADDENDA by number and also by date:

ADDENDA NO. _____ DATE _____

ADDENDA NO. _____ DATE _____

ADDENDA NO. _____ DATE _____

5. TIME FOR COMPLETION

A. The Undersigned, if awarded this CONTRACT, proposes that he will complete the said WORK in _____ months from the date of the Agreement.

6. BIDDERS' ACKNOWLEDGMENTS

A. The Undersigned has carefully checked all the above figures and agrees that the OWNER will not be responsible for any errors or omissions on the part of the Undersigned in making up this proposal.

B. That the OWNER reserves the right to reject any or all Bids.

C. The Undersigned agrees that this Bid may not be withdrawn for a period of sixty (60) days after the date set for the receipt thereof.

D. If the Undersigned is notified of the acceptance of this Proposal, he agrees to execute a CONTRACT in the form of AIA Documents A101 within five (5) days after the notice of award of the CONTRACT and supply the required Performance and Labor and materials Payment Bonds.

E. The Undersigned will guarantee all of the WORK performed under this CONTRACT to be done in accordance with the DRAWINGS, SPECIFICATIONS, and in good and workmanlike manner, and to renew or repair any workmanship prior to final completion and acceptance of the WORK. Guarantee period shall be one year from the date of Substantial Completion, except for the roof, which shall be for a period of ten (10) years.

F. The Undersigned hereby certifies that this Bid Proposal is genuine and not sham or collusive, or made in the interest of or in behalf of any person, nor herein named, and that the Undersigned has not directly or indirectly induced or solicited any other Bidder to submit sham bid, or any other person, firm or corporation to refrain from Bidding, and that the Undersigned has not in any manner sought by collusion to secure for himself an advantage over any other Bidder.

7. BREAKDOWN OF PROPOSED BID BY SPECIFICATION DIVISION

The following is a list of divisions proposed for various portions of the WORK, and the dollar amount for that portion of the WORK. Insert numbers for all divisions of the WORK. All numbers listed for each division must total the base bid number filled in under Item #1.A of The Form of Proposal.

Specification Division	Amount
GENERAL CONDITIONS	\$ _____
SITE WORK	\$ _____
CONCRETE	\$ _____
ROUGH CARPENTRY	\$ _____
FINISH CARPENTRY & MILLWORK	\$ _____
ROOFING & FLASHING	\$ _____
INSULATION	\$ _____
WINDOWS & GLAZING	\$ _____
DOOR, FRAMES & HARDWARE	\$ _____
GYPSUM DRYWALL	\$ _____
PAINTING	\$ _____
FINISH FLOORING	\$ _____
SPECIALTIES	\$ _____
EQUIPMENT	\$ _____
PLUMBING, HEATING & VENTILATION	\$ _____
ELECTRICAL	\$ _____

8. BIDDING CONTRACTOR

NAME OF ORGANIZATION _____

TYPE OF ORGANIZATION _____

(Corporation, Co-Partnership, Individual, etc) _____

Name of Individual Member of Firm: _____

Signed for Firm by: _____
(Signature)

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AIA Document A201

General Conditions of the Contract for Construction

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1987 EDITION TABLE OF ARTICLES

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GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

ARTICLE 1

GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents consist of the Agreement between Owner and Contractor (hereinafter the Agreement), Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include other documents such as bidding requirements (advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or portions of addenda relating to bidding requirements).

1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Architect and Contractor, (2) between the Owner and a Subcontractor or Sub-subcontractor or (3) between any persons or entities other than the Owner and Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

1.1.3 THE WORK

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

1.1.4 THE PROJECT

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner or by separate contractors.

1.1.5 THE DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents, wherever located and whenever issued, showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

1.1.6 THE SPECIFICATIONS

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equip-

ment, construction systems, standards and workmanship for the Work, and performance of related services.

1.1.7 THE PROJECT MANUAL

The Project Manual is the volume usually assembled for the Work which may include the bidding requirements, sample forms, Conditions of the Contract and Specifications.

1.2 EXECUTION, CORRELATION AND INTENT

1.2.1 The Contract Documents shall be signed by the Owner and Contractor as provided in the Agreement. If either the Owner or Contractor or both do not sign all the Contract Documents, the Architect shall identify such unsigned Documents upon request.

1.2.2 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

1.2.3 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the intended results.

1.2.4 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

1.2.5 Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

1.3 OWNERSHIP AND USE OF ARCHITECT'S DRAWINGS, SPECIFICATIONS AND OTHER DOCUMENTS

1.3.1 The Drawings, Specifications and other documents prepared by the Architect are instruments of the Architect's service through which the Work to be executed by the Contractor is described. The Contractor may retain one contract record set. Neither the Contractor nor any Subcontractor, Sub-subcontractor or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications and other documents prepared by the Architect, and unless otherwise indicated the Architect shall be deemed the author of them and will retain all common law, statutory and other reserved rights, in addition to the copyright. All copies of them, except the Contractor's record set, shall be returned or suitably accounted for to the Architect, on request, upon completion of the Work. The Drawings, Specifications and other documents prepared by the Architect, and copies thereof furnished to the Contractor, are for use solely with respect to this Project. They are not to be used by the Contractor or any Subcontractor, Sub-subcontractor or material or equipment supplier on other projects or for additions to this Project outside the scope of the

Work without the specific written consent of the Owner and Architect. The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by the Architect appropriate to and for use in the execution of their Work under the Contract Documents. All copies made under this license shall bear the statutory copyright notice, if any, shown on the Drawings, Specifications and other documents prepared by the Architect. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's copyright or other reserved rights.

1.4 CAPITALIZATION

1.4.1 Terms capitalized in these General Conditions include those which are (1) specifically defined, (2) the titles of numbered articles and identified references to Paragraphs, Subparagraphs and Clauses in the document or (3) the titles of other documents published by the American Institute of Architects.

1.5 INTERPRETATION

1.5.1 In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

ARTICLE 2

OWNER

2.1 DEFINITION

2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Owner" means the Owner or the Owner's authorized representative.

2.1.2 The Owner upon reasonable written request shall furnish to the Contractor in writing information which is necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein at the time of execution of the Agreement and, within five days after any change, information of such change in title, recorded or unrecorded.

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.2.1 The Owner shall, at the request of the Contractor, prior to execution of the Agreement and promptly from time to time thereafter, furnish to the Contractor reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. *[Note: Unless such reasonable evidence were furnished on request prior to the execution of the Agreement, the prospective contractor would not be required to execute the Agreement or to commence the Work.]*

2.2.2 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site.

2.2.3 Except for permits and fees which are the responsibility of the Contractor under the Contract Documents, the Owner shall secure and pay for necessary approvals, easements, assess-

ments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

2.2.4 Information or services under the Owner's control shall be furnished by the Owner with reasonable promptness to avoid delay in orderly progress of the Work.

2.2.5 Unless otherwise provided in the Contract Documents, the Contractor will be furnished, free of charge, such copies of Drawings and Project Manuals as are reasonably necessary for execution of the Work.

2.2.6 The foregoing are in addition to other duties and responsibilities of the Owner enumerated herein and especially those in respect to Article 6 (Construction by Owner or by Separate Contractors), Article 9 (Payments and Completion) and Article 11 (Insurance and Bonds).

2.3 OWNER'S RIGHT TO STOP THE WORK

2.3.1 If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents as required by Paragraph 12.2 or persistently fails to carry out Work in accordance with the Contract Documents, the Owner, by written order signed personally or by an agent specifically so empowered by the Owner in writing, may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Subparagraph 6.1.3.

2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

2.4.1 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may after such seven-day period give the Contractor a second written notice to correct such deficiencies within a second seven-day period. If the Contractor within such second seven-day period after receipt of such second notice fails to commence and continue to correct any deficiencies, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation for the Architect's additional services and expenses made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3

CONTRACTOR

3.1 DEFINITION

3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Contractor" means the Contractor or the Contractor's authorized representative.

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

3.2.1 The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the Owner pursuant to Subparagraph 2.2.2 and shall at once report to the Architect errors, inconsistencies or omissions discovered. The Contractor shall not be liable to the Owner or Architect for damage resulting from errors, inconsistencies or omissions in the Contract Documents unless the Contractor recognized such error, inconsistency or omission and knowingly failed to report it to the Architect. If the Contractor performs any construction activity knowing it involves a recognized error, inconsistency or omission in the Contract Documents without such notice to the Architect, the Contractor shall assume appropriate responsibility for such performance and shall bear an appropriate amount of the attributable costs for correction.

3.2.2 The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the Architect at once.

3.2.3 The Contractor shall perform the Work in accordance with the Contract Documents and submittals approved pursuant to Paragraph 3.12.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless Contract Documents give other specific instructions concerning these matters.

3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work under a contract with the Contractor.

3.3.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons other than the Contractor.

3.3.4 The Contractor shall be responsible for inspection of portions of Work already performed under this Contract to determine that such portions are in proper condition to receive subsequent Work.

3.4 LABOR AND MATERIALS

3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

3.4.2 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

3.5 WARRANTY

3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

3.6 TAXES

3.6.1 The Contractor shall pay sales, consumer, use and similar taxes for the Work or portions thereof provided by the Contractor which are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

3.7 PERMITS, FEES AND NOTICES

3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit and other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work which are customarily secured after execution of the Contract and which are legally required when bids are received or negotiations concluded.

3.7.2 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of public authorities bearing on performance of the Work.

3.7.3 It is not the Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations. However, if the Contractor observes that portions of the Contract Documents are at variance therewith, the Contractor shall promptly notify the Architect and Owner in writing, and necessary changes shall be accomplished by appropriate Modification.

3.7.4 If the Contractor performs Work knowing it to be contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to the Architect and Owner, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs.

3.8 ALLOWANCES

3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities against which the Contractor makes reasonable objection.

3.8.2 Unless otherwise provided in the Contract Documents:

- .1** materials and equipment under an allowance shall be selected promptly by the Owner to avoid delay in the Work;
- .2** allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

- .3 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum and not in the allowances;
- .4 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Clause 3.8.2.2 and (2) changes in Contractor's costs under Clause 3.8.2.3.

3.9 SUPERINTENDENT

3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be similarly confirmed on written request in each case.

3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

3.10.2 The Contractor shall prepare and keep current, for the Architect's approval, a schedule of submittals which is coordinated with the Contractor's construction schedule and allows the Architect reasonable time to review submittals.

3.10.3 The Contractor shall conform to the most recent schedules.

3.11 DOCUMENTS AND SAMPLES AT THE SITE

3.11.1 The Contractor shall maintain at the site for the Owner one record copy of the Drawings, Specifications, addenda, Change Orders and other Modifications, in good order and marked currently to record changes and selections made during construction, and in addition approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work.

3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

3.12.3 Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for

which submittals are required the way the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents. Review by the Architect is subject to the limitations of Subparagraph 4.2.7.

3.12.5 The Contractor shall review, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals made by the Contractor which are not required by the Contract Documents may be returned without action.

3.12.6 The Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect. Such Work shall be in accordance with approved submittals.

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

3.12.8 The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and the Architect has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals.

3.12.10 Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents.

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

3.13 USE OF SITE

3.13.1 The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

3.14 CUTTING AND PATCHING

3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.

3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the

Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

3.15 CLEANING UP

3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work the Contractor shall remove from and about the Project waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials.

3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the cost thereof shall be charged to the Contractor.

3.16 ACCESS TO WORK

3.16.1 The Contractor shall provide the Owner and Architect access to the Work in preparation and progress wherever located.

3.17 ROYALTIES AND PATENTS

3.17.1 The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

3.18 INDEMNIFICATION

3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, but only to the extent caused in whole or in part by negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Paragraph 3.18.

3.18.2 In claims against any person or entity indemnified under this Paragraph 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Paragraph 3.18 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

3.18.3 The obligations of the Contractor under this Paragraph 3.18 shall not extend to the liability of the Architect, the Archi-

tect's consultants, and agents and employees of any of them arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, Change Orders, designs or specifications, or (2) the giving of or the failure to give directions or instructions by the Architect, the Architect's consultants, and agents and employees of any of them provided such giving or failure to give is the primary cause of the injury or damage.

ARTICLE 4

ADMINISTRATION OF THE CONTRACT

4.1 ARCHITECT

4.1.1 The Architect is the person lawfully licensed to practice architecture or an entity lawfully practicing architecture identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Architect" means the Architect or the Architect's authorized representative.

4.1.2 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

4.1.3 In case of termination of employment of the Architect, the Owner shall appoint an architect against whom the Contractor makes no reasonable objection and whose status under the Contract Documents shall be that of the former architect.

4.1.4 Disputes arising under Subparagraphs 4.1.2 and 4.1.3 shall be subject to arbitration.

4.2 ARCHITECT'S ADMINISTRATION OF THE CONTRACT

4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents, and will be the Owner's representative (1) during construction, (2) until final payment is due and (3) with the Owner's concurrence, from time to time during the correction period described in Paragraph 12.2. The Architect will advise and consult with the Owner. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified by written instrument in accordance with other provisions of the Contract.

4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the completed Work and to determine in general if the Work is being performed in a manner indicating that the Work, when completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check quality or quantity of the Work. On the basis of on-site observations as an architect, the Architect will keep the Owner informed of progress of the Work, and will endeavor to guard the Owner against defects and deficiencies in the Work.

4.2.3 The Architect will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility as provided in Paragraph 3.3. The Architect will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Con-

tractor, Subcontractors, or their agents or employees, or of any other persons performing portions of the Work.

4.2.4 Communications Facilitating Contract Administration. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate through the Architect. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

4.2.5 Based on the Architect's observations and evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

4.2.6 The Architect will have authority to reject Work which does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable for implementation of the intent of the Contract Documents, the Architect will have authority to require additional inspection or testing of the Work in accordance with Subparagraphs 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing portions of the Work.

4.2.7 The Architect will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken with such reasonable promptness as to cause no delay in the Work or in the activities of the Owner, Contractor or separate contractors, while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Paragraphs 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Paragraph 7.4.

4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion, will receive and forward to the Owner for the Owner's review and records written warranties and related documents required by the Contract and assembled by the Contractor, and will issue a final Certificate for Payment upon compliance with the requirements of the Contract Documents.

4.2.10 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying

out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

4.2.11 The Architect will interpret and decide matters concerning performance under and requirements of the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made with reasonable promptness and within any time limits agreed upon. If no agreement is made concerning the time within which interpretations required of the Architect shall be furnished in compliance with this Paragraph 4.2, then delay shall not be recognized on account of failure by the Architect to furnish such interpretations until 15 days after written request is made for them.

4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions so rendered in good faith.

4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

4.3 CLAIMS AND DISPUTES

4.3.1 Definition. A Claim is a demand or assertion by one of the parties seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. Claims must be made by written notice. The responsibility to substantiate Claims shall rest with the party making the Claim.

4.3.2 Decision of Architect. Claims, including those alleging an error or omission by the Architect, shall be referred initially to the Architect for action as provided in Paragraph 4.4. A decision by the Architect, as provided in Subparagraph 4.4.4, shall be required as a condition precedent to arbitration or litigation of a Claim between the Contractor and Owner as to all such matters arising prior to the date final payment is due, regardless of (1) whether such matters relate to execution and progress of the Work or (2) the extent to which the Work has been completed. The decision by the Architect in response to a Claim shall not be a condition precedent to arbitration or litigation in the event: (1) the position of Architect is vacant, (2) the Architect has not received evidence or has failed to render a decision within agreed time limits, (3) the Architect has failed to take action required under Subparagraph 4.4.4 within 30 days after the Claim is made, (4) 45 days have passed after the Claim has been referred to the Architect or (5) the Claim relates to a mechanic's lien.

4.3.3 Time Limits on Claims. Claims by either party must be made within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later. Claims must be made by written notice. An additional Claim made after the initial Claim has been implemented by Change Order will not be considered unless submitted in a timely manner.

4.3.4 Continuing Contract Performance. Pending final resolution of a Claim including arbitration, unless otherwise agreed in writing the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

4.3.5 Waiver of Claims: Final Payment. The making of final payment shall constitute a waiver of Claims by the Owner except those arising from:

- .1 liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents; or
- .3 terms of special warranties required by the Contract Documents.

4.3.6 Claims for Concealed or Unknown Conditions. If conditions are encountered at the site which are (1) subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then notice by the observing party shall be given to the other party promptly before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall so notify the Owner and Contractor in writing, stating the reasons. Claims by either party in opposition to such determination must be made within 21 days after the Architect has given notice of the decision. If the Owner and Contractor cannot agree on an adjustment in the Contract Sum or Contract Time, the adjustment shall be referred to the Architect for initial determination, subject to further proceedings pursuant to Paragraph 4.4.

4.3.7 Claims for Additional Cost. If the Contractor wishes to make Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Paragraph 10.3. If the Contractor believes additional cost is involved for reasons including but not limited to (1) a written interpretation from the Architect, (2) an order by the Owner to stop the Work where the Contractor was not at fault, (3) a written order for a minor change in the Work issued by the Architect, (4) failure of payment by the Owner, (5) termination of the Contract by the Owner, (6) Owner's suspension or (7) other reasonable grounds, Claim shall be filed in accordance with the procedure established herein.

4.3.8 Claims for Additional Time

4.3.8.1 If the Contractor wishes to make Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay only one Claim is necessary.

4.3.8.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data

substantiating that weather conditions were abnormal for the period of time and could not have been reasonably anticipated, and that weather conditions had an adverse effect on the scheduled construction.

4.3.9 Injury or Damage to Person or Property. If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, of any of the other party's employees or agents, or of others for whose acts such party is legally liable, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after first observance. The notice shall provide sufficient detail to enable the other party to investigate the matter. If a Claim for additional cost or time related to this Claim is to be asserted, it shall be filed as provided in Subparagraphs 4.3.7 or 4.3.8.

4.4 RESOLUTION OF CLAIMS AND DISPUTES

4.4.1 The Architect will review Claims and take one or more of the following preliminary actions within ten days of receipt of a Claim: (1) request additional supporting data from the claimant, (2) submit a schedule to the parties indicating when the Architect expects to take action, (3) reject the Claim in whole or in part, stating reasons for rejection, (4) recommend approval of the Claim by the other party or (5) suggest a compromise. The Architect may also, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim.

4.4.2 If a Claim has been resolved, the Architect will prepare or obtain appropriate documentation.

4.4.3 If a Claim has not been resolved, the party making the Claim shall, within ten days after the Architect's preliminary response, take one or more of the following actions: (1) submit additional supporting data requested by the Architect, (2) modify the initial Claim or (3) notify the Architect that the initial Claim stands.

4.4.4 If a Claim has not been resolved after consideration of the foregoing and of further evidence presented by the parties or requested by the Architect, the Architect will notify the parties in writing that the Architect's decision will be made within seven days, which decision shall be final and binding on the parties but subject to arbitration. Upon expiration of such time period, the Architect will render to the parties the Architect's written decision relative to the Claim, including any change in the Contract Sum or Contract Time or both. If there is a surety and there appears to be a possibility of a Contractor's default, the Architect may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

4.5 ARBITRATION

4.5.1 Controversies and Claims Subject to Arbitration. Any controversy or Claim arising out of or related to the Contract, or the breach thereof, shall be settled by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association, and judgment upon the award rendered by the arbitrator or arbitrators may be entered in any court having jurisdiction thereof, except controversies or Claims relating to aesthetic effect and except those waived as provided for in Subparagraph 4.3.5. Such controversies or Claims upon which the Architect has given notice and rendered a decision as provided in Subparagraph 4.4.4 shall be subject to arbitration upon written demand of either party. Arbitration may be commenced when 45 days have passed after a Claim has been referred to the Architect as provided in Paragraph 4.3 and no decision has been rendered.

4.5.2 Rules and Notices for Arbitration. Claims between the Owner and Contractor not resolved under Paragraph 4.4 shall, if subject to arbitration under Subparagraph 4.5.1, be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association currently in effect, unless the parties mutually agree otherwise. Notice of demand for arbitration shall be filed in writing with the other party to the Agreement between the Owner and Contractor and with the American Arbitration Association, and a copy shall be filed with the Architect.

4.5.3 Contract Performance During Arbitration. During arbitration proceedings, the Owner and Contractor shall comply with Subparagraph 4.3.4.

4.5.4 When Arbitration May Be Demanded. Demand for arbitration of any Claim may not be made until the earlier of (1) the date on which the Architect has rendered a final written decision on the Claim, (2) the tenth day after the parties have presented evidence to the Architect or have been given reasonable opportunity to do so, if the Architect has not rendered a final written decision by that date, or (3) any of the five events described in Subparagraph 4.3.2.

4.5.4.1 When a written decision of the Architect states that (1) the decision is final but subject to arbitration and (2) a demand for arbitration of a Claim covered by such decision must be made within 30 days after the date on which the party making the demand receives the final written decision, then failure to demand arbitration within said 30 days' period shall result in the Architect's decision becoming final and binding upon the Owner and Contractor. If the Architect renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence, but shall not supersede arbitration proceedings unless the decision is acceptable to all parties concerned.

4.5.4.2 A demand for arbitration shall be made within the time limits specified in Subparagraphs 4.5.1 and 4.5.4 and Clause 4.5.4.1 as applicable, and in other cases within a reasonable time after the Claim has arisen, and in no event shall it be made after the date when institution of legal or equitable proceedings based on such Claim would be barred by the applicable statute of limitations as determined pursuant to Paragraph 13.7.

4.5.5 Limitation on Consolidation or Joinder. No arbitration arising out of or relating to the Contract Documents shall include, by consolidation or joinder or in any other manner, the Architect, the Architect's employees or consultants, except by written consent containing specific reference to the Agreement and signed by the Architect, Owner, Contractor and any other person or entity sought to be joined. No arbitration shall include, by consolidation or joinder or in any other manner, parties other than the Owner, Contractor, a separate contractor as described in Article 6 and other persons substantially involved in a common question of fact or law whose presence is required if complete relief is to be accorded in arbitration. No person or entity other than the Owner, Contractor or a separate contractor as described in Article 6 shall be included as an original third party or additional third party to an arbitration whose interest or responsibility is insubstantial. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of a dispute not described therein or with a person or entity not named or described therein. The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

4.5.6 Claims and Timely Assertion of Claims. A party who files a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded. When a party fails to include a Claim through oversight, inadvertence or excusable neglect, or when a Claim has matured or been acquired subsequently, the arbitrator or arbitrators may permit amendment.

4.5.7 Judgment on Final Award. The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

ARTICLE 5

SUBCONTRACTORS

5.1 DEFINITIONS

5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect will promptly reply to the Contractor in writing stating whether or not the Owner or the Architect, after due investigation, has reasonable objection to any such proposed person or entity. Failure of the Owner or Architect to reply promptly shall constitute notice of no reasonable objection.

5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. The Contract Sum shall be increased or decreased by the difference in cost occasioned by such change and an appropriate Change Order shall be issued. However, no increase in the Contract Sum shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

5.2.4 The Contractor shall not change a Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objection to such change.

5.3 SUBCONTRACTUAL RELATIONS

5.3.1 By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement which may be at variance with the Contract Documents. Subcontractors shall similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner provided that:

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Paragraph 14.2 and only for those subcontract agreements which the Owner accepts by notifying the Subcontractor in writing; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

5.4.2 If the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted.

ARTICLE 6

CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided elsewhere in the Contract Documents.

6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules when directed to do so. The Contractor shall make any revisions to the construction schedule and Contract Sum deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights which apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, 11 and 12.

6.2 MUTUAL RESPONSIBILITY

6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's or separate contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

6.2.3 Costs caused by delays or by improperly timed activities or defective construction shall be borne by the party responsible therefor.

6.2.4 The Contractor shall promptly remedy damage wrongfully caused by the Contractor to completed or partially completed construction or to property of the Owner or separate contractors as provided in Subparagraph 10.2.5.

6.2.5 Claims and other disputes and matters in question between the Contractor and a separate contractor shall be subject to the provisions of Paragraph 4.3 provided the separate contractor has reciprocal obligations.

6.2.6 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Paragraph 3.14.

6.3 OWNER'S RIGHT TO CLEAN UP

6.3.1 If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish as described in Paragraph 3.15, the Owner may clean up and allocate the cost among those responsible as the Architect determines to be just.

ARTICLE 7

CHANGES IN THE WORK

7.1 CHANGES

7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Architect; a Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

7.1.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are so changed in a proposed Change Order or Construction Change Directive that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

7.2 CHANGE ORDERS

7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect, stating their agreement upon all of the following:

- .1 a change in the Work;
- .2 the amount of the adjustment in the Contract Sum, if any; and
- .3 the extent of the adjustment in the Contract Time, if any.

7.2.2 Methods used in determining adjustments to the Contract Sum may include those listed in Subparagraph 7.3.3.

7.3 CONSTRUCTION CHANGE DIRECTIVES

7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 unit prices stated in the Contract Documents or subsequently agreed upon;

.3 cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

.4 as provided in Subparagraph 7.3.6.

7.3.4 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

7.3.5 A Construction Change Directive signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

7.3.6 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the method and the adjustment shall be determined by the Architect on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, a reasonable allowance for overhead and profit. In such case, and also under Clause 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Subparagraph 7.3.6 shall be limited to the following:

- .1 costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' or workmen's compensation insurance;
- .2 costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
- .3 rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
- .5 additional costs of supervision and field office personnel directly attributable to the change.

7.3.7 Pending final determination of cost to the Owner, amounts not in dispute may be included in Applications for Payment. The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

7.3.8 If the Owner and Contractor do not agree with the adjustment in Contract Time or the method for determining it, the adjustment or the method shall be referred to the Architect for determination.

7.3.9 When the Owner and Contractor agree with the determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order.

7.4 MINOR CHANGES IN THE WORK

7.4.1 The Architect will have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly.

ARTICLE 8

TIME

8.1 DEFINITIONS

8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

8.1.2 The date of commencement of the Work is the date established in the Agreement. The date shall not be postponed by the failure to act of the Contractor or of persons or entities for whom the Contractor is responsible.

8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Paragraph 9.8.

8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

8.2 PROGRESS AND COMPLETION

8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor. The date of commencement of the Work shall not be changed by the effective date of such insurance. Unless the date of commencement is established by a notice to proceed given by the Owner, the Contractor shall notify the Owner in writing not less than five days or other agreed period before commencing the Work to permit the timely filing of mortgages, mechanic's liens and other security interests.

8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

8.3 DELAYS AND EXTENSIONS OF TIME

8.3.1 If the Contractor is delayed at any time in progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control, or by delay authorized by the Owner pending arbitration, or by other causes which the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Paragraph 4.3.

8.3.3 This Paragraph 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9

PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

9.2 SCHEDULE OF VALUES

9.2.1 Before the first Application for Payment, the Contractor shall submit to the Architect a schedule of values allocated to various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

9.3 APPLICATIONS FOR PAYMENT

9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment for operations completed in accordance with the schedule of values. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and reflecting retainage if provided for elsewhere in the Contract Documents.

9.3.1.1 Such applications may include requests for payment on account of changes in the Work which have been properly authorized by Construction Change Directives but not yet included in Change Orders.

9.3.1.2 Such applications may not include requests for payment of amounts the Contractor does not intend to pay to a Subcontractor or material supplier because of a dispute or other reason.

9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

9.4 CERTIFICATES FOR PAYMENT

9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the

Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Subparagraph 9.5.1.

9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's observations at the site and the data comprising the Application for Payment, that the Work has progressed to the point indicated and that, to the best of the Architect's knowledge, information and belief, quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to minor deviations from the Contract Documents correctable prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

9.5 DECISIONS TO WITHHOLD CERTIFICATION

9.5.1 The Architect may decide not to certify payment and may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Subparagraph 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Subparagraph 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also decide not to certify payment or, because of subsequently discovered evidence or subsequent observations, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss because of:

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims;
- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or another contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 persistent failure to carry out the Work in accordance with the Contract Documents.

9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

9.6 PROGRESS PAYMENTS

9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

9.6.2 The Contractor shall promptly pay each Subcontractor, upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of such Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in similar manner.

9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

9.6.4 Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor except as may otherwise be required by law.

9.6.5 Payment to material suppliers shall be treated in a manner similar to that provided in Subparagraphs 9.6.2, 9.6.3 and 9.6.4.

9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

9.7 FAILURE OF PAYMENT

9.7.1 If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Architect or awarded by arbitration, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, which shall be accomplished as provided in Article 7.

9.8 SUBSTANTIAL COMPLETION

9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.

9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected. The Contractor shall proceed promptly to complete and correct items on the list. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or design-

nated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not in accordance with the requirements of the Contract Documents, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. The Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion. When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate.

9.8.3 Upon Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and certification by the Architect, the Owner shall make payment, reflecting adjustment in retainage, if any, for such Work or portion thereof as provided in the Contract Documents.

9.9 PARTIAL OCCUPANCY OR USE

9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Subparagraph 11.3.11 and authorized by public authorities having jurisdiction over the Work. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Subparagraph 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

9.10 FINAL COMPLETION AND FINAL PAYMENT

9.10.1 Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make

such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's observations and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in said final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Subparagraph 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be cancelled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be substituted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims. The making of final payment shall constitute a waiver of claims by the Owner as provided in Subparagraph 4.3.5.

9.10.4 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment. Such waivers shall be in addition to the waiver described in Subparagraph 4.3.5.

ARTICLE 10

PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

10.1.2 In the event the Contractor encounters on the site material reasonably believed to be asbestos or polychlorinated biphenyl (PCB) which has not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the Owner and Architect in writing. The Work in the affected area shall not thereafter be resumed except by written agreement of the Owner and Contractor if in fact the material is asbestos or polychlorinated biphenyl (PCB) and has not been rendered harmless. The Work in the affected area shall be resumed in the absence of asbestos or polychlorinated biphenyl (PCB), or when it has been rendered harmless, by written agreement of the Owner and Contractor, or in accordance with final determination by the Architect on which arbitration has not been demanded, or by arbitration under Article 4.

10.1.3 The Contractor shall not be required pursuant to Article 7 to perform without consent any Work relating to asbestos or polychlorinated biphenyl (PCB).

10.1.4 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material is asbestos or polychlorinated biphenyl (PCB) and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, but only to the extent caused in whole or in part by negligent acts or omissions of the Owner, anyone directly or indirectly employed by the Owner or anyone for whose acts the Owner may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Subparagraph 10.1.4.

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to:

- .1** employees on the Work and other persons who may be affected thereby;
- .2** the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
- .3** other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

10.2.2 The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Clauses 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Clauses 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Paragraph 3.18.

10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

10.2.7 The Contractor shall not load or permit any part of the construction or site to be loaded so as to endanger its safety.

10.3 EMERGENCIES

10.3.1 In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Paragraph 4.3 and Article 7.

ARTICLE 11

INSURANCE AND BONDS

11.1 CONTRACTOR'S LIABILITY INSURANCE

11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1** claims under workers' or workmen's compensation, disability benefit and other similar employee benefit acts which are applicable to the Work to be performed;

- .2 claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 claims for damages insured by usual personal injury liability coverage which are sustained (1) by a person as a result of an offense directly or indirectly related to employment of such person by the Contractor, or (2) by another person;
- .5 claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle; and
- .7 claims involving contractual liability insurance applicable to the Contractor's obligations under Paragraph 3.18.

11.1.2 The insurance required by Subparagraph 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from date of commencement of the Work until date of final payment and termination of any coverage required to be maintained after final payment.

11.1.3 Certificates of Insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work. These Certificates and the insurance policies required by this Paragraph 11.1 shall contain a provision that coverages afforded under the policies will not be cancelled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. If any of the foregoing insurance coverages are required to remain in force after final payment and are reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the final Application for Payment as required by Subparagraph 9.10.2. Information concerning reduction of coverage shall be furnished by the Contractor with reasonable promptness in accordance with the Contractor's information and belief.

11.2 OWNER'S LIABILITY INSURANCE

11.2.1 The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance. Optionally, the Owner may purchase and maintain other insurance for self-protection against claims which may arise from operations under the Contract. The Contractor shall not be responsible for purchasing and maintaining this optional Owner's liability insurance unless specifically required by the Contract Documents.

11.3 PROPERTY INSURANCE

11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance in the amount of the initial Contract Sum as well as subsequent modifications thereto for the entire Work at the site on a replacement cost basis without voluntary deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Paragraph 9.10 or until no person or entity

other than the Owner has an insurable interest in the property required by this Paragraph 11.3 to be covered, whichever is earlier. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Work.

11.3.1.1 Property insurance shall be on an all-risk policy form and shall insure against the perils of fire and extended coverage and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, false-work, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's services and expenses required as a result of such insured loss. Coverage for other perils shall not be required unless otherwise provided in the Contract Documents.

11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance which will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor, then the Owner shall bear all reasonable costs properly attributable thereto.

11.3.1.3 If the property insurance requires minimum deductibles and such deductibles are identified in the Contract Documents, the Contractor shall pay costs not covered because of such deductibles. If the Owner or insurer increases the required minimum deductibles above the amounts so identified or if the Owner elects to purchase this insurance with voluntary deductible amounts, the Owner shall be responsible for payment of the additional costs not covered because of such increased or voluntary deductibles. If deductibles are not identified in the Contract Documents, the Owner shall pay costs not covered because of deductibles.

11.3.1.4 Unless otherwise provided in the Contract Documents, this property insurance shall cover portions of the Work stored off the site after written approval of the Owner at the value established in the approval, and also portions of the Work in transit.

11.3.2 Boiler and Machinery Insurance. The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

11.3.3 Loss of Use Insurance. The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or for other special hazards be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, adjoining or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Subparagraph 11.3.7 for damages caused by fire or other perils covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Paragraph 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be cancelled or allowed to expire until at least 30 days' prior written notice has been given to the Contractor.

11.3.7 Waivers of Subrogation. The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other perils to the extent covered by property insurance obtained pursuant to this Paragraph 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

11.3.8 A loss insured under Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Subparagraph 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or in accordance with an arbitration award in which case the procedure shall be as provided in Paragraph 4.5. If after such loss no other special agreement is made, replacement of damaged property shall be covered by appropriate Change Order.

11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection be made, arbitrators shall be chosen as provided in Paragraph 4.5. The Owner as fiduciary shall, in that case, make settlement with insurers in accordance with directions of such arbitrators. If distribution of insurance proceeds by arbitration is required, the arbitrators will direct such distribution.

11.3.11 Partial occupancy or use in accordance with Paragraph 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

11.4 PERFORMANCE BOND AND PAYMENT BOND

11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall permit a copy to be made.

ARTICLE 12

UNCOVERING AND CORRECTION OF WORK

12.1 UNCOVERING OF WORK

12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the Architect, be uncovered for the Architect's observation and be replaced at the Contractor's expense without change in the Contract Time.

12.1.2 If a portion of the Work has been covered which the Architect has not specifically requested to observe prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner. If such Work is not in accordance with the Contract Documents, the Contractor shall pay such costs unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

12.2 CORRECTION OF WORK

12.2.1 The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed or completed. The Contractor shall bear costs of correcting such rejected Work, including additional testing and inspections and compensation for the Architect's services and expenses made necessary thereby.

12.2.2 If, within one year after the date of Substantial Completion of the Work or designated portion thereof, or after the date

for commencement of warranties established under Subparagraph 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. This period of one year shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of the Work. This obligation under this Subparagraph 12.2.2 shall survive acceptance of the Work under the Contract and termination of the Contract. The Owner shall give such notice promptly after discovery of the condition.

12.2.3 The Contractor shall remove from the site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

12.2.4 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Paragraph 2.4. If the Contractor does not proceed with correction of such nonconforming Work within a reasonable time fixed by written notice from the Architect, the Owner may remove it and store the salvable materials or equipment at the Contractor's expense. If the Contractor does not pay costs of such removal and storage within ten days after written notice, the Owner may upon ten additional days' written notice sell such materials and equipment at auction or at private sale and shall account for the proceeds thereof, after deducting costs and damages that should have been borne by the Contractor, including compensation for the Architect's services and expenses made necessary thereby. If such proceeds of sale do not cover costs which the Contractor should have borne, the Contract Sum shall be reduced by the deficiency. If payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

12.2.5 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.

12.2.6 Nothing contained in this Paragraph 12.2 shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the time period of one year as described in Subparagraph 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

12.3 ACCEPTANCE OF NONCONFORMING WORK

12.3.1 If the Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13

MISCELLANEOUS PROVISIONS

13.1 GOVERNING LAW

13.1.1 The Contract shall be governed by the law of the place where the Project is located.

13.2 SUCCESSORS AND ASSIGNS

13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to the other party hereto and to partners, successors, assigns and legal representatives of such other party in respect to covenants, agreements and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

13.3 WRITTEN NOTICE

13.3.1 Written notice shall be deemed to have been duly served if delivered in person to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended, or if delivered at or sent by registered or certified mail to the last business address known to the party giving notice.

13.4 RIGHTS AND REMEDIES

13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

13.4.2 No action or failure to act by the Owner, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

13.5 TESTS AND INSPECTIONS

13.5.1 Tests, inspections and approvals of portions of the Work required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction shall be made at an appropriate time. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so the Architect may observe such procedures. The Owner shall bear costs of tests, inspections or approvals which do not become requirements until after bids are received or negotiations concluded.

13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Subparagraph 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so the Architect may observe such procedures.

The Owner shall bear such costs except as provided in Subparagraph 13.5.3.

13.5.3 If such procedures for testing, inspection or approval under Subparagraphs 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, the Contractor shall bear all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses.

13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

13.5.5 If the Architect is to observe tests, inspections or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

13.6 INTEREST

13.6.1 Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

13.7 COMMENCEMENT OF STATUTORY LIMITATION PERIOD

13.7.1 As between the Owner and Contractor:

- .1 Before Substantial Completion.** As to acts or failures to act occurring prior to the relevant date of Substantial Completion, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than such date of Substantial Completion;
- .2 Between Substantial Completion and Final Certificate for Payment.** As to acts or failures to act occurring subsequent to the relevant date of Substantial Completion and prior to issuance of the final Certificate for Payment, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of issuance of the final Certificate for Payment; and
- .3 After Final Certificate for Payment.** As to acts or failures to act occurring after the relevant date of issuance of the final Certificate for Payment, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of any act or failure to act by the Contractor pursuant to any warranty provided under Paragraph 3.5, the date of any correction of the Work or failure to correct the Work by the Contractor under Paragraph 12.2, or the date of actual commission of any other act or failure to perform any duty or obligation by the Contractor or Owner, whichever occurs last.

ARTICLE 14

TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR

14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor, for any of the following reasons:

- .1** issuance of an order of a court or other public authority having jurisdiction;
- .2** an act of government, such as a declaration of national emergency, making material unavailable;
- .3** because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Subparagraph 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents;
- .4** if repeated suspensions, delays or interruptions by the Owner as described in Paragraph 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less; or
- .5** the Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Subparagraph 2.2.1.

14.1.2 If one of the above reasons exists, the Contractor may, upon seven additional days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery, including reasonable overhead, profit and damages.

14.1.3 If the Work is stopped for a period of 60 days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has persistently failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Subparagraph 14.1.2.

14.2 TERMINATION BY THE OWNER FOR CAUSE

14.2.1 The Owner may terminate the Contract if the Contractor:

- .1** persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2** fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3** persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction; or
- .4** otherwise is guilty of substantial breach of a provision of the Contract Documents.

14.2.2 When any of the above reasons exist, the Owner, upon certification by the Architect that sufficient cause exists to justify

tify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 accept assignment of subcontracts pursuant to Paragraph 5.4; and
- .3 finish the Work by whatever reasonable method the Owner may deem expedient.

14.2.3 When the Owner terminates the Contract for one of the reasons stated in Subparagraph 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the

Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Architect, upon application, and this obligation for payment shall survive termination of the Contract.

14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

14.3.2 An adjustment shall be made for increases in the cost of performance of the Contract, including profit on the increased cost of performance, caused by suspension, delay or interruption. No adjustment shall be made to the extent:

- .1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of this Contract.

14.3.3 Adjustments made in the cost of performance may have a mutually agreed fixed or percentage fee.



AIA Document A701

Instructions to Bidders

1987 EDITION

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INSTRUCTIONS TO BIDDERS

ARTICLE 1 DEFINITIONS

- 1.1** Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement or Invitation to Bid, Instructions to Bidders, Supplementary Instructions to Bidders, the bid form, and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications and all Addenda issued prior to execution of the Contract.
- 1.2** Definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201, or in other Contract Documents are applicable to the Bidding Documents.
- 1.3** Addenda are written or graphic instruments issued by the Architect prior to the execution of the Contract which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections.
- 1.4** A Bid is a complete and properly signed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.
- 1.5** The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids.
- 1.6** An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.
- 1.7** A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment or services or a portion of the Work as described in the Bidding Documents.
- 1.8** A Bidder is a person or entity who submits a Bid.
- 1.9** A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment or labor for a portion of the Work.

ARTICLE 2 BIDDER'S REPRESENTATIONS

- 2.1** The Bidder by making a Bid represents that:
- 2.1.1** The Bidder has read and understands the Bidding Documents and the Bid is made in accordance therewith.
- 2.1.2** The Bidder has read and understands the Bidding Documents or contract documents, to the extent that such documentation relates to the Work for which the Bid is submitted, for other portions of the Project, if any, being bid concurrently or presently under construction.
- 2.1.3** The Bidder has visited the site, become familiar with local conditions under which the Work is to be performed and

has correlated the Bidder's personal observations with the requirements of the proposed Contract Documents.

- 2.1.4** The Bid is based upon the materials, equipment and systems required by the Bidding Documents without exception.

ARTICLE 3 BIDDING DOCUMENTS

3.1 COPIES

3.1.1 Bidders may obtain complete sets of the Bidding Documents from the issuing office designated in the Advertisement or Invitation to Bid in the number and for the deposit sum, if any, stated therein. The deposit will be refunded to Bidders who submit a bona fide Bid and return the Bidding Documents in good condition within ten days after receipt of Bids. The cost of replacement of missing or damaged documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the Bidding Documents and the Bidder's deposit will be refunded.

3.1.2 Bidding Documents will not be issued directly to Sub-bidders or others unless specifically offered in the Advertisement or Invitation to Bid, or in supplementary instructions to bidders.

3.1.3 Bidders shall use complete sets of Bidding Documents in preparing Bids; neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

3.1.4 In making copies of the Bidding Documents available on the above terms, the Owner and the Architect do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant permission for any other use of the Bidding Documents.

3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

3.2.1 The Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid is submitted, shall examine the site and local conditions, and shall at once report to the Architect errors, inconsistencies or ambiguities discovered.

3.2.2 Bidders and Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request which shall reach the Architect at least seven days prior to the date for receipt of Bids.

3.2.3 Interpretations, corrections and changes of the Bidding Documents will be made by Addendum. Interpretations, corrections and changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon them.

3.3 SUBSTITUTIONS

3.3.1 The materials, products and equipment described in the Bidding Documents establish a standard of required function,

dimension, appearance and quality to be met by any proposed substitution.

3.3.2 No substitution will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least ten days prior to the date for receipt of Bids. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the Work including changes in the work of other contracts that incorporation of the proposed substitution would require shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

3.3.3 If the Architect approves a proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner.

3.3.4 No substitutions will be considered after the Contract award unless specifically provided in the Contract Documents.

3.4 ADDENDA

3.4.1 Addenda will be mailed or delivered to all who are known by the issuing office to have received a complete set of Bidding Documents.

3.4.2 Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

3.4.3 No Addenda will be issued later than four days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

3.4.4 Each Bidder shall ascertain prior to submitting a Bid that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

ARTICLE 4

BIDDING PROCEDURES

4.1 FORM AND STYLE OF BIDS

4.1.1 Bids shall be submitted on forms identical to the form included with the Bidding Documents.

4.1.2 All blanks on the bid form shall be filled in by typewriter or manually in ink.

4.1.3 Where so indicated by the makeup of the bid form, sums shall be expressed in both words and figures, and in case of discrepancy between the two, the amount written in words shall govern.

4.1.4 Interlineations, alterations and erasures must be initialed by the signer of the Bid.

4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change."

4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture

of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall make no additional stipulations on the bid form nor qualify the Bid in any other manner.

4.1.7 Each copy of the Bid shall include the legal name of the Bidder and a statement that the Bidder is a sole proprietor, partnership, corporation or other legal entity. Each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder.

4.2 BID SECURITY

4.2.1 If so stipulated in the Advertisement or Invitation to Bid, or supplementary instructions to bidders, each Bid shall be accompanied by a bid security in the form and amount required, pledging that the Bidder will enter into a Contract with the Owner on the terms stated in the Bid and will, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. The amount of the bid security shall not be forfeited to the Owner in the event the Owner fails to comply with Subparagraph 6.2.1.

4.2.2 If a surety bond is required, it shall be written on AIA Document A310, Bid Bond, unless otherwise provided in the Bidding Documents, and the attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of the power of attorney.

4.2.3 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until either (a) the Contract has been executed and bonds, if required, have been furnished, or (b) the specified time has elapsed so that Bids may be withdrawn, or (c) all Bids have been rejected.

4.3 SUBMISSION OF BIDS

4.3.1 All copies of the Bid, the bid security, if any, and other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

4.3.2 Bids shall be deposited at the designated location prior to the time and date for receipt of Bids. Bids received after the time and date for receipt of Bids will be returned unopened.

4.3.3 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

4.3.4 Oral, telephonic or telegraphic Bids are invalid and will not receive consideration.

4.4 MODIFICATION OR WITHDRAWAL OF BID

4.4.1 A Bid may not be modified, withdrawn or canceled by the Bidder during the stipulated time period following the time

and date designated for the receipt of Bids, and each Bidder so agrees in submitting a Bid.

4.4.2 Prior to the time and date designated for receipt of Bids, a Bid submitted may be modified or withdrawn by notice to the party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing over the signature of the Bidder or by telegram; if by telegram, written confirmation over the signature of the Bidder shall be mailed and postmarked on or before the date and time set for receipt of Bids. A change shall be so worded as not to reveal the amount of the original Bid.

4.4.3 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids provided that they are then fully in conformance with these Instructions to Bidders.

4.4.4 Bid security, if required, shall be in an amount sufficient for the Bid as modified or resubmitted.

ARTICLE 5

CONSIDERATION OF BIDS

5.1 OPENING OF BIDS

5.1.1 Unless stated otherwise in the Advertisement or Invitation to Bid, the properly identified Bids received on time will be opened publicly and will be read aloud. An abstract of the Bids will be made available to Bidders. When it has been stated that Bids will be opened privately, an abstract of the same information may, at the discretion of the Owner, be made available to the Bidders within a reasonable time.

5.2 REJECTION OF BIDS

5.2.1 The Owner shall have the right to reject any or all Bids, reject a Bid not accompanied by a required bid security or by other data required by the Bidding Documents, or reject a Bid which is in any way incomplete or irregular.

5.3 ACCEPTANCE OF BID (AWARD)

5.3.1 It is the intent of the Owner to award a Contract to the lowest responsible Bidder provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The Owner shall have the right to waive informalities or irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's own best interests.

5.3.2 The Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the low Bidder on the basis of the sum of the Base Bid and Alternates accepted.

ARTICLE 6

POST-BID INFORMATION

6.1 CONTRACTOR'S QUALIFICATION STATEMENT

6.1.1 Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request, a properly executed AIA Document A305, Contractor's Qualification Statement, unless such a Statement has been previously

required and submitted as a prerequisite to the issuance of Bidding Documents.

6.2 OWNER'S FINANCIAL CAPABILITY

6.2.1 The Owner shall, at the request of the Bidder to whom award of a Contract is under consideration and no later than seven days prior to the expiration of the time for withdrawal of Bids, furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. Unless such reasonable evidence is furnished, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

6.3 SUBMITTALS

6.3.1 The Bidder shall, as soon as practicable after notification of selection for the award of a Contract, furnish to the Owner through the Architect in writing:

- .1** a designation of the Work to be performed with the Bidder's own forces;
- .2** names of the manufacturers, products and the suppliers of principal items or systems of materials and equipment proposed for the Work; and
- .3** names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

6.3.2 The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

6.3.3 Prior to the award of the Contract, the Architect will notify the Bidder in writing if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, (1) withdraw the Bid, or (2) submit an acceptable substitute person or entity with an adjustment in the Base Bid or Alternate Bid to cover the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

6.3.4 Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

ARTICLE 7

PERFORMANCE BOND AND PAYMENT BOND

7.1 BOND REQUIREMENTS

7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Bonds may be secured through the Bidder's usual sources.

7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the

furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

7.1.3 If the Owner requires that bonds be secured from other than the Bidder's usual sources, changes in cost will be adjusted as provided in the Contract Documents.

7.2 TIME OF DELIVERY AND FORM OF BONDS

7.2.1 The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to be commenced prior thereto in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Subparagraph 7.2.1.

7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond. Both bonds shall be written in the amount of the Contract Sum.

7.2.3 The bonds shall be dated on or after the date of the Contract.

7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney.

ARTICLE 8

FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

8.1 FORM TO BE USED

8.1.1 Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A101, Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment Is a Stipulated Sum.

THE AMERICAN INSTITUTE OF ARCHITECTS



AIA Document A310

Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we _____
(Here insert full name and address or legal title of Contractor)

as Principal, hereinafter called the Principal, and _____
(Here insert full name and address or legal title of Surety)

a corporation duly organized under the laws of the State of _____
as Surety, hereinafter called the Surety, are held and firmly bound unto _____
(Here insert full name and address or legal title of Owner)

as Obligee, hereinafter called the Obligee, in the sum of

Dollars (\$ _____),

for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for _____
(Here insert full name, address and description of project)

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this _____ day of _____ 19____

(Witness) { _____
(Principal) (Seal)

(Title)

(Witness) { _____
(Surety) (Seal)

(Title)



AIA Document A101

Standard Form of Agreement Between Owner and Contractor

*where the basis of payment is a
STIPULATED SUM*

1987 EDITION

*THIS DOCUMENT HAS IMPORTANT LEGAL CONSEQUENCES; CONSULTATION WITH
AN ATTORNEY IS ENCOURAGED WITH RESPECT TO ITS COMPLETION OR MODIFICATION.*

*The 1987 Edition of AIA Document A201, General Conditions of the Contract for Construction, is adopted
in this document by reference. Do not use with other general conditions unless this document is modified.*

This document has been approved and endorsed by The Associated General Contractors of America.

AGREEMENT

made as of the _____ day of _____ in the year of
Nineteen Hundred and _____

BETWEEN the Owner:

(Name and address)

and the Contractor:

(Name and address)

The Project is:

(Name and location)

The Architect is:

(Name and address)

The Owner and Contractor agree as set forth below.

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ARTICLE 1
THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement; these form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents, other than Modifications, appears in Article 9.

ARTICLE 2
THE WORK OF THIS CONTRACT

The Contractor shall execute the entire Work described in the Contract Documents, except to the extent specifically indicated in the Contract Documents to be the responsibility of others, or as follows:

ARTICLE 3
DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

3.1 The date of commencement is the date from which the Contract Time of Paragraph 3.2 is measured, and shall be the date of this Agreement, as first written above, unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.

(Insert the date of commencement, if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

Unless the date of commencement is established by a notice to proceed issued by the Owner, the Contractor shall notify the Owner in writing not less than five days before commencing the Work to permit the timely filing of mortgages, mechanic's liens and other security interests.

3.2 The Contractor shall achieve Substantial Completion of the entire Work not later than

(Insert the calendar date or number of calendar days after the date of commencement. Also insert any requirements for earlier Substantial Completion of certain portions of the Work, if not stated elsewhere in the Contract Documents.)

, subject to adjustments of this Contract Time as provided in the Contract Documents.

(Insert provisions, if any, for liquidated damages relating to failure to complete on time.)

ARTICLE 4
CONTRACT SUM

4.1 The Owner shall pay the Contractor in current funds for the Contractor's performance of the Contract the Contract Sum of Dollars (\$ _____), subject to additions and deductions as provided in the Contract Documents.

4.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

(State the numbers or other identification of accepted alternates. If decisions on other alternates are to be made by the Owner subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date until which that amount is valid.)

4.3 Unit prices, if any, are as follows:

ARTICLE 5
PROGRESS PAYMENTS

5.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

5.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

5.3 Provided an Application for Payment is received by the Architect not later than the _____ day of a month, the Owner shall make payment to the Contractor not later than the _____ day of the _____ month. If an Application for Payment is received by the Architect after the application date fixed above, payment shall be made by the Owner not later than _____ days after the Architect receives the Application for Payment.

5.4 Each Application for Payment shall be based upon the schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work and be prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

5.5 Applications for Payment shall indicate the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

5.6 Subject to the provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

5.6.1. Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the total Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of _____ percent (_____ %). Pending final determination of cost to the Owner of changes in the Work, amounts not in the dispute may be included as provided in Subparagraph 7.3.7 of the General Conditions even though the Contract Sum has not yet been adjusted by Change Order;

5.6.2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of _____ percent (_____ %);

5.6.3 Subtract the aggregate of previous payments made by the Owner; and

5.6.4 Subtract amounts, if any, for which the Architect has withheld or nullified a Certificate for Payment as provided in Paragraph 9.5 of the General Conditions.

5.7 The progress payment amount determined in accordance with Paragraph 5.6 shall be further modified under the following circumstances:

5.7.1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to _____ percent (_____ %) of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work and unsettled claims; and

5.7.2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Subparagraph 9.10.3 of the General Conditions.

5.8 Reduction or limitation of retainage, if any, shall be as follows:

(If it is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from the percentages inserted in Subparagraphs 5.6.1 and 5.6.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)

ARTICLE 6
FINAL PAYMENT

Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when (1) the Contract has been fully performed by the Contractor except for the Contractor's responsibility to correct nonconforming Work as provided in Subparagraph 12.2.2 of the General Conditions and to satisfy other requirements, if any, which necessarily survive final payment; and (2) a final Certificate for Payment has been issued by the Architect; such final payment shall be made by the Owner not more than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

ARTICLE 7
MISCELLANEOUS PROVISIONS

7.1 Where reference is made in this Agreement to a provision of the General Conditions or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

7.2 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

(Insert rate of interest agreed upon, if any.)

(Usury laws and requirements under the Federal Truth in Lending Act, similar state and local consumer credit laws and other regulations at the Owner's and Contractor's principal places of business, the location of the Project and elsewhere may affect the validity of this provision. Legal advice should be obtained with respect to deletions or modifications, and also regarding requirements such as written disclosures or waivers.)

7.3 Other provisions:

ARTICLE 8
TERMINATION OR SUSPENSION

8.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of the General Conditions.

8.2 The Work may be suspended by the Owner as provided in Article 14 of the General Conditions.

ARTICLE 9
ENUMERATION OF CONTRACT DOCUMENTS

- 9.1** The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated as follows:
- 9.1.1** The Agreement is this executed Standard Form of Agreement Between Owner and Contractor, AIA Document A101, 1987 Edition.
 - 9.1.2** The General Conditions are the General Conditions of the Contract for Construction, AIA Document A201, 1987 Edition.
 - 9.1.3** The Supplementary and other Conditions of the Contract are those contained in the Project Manual dated _____, and are as follows:

Document	Title	Pages
----------	-------	-------

- 9.1.4** The Specifications are those contained in the Project Manual dated as in Subparagraph 9.1.3, and are as follows:
(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

Section	Title	Pages
---------	-------	-------

9.1.5 The Drawings are as follows, and are dated
(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

unless a different date is shown below:

Number	Title	Date
---------------	--------------	-------------

9.1.6 The addenda, if any, are as follows:

Number	Date	Pages
---------------	-------------	--------------

Portions of addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are also enumerated in this Article 9.

9.1.7 Other documents, if any, forming part of the Contract Documents are as follows:

(List here any additional documents which are intended to form part of the Contract Documents. The General Conditions provide that bidding requirements such as advertisement or invitation to bid, Instructions to Bidders, sample forms and the Contractor's bid are not part of the Contract Documents unless enumerated in this Agreement. They should be listed here only if intended to be part of the Contract Documents.)

This Agreement is entered into as of the day and year first written above and is executed in at least three original copies of which one is to be delivered to the Contractor, one to the Architect for use in the administration of the Contract, and the remainder to the Owner.

OWNER

CONTRACTOR

(Signature)

(Signature)

(Printed name and title)

(Printed name and title)



CAUTION: You should sign an original AIA document which has this caution printed in red. An original assures that changes will not be obscured as may occur when documents are reproduced.

THE AMERICAN INSTITUTE OF ARCHITECTS



AIA Document A311

Performance Bond

KNOW ALL MEN BY THESE PRESENTS: that

(Here insert full name and address or legal title of Contractor)

as Principal, hereinafter called Contractor, and,

(Here insert full name and address or legal title of Surety)

as Surety, hereinafter called Surety, are held and firmly bound unto

(Here insert full name and address or legal title of Owner)

as Obligee, hereinafter called Owner, in the amount of

Dollars (\$ _____),

for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Contractor has by written agreement dated _____

(Here insert full name, address and description of project)

19 _____, entered into a contract with Owner for

in accordance with Drawings and Specifications prepared by

(Here insert full name and address or legal title of Architect)

which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

PERFORMANCE BOND

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Contractor shall promptly and faithfully perform said Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the Owner.

Whenever Contractor shall be, and declared by Owner to be in default under the Contract, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly

1) Complete the Contract in accordance with its terms and conditions, or

2) Obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, or, if the Owner elects, upon determination by the Owner and the Surety jointly of the lowest responsible bidder, arrange for a contract between such bidder and Owner, and make available as Work progresses (even though there should be a default or a succession of

defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the contract price," as used in this paragraph, shall mean the total amount payable by Owner to Contractor under the Contract and any amendments thereto, less the amount properly paid by Owner to Contractor.

Any suit under this bond must be instituted before the expiration of two (2) years from the date on which final payment under the Contract falls due.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner named herein or the heirs, executors, administrators or successors of the Owner.

Signed and sealed this

day of

19

(Witness)

_____ (Principal) _____ (Seal)
_____ (Title)

(Witness)

_____ (Surety) _____ (Seal)
_____ (Title)

THE AMERICAN INSTITUTE OF ARCHITECTS



AIA Document A311

Labor and Material Payment Bond

THIS BOND IS ISSUED SIMULTANEOUSLY WITH PERFORMANCE BOND IN FAVOR OF THE OWNER CONDITIONED ON THE FULL AND FAITHFUL PERFORMANCE OF THE CONTRACT

KNOW ALL MEN BY THESE PRESENTS: that

(Here insert full name and address or legal title of Contractor)

as Principal, hereinafter called Principal, and,

(Here insert full name and address or legal title of Surety)

as Surety, hereinafter called Surety, are held and firmly bound unto

(Here insert full name and address or legal title of Owner)

as Obligee, hereinafter called Owner, for the use and benefit of claimants as hereinbelow defined, in the

amount of

(Here insert a sum equal to at least one-half of the contract price)

Dollars (\$

),

for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Principal has by written agreement dated

19

, entered into a contract with Owner for

(Here insert full name, address and description of project)

in accordance with Drawings and Specifications prepared by

(Here insert full name and address or legal title of Architect)

which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

LABOR AND MATERIAL PAYMENT BOND

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

1. A claimant is defined as one having a direct contract with the Principal or with a Subcontractor of the Principal for labor, material, or both, used or reasonably required for use in the performance of the Contract, labor and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the Contract.

2. The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any costs or expenses of any such suit.

3. No suit or action shall be commenced hereunder by any claimant:

a) Unless claimant, other than one having a direct contract with the Principal, shall have given written notice to any two of the following: the Principal, the Owner, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial

accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, Owner or Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer.

b) After the expiration of one (1) year following the date on which Principal ceased Work on said Contract, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

c) Other than in a state court of competent jurisdiction in and for the county or other political subdivision of the state in which the Project, or any part thereof, is situated, or in the United States District Court for the district in which the Project, or any part thereof, is situated, and not elsewhere.

4. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed of record against said improvement, whether or not claim for the amount of such lien be presented under and against this bond.

Signed and sealed this

day of

19

(Witness)

_____ (Principal) (Seal)
_____ (Title)

(Witness)

_____ (Surety) (Seal)
_____ (Title)

SECTION 1A
SPECIAL CONDITIONS

1A-01. CONTRACTOR'S OBLIGATION

- a. The GENERAL CONTRACTOR shall, in good workmanlike manner perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, except as herein otherwise expressly specified necessary or proper to complete all the work required by this CONTRACT, in accordance with the provisions of the CONTRACT DOCUMENTS, including all subdivisions thereof, and in accordance with the directions of the ARCHITECT as given from time to time during the process of the work. He shall furnish, erect, maintain, and remove such construction plant and such temporary work as may be required. He alone shall be responsible for the safety, efficiency, and adequacy of his plant, appliances and methods, and for any damage which may result from their failure or improper construction, maintenance, or operation

1A-02. EXAMINATION OF PREMISES

- a. The GENERAL CONTRACTOR and each SUBCONTRACTOR, whose work is affected by site and building conditions, shall carefully examine the site and all conditions affecting their work before submitting their bids. No claims for additional costs will be allowed because of the lack of full knowledge of conditions of the site and buildings and of the work done by others before beginning their work, any condition therein that may be detrimental to their own installation shall be reported to the ARCHITECT immediately. Failure to make such report constitutes acceptance of the conditions then existing.
- b. INTERPRETATION OF CONTRACT DOCUMENTS & EXISTING SITE: Contractor shall promptly notify the ARCHITECT of any ambiguity, inconsistency or error which they may discover upon examination of the CONTRACT DOCUMENTS or of the site and local conditions. If the Contractor knowingly does not notify the ARCHITECT of such ambiguity, inconsistency, or error, he therefore accepts such conditions and will make such additions or corrections necessary to properly complete the work at his expense. DIMENSIONS WHERE PROVIDED, SHALL TAKE PRECEDENT OVER SCALE OF DRAWINGS , Measure and verify all dimensions at work.

1A-03. VERIFICATION OF EXISTING CONDITIONS

- a. Prior to commencing any work on the site, the GENERAL CONTRACTOR shall be responsible for verifying the dimension and elevation of work previously completed at the site and notify the ARCHITECT in writing immediately, if any deviation from the DRAWINGS is evident. In the event such deviation exists, the ARCHITECT shall make the determination as to how the ensuing work will be modified to compensate for such deviations.

1A-04. WINTER CONSTRUCTION

- a. The GENERAL CONTRACTOR shall take special precautions against damage to materials and work installed in freezing weather, by providing special heat and covering to prevent damage by the elements, in a manner approved by the ARCHITECT. The ground surfaces under footings and under pipe lines, and all masonry, concrete and other work subject to damage shall be protected from freezing, or ice formations. If low temperatures make it impossible to continue operations safely in spite of cold weather precautions, the GENERAL CONTRACTOR shall cease work and shall so notify the ARCHITECT. All cold weather concreting to be performed according to ACI 306.
- b. The use of anti-freeze compounds in materials is prohibited.

1A-05. TEMPORARY HOISTS, CHUTES, DERRICKS, SCAFFOLD, STAIRS, ETC.

- a. The GENERAL CONTRACTOR shall furnish, install, maintain, and remove, when no longer needed, all temporary staging and planking, stairs, ladders, ramps, joists, chutes, derricks, scaffolds, joisting, rigging, and safety devices for all trades under his control, unless specified to the contrary in any trade SECTION of the CONTRACT DOCUMENTS.
- b. All such apparatus, equipment and construction shall meet the requirements of the Labor Laws and State Laws and Regulations applicable thereto and/or the Authorities having jurisdiction over same.
- c. No materials will be permitted to be passed through the finished openings of the exterior walls, without first providing adequate temporary protection therefor.

1A-06. COORDINATION OF THE WORK

- a. The GENERAL CONTRACTOR and all his SUBCONTRACTORS shall coordinate their work with the adjacent work and shall cooperate with all other trades so as to facilitate general progress of the work. Each trade shall afford all other trades every reasonable opportunity for the installation of their respective work and for the storage of their materials and equipment. The GENERAL CONTRACTOR shall be responsible for coordination.
- b. Each SUBCONTRACTOR shall assume responsibility for the correctness and adequacy of his work. Each SUBCONTRACTOR shall be responsible for and pay all damages done by his work or his workmen.
- c. The GENERAL CONTRACTOR shall cooperate with, and provide access and working area to the OWNER'S CONTRACTORS for the performance of specific work assigned to them.

1A-07. PROJECT MEETING

- a. The GENERAL CONTRACTOR, and all major SUBCONTRACTORS, will be required to meet with the ARCHITECT, and the OWNER at the site of the work, periodically to ensure progress of the CONTRACT, coordination of SHOP DRAWINGS schedules, sample submittals, and other items of work requiring such coordination. The dates of such meetings shall be as mutually agreed upon between the GENERAL CONTRACTOR, the ARCHITECT, and the OWNER.

1A-08. TEMPORARY STRUCTURES

- a. The GENERAL CONTRACTOR shall construct and maintain, in locations approved by the ARCHITECT, all temporary structures, materials sheds or similar structures required for the performance of the CONTRACT.
- b. All temporary structures constructed by the GENERAL CONTRACTOR shall be removed from the site when directed by the ARCHITECT.

1A-09. TEMPORARY OFFICE

- a. The CONTRACTOR shall provide a temporary office at all times, for the use of the GENERAL CONTRACTOR, the SUBCONTRACTORS, and inspectors.
- b. This office shall be adequately lighted, ventilated, heated, and be provided with a job telephone.
- c. Supply reference copies of all approved CONTRACT DOCUMENTS including DRAWINGS, SHOP DRAWINGS, SPECIFICATIONS, and any attachments thereof.

d. Provide suitable space for review of DRAWINGS.

1A-10. TEMPORARY SERVICES

a. Temporary services shall be provided as follows:

1. Water and Toilet

(a) The GENERAL CONTRACTOR shall provide a adequate drinking water for all working men on the job.

(b) The GENERAL CONTRACTOR shall provide a rest room for use by all workmen on the job.

2. Electric and Heat

(a) The ELECTRICAL SUBCONTRACTOR shall provide, at his own expense, all temporary light and power lines complete with all wiring, lamps, and other equipment required for the completion of the work.

(b) The ELECTRICAL SUBCONTRACTOR shall remove all temporary wiring when the temporary service is no longer required.

(c) The GENERAL CONTRACTOR shall include all costs of temporary heat in his PROPOSAL.

3. Temporary Telephone

(a) The GENERAL CONTRACTOR shall install, at his own expense, a job telephone for the duration of the CONTRACT. Both local and long distance calls shall be paid for by the GENERAL CONTRACTOR. It shall be the GENERAL CONTRACTOR'S responsibility to collect for any long distance call made by persons other than those in his own organization.

1A-11. TEMPORARY STORAGE SHEDS, ETC.

a. The GENERAL CONTRACTOR shall provide on the premises where directed, shall maintain same in good condition, and shall remove same when directed; suitable, substantial, and watertight sheds in which he shall store all materials which would be damaged by weather.

1A-12. RUBBISH REMOVAL AND CLEANING

a. The GENERAL CONTRACTOR shall require each of his SUBCONTRACTORS engaged upon the work to bear his full responsibility for cleaning up during and immediately upon completion of his work, and shall remove all rubbish, waste, tools, equipment, and appurtenances caused by and used in the execution of his work; but this shall in no way be construed to relieve the GENERAL CONTRACTOR of his primary responsibility for maintaining the building and site clean and free of debris, leaving all work in a clean and proper condition satisfactory to the ARCHITECT and/or OWNER.

1A-13. FIRE PROTECTION AND PREVENTION

- a. Provide and maintain adequate fire protection, including fire extinguishers, dry chemicals, or other effective means of fire extinguishment, ready for instant use, distributed around the project, and in and about temporary structures during construction of work.
- b. Gasoline and other flammable liquids shall be stored in and dispensed from U.L. listed safety containers in conformance with National Board of Fire Underwriters' recommendations. Storage shall not be within the permanent buildings.
- c. Make arrangements for periodical inspection by local fire protection authorities and insurance underwriters' inspectors. Cooperate with said authorities and promptly carry out their recommendations. Comply with all applicable laws and ordinances and with OWNER'S fire prevention requirements.
- d. Tarpaulins that may be used during construction of work shall be made of material which is resistant to fire, water, and weather. Tarpaulins shall have U.L. approval and comply with FC-CC-C746.
- e. Torch-cutting and welding operations shall have approval of the GENERAL CONTRACTOR before such work is started, and chemical extinguishers shall be available at location where work is in progress.
- f. Open fires of any kind will not be permitted in or about premises.

1A-14. ACCIDENT PREVENTION

- a. Comply with all requirements for accident prevention of the American Standards Association Standard A10.2 and the applicable provisions of the William-Steiger Occupational Safety and Health Act of 1970, Public Law 91-596. The Field Superintendent of the GENERAL CONTRACTOR shall conduct regular and frequent inspections of the site for compliance with safety regulations. The ARCHITECT specifically reserves the right to direct and enforce compliance with safety regulations if conditions on the site do not comply.
- b. Neither the OWNER, nor the ARCHITECT shall be responsible for providing a safe work place for the GENERAL CONTRACTOR, SUBCONTRACTORS, their employees or any individual responsible to them for work, or for any persons allowed on site.

1A-15. TESTS AND INSPECTIONS

- a. The GENERAL CONTRACTOR shall make such tests and inspections of his workmanship and materials as may be required to ensure conformity with Building Code, State or Municipal Laws, or as called for under the various SECTIONS of the SPECIFICATIONS.
- b. All expense attached to such tests and inspections, unless otherwise specified under the various SECTIONS of the SPECIFICATIONS; shall be borne by the GENERAL CONTRACTOR, who shall furnish all labor, tools, instruments, water, temporary power and light, construction and equipment necessary for these tests and inspections. Records of all tests and inspections shall be furnished to the ARCHITECT. The GENERAL CONTRACTOR shall remove all temporary work, materials, and equipment upon completion of tests and inspections.
- c. Where, in the various SECTIONS of the SPECIFICATIONS, inspection and testing of materials, processes and the like is called for, the selection of bureaus, laboratories and/or agencies for such inspection and testing shall be subjected to approval of ARCHITECT. All expenses attached to such tests and inspections shall be borne by the GENERAL CONTRACTOR, unless otherwise specified under the various SECTIONS of the SPECIFICATION.

1A-16. CLERK OF THE WORKS

- a. A CLERK of the WORKS may be engaged by the OWNER at his option; the CLERK shall represent the OWNER and the ARCHITECT, and the CLERK shall keep close watch over the progress of the work, but he shall have no authority to speak for or in any manner to bind the OWNER or the ARCHITECT.

1A-17. SURVEYOR AND ENGINEER

- a. The GENERAL CONTRACTOR shall employ one person with engineering experience to do the usual engineering work as required, including leveling, checking and verifying wall and main partition lines, building locations, site improvements and landscape elements.
- b. Prior to the commencement of any excavation or filling work on the site, the CONTRACTOR shall check locations of all structures and other fixed items required by the CONTRACT DOCUMENTS, with regard to property lines and other existing conditions. The CONTRACTOR will report any discrepancies between the dimensions and/or locations indicated on the CONTRACT DRAWINGS and those as they actually exist on the site.

1A-18. WELDING AND CUTTING

- a. Where electric or gas welding or cutting work is done, above or within ten (10) feet of, combustible material or above space that may be occupied by persons, interposed shields of non-combustible material shall be used to protect against fire damage or injury due to sparks and hot metal.
- b. Tanks supplying gases for gas welding or cutting shall be placed at no greater distance from the work than is necessary for safety, securely fastened and maintained in an upright position where practical. Such tanks, when stored for use, should be remote from any combustible materials and free from exposure to the rays of the sun or to high temperatures.
- c. Suitable fire extinguishing equipment shall be maintained near all welding and cutting operations. When operations cease for the noon hour or at the end of the day, the surroundings adjacent to welding and cutting operations should be thoroughly wet down.
- d. Workman, equipped with suitable fire extinguishing equipment, shall be stationed near welding and cutting operations to see that sparks do not lodge in any combustible material. The workman shall be kept at the source of work offering special hazards for 30 minutes after the job is completed to make sure that smoldering fires have not been started.
- e. A qualified electrician shall be in charge of installing and repairing electric or arc welding equipment.
- f. All on-site welding to be performed by State Certified welders only.

1A-19. EXISTING UTILITIES

- a. Existing utility lines indicated on the DRAWINGS , such as cables, ducts, conduits, and piping shall, if damaged (unless they are to be abandoned), be immediately repaired, protected, and maintained in use until relocation of same has been completed, or shall be cut and capped where directed, or shall be prepared for service connections when so required. Damaged utilities shall be repaired by the GENERAL CONTRACTOR at no extra cost to the OWNER.
- b. Any utilities encountered which are not indicated on the DRAWINGS and are to remain, if unintentionally damaged by the GENERAL CONTRACTOR or a SUBCONTRACTOR shall be repaired by the GENERAL CONTRACTOR and an adjustment in the CONTRACT PRICE will be made, at rates determined and approved by the ARCHITECT. Consideration of any adjustment as outlined above shall be based on the assumption that the GENERAL CONTRACTOR has performed in a prudent manner at the time such damage occurred. If extra expense is incurred in protection and maintaining any utility line not shown on the DRAWINGS , an adjustment in the CONTRACT PRICE will be made.
- c. The OWNER will cooperate fully, with the GENERAL CONTRACTOR in locating and identifying underground utilities.

1A-20. SITE DRAINAGE AND PUMPING

- a. The GENERAL CONTRACTOR shall take over the responsibility for site drainage upon entering the premises and shall maintain such drainage during the life of his CONTRACT in a manner approved by the ARCHITECT so as not to adversely affect the adjacent areas.
- b. The GENERAL CONTRACTOR shall during the progress of the work, provide and maintain all required pumps, suction and discharge lines, and power in sufficient number and capacity to keep all excavations, pits, trenches, foundations, and the entire property area free from accumulation of water from any source whatsoever, at all times, and under any and all circumstances and contingencies that may arise.
- c. For additional requirements for excavation dewatering, refer to the DIVISION II SITE WORK of SPECIFICATIONS.

1A-21. EMPLOYEE PARKING

- a. Employee parking will be permitted only in area designated by the OWNER. The GENERAL CONTRACTOR shall be responsible for notifying his employees and the employees of his SUBCONTRACTORS of the location of the designated areas and shall inform them that parking in any other areas is prohibited.

1A-22. PUNCH LIST AND FINAL INSPECTION

- a. The work shall be considered ready for the ARCHITECT'S final inspection when all elements of the work are in place and servicing as intended and when the building or portions of the building to be inspected are ready for occupancy.
- b. The CONTRACTOR shall perform the inspection and evaluation of all aspects of the work and prepare a report and punch list enumerating all work to be corrected before requesting the ARCHITECT'S Final Inspection. The ARCHITECT will determine upon preliminary examination, whether the work is ready for final inspection. If the work is not considered ready, the ARCHITECT will stop inspection and will reschedule the inspection.

1A-23. OPERATING AND MAINTENANCE MANUALS

- a. At FINAL CLOSING, prepare and deliver to the ARCHITECT, four copies of an operating and maintenance manual on the project. The manual shall contain full information for each item of mechanical, electrical or other operating equipment, schematic diagrams of control systems, circuits directories for each electric and communications panel board, and charts showing the tagging of all valves, and copies of all shop drawings. Each volume of the manual shall be clearly indexed and shall include a directory of all SUBCONTRACTOR and MAINTENANCE CONTRACTORS, indicating the areas of responsibility of each, and the name and telephone number of the responsible member of each organization. The volumes shall be bound in multi-ring binders.

1A-24. SECURITY

- a. Watchman's service during non-working hours is not required by this CONTRACT: it may be provided at the discretion of the CONTRACTOR.
- b. The Local Police Department will make security inspections of the project area during non-working hours. Coordinate and cooperate therewith.

1A-25. TRAFFIC CONTROL

- a. The CONTRACTOR shall retain, at his discretion or as required by any agency or governing authority, off-duty police officers to protect the public during any construction activities calling for traffic control.
- b. The CONTRACTOR shall pay off-duty police officers employed by him the prevailing wage rate paid to such police officers in the municipality. Such police officers shall be covered by Workmen's Compensation Insurance by the CONTRACTOR.

1A-26. TEMPORARY PROJECT SIGN

- a. The CONTRACTOR shall provide, erect and maintain sign in a suitable location which is designated by the ARCHITECT. It shall be relocated if necessary in order to keep it in plain view. The sign shall be approximately 4 feet high by 8 feet long, made of exterior grade plywood 3/4 in. thick. The CONTRACTOR shall arrange and pay for a competent sign painter and letter the sign as per requirements of the ARCHITECT.

1A-27. RECORD DRAWING

- a. Furnish to the ARCHITECT 2 Sets of Record Drawings showing all location and depths of underground utilities and changes to any building elements or systems.

1A-28. WARRANTY WORK

- a. As stipulated in the CONTRACT DOCUMENTS the GENERAL CONTRACTOR shall guarantee the workmanship and materials for a period of one year from date of Substantial Completion.

1A-29. ARTISTIC EFFECT AND COLOR SELECTION

- a. It is the intent of these SPECIFICATIONS and the CONTRACT DRAWINGS that the ARCHITECT is the interpreter of decisions in matters relating to artistic effect and color. Before submitting a BID or PROPOSAL on any material, equipment or system specified, verify colors, tones, or textures with the ARCHITECT. If verification is not made the CONTRACTOR assumes liability for additional cost of providing this material, equipment, or system in the color selected by the ARCHITECT.

1A-30. SHOP DRAWING REVIEW PROCESS

a. In order to clarify the intent of GENERAL CONDITIONS 2.3.18 & 4.2.1 shop drawing review process will be as follows:

1. Minimum of 14 days if process requires review with Consulting Engineers.
2. If the review process requires review by Architect only, a minimum of 10 days.

Architect and Engineer will at all times review Shops as expeditious as possible.

1A-31. HAZARDOUS MATERIALS

a. Nothing in these Drawings or Specifications shall impose liability on the Architect or his Consultants for claims, lawsuits, expenses or damages arising from, or in any manner related to, the exposure to, or the handling, or the disposal of, asbestos, asbestos products, or hazardous waste in any of its various forms, as defined by the EPA.

END OF SECTION

SECTION 1E
DEMOLITION AND REMOVALS

I. GENERAL

1E-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

- b. The CONTRACT DRAWINGS indicate the general extent of the removals and demolition work required to be performed. The GENERAL CONTRACTOR, and each SUBCONTRACTOR affected thereby, will be held fully responsible for performing their portions of the demolition and removal work and shall include all costs therefor in their respective bids.

1E-02. WORK TO BE PERFORMED

- a. Perform the following items of work as shown on the DRAWINGS and specified herein:
 1. Furnish, install, and maintain in safe condition at all times, temporary protection items, including, but not limited to: Temporary Shoring, bracing, supports, etc. for existing structure and building elements during any demolition work affecting existing in addition to those specified under SECTION 1A SPECIAL CONDITIONS, required to ensure safety for persons and property during the demolition work. Such items shall be subject to ARCHITECT'S approval.
 2. Furnish, install and maintain dust coverings as required to prevent the spread of dust beyond the immediate area where demolition work is being performed.
 3. After all affected services have been disconnected thereto, or otherwise made inactive, perform the exterior and interior demolition work and cutting, remove all demolished materials from the site, and legally dispose of same
 4. Remove carefully all materials designated by the Architects to be either preserved or reused. Store all materials to be preserved where designated by the Architect and prevent from damage at all times during Construction. Store materials to be reused in a safe and convenient place.

1E-03. RELATED WORK

- a. The following related work is to be performed by the designated sources:
 1. Removal of certain items, drilling, coring and specified cutting: As specified in the various trade SECTIONS and SECTION 1A SPECIAL CONDITIONS.
 2. Patching all cut areas: by trade responsible for furnishing and installing similar new materials.

II. & III. MATERIALS AND INSTALLATION

1E-04. DESCRIPTION OF WORK

- a. Conditions, as they are known, have been indicated on the DRAWINGS; however, all existing dimensions shall be verified on site before commencing work.
- b. The Plumbing, Heating and Ventilating, and Electrical SUBCONTRACTORS, respectively, shall perform the disconnecting, and capping where necessary, of existing mechanical and electrical items, which are to be removed and/or relocated.
- c. It shall be the Contractors' responsibility to provide all materials and labor necessary for installation of temporary shoring and bracing, as well as to employ an Engineer for the design of such for demolition purposes.
- d. The GENERAL CONTRACTOR shall perform the cutting and removal of all items so designated on the DRAWINGS, except as otherwise specified hereunder. Where items are designated to be relocated, the relocation of all items which are not normally installed by a trade SUBCONTRACTOR, shall be performed by the GENERAL CONTRACTOR. Where such equipment is to be installed by a trade SUBCONTRACTOR, the applicable SUBCONTRACTOR shall be responsible for disconnecting and moving such items to the room or area where these items are to be relocated.
- e. Installation and alterations for all relocated equipment of the trade SUBCONTRACTOR, shall be performed by the respective SUBCONTRACTORS under whose jurisdiction this work is normally performed.
- f. Prior to commencing cutting work in existing floors and walls, the GENERAL CONTRACTOR shall take all precautionary measures to assure that mechanical and electrical services to the particular area of work are turned off, as far as practicable.
- g. If, in the process of cutting work, existing utility lines or fixtures are encountered which have not been indicated on the DRAWINGS, and whether or not such items are damaged, report such items to the ARCHITECT immediately, requesting disposition of same. Do not proceed with the work in such areas until disposition, in writing by the ARCHITECT, to repair, remove, and/or relocated such items, the work shall be performed and CONTRACT Price adjusted accordingly.
- h. Use no explosives or fire in the performance of the demolition and removals work.

- i. Perform all cutting in existing surfaces in a manner which will ensure a minimal difference between the cut area and new materials when patched.

1E-05. DISPOSITION OF REMOVED MATERIALS

- a. Except for items to be removed by the OWNER and items specifically designated to be relocated and/or re-used, all existing removed building materials and items shall become the property of the GENERAL CONTRACTOR and shall be completely removed from the site and legally disposed of beyond City Limits. Existing items to be retained shall be stored by the GENERAL CONTRACTOR, on site, where directed by the OWNER and shall remain the OWNER'S property.
- b. Consult with the OWNER prior to demolition and removal to determine which items are to remain the OWNER'S property.

END OF SECTION

SECTION 1F
ALLOWANCES

I. GENERAL

1F-01. GENERAL PROVISIONS

- a. Refer to Article 4.8 of the GENERAL CONDITIONS OF THE CONTRACT, AIA. DOCUMENT A-201, August 1976 Edition, SUPPLEMENTARY CONDITIONS AIA. DOCUMENT A-201 S/C, August 1976 Edition, and MODIFICATIONS to GENERAL and SUPPLEMENTARY CONDITIONS.

1F-02. CASH ALLOWANCES

- a. Each General Bidder shall include in his proposed CONTRACT PRICE all cash allowances as noted below, and he shall cause the work so covered to be done for the designated sums herein determined by the ARCHITECT. Each bidder declares that the CONTRACT PRICE includes such sums for expenses, overhead, and profit on account of such case allowances and that such items do not exceed the percentages specified under the GENERAL CONDITIONS, as modified. No demand for expenses, overhead, or profit other than those include in the CONTRACT sum shall be allowed. All cash allowance shall be for the complete cost to the GENERAL CONTRACTOR, (except designated items where the installation of which is included in the Base Bid and not the allowance amount). In cases where allowances, or any parts thereof, are not expended, said amounts shall be deducted from the CONTRACT PRICE.
- b. The OWNER reserves the right to deduct the total amount of any or all allowances from the CONTRACT PRICE, and to exclude the scope of any or all allowances from the CONTRACT.
- c. The following cash allowances shall be included in the CONTRACT PRICE by each General Bidder, under Item 1, on the FOR GENERAL BID:
1. Carpeting with pad: SECTION 9F, CARPETING:
\$10.00/sq.yd. (installed)

END OF SECTION

SECTION 1G
ALTERNATES

I. GENERAL

1G-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

- b. Refer to specific SECTIONS of the SPECIFICATIONS for material and installation requirements.

1G-02. LIST OF ALTERNATES

a. ALTERNATE NO.1 - KITCHEN REFACING

- 1. Existing Kitchen Cabinets and countertops that are in good condition may, at the OWNER'S discretion be refaced as follows:
 - (a) Replace cabinet doors and drawer fronts and hardware. New doors and fronts to be laminate covered with oak strip panel.

 - (b) Repair any damaged frames and drawers, refinish with one coat polyurethane.

 - (c) Remove existing counters and replace with new post-formed counters.

 - (d) Replace kitchen sink and faucets.

b. ALTERNATE NO.2 - DISHWASHERS

- 1. Furnish and Install new dishwashers as specified in SECTION 11A-EQUIPMENT. Make all necessary connections to existing plumbing and electrical.

END OF SECTION

SECTION 1H
CONTRACT CLOSE-OUT

I. GENERAL

1H-01. DESCRIPTION

- a. Work included: Provide an orderly and efficient transfer of the completed Work to the OWNER.
- b. Related work:
 1. Documents affecting work of this Section include, but are not necessarily limited to General Conditions, Supplementary Conditions, and Sections in Division I of these Specifications.
 2. "Substantial Completion" is defined in Paragraph 9.8 of the General Conditions.

1H-02. PROCEDURES

- a. Substantial Completion:
 1. Preliminary Procedures: Before requesting inspection for certificate of substantial completion, complete the following. List all exceptions to the following in the request:
 - (a) In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete.
 - (1) Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
 - (2) If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
 - (b) Advise the OWNER of pending insurance change-over requirements.
 - (c) Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
 - (d) Obtain and submit releases enabling the OWNER unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates and similar releases.

- (e) Deliver tools, spare parts, extra stock, and similar items.
 - (f) Make final change-over of permanent locks and transmit keys to the OWNER. Advise the OWNER's personnel of change-over in security provisions.
 - (g) Complete start-up testing of systems and instruction of the OWNER's operating and maintenance personnel. Discontinue and remove temporary facilities from the site, along with mockups, construction tools, and similar elements.
2. Within a reasonable time after receipt of the list, the ARCHITECT will inspect to determine status of completion.
 3. Should the ARCHITECT determine that the Work is not substantially complete:
 - (a) The ARCHITECT promptly will so notify the CONTRACTOR, in writing, giving the reasons therefore.
 - (b) Remedy the deficiencies and notify the ARCHITECT when ready for reinspection.
 - (c) The ARCHITECT will reinspect the Work.
 4. When the ARCHITECT concurs that the Work is substantially complete:
 - (a) The ARCHITECT will prepare a "Certificate of Substantial Completion" on AIA form G704, accompanied by the CONTRACTOR's list of items to be completed or corrected, as verified by the ARCHITECT.
 - (b) The ARCHITECT will submit the Certificate to the OWNER and to the Contractor for their written acceptance of the responsibilities assigned to them in the Certificate.
- b. Final Completion:
1. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
 - (a) Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.

CONTRACT CLOSE-OUT

- (b) Submit record documents, maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
 - (c) Submit an updated final statement, accounting for final additional changes to the Contract Sum.
 - (d) Submit a certified copy of the ARCHITECT's final inspection list of items to be completed or corrected, endorsed and dated by the ARCHITECT. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by the ARCHITECT.
 - (e) Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion, or when the OWNER took possession of and assumed responsibility for corresponding elements of the Work.
 - (f) Submit evidence of final, continuing insurance coverage complying with insurance requirements.
2. Verify that the Work is complete including, but not necessarily limited to, the items mentioned in Paragraph 9.10 of the General Conditions.
3. Certify that:
- (a) Contract Documents have been reviewed;
 - (b) Work has been inspected for compliance with the Contract Documents;
 - (c) Work has been completed in accordance with the Contract Documents;
 - (d) Equipment and systems have been tested as required, and are operational;
 - (e) Work is completed and ready for final inspection.
4. The ARCHITECT will make an inspection to verify status of completion.
5. Should the ARCHITECT determine that the Work is incomplete or defective:
- (a) The ARCHITECT promptly will so notify the CONTRACTOR, in writing, listing the incomplete or defective work.

- (b) Remedy the deficiencies promptly, and notify the ARCHITECT when ready for reinspection.
 - 6. When the ARCHITECT determines that the Work is acceptable under the Contract Documents, he will request the CONTRACTOR to make close-out submittals.
 - c. Close-out submittals include, but are not necessarily limited to:
 - 1. Project Record Documents described in SECTION 1I;
 - 2. Operation and maintenance data for items so listed in pertinent other SECTIONS of these Specifications, and for other items when so directed by the ARCHITECT;
 - 3. Warranties and bonds;
 - 4. Keys and keying schedule;
 - 5. Spare parts and materials extra stock;
 - 6. Evidence of compliance with requirements of governmental agencies having jurisdiction including, but not necessarily limited to:
 - (a) Certificates of Inspection;
 - (b) Certificates of Occupancy;
 - 7. Certificates of Insurance for products and completed operations;
 - 8. Evidence of payment and release of liens;
 - 9. List of subcontractors, service organizations, and principal vendors, including names, addresses, and telephone numbers where they can be reached for emergency service at all times including nights, weekends, and holidays.
 - d. Final adjustment of accounts:
 - 1. Submit a final statement of accounting to the ARCHITECT, showing all adjustments to the Contract Sum.
 - 2. If so required, the ARCHITECT will prepare a final Change Order showing adjustments to the Contract Sum which were not made previously by Change Orders.
- 1H-03. INSTRUCTION
- a. Instruct the OWNER's personnel in proper operation and maintenance of systems, equipment, and similar items which were provided as part of the Work.

END OF SECTION

SECTION 2A
EARTHWORK AND SITE PREPARATION

I. GENERAL

2A-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

2A-02. WORK TO BE PERFORMED

- a. Perform the following items of work, as shown on the DRAWINGS and specified herein:
1. Strip all loam from areas which will be disturbed under the work of this CONTRACT, and stockpile on site where directed by the ARCHITECT.
 2. Do all excavating and backfilling as required at the existing buildings and additions, utilities, site improvements, and related work to complete the work of this CONTRACT, including the furnishing and compaction of additional material as needed.
 3. Establish subgrades as indicated on the DRAWINGS and as specified hereunder.
 4. Perform all pumping and bailing necessary to maintain excavated areas free from water from any source
 5. Remove from the site all excavated and removed materials, not specifically designated hereunder to be stockpiled, and legally dispose of same.
 6. Obtain all required permits, licenses, and approvals of appropriate municipal and utility authorities, prior to commencing the work of this SECTION 2A, and pay all costs resulting therefrom.

2A-03. RELATED WORK

- a. The following related work is to be performed under the designated SECTIONS:
1. Spreading, stockpiled topsoil, furnishing and placing additional topsoil, SECTION 2E, LANDSCAPING.

2A-04. FINISH GRADES

- a. The words "finish grades", as used herein, mean the required final grade elevations indicated on the DRAWINGS. Where not otherwise directed, areas outside of the building shall be given uniform slopes to the existing grades, except that vertical curves or roundings shall be provided at abrupt changes in the slope.

2A-05. PERMITS AND CODES

- a. Procure, and pay for, all permits and licenses required for the work of this SECTION 2A, prior to commencing the work.
- b. Comply with all applicable codes, ordinances, rules, regulations and laws of all local, municipal and state authorities having jurisdiction over the work, without additional cost to the OWNER.

2A-06. DUST CONTROL

- a. Employ all methods required to effectively control dust created by the work of this SECTION 2A.

2A-07. DISPOSITION OF UTILITIES

- a. Should any utility be encountered in the excavation work, which is not indicated on the DRAWINGS, notify the ARCHITECT and the OWNER in writing and request disposition for same, before proceeding to perform any work on same.
- b. Remove, plug and cap inactive utilities and utilities which have been disconnected

II. MATERIALS

2A-08. FILL MATERIALS

- a. Unless otherwise specified hereunder, all bottom material, used refills and fills for the building foundations, below slabs, and under pavements, shall be made with graded gravel conforming to the following:
 1. Composition of hard, durable stone and coarse sand free from loam and clay and undesirable organic matter, well graded and containing no stone having dimension greater than two-thirds of the depth of the layer to be compacted, but in no case greater than four inches. Graded gravel shall conform to the following requirements:

SIEVE SIZE	PERCENT FINER BY WEIGHT
3 INCH	100
2 INCH	95-100
1 INCH	55-85
#4	27-52
#200	0-12

- b. New refills and fills elsewhere shall be made with materials which shall be acceptably graded, containing sound stone not larger than six inches, gravel and sand without, in the opinion of the ARCHITECT, passing a No. 200 sieve. They shall be free from vegetation, roots, peat, muck or other organic or undesirable matter. Provide sample for ARCHITECT'S approval.
- c. Approval of the ARCHITECT must be obtained before using any excavated material for filling and backfilling.
- d. Crushed stone fill shall be clean, washed, crushed stone, graded approximately 1 1/2 inches in size.

III. INSTALLATION

2A-09. TREE AND SHRUB PROTECTION

- a. Protect all existing trees and shrubs, not specifically indicated on the DRAWINGS to be removed.

2A-10. STRIPPING TOPSOIL

- a. The suitability of stripped materials for re-use as loam or topsoil shall be determined by the ARCHITECT.
- b. Topsoil shall be stripped to its entire depth from area within the lines of the work, and stored on site where directed by the ARCHITECT. Topsoil shall be stripped and stored before any underlying excavating is begun. Stripped topsoil shall be stockpiled apart from other materials.

2A-11. SHORING AND SHEETING

- a. Provide shoring, sheeting and/or bracing at excavations as required to prevent cave-ins of excavation, and to assure complete safety of existing structures, utilities and pavements that are to remain in place.
- b. Comply with local safety regulations or, in the absence thereof, with the provisions of the Manual of Accident Prevention in Construction of the "Associated General Contractors of America, Inc."

- c. Remove sheeting and shoring, and bracing, as backfilling operations progress, taking all necessary precautions to prevent collapse of excavation sides. Where sheeting is required to be left in place, obtain written authorization therefor from the ARCHITECT and the CONTRACT Amount will be adjusted accordingly.

2A-12. EXCAVATION

- a. Include the excavation of earth and all other materials to the depths, form and sizes as shown on the DRAWINGS and as specified hereunder for structure foundations, site improvements, loam areas, planted area, and other area necessary for the completion of the construction.
- b. Perform excavation work in a manner which will permit erection of forms, shoring, drains, and the inspection of bottom of the excavated area.
- c. Excavate to the payment lines, established and specified hereunder. When the payment lines have been reached, notify the ARCHITECT, and request his inspection of the excavations before commencing foundation work. If the ARCHITECT, after inspection, directs in writing that the payment lines be extended and extra excavations be performed thereby, the CONTRACT Amount will be adjusted accordingly by mutual agreement with the OWNER.
- d. Excavate and remove, within the CONTRACT Amount, all materials encountered within the specified payment lines, except rock. If rock is encountered within the payment lines, follow all procedures hereinafter specified for same.
- e. In general, the GENERAL CONTRACTOR will be permitted to use machine excavation, except where hand work is necessary to achieve level grades under footings, grade beams, and foundations.
- f. If any part of the excavation be carried through error beyond the depth and dimensions indicate on the DRAWINGS or specified herein, the GENERAL CONTRACTOR shall, at his own expense, at the direction of the ARCHITECT, either extend reinforced concrete foundations to proper bearing or furnish, place, and compact fill materials all as specified hereunder.

- g. Protect bottoms of excavations from frost. Under no circumstances install foundations, grade beams, footings, or slabs on frozen ground or rock which has ice or frost pockets. Shoring and piling shall be removed before backfilling is completed, but not until permanent supports are in place.
- h. Control the grading around the building so that the ground shall be pitched in order to prevent water from running to the excavated areas of the building or prevent damage to other structures.
- i. Perform all leveling at bottoms of excavations under footings, foundations or grade beams, including rock-bearing surfaces, to ensure that the surface is smooth and level across the full width of the structural member, whether or not the bottom of the excavation is level or sloped in the opposite location.
- j. Provide all pumping required to keep excavated areas clear of water during construction.
- k. Payment Lines for Earth Excavation - To qualify for extra work and additional payment for same, earth excavation must be carried beyond the following limits, and then only by written direction of the ARCHITECT:
 - 1. Subgrades for site work, which shall be the established payment lines, are as follows:
 - (a) Areas designated to receive topsoil and seeding - four (4) inches below finish grades.
 - 2. For building footings , grade beams and foundations - to bottom lines of footings, grade beams, and foundation walls, plus ample space on each side of same for forms and inspection.
 - 3. For floor slabs in contact with earth - eight (8) inches below bottom of slab.
- l. Excavation for underground utilities.
 - 1. Excavate and trench, as required for utilities, where shown on the DRAWINGS.
 - 2. This item of the work shall comply with all applicable codes and regulations as amended by any waivers. The GENERAL CONTRACTOR shall secure all necessary permits to perform the work.

3. Excavate trenches of sufficient width for proper installation of the work. Banks of trenches shall be vertical.
4. Keep the trenches free of water until pipe joint material has hardened.
5. Grade the bottom of trenches evenly to insure uniform bearing for full length of all pipes.
6. Should latent soil conditions necessitate special supports for piping and/or appurtenances, the CONTRACT Price will be adjusted accordingly.

2A-13. ROCK REMOVAL

- a. Excavated material will be classified as rock only when the following conditions prevail:
 1. When the material cannot be broken and removed by power excavation equipment and requires the use of drills, or the use of explosives.
 2. Rock or stone in original ledge.
 3. Hard shale in original ledge.
 4. Boulders in excess of one (1) cubic yard in trenches
 5. Anything other is "earth" insofar as removal of the material to be excavated is concerned; also removal of existing stone concrete or masonry are not classified as rock removal.
6. NOTE: When , during the process of excavation, rock is encountered, uncover and expose such material and notify the ARCHITECT, requesting inspection and verification before proceeding further. The areas in question shall then be cross-sectioned as stipulated in paragraph "b." following. Do not proceed with excavation of material claimed as rock until material has been inspected, classified, and measured by the ARCHITECT and/or the OWNER'S authorized representative. Excavation of rock, without receiving approval from the ARCHITECT so to do, will negate any claim for extra payment in the subject area.

- b. The OWNER will have qualified personnel, acceptable to both the OWNER and the CONTRACTOR, take cross-sections of rock and provide computations of cross-sections, before the removal of same, at no expense to the CONTRACTOR.
- c. Rock Excavation for Foundations and Grade Beams - Carefully examine the surfaces of the rock, remove loose or shaken rock to solid bearing, and level the surface across the full width of the structural member. Level, or shelve, to a slope not exceeding one (1) inch per foot the rock surface in the opposite direction (direction parallel to structural member).
 - 1. Extra payment for rock excavation in conjunction with structural concrete elements will be based on the following pay line limits:
 - (a) Foundations, grade beams, and footings - to bottom elevations of members, as indicated on the DRAWINGS plus twenty-four (24) inches measured horizontally beyond the outer vertical surfaces of each structural element.
 - (b) Concrete slabs within the building - to a horizontal level, fourteen (14) inches below bottom of slab.
 - (c) As otherwise directed by the ARCHITECT.
- d. Trench Definition - A confined area where the shortest distance between any vertical pay line does not exceed ten (10) feet. Pay lines for trench shall be stepped outward one (1) foot at each five (5) foot interval of depth.
- e. Blasting - Obtain written permission and approval of method from the local authorities before proceeding with rock excavation. Explosives shall be stored, handled, and employed in accordance with the provisions of the Manual of Accident Prevention in Construction of the "Associated General Contractors of American, Inc."
- f. If rock is encountered, and written approval for removal of same is received from the ARCHITECT, the CONTRACT Price will be adjusted accordingly by mutual agreement with the OWNER.
- g. Rock excavation for underground utilities.

1. Extra payment for rock excavation in conjunction with underground lines will be based on the following pay line limits:
 - (a) Pipes and conduits - eighteen (18) inches on both sides of pipe and six (6) inches below the bottom of pipe.

2A-14. PREPARATION FOR RECEIPT OF FILL

- a. Prior to placing compacted granular fill in open areas, the bottom of excavating, or existing subgrade, as applicable, compact the entire surface with a minimum of three (3) coverage's from the rear wheel assembly of a fully loaded tenwheel dump truck, or by a minimum of three (3) coverage's from the treads of a tractor-dozer weighting at least thirty thousand (30,000) pounds. If, in the judgment of the ARCHITECT, compaction of receiving surfaces is not required, or will disturb the natural soil, the subgrade compaction requirement will be waived.
- b. Prior to placing fill in trench areas, thoroughly tamp the trench bottoms, and fill all depressions to a smooth uniform surface.
- c. Do not place fill until the existing subgrade is approved by the ARCHITECT.

2A-15. PLACEMENT AND COMPACTION OF FILLS

- a. Compaction Equipment
 1. Provide sufficient equipment units of suitable types to spread, level and compact fills, promptly upon delivery of materials.
 2. CONTRACTOR may use any compaction equipment or device which he finds convenient or economical but the ARCHITECT retains the right to disapprove equipment which, in his opinion, is of inadequate capacity or unsuited to character of material being compacted.
- b. Placing Fills - General
 1. Areas to be filled or backfilled shall be free of construction debris, refuse, compressible or decayable materials and standing water. Do not place fill when temperatures are below thirty (30) degrees F. and when fill material or layers below it are frozen.

2. Notify the ARCHITECT when excavations are ready for inspection. Filling and backfilling shall not be started until conditions have been approved by the ARCHITECT.
3. Furnish specified fill materials. Place fill and backfill in layers not exceeding six (6) inches compacted thickness and compact as specified below for various conditions.
4. Before backfilling against walls and grade beams, the permanent structures must be completed and sufficiently aged to attain strength required to resist backfill pressures without damage. Temporary bracing will not be permitted, except by written permission from the ARCHITECT. When filling on both sides of a wall, grade beam or pier, place fill simultaneously on each side. Correct any damage to the structure caused by backfilling operations at no cost to the OWNER. Place no stones closer than eighteen (18) inches to wall or grade beam surfaces.
5. Backfill trenches only after pipe has been inspected tested, and locations of pipes and appurtenances have been recorded.
6. Each pipe section shall be supported on a six (6) inch minimum bed of fill; bed shall be shaped by means of hand shovels to give full and continuous support to the lower third of each pipe. Backfill by hand around pipe and for a depth of twelve (12) inches above the pipe; use specified fill and tamp firmly in layers no exceeding six (6) inches in thickness, taking care not to disturb the pipe. Compact the remainder of the backfill thoroughly with a rammer of suitable weight or with an approved mechanical tamper to achieve the compaction specified below for various fill conditions.
7. When piping is laid in filled areas, place the fill before any pipe is placed, and compact as specified to a depth of not less than two (2) feet above the proposed flow line of the pipe. A trench shall then be excavated to the required grade, or sufficient width to permit thorough tamping of the fill under the bells and around the pipe.

c. Placing Graded Gravel Fill

1. Place graded gravel fill directly under concrete floor slabs and around structural elements in six (6) inch layers, maximum compacted thickness, unless otherwise specified, and compact top twelve (12) inches of subgrade material under gravel fills and each layer of gravel fill to ninety-five (95) percent maximum dry density at optimum moisture content (Modified Proctor Test).
2. Fill placed under exterior concrete and bituminous concrete pavements shall be compacted to not less than ninety-two (92) percent of the compaction dry densities hereinbefore specified.
3. Place gravel fill for underground utilities in six (6) inch layers, maximum compacted thickness. after compacting top twelve (12) inches of subgrade material under fill to ninety-five (95) percent maximum dry density at optimum moisture content (Modified Proctor Test). Backfill by hand around pipe and for a depth of one (1) foot above pipe, and tamp firmly in layers not exceeding six (6) inches in thickness, taking care not to disturb the pipe. Compact the remainder of the backfill, in maximum nine (9) inch layers thoroughly with a rammer of suitable weight or approved mechanical tampers, to ninety-five (95) percent maximum dry density.

d. Grade Stakes

1. Place grade stakes, spaces as conditions require, to permit checking of elevations until final grading has been completed.

2A-16. SUBGRADES

- a. Provide a subgrade which shall be parallel to the finished grades or elevations shown on the DRAWINGS and shall be below finished grades in accordance with the various depths shown on the DRAWINGS and specified hereunder.
- b. Upon completion of rough grading operations, remove all debris and rubbish and leave areas ready for work of other trades.
- c. Subgrades specified hereunder shall be maintained until work by other trades begins. Correct and restore settlement of fills and washouts by filling and compacting as required.

END OF SECTION

SECTION 2B
SITE UTILITIES AND DRAINAGE

I. GENERAL

2B-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

2B-02. WORK TO BE PERFORMED

- a. Perform the following items of work, as shown on the DRAWINGS and specified herein:
1. Furnish and install all drainage piping, catch basins, drainage swales, rip rap, as shown on the DRAWINGS.
 2. Secure all permits, licenses, and approvals of appropriate authorities, prior to commencing the work of this SECTION 2B, and pay all costs resulting therefrom.
 3. Establish grades as indicated on the DRAWINGS and as specified hereunder.

2B-03. RELATED WORK

- a. The following related work is to be performed under the designated SECTIONS:
1. Excavation, trenching, preparation of pipe bed and backfilling of all piping and systems structures, SECTION 2A, EARTHWORK AND SITE PREPARATION.
 2. Concrete work relating to manholes, catchbasins, etc., SECTION 3A CONCRETE.

II. MATERIALS

2B-04. MASONRY

- a. Portland cement concrete footings, slabs on grade, and concrete reinforcing shall be as specified in Section 3A. Cement mortar shall be Type A mortar, composed of one part Portland cement, two parts sand, with approximately fifteen pounds of hydrated lime added for each sack of cement. Clay brick shall conform to ASTM C-32, Grade MA. Concrete brick shall conform to Standard Specifications for concrete building brick ASTM C-55, Grade A. Precast concrete blocks of proper radius shall conform to ASTM C-139.

2B-05. METAL ACCESSORIES

- a. Frames and covers shall be of heavy duty cast iron.

2B-06. CATCH BASINS

- a. Catch Basins, shall be pre-cast concrete sections laid on a poured concrete footing.

2B-07. SITE DRAINAGE MATERIALS

- a. Shall be polyvinyl chloride pipe or acrylonitrile-butadiene-styrene (ABS) pipe conforming to the following specifications:
 1. Polyvinyl Chloride Pipe shall conform to ASTM-D1785 and U.S.Department of Commerce PS-2170.
 2. ABS Pipe shall conform to ASTM D-2680 for 8" diameter and large pipe and fittings, and ASTM D-2751 for 2", 4", and 6" diameter pipe and fittings. Installation shall be in strict accordance with the manufacturer's recommendations.

2B-08. DRAINAGE PIPING

- a. Trenching. The trench for the pipe shall be excavated to the required line and grade and of sufficient width to permit thorough tamping of the fill material under the haunches and around the pipe. Soft or unsuitable material encountered below the normal bedding line of the pipe shall be removed as directed, replaced with selected material, gravel or crushed stone, and thoroughly compacted. The bottom of the trench shall be excavated to accommodate the bells of the pipes. If any cross pipes, conduits, drains, or other unforeseen obstacles are encountered in the excavation, the grade of the bottom of the trench may be raised or lowered during the excavation operation as directed.
- b. Weather Conditions. All excavations are to be kept dry and free of ice and frozen soil while pipe is being laid. No pipe shall be laid in water, or frozen trench bottom or when, in the opinion of the ARCHITECT, the trench conditions or the weather are unsuitable for work.
- c. Inspection of Materials. The pipe and accessories shall be inspected for defects prior to lowering into the trench. Any defective, damaged or unsound materials shall be replaced.
- d. Protection of Materials. All pipe, fittings and accessories shall be clearly lowered into the trench using suitable equipment, in such a manner as to prevent damage to pipe and fittings. Under no circumstances shall pipe or accessories be dropped or dumped into the trench.
- e. Installation and Assembly of Pipe. Drainage piping shall be laid with the separate sections pointed firmly together, with outside laps of circumferential joints pointing upstream. The pipe shall be laid carefully and true to lines and grades.
- f. In order to insure a minimum amount of movement or disturbance, no more than two lengths of pipe may be laid before backfilling to a minimum of 12 in. over the pipe. No walking upon or working over the pipes after they are laid will be permitted until they are covered with earth to a depth of at least 12 in., except as may be necessary in tamping the earth and backfilling.

- g. Relaying of Pipe. All pipe which is not laid to grade and alignment shall be relaid to the satisfaction of the ARCHITECT, without additional cost to the OWNER.
- h. Backfilling. Material placed around and under the pipes shall be free of stones larger than 2 in. in diameter. The pipe shall be bedded in an earth, gravel or crushed stone foundation of uniform density, carefully shaped to fit the lower part of the pipe exterior for at least 10 percent of its overall height. Where rock in either ledge or boulder formation is encountered, it shall be removed to a line 6 in. below the bottom of the outside of the pipe barrel. No part of any rock remaining in the trench shall come within 6 in. of any portion of the pipe.
- i. Backfill shall be placed between the pipe and the walls of the trench in layers not exceeding 6 in. in depth and thoroughly compacted. Each layer, if dry, shall be moistened and then compacted by rolling or by tamping with mechanical rammers. Compaction with iron hand tampers having a tamping face not exceeding 25 sq. in. in area may be allowed, but only after permission is given by the ARCHITECT.
- j. Trenches crossing roads, walks, and parking areas shall be backfilled with gravel borrow and compacted to not less than 95 percent of the maximum dry density.

2B-09. CLEAN UP AND REPAIR

- a. Any pipe which is not in true alignment or which shows any undue settlement after being laid shall be taken up and relaid.
- b. Prior to placing the backfill, damaged areas of coupling bands and pipe shall be repaired with the type of coating used on the original pipe. Pipe on which the coating has been damaged to such an extent that satisfactory field repairs cannot be made shall be removed and replaced without additional cost to the OWNER.

2B-10. SAFETY BARRIERS

- a. Safety barriers shall be erected around the periphery of the excavation areas before work is begun and shall remain in place until backfilling is completed.

END OF SECTION

SITE UTILITIES AND DRAINAGE

2B-3

SECTION 2C
PAVEMENTS

I. GENERAL

2C-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

2C-02. WORK TO BE PERFORMED

- a. Furnish and install the following items, as shown on the DRAWINGS and specified herein:
1. ~~Base course under pavements for Patching.~~
 - (a) Parking Areas - 3" crushed gravel base
 2. Hot bituminous concrete base course, one inch aggregate mix:
 - (a) For Patching - 2" average compacted thickness
 3. Hot bituminous concrete wearing course, 1/2" aggregate mix:
 - a. For Patching - 1 inch average compacted thickness.
 - b. For Re-Surfacing- 2 inch average compacted thickness.
 4. Painted parking lot lines.
 5. Bituminous Tack Coat over all existing pavement and at cold joints.

2C-03. RELATED WORK

- a. The following related work is to be performed under the designated section:
1. Excavation, fill, and rough grading: SECTION 2A EARTHWORK AND SITE PREPARATION.

II. MATERIALS

2C-04. GRAVEL

- a. Gravel base material shall be gravel fill as follows:
 1. Composition of hard, durable stone and coarse sand free from loam and clay and undesirable organic matter, well graded and containing no stone having any dimension greater than two-thirds of the depth of the layer to be compacted, but in no case greater than four inches. Graded gravel shall conform to the following requirements.

Passing 3" Sieve	100% Max., by weight
Passing 1/2" sieve	85% max., by weight
Passing 3/8" sieve	80% max., by weight
Passing #4 sieve	75% max., by weight
Passing #10 sieve	60% max., by weight
Passing #40 sieve	35% max., by weight
Passing #200 sieve	5% max., by wieght

2C-05. BITUMINOUS CONCRETE MATERIALS

- a. Hot bituminous concrete base course shall be one (1) inch aggregate mix and shall be within the following master range:

<u>Sieve Size</u>	<u>Percentage by Weight Passing</u>		
	<u>Minimum</u>	<u>Desired</u>	<u>Maximum</u>
1 1/4"			
1"	95	100	100
3/4"	75	85	95
1/2"	60	72	80
3/8"	53	60	70
No. 4	38	43	50
No. 10	23	27	31
No. 20	13	17	21
No. 40	7	11	15
No. 80	2	6	10
No. 200	0	2	4
Asphalt Cement:			
% of Mix	4.3	4.8	5.3

- b. Hot bituminous concrete wearing course shall be 1/2" aggregate mix and shall be within the following master range:

<u>Sieve Size</u>	<u>Percentage by Weight Passing</u>		
	Minimum	Desired	Maximum
1/2"	95	100	100
3/8"	85	90	95
No. 4	60	66	75
No. 10	38	46	50
No. 20	24	27	32
No. 40	14	19	23
No. 80	6	11	14
No. 200	2	3	6
Asphalt Cement:			
% of Mix	6.0	6.4	7.0

III. INSTALLATION

2C-06. GRADING AND COMPACTION OF SUBGRADE FOR PATCHED AREAS

- a. Do all necessary grading to bring subgrade after final compaction to required grades and section for paving. Remove spongy and otherwise unsuitable material and replace with approved material. Take every precaution to obtain a foundation of uniform bearing power. In the absence of specific requirements, compact subgrade by such means as will provide base and insurance against settlement of superimposed work.

2C-07. GRAVEL BASE - INSTALLATION

- a. Gravel base material shall be placed and compacted to the total thickness as NOTED.
- b. The gravel so placed shall be thoroughly watered and compacted by mechanical tamper.
- c. As a referee test, 95 percent density will be considered satisfactory when tested in accordance with AASHO T99.

2C-08. BITUMINOUS PAVEMENT

- a. This work generally consists of shimming existing depressions, removing and patching of bad areas (300 sq. ft. allowance). Patched areas consist of a 2" base course and 1" wearing course. Overlay over roads and parking lots shall be 2" wearing course. Clean all existing paved areas to receive new surface.
- b. Plant, mixing, and hauling methods shall conform to the ME. D.O.T. Standard Specifications for Road Construction.
- c. Placing and compaction shall conform to the ME. D.O.T. Standard Specifications for Road Construction, as previously mentioned.

2C-09. PARKING LOT AND WALK LINES

- a. Lines shall be designated by painted lines as shown on the plan, using paint composed of White Bead Bindex and Glass Spheres for Traffic meeting the requirements of ME. D.O.T. Standard Specifications. All lines shall be 4" wide.

2C-10. TACK COAT

- a. All existing pavements and cold joints shall be cleaned and a bituminous tack coat applied before pavement installation.

END OF SECTION

SECTION 2E
LANDSCAPING

I. GENERAL

2E-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

2E-02. WORK TO BE PERFORMED

- a. Perform the following items of work as shown on the DRAWINGS and specified herein:

1. ~~Prepare final subgrades for the work to be performed hereunder.~~
2. Spread topsoil from stockpile, and furnish and spread additional topsoil as required for existing seeded areas which have been disturbed under the work of this CONTRACT, and new seeded areas as shown on the DRAWINGS.
3. Furnish and sow grass seed for new lawn areas which have been disturbed under the work of this CONTRACT.
4. Provide maintenance service and guaranty service, as specified hereunder.

2E-03. RELATED WORK

- a. The following related work is to be performed under the designated SECTIONS:
1. Stripping and stockpiling existing topsoil and establishment of subgrade: SECTION 2A, EARTHWORK AND SITE PREPARATION.
 2. Tree and shrub protection: SECTION 2A, EARTHWORK AND SITE PREPARATION.

II. MATERIALS

2E-04. TOPSOIL AND FERTILIZER

- a. Additional topsoil, if required, friable loam, typical of cultivated topsoil of the locality, containing at least two (2) percent of decayed organic matter (humus) It shall be taken from a well drained arable site. It shall be reasonably free of subsoil, stones, earth, clods, sticks, roots or other objectionable extraneous matter or debris. It shall contain no toxic materials.
1. No topsoil shall be delivered in a frozen or muddy condition.
- b. Prepare existing stockpiled topsoil to generally meet the above requirements.
- c. Fertilizer - A complete fertilizer, part of the elements of which are derived from organic sources, containing the following percentages by weight:
- | | |
|------------|---------------------------|
| Nitrogen | 10N - Minimum 60% organic |
| Phosphorus | 6P - |
| Potash | 4K - |

2E-05. GRASS SEED

- a. Grass seed mixture shall be fresh, clean new crop seed. Seed may be mixed by an approved method on the site, or may be mixed by the dealer. If the seed is mixed on the site, each variety shall be delivered in the original containers, which shall bear the dealer's guaranteed statement of the composition of the mixture and the percentage of purity of each variety. The Dealers Guarantee Statement shall be delivered to the ARCHITECT.
- b. Grass seed shall be composed of the following varieties which shall be mixed in the proportions and shall test to minimum percentages, purity and germination specified.

Scientific Name	Common Name	Proportion by Weight	%P.	%G.
Lolium Multiflorum	Italian Ryegrass	20%	98	90
Argrostis	Red Top	20%	85	80
Festuca Rubra	Creeping Red Fescue	60%	98	90

III. INSTALLATION

2E-06. FINISH GRADING AND SEEDING

- a. Operations - Seeding operations shall be conducted under favorable weather conditions during the next season or seasons which are normal for such work, as determined by accepted practice in the locality of the project. At the option of, and on the full responsibility of, the CONTRACTOR, seeding operations may be conducted under unseasonable conditions without additional compensation.
- b. Preparation of Subgrade - The subsoil shall be graded and uniformly compacted so that it will be a true, smooth slope parallel, under the work of SECTION 2A, and to the depths required therein below the finish grade, free of all large stones and debris.
 1. Prior to spreading of topsoil, loosen and mix the subgrade to a depth of two (2) to four (4) inches and remove all stones over two (2) inches in size, sticks and rubbish. No heavy objects except lawn rollers shall be moved over the lawn areas after the subgrade soil has been prepared unless the subgrade soil is again graded, as specified above, before topsoil is spread.
 2. There must be sufficient grade stakes to insure correct line and grade.
- c. Finish Grading
 1. After the subgrade soil has been prepared, topsoil shall be spread evenly thereon and lightly compacted. No topsoil shall be spread in a frozen or muddy condition. After the topsoil has been spread, it shall be carefully prepared by scarifying or harrowing and hand-raking. All large stiff clods, lumps, brush, roots, and stumps, litter and other foreign material, and stones over two (2) inches in diameter shall be removed from the aforesaid topsoil and disposed of by the CONTRACTOR. The areas shall also be free of smaller stones, in excessive quantities, as determined by the ARCHITECT. The whole surface shall then be rolled with a hand roller weighing not more than one hundred (100) pounds per foot of width. During the rolling, all depressions caused by settlement of rolling shall be filled with topsoil and the surface shall be regraded and rolled until presenting a smooth and even finish and is up to the required grade, giving a total depth of four (4) inches of compacted topsoil.

2. CONTRACTOR shall supply, at his own expense, as much topsoil as may be needed to give the specified depths.
 3. Areas where the topsoil has not been removed shall be scarified, smoothed, and stick, stones and rubbish shall be removed.
- d. Applying Fertilizer - The commercial fertilizer shall be applied in two applications. The first application shall be applied within one (1) week before the seeding at the rate of thirty-five (35) pounds per thousand (1,000) square feet, and then harrowed into the top two (2) inches of the seed bed. The second application shall be applied and thoroughly watered in immediately after the first cutting of the grass at the rate of fifteen (15) pounds per one thousand (1,000) square feet.
 - e. Seeding shall consist of soil preparation, seeding, raking, weeding, cutting, watering, and otherwise providing all labor and materials necessary to secure the establishment of acceptable turf.
 - f. Sowing of Seed - Immediately before any seed is to be sown, the topsoil shall be scarified as necessary, and shall be raked until the surface is smooth, friable, and of uniformly fine texture. Lawns shall be seeded evenly with a mechanical spreader at the rate of three (3) pounds per one thousand (1,000) square feet of area, lightly raked, rolled with a two hundred (200) pound roller, and watered with a fine spray. The method of seeding may be varied at the discretion of the CONTRACTOR on his own responsibility to establish smooth, uniformly grassed areas; the spray method or hydraulic seeding is acceptable. Take necessary precautions to keep area undisturbed until grass comes up. Between May 15 and August 15 it will be permitted to sow lolium perenne (perennial rye grass, 98% purity, 90% germination) at the rate of one (1) pound per thousand (1,000) square feet of area. This shall be a separate sowing executed after the sowing of the regular mixture and before the raking, rolling, the sowing of the regular mixture and before the raking, rolling, and watering operations.

2E-07. MAINTENANCE

- a. Begin maintenance immediately after seeding and continue regularly until a full stand of grass is indicated.

- b. Water, weed, and cut the grass (3 cuttings), and re-seed, as necessary , to ensure a uniform, full, and healthy stand of grass at the time the grass is considered by the ARCHITECT for provisional Acceptance. Upon occupancy the the OWNER will maintain the grass. Provisional Acceptance of grass shall not necessarily relate to Substantial Completion of the Project.

2E-08. GUARANTY

- a. The CONTRACTOR shall submit a written guarantee to the ARCHITECT, after Provisional Acceptance of grass, covering re-seeding of grass areas which do not survive through one full growing season after the date of Provisional Acceptance, at no cost to the OWNER.
- b. The CONTRACTOR shall not be responsible to repair areas that are damaged by others or because of lack of maintenance after occupancy.

END OF SECTION

SECTION 3A
CAST-IN-PLACE CONCRETE

I. GENERAL

3A-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.
- b. Examine all DRAWINGS and all other SECTIONS of the SPECIFICATIONS for requirements affecting the work under this SECTION.

3A-02. WORK TO BE PERFORMED

- a. Furnish all labor, materials, accessories, services and equipment necessary to complete all cast-in-place concrete work including, but not limited to, all formwork, expansion joints, fillers, reinforcement, concrete mixing, placing, finishing and curing as indicated, except concrete work specifically included in other SECTIONS. Include the following:
 1. Foundation walls and footings, grade beams, Ground floor slabs.
 2. Exterior piers.
 3. Rigid perimeter insulation in areas shown on DRAWINGS.
- b. Provide labor and equipment necessary to install items which require embedment in concrete as furnished by other SECTIONS.
- c. Perform all work to secure for the entire job homogeneous concrete having the required strength, durability and weathering resistance, and free from honeycomb, planes of weakness, or other structural defects.

3A-03. RELATED WORK

- a. The following related work is to be performed under the designated SECTION:
 1. Furnishing and installation of gravel fill under slabs on grade: SECTION 2A, EARTHWORK AND SITE PREPARATION.

3A-04. REFERENCE STANDARDS

- a. Comply with the American Concrete Institute Standards "Specifications for Structural Concrete for Buildings" ACI 301-72, 302, 304, 306, 347, 305, 318, for methods, materials and workmanship not otherwise specified.
- b. Keep in the project field office one copy of ACI Standard 301-72, together with a copy of each of the related references cited in List E of the instructions in this Standard. The ACI and ASTM references are bound in ACI Publication SP-15, "Field Reference Manual". Comply with detailed recommendations of these related references where applicable.

3A-05. ALUMINUM PRODUCTS

- a. No aluminum conduit, pipe, inserts, reglets, etc., shall be placed in any concrete.
- b. No equipment made of aluminum or aluminum alloys shall be used for pump lines, tremiers, or chutes in conveying concrete to point of placement.

II. MATERIALS

3A-06. CONCRETE CONSTITUENTS

- a. Cement: ASTM C150, type I or II.
- b. Aggregate: ASTM C33, 3/4 inch.
- c. Air Entraining Admixtures: ASTM C260.
- d. Chemical Admixtures: ASTM C494.
- e. Admixtures containing chloride shall not be used without written approval of the ARCHITECT.

3A-07. PROPORTIONING

- a. Compressive strength of all concrete shall be 3500 psi at 28 day age when tested in the field in accordance with ASTM methods. Exterior horizontal slabs shall be 3500 psi min. at 28 day test.
- b. Concrete shall be "ready mixed" type concrete conforming to ASTM C94-65, proportioned in accordance with Method 1 (laboratory trial mixes) as defined in Chapter 3 of ACI 30172. Submit trial mix data to the ARCHITECT and the testing organization for approval prior to use.
- c. Use natural sand.
- d. Water-Cement Ratio: Maximum 6 gal. per bag of cement.
- e. Air Content: 4-6%.
- f. Slump: 3-4 inches maximum.

3A-08. TESTING AND INSPECTION

- a. An organization, approved by the ARCHITECT may be retained by the OWNER for testing, inspection and control of the concrete at the batching plant and in the field. The CONTRACTOR shall accept test results from this organization as final.
- b. Testing, inspection and control shall be performed as directed by the ARCHITECT . Testing services listed in ACI Standard 301-72 shall be the minimum required. A minimum of 3 test cylinders for every 50 cubic yards or fraction thereof placed in any one day, for each type of concrete.
- c. Perform and record a slump test for each truck. Do not add additional water in the field.

3A-09. FORMWORK

- a. Comply with ACI 347-68, "Recommended Practice for Concrete Formwork" for the design and construction of all concrete forms not otherwise specified.
- b. Use new plywood or other approved material which can be arranged in a regular pattern to form vertical surfaces which will be exposed to view. Form accessories, form oil, details of formwork construction at joints and battens for exposed work, etc., must be approved by the ARCHITECT prior to concrete placement.

3A-10. JOINTS AND EMBEDDED ITEMS

- a. Locate construction joints as detailed at approved locations. Make construction joints with straight stops and continuous keys. Reinforcement shall be continuous through construction joints unless otherwise indicated.
- b. Install embedded items accurately in position in conformance with approved shop DRAWINGS.

3A-11. REINFORCEMENT

- a. Reinforcing bars: ASTM A615, grade 60, unless otherwise noted.
- b. Welded Wire Fabric: ASTM A185
- c. Submit SHOP DRAWINGS of the Reinforcing Steel for the approval of the ARCHITECT prior to fabrication.
- d. Place reinforcement as indicated on approved shop DRAWINGS, to the tolerances specified in paragraphs 5.4 and 5.5 of ACI 301-72.

3A-12. CONCRETE MATERIAL

- a. Ready-mix concrete shall comply with the requirements of ASTM C94 and ACI 304-73, "Recommended Practice for Measuring, Mixing and Placing Concrete". All plant and transporting equipment shall comply with the concrete plan standards and truck mixer and agitator standards of the National Ready Mix Concrete Association.
- b. Submit the mixing procedure to be used in cold weather to the ARCHITECT for approval.

III. INSTALLATION

3A-13. PLACING

- a. Notify the ARCHITECT and testing organization at least 48 hours (two regular working days) before each pour so that forms and reinforcing may be examined. Do not place concrete until inspection has been made or waived.
- b. Deposit concrete in 24 inches maximum lifts. Use internal vibrators penetrating both the top layer and the layer immediately below. Provide at least two operating vibrators and portable generators, if used, on the site prior to start of placing operations. Supplement vibration by wood spading as necessary to remove bubbles and prevent honeycombing.
- c. Do not place concrete in water or on snow, ice or frozen or water softened ground.
- d. When concrete is placed at or below a temperature of 40 degrees F or when this temperature is likely to occur within 24 hours of placement of concrete, protect the concrete in accordance with ACI 306-66, "Recommended Practice for Cold Weather Concreting".

3A-14. FINISHING

- a. Finish horizontal concrete surfaces to established grades by means of a strikeboard and pipe screed. Power float and thoroughly compact the concrete to provide an even level surface. Conform to tolerances, details and descriptions in Chapter 11 of ACI 301-72.
- b. Steel trowel all floors within the building, including those receiving tile and carpet, to a dense, smooth surface free from defects, ridges and blemished to class A tolerances. (Tolerance of 1/8" 10'-0 straight edge).
- c. Finish exterior walks and stair treads and landings with a fine broom or belt surface to a class B tolerance.

- d. Finish vertical surfaces exposed with a "smooth form finish" as defined in Chapter 10 of ACI 301-72.
 - e. Vertical surfaces not exposed to view shall have "rough form finish" as defined in Chapter 10 of ACI 301-72.
 - f. Vertical surfaces to receive waterproofing membrane as indicated on drawings shall have smooth, clean, monolithic finish and be free of voids, spalled areas, and sharp protrusions with no coarse aggregate visible
- 3A-15. CURING AND PROTECTION
- a. Provide continuous curing for 7 days after placement of all structural concrete, and slabs. Provide auxiliary heat, spray on membrane, covers, or leave forms in place as appropriate for the particular job conditions and weather.
 - b. Submit for approval methods proposed for cold weather curing and protection prior to placing any concrete when the temperature is at or below 40 degrees F.
 - c. Cure all floors with an approved spray on liquid membrane forming compound complying with ASTM C309-58 applied immediately after finishing operations are completed.

END OF SECTION

SECTION 6A
ROUGH CARPENTRY

I. GENERAL

6A-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

6A-02. WORK TO BE PERFORMED

- a. Furnish and install the following, as shown on the DRAWINGS and specified herein:
1. Temporary enclosures for the buildings, and other temporary items normally performed by the carpentry trade, all as required under the GENERAL CONDITIONS; SECTION 1A, SPECIAL CONDITIONS
 2. All exterior and interior wood blocking, curbs, nailers, furring, strapping, and other rough lumber for the various conditions, as indicated on the DRAWINGS.
 3. New exterior decks and additions.
 4. Rough hardware, such as nails, bolts, screws, clips as required to install rough carpentry work.
 5. Asphalt felt for general use as indicated on DRAWINGS.
- b. Install the following items as furnished under the designated SECTIONS:
1. New Metal Frames: 8A METAL DOORS AND FRAMES for metal doors.
 2. P.V.C. Windows and Doors: SECTION 8D, P.V.C. WINDOWS

6A-03. SUBMITTALS

- a. Affidavits. Submit affidavits from the supplier indicating the species, grade and moisture content of all framing lumber, and also the grade, thickness and type of plywood sheathing supplied, if requested by the ARCHITECT.

6A-04. TEMPORARY ENCLOSURES

- a. Refer to SECTION 1A, SPECIAL CONDITIONS, and the DRAWINGS for the specific requirements of temporary enclosures and protection and other temporary items, and perform all such work under this SECTION 6A.

- 6A-05. RUNWAYS AND LADDERS
- a. Furnish , set and maintain runways, or ladders, leading from the lowest point of the building to the roof, serving conveniently onto each floor, for the general use of all workmen.
 - b. Temporary ladders shall be of sufficient length and shall be so placed that the top end will project not less then three (3) feet above the floor, wall, or other surface against which it is placed.
- 6A-06. STORAGE OF MATERIALS
- a. Store all materials in an elevated dry location, protected by waterproof coverings.
- 6A-07. TEMPORARY BRACING
- a. Provide and maintain, until such time as permanently built into the structure, all temporary bracing for lintels, door frames, sill, and other work requiring bracing and which is not specified as being provided under other SECTIONS of SPECIFICATIONS.
- 6A-08. PROTECTION
- a. Do such work as is necessary to cover and protect all finishes and other work from damage during construction. Provide and maintain temporary substantial wood handrails around all openings through floors.

II. MATERIALS

- 6A-09. APPLICABLE STANDARDS
- a. Grade and trademark are required on each rafter, floor joist, roof truss, stud and lintel. Use only the recognized official marks of the association under whose rules the lumber is graded. Furnish grade certificate of inspection issued by the association having jurisdiction for all members, if members are not individually stamped.
 - b. All lumber shall be subject to approval by the ARCHITECT and shall conform to the Lumber Grade Use Guide of the National Lumber Manufacturer's Association, unless otherwise specified.
 - c. Structural wood - particle board shall bear a "Teco Tested" label.
 - d. Plywood shall bear an APA grade trademark.

- e. Moisture Content. Maximum moisture content for all framing lumber when delivered to the job site shall be not greater than 19 percent by weight. protect all plywood and lumber during transit and at the job site to prevent the absorption of moisture.
- f. Quality. In addition to the grading requirements, all lumber must be free of twist or camber which would affect the trueness of floors and walls, the attachment of trim or their connection to each other or to structural members. All lumber shall be dressed four sides (S4S) to the current sizes of the American Lumber Standards, unless otherwise indicated.

6A-10. LUMBER TREATMENT

- a. Preservation Treatments - All concealed from view wood blocking sills and nailers which will be embedded in concrete shall be pressure preservative-treated. All other wood nailers, furring, and other concealed lumber in direct contact concrete shall be treated by brush-coating. All cut ends of treated lumber shall be brush-coated, after cutting.
 - 1. Pressure Treatment - Wolman Salts with paintable type carrier. The minimum retention shall be 0.35 pounds of preservative per cubic foot of wood. Standard pressure process shall conform to Federal Specification TT-W-573. The treating plant shall furnish a notarized certificate that all pertinent details of these specifications have been met.
 - 2. Brush Treatment - Penta, Cuprinol, Woodlife, or approved equal, applied in two heavy coats, prior to installation of lumber, on all surfaces.

6A-11. ROUGH CARPENTRY

- a. Nailers, framing members, blocking and other lumber of actual one and one-half (1 1/2) inches or greater dimension Construction grade Douglas Fir, Spruce or Pine.
- b. Furring, and other lumber less than one and one-half (1 1/2) inches in dimension - No. 2 Spruce.

6A-12. PLYWOOD AND SHEATHING

- a. Materials shall be in accordance with the following schedule, insofar as applicable. All materials, whether or not specifically listed, shall be of grade and kind required by good practice for both strength and appearance. Materials indicated, but not listed, shall be as directed or approved by the ARCHITECT.

<u>ITEM</u>	<u>GRADE</u>	<u>KIND</u>
EXTERIOR SHEATHING		
- walls	O.S.B. Sheathing APA. RATED	so. yellow pine

6A-13. ROUGH HARDWARE

- a. Rough hardware such as nails, screws, clips and other framing devices shown or required for securing items of rough carpentry shall be furnished and installed under this SECTION.
- b. Anchor Bolts shall be ASTM A-307, 1/2 inch diameter by 12 inch, plus a 4 inch hooked end and standard steel washers and nuts.
- c. Framing Anchors shall be Teco-U-Grip joist and beam hangers, Du-Al-Clip framing anchors and Trip-L-Grip framing anchors, all by Timber Engineering Company or equivalent approved by the ARCHITECT. Attach framing anchors with nails as recommended by manufacturer. Provide "H" clips at mid-span of all trusses for roof sheathing.
- d. All nailing and fastening shall conform to the Schedules of the BOCA Basic Building Code, current edition, including amendments, or obtain ARCHITECT'S approval for the nailing method proposed. Nails for exterior siding and trim shall be galvanized or an approved noncorrosive type.

NOTE: Mechanical fasteners will be considered as acceptable , after approval by ARCHITECT.

Source: The BOCA Basic Building Code, eighth edition.

6A-14. FELTS AND SHEATHING PAPER

- a. Felts for general use shall be No. 15 asphalt saturated, regular roofing type.

6A-15. BUILDING WRAP

- a. Air infiltration barrier, building wrap shall be equal to "Tyvek", as manufactured by Dupont Chemical Co.

III. INSTALLATION

6A-16. ROUGH FRAMING METHODS

- a. General. Cut and fit closely and set accurately to the required lines and levels; secure rigidly in place. Set joists with the crown edge up; maintain bottom edges free from pronounced defects. Accurately space and align studs to produce true surfaces for wood, gypsum wallboard and other finishes. Frame members for passage of pipes and ducts to avoid cutting of structural members. Provide special framing or construction required to complete work. Unless otherwise approved, nail all wood framing members solidly together to meet the Nailing Schedule specified herein.

- b. Sills. Wood sills shall be secured to concrete with 1/2" diameter steel bolts with a standard cut washer, of sufficient length to provide a minimum of 8 in of embedment in the concrete. Bolts shall be located not over 6 ft o.c. and within 2 ft of the ends. In no case shall there be less than two bolts per length in any member. Sills with excessive twist , bow or crown will be rejected.
- c. Floor framing. Install floors consisting of wood joists spiked to box headers with two 16d nails, and spiked to sill with two 16d nails in each joist, and with 16d nails at 12 in o.c., where joist is parallel to sill plate. Lap and spike together joists for 12 in. minimum or as shown over interior supports. Provide double joists under partitions parallel to the span of the joist. Use double headers and trimmers around all openings. Refer to framing plans and manufacturers specification for installation of wood floor trusses.
- e. Roof Framing. Assembly, fit and set members to exact slopes indicated. Spike rafters and trusses to plates where rafters run over supports, and use framing anchors where rafters are flush framed into lintels.
- f. Roof Sheathing. All roof sheathing shall be laid with the long edge perpendicular to framing members, with the end joists staggered. All sheathing shall be completely supported at the ends and nailed in accordance with the Nailing Schedule. Install galvanized metal "H" clips at horizontal panel edges between trusses.
- g. Close in the roof as soon as possible after erection.
- h. Fire Stops. All openings that will permit the free travel of flame shall be effectively fire stopped. Such firestopping shall be constructed of formed steel of not less than No. 20 gauge or other approved noncombustible materials effectively secured in place. An exception is open spaces of wood frame construction, where fire stops of two thicknesses of 1 in. lumber with broken lap joints or 2 in. lumber installed with tight points shall be permitted.
- i. All furred spaces of frame walls shall be fire stopped at maximum intervals of 8 ft., both horizontally and vertically.

- j. The spaces around pipes, ducts, and power shafting in floor and partition construction which is penetrated by such equipment shall be fire stopped by filling with noncombustible materials, or by close fitting metal caps at the ceiling and floor line and at both sides of the partition.
 - k. Provide solid wood blocking for all bath accessories, grab bars, and kitchen cabinets as required.
- 6A-17. FRAME INSTALLATION
- a. Set metal frames in their respective locations, true to level and plumb. Install temporary bracing and leave ready for permanent building in of anchorage by trade responsible for wall or partition construction.
- 6A-18. P.V.C. WINDOW AND DOOR INSTALLATION
- a. Fit all windows and doors into openings and install true to level and plumb to ensure proper and smooth operation. Fitting of windows shall be carefully performed to the satisfaction of the ARCHITECT.
- 6A-19. REPAIR AND REPLACEMENT
- a. All material which is defective and material that does not meet the specifications for its intended use will be rejected. Rejected work shall be replaced to the satisfaction of the ARCHITECT.

END OF SECTION

SECTION 6B
FINISH CARPENTRY AND MILLWORK

I. GENERAL

6B-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

6B-02. WORK TO BE PERFORMED

- a. Furnish and install the following items required to complete the work of this SECTION, as shown on the DRAWINGS, and specified herein:
1. Interior trim.
 2. Stair railings
 3. Cabinets and Vanities
 4. Exterior Trim
- b. Install the following items as furnished under other SECTIONS:
1. New Vinyl Siding: SECTION 7N, PREFORMED VINYL SIDING.
 2. New Fiber-Cement Siding: SECTION 7P PREFORMED FIBER-CEMENT SIDING.
 3. New Steel Doors: SECTION 8A, METAL DOORS AND FRAMES.
 4. New Wood Doors: SECTION 8B, WOOD AND PLASTIC DOORS.
 5. New Finish Hardware: SECTION 8G, FINISH HARDWARE.
 6. Toilet and Bath Accessories, SECTION 10B TOILET AND BATH ACCESSORIES.
 7. Miscellaneous Specialties, SECTION 10A MISCELLANEOUS SPECIALTIES.
 8. Closet poles and shelves: SECTION 12A, FURNISHINGS.

6B-03. RELATED WORK

- a. The following related work is to be performed under the designated SECTIONS:
1. Wood nailers, rough blocking, furring strips, and other items of rough carpentry: SECTION 6A, ROUGH CARPENTRY.
 2. Painting and finishing of items furnished hereunder SECTION 9I, PAINTING.

6B-04. SAMPLES AND SUBMITTALS

- a. Submit the following samples in accordance with the requirements of the GENERAL CONDITIONS and SUPPLEMENTARY GENERAL CONDITIONS:
1. Plastic Laminate - Manufacturer's standard sample chain, in complete range of solid colors and in specified texture, for selection by the ARCHITECT.

- b. Submit the following shop drawings and product literature in accordance with the requirements of the GENERAL CONDITIONS and SUPPLEMENTARY GENERAL CONDITIONS:
 - 1. Cabinets , Vanities & Countertops
- 6B-05. WORKMANSHIP AND QUALITY STANDARDS
- a. Refer to the DRAWINGS for details of finish, trim, casework, shelving and millwork items.
 - b. Casework, shelving, millwork, and trim shall conform to design and detail as shown. Where practicable, work shall be finished and assembled at the mill.
 - c. Solid wood and plywood surfaces shall be finished smooth and free from all machine and tool marks that will show through the finish.
 - d. Set all nails with nailpunch to properly receive wood filler. Countersink all screwheads.
 - e. All joints will be tight and formed to conceal shrinkage. Miters, four (4) inches or more from heel to point, shall be glued.
 - f. Finish shall be made in as long lengths as possible and jointed only where solid fastenings can be made.
 - g. Running trim shall have a minimum of splices and joints and where such splices and joints occur, they shall be fastened securely and all exposed surfaces shall be smooth, continuous planes.
 - h. No finish work or casework shall be brought into the building until wet work such as concrete, masonry and plaster has thoroughly dried out and exterior openings permanently enclosed.
 - i. Quality Standards - The Quality Standards of the Architectural Woodwork Institute - A.I.A.R.A.I.C. File No. 19-A-3 are hereby made a part of this SECTION of the SPECIFICATIONS , and all materials and workmanship shall conform to the "Custom Grade" requirements set forth therein, except as otherwise specified herein.

II. MATERIALS

6B-06. FINISH, TRIM, SHELVING, CASEWORK AND CABINETRY MATERIALS

- a. General - Materials, required for items of finish trim, shelving, casework, and cabinetry shall be as follows:
1. Pine - Select Eastern Pine, where noted on the Drawings.
 2. Exposed to View Plywood - A-A INT DFPA, where both faces are exposed to view; A-D INT DFPA, where only one face is exposed to view.
 3. Plastic Laminate Countertops - Postformed countertops with integral backsplash with high pressure laminate finish, meeting or exceeding the performance standards of NEMA, Class 1, in a low non-direction texture, in solid colors as selected by the ARCHITECT.
 4. M.D.F.-Medium Density Fiberboard - where covered with plastic laminate.
 5. Glue - For lamination and fabrication of wood and plywood items - Exterior Grade, phenolic resin glue.
 6. Nails - For finish and Trim Items - 6D or 8D galvanized finish nails.
 7. Screws - Flat head galvanized or stainless steel wood screws, of the appropriate size, see DRAWINGS.

6B-07. EXTERIOR TRIM

- a. All wood trim for exterior trim to be wrapped in metal shall be No. 3 Pine in sizes and dimensions as shown on the DRAWINGS.

6B-08. CABINETS AND VANITIES

- a. Submittals. Shop Drawings and samples shall be prepared and submitted for approval of the ARCHITECT. No work for which such drawings and samples are required shall proceed until they have been approved. All work shall conform to the approved drawings and samples.
- b. Cabinets shall be plastic laminate covered with oak pull strip at each door or drawer, as manufactured by Tri-Pak, or approved equal.

- c. All exposed surfaces and edges of counter tops and back splashes shall be finished with plastic laminate. The underside of counter tops shall be rigidly framed with plywood or lumber, securely glued and fastened in such a manner as to resist warpage. Particle board is not acceptable.
- d. Openings shall be provided for sinks and/or faucet sets as required; accurately located and cut using templates. Coordinate requirements with the plumbing work.

III. INSTALLATION

6B-09. INSTALLATION OF FINISH AND TRIM

- a. Fabricate and install all standing and running trim in accordance with the workmanship standards set forth in the AWI Quality Standards Section 300 for Custom Grade, and the approved shop DRAWINGS.

6B-10. INSTALLATION OF CABINETS

- a. Work out all details and dimensions and their proper relation to work in place and to that of other trades. Take all required measurements at the building and take into account any irregularities in the construction that are liable to affect the proper installation of this work before cabinet installation begins.
- b. Where furring, nailing strips, grounds, blocking or other carpentry items are to be built in, furnish material in ample time to avoid delays. Subsequent cutting or alterations required through failure in this regard shall be performed as required to properly install the work.
- c. Install cabinets and counter tops plumb, level, straight and true, neatly fitted and scribed to the adjacent construction and finishes, securely fastened in place using grounds and blocking, and adequately secured to the walls. Caulk backsplash against wall with silicone base sealant, white color.
- d. The CONTRACTOR is cautioned against splitting of cabinet ledger strips when mounting the cabinets to the walls. Pre-drill before screwing.

6B-11. FINAL INSPECTION

- a. Just prior to the completion of all work under this SECTION 6B, the GENERAL CONTRACTOR , with the ARCHITECT, shall inspect all portions of the work, and shall make any required adjustments or corrections to the work.

END OF SECTION

SECTION 7A
DAMPPROOFING AND SEALANTS

I. GENERAL

7A-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

7A-02. WORK TO BE PERFORMED

- a. Furnish and install the following items required to complete the work of this SECTION, as shown on the DRAWINGS and specified herein:
1. One-Part Acrylic-Base Sealant, including joint bead back-up, installed in the following joints:
 - (a) Exterior perimeter joints of all openings in exterior masonry walls.
 - (b) Other exterior joints designated on the DRAWINGS to receive "sealant" except as otherwise specified hereunder.
 2. Polyurethane Base Sealant, Installed in upper one-half (1/2) inch of joints between exterior exposed paving slabs and walls of building.
 3. Latex-Base Caulking Material, including joint bead back-up installed in the following joints:
 - (a) Interior joints designated on the DRAWINGS to receive "caulking" as specified hereunder.

7A-03. RELATED WORK

- a. The following related work is to be performed under the designated SECTIONS:
1. Concrete surface preparation for application of Waterproofing Membrane: SECTION 3A, CONCRETE.
 2. Metal flashing and sealants in conjunction therewith, roofing and flashings: SECTION 7B SHINGLES AND ROOFING TILES, SECTION 7F FLASHING AND SHEET METAL.
 3. Documents affecting work of this SECTION include, but are not necessary limited to, General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.

7A-04. CERTIFICATION OF MATERIALS

- a. No physical samples of dampproofing , or mastic coating, are required. Prior to delivering any such materials to the project, submit, via the GENERAL CONTRACTOR, to the ARCHITECT, duplicate copies of certificates of compliance to the designated Standards and Specifications specified herein, as well as all supporting test data and chemical compositions of each material.

II. MATERIALS

7A-05. PACKAGING

- a. Each container must bear an unbroken seal, test number, and label of the manufacturer upon delivery to the site.

7A-06. ONE-PART ACRYLIC SEALANT

a. Materials

1. Sealant shall be Tremco Mono-Lasto-Meric, Dominion Rubber Co. Acryseal, Sonneborn, Sonac, or approved equal, one-part acrylic terpolymer, meeting the following minimum requirements:
 - (a) Containing a polymer base.
 - (b) Be capable of demonstrating the following characteristics after exposure in a weatherometer for seventeen (17) days at one hundred fifty-eight (158) degrees F. (equivalent to one year normal exposure):
 - 1) A maximum Shore "A" of 50.
 - 2) 300% extensibility.
 - 3) Tensile strength not exceeding 20#.

The sealant manufacturer shall submit certification to the ARCHITECT prior to delivery of any material that the sealant proposed for use meets or exceed the aforementioned requirements. Colors of sealants shall be as selected by the ARCHITECT.

7A-07. POLYURETHANE-BASE SEALANT

a. Materials

1. Sealant shall be a two-part gun-grade polyurethane base sealant, color as selected by the ARCHITECT. Sealant shall be Toch R.I.W. Polytek Sealant, William Products, Inc. Dynaseal W-907G, or approved equal.
2. Primers shall be as recommended by the sealant manufacturer.
3. Joint Beads if required, shall be as specified under Paragraph 7A-06a.3.

7A-08. LATEX BASE CAULKING MATERIALS

a. Materials

1. Caulking Material shall be Pecora Acrylic Latex Caulk AC-20, DAP Acrylic Latex Caulk, Gibson Holman Acrylic Latex Caulk, or approved equal, in color as selected by the ARCHITECT.
2. Primer shall be a type as recommended by the manufacturer of caulking compound and shall be non-staining.
3. Joint Beads shall be as specified herein for sealant material.

- 7A-09. BACKER ROD
Backing material for caulking and sealant joints shall be polyurethane foam rod, one-third (1/3) greater in diameter than joint width. Beads shall be Tremco Joint Backing, Tock Tok-Rod "E", or approved equal.

III. INSTALLATION

7A-10. APPLICATION CONDITIONS

- a. Weather conditions must be dry and of the proper temperature during application operations. Surfaces receiving work of this SECTION must be absolutely dry and dust free. All joints receiving sealants and caulking materials shall be subject to the approval of the materials manufacturer for proper use of the specified materials.
- b. Protect all adjacent work from damage by work performed under this SECTION.

7A-11. ACRYLIC-BASE SEALANT AND LATEX CAULKING INSTALLATION

- a. Apply sealant in joint using a hand caulking gun or power gun with a gun nozzle of proper size and sufficient pressure to completely fill joints. The depth of sealant shall not exceed one-half (1/2) inch in depth, not less than three eighths (3/8) inch, regardless of the width of the joints, and outer edge of sealant shall be kept back one-eighth (1/8) inch from face of wall. The depth of caulking material shall not be less than three-eighths (3/8) inch. Sealant and caulking shall be tooled with a dry or water-wet tool only. DO NOT USE DETERGENTS OR SOAPY WATER FOR TOOLING OPERATION. Sealant and caulked joints shall be given a slight concave surface. Remove masking tape immediately after tooling and/or before sealant or caulking has taken initial set.
- b. Do not apply sealant or caulking at temperatures below forty (40) degrees F. without prior approval of the ARCHITECT.

7A-12. POLYURETHANE SEALANT INSTALLATION

- a. Prime surfaces of joint as required.
- b. Apply sealant into joint with gun, having nozzle of proper size and sufficient pressure to completely fill joint. Tool surface of sealant at a slight angle to shed water away from building.

7A-13. CLEANING

- a. Clean all surfaces of adjacent surfaces which have been marked or soiled by the work of this SECTION, removing all excess mastics, sealants, and caulking materials therefrom. Use only cleaning materials and solvents which will not damage the surfaces in any way.

END OF SECTION

SECTION 7B
SHINGLES AND ROOFING TILES

I. GENERAL

7B-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

7B-02. WORK TO BE PERFORMED

- a. Furnish and install the following, as shown on the DRAWINGS and specified herein:

1. Asphalt roof shingles
2. Asphalt felt underlayment
3. Waterproofing membrane underlayment.
4. Ridge vent .
5. Wall to roof aluminum step flashing
6. All sealants in direct conjunction with metal flashing

7B-03. SAMPLES

- a. Submit the following samples in accordance with the requirements of the GENERAL CONDITIONS and SUPPLEMENTARY CONDITIONS:
1. Asphalt roof shingles, one tab in each color.

7B-04. SUBMITTALS

- a. Manufacturer's Literature - Submit to the ARCHITECT for approval, manufacturer's CSI "Spec-Data" sheet or equivalent printed literature indicating product information correlated to specified requirements.
- b. Manufacturer's Data - Submit to the ARCHITECT copies of manufacturer's specifications and installation instructions for shingles flashing systems, and other data as may be required.

- c. CONTRACTOR'S Review - Accompanying approval request, submit to the ARCHITECT written statement signed by the GENERAL CONTRACTOR and the ROOFING AND FLASHING SUBCONTRACTOR, stating that the ARCHITECT'S drawings and specifications for roofing and flashing, have been reviewed with an agent or the manufacturer of the primary roofing materials, and that he is in agreement that the selected systems for roofing and flashing, are proper, compatible, and adequate for the application shown.

II. MATERIALS

7B-05. MATERIALS REQUIREMENTS

- a. Deliver materials in manufacturer's unopened containers or bundles, fully identified with brand, type, grade, class and all other qualifying information, including UL and other specified insurance agency's labels for specified roof construction.
- b. Storage of Materials - Store all materials in properly protected and dry storage facilities until ready for use. Installation of wet or damp materials will not be accepted. Do not use materials which have been damaged in any manner.
- c. Protect work from damage during construction period so that it will be without any indication of abuse or damage at time of acceptance.
- d. Protect the building from damage resulting from spillage, dripping, and dropping of materials. Repair and restore other work damaged during roofing operations.
- e. Take all necessary precautions against fire and other hazards, during delivery, storage, and installation of inflammable adhesives, solvents, and other materials specified herein. Comply with local ordinances and fire regulations in the installation of hazardous materials specified or required under this SECTION.

7B-06. ASPHALT SHINGLES

- a. Asphalt Shingles shall be "Aristocrat 25" self sealing shingles manufactured by IKO Roofing Products. Shingles shall be listed by Underwriters' Laboratories as Class A and shall meet U.L. standards for wind resistance. . Color shall be as selected by the ARCHITECT and subject to approval of samples.

- 7B-07. ASPHALT FELT UNDERLAYMENT
a. Underlayment for shingles shall be 15 lb. asphalt saturated roofing paper.
- 7B-08. WATERPROOFING MEMBRANE UNDERLAYMENT
a. Waterproofing Membrane Underlayment shall be "Ice and Water Shield"; 40 mil self-adhering rubberized asphalt integrally bonded to embossed slip resistant polyethylene sheeting, as manufactured by W.R. Grace & Co., or approved equal.
- 7B-09. FASTENERS
a. Nails shall be hot dip galvanized or aluminum sharp pointed conventional barbed shank roofing nails, 11 or 12 gauge, with heads at least 3/8" in diameter and minimum length of 3/4".
- 7B-10. RIDGE VENT
a. Ridge Vent shall be shingle over roll vent as manufactured by Benjamin Obdyke, Inc. Warminster, Pa.
b. Roof to wall ridge vent shall be Vent-a-Flash as manufactured by Alcoa Building Products, Sidney, Ohio.
- 7B-11. WALL TO ROOF FLASHING
a. Wall to roof flashing shall be 12" wide , bent to 6" x 6" cut to the length of a standard shingle tab, aluminum .019 in thickness, having a plain mill finish.
- 7B-12. INSPECTION OF SURFACES
a. The Roofing SUBCONTRACTOR shall examine all roof decks on which the work of this section is to be applied, and shall notify the GENERAL CONTRACTOR of any defects which could be detrimental to the satisfactory installation of the work. Roofing shall not be applied until all defects have been corrected.

III. INSTALLATION

- 7B-13. GENERAL
a. Installation of underlayment and shingles shall be in accordance with the manufacturer's printed instructions. Avoid putting felt paper and shingles on roof when sheathing is wet.

7B-14. UNDERLAYMENT

- a. 15 lb. asphalt saturated roofing paper shall be installed over the roof decks and laid shingle fashion, lapping each sheet 4 in. over the preceding sheet and nailing at the lap no less than 9 in. and down the center of each sheet on 9 in. centers, or as recommended by the shingle manufacturer.

7B-15. WATERPROOFING MEMBRANE UNDERLAYMENT

- a. Install as per manufacturers' instructions in areas as shown on the DRAWINGS.

7B-16 RIDGE VENT

- a. Install ridge vent and roof to wall ridge vent as per manufacturers instructions.

7B-17. ASPHALT SHINGLES

- a. Shingles shall be installed in accordance with the instructions published by the approved manufacturer; keeping all courses straight , with uniform exposure of 5 5/8in. Starter courses at eaves shall be double thick courses. Insure a minimum gap of 1/8 inches between shingles to prevent buckling in hot weather.

7B-18. GUARANTEE

- a. The CONTRACTOR shall submit to the OWNER, prior to final payment and acceptance of the work, a written guarantee signed by the CONTRACTOR agreeing for a period of 1 year from date of final acceptance of work to inspect and make immediate emergency temporary repairs necessary to stop leaks or correct other defects in the roofing work within 24 hours notice by the OWNER.
- b. The CONTRACTOR'S written guarantee shall be consigned by the ROOFING SUBCONTRACTOR, indicating joint responsibility for the terms and conditions set forth herein.

7B-19. PROTECTION AND CLEANING

- a. The CONTRACTOR shall be responsible for all damage to the building resulting from this work. Hoisting of materials shall be done with extreme care. Use approved means to protect exposed surfaces. Particular care shall be taken to avoid staining the exposed finished work. Ladders should not rest against drip edge without a board across the ladder to spread the weight.

- b. Upon completion of the work of this SECTION, remove all rubbish and excess materials from the site and legally dispose of it. Leave the work in a clean and satisfactory condition.

END OF SECTION

SECTION 7F
FLASHING AND SHEET METAL

I. GENERAL

7F-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

7F-02. WORK TO BE PERFORMED

- a. Furnish and install the following, as shown on the DRAWINGS and specified herein:
1. Aluminum flashing work, including, but not limited to, fascia, soffit, coping flashings, reglets and other flashings noted "metal", on the DRAWINGS, except as otherwise specified hereunder.
 2. All sealants in direct conjunction with metal flashings.
- b. Perform all work as required to provide weathertight connections between new flashings and building surfaces. Coordinate flashing work with other trades.

7F-03. RELATED WORK

- a. The following related work is to be performed under the designated SECTIONS:
1. Continuous wood nailers and blocking:
SECTION 6A, ROUGH CARPENTRY.

7F-04. SUBMITTALS

- a. Manufacturer's Literature - Submit to the ARCHITECT for approval, manufacturer's CSI "Spec-DATA" sheet or equivalent printed literature indicating product information correlated to specified requirements.
- b. Manufacturer's Data - Submit to the ARCHITECT copies of manufacturer's specifications and installation instruction for flashing systems, and other data as may be required.
- c. Color Samples - Submit to the ARCHITECT for approval, standard manufacturer's samples on actual material to be used. Photo-reproduced chips will not be acceptable.

- d. CONTRACTOR'S Review - Accompanying approval request, submit to the ARCHITECT written statement signed by the GENERAL CONTRACTOR and the FLASHING AND SHEET METAL SUBCONTRACTOR, stating that the ARCHITECT'S drawings and specifications for flashing and sheet metal have been reviewed with an agent of the manufacturer of the primary roofing materials, and that he is in agreement that the selected systems for flashing and sheet metal are proper, compatible, and adequate for the application shown, and the conditions and details are not in conflict with the roofing manufacturer's roofing and flashing bond. Show by copy of transmittal form that copy of statement has been transmitted to manufacturer.
- e. Statement of Application - Upon completion of the work of this SECTION 7F, submit a statement to the ARCHITECT, signed by the GENERAL CONTRACTOR and the FLASHING AND SHEET METAL SUBCONTRACTOR, stating that the flashing, and sheet metal comply with the requirements of this SECTION 7F, and that the installation methods complied with the manufacturer's printed instructions and were proper and adequate for the condition of installation and use.

II. MATERIALS

7F-05. MATERIALS REQUIREMENTS

- a. Deliver materials in manufacturer's unopened containers or bundles fully identified with brand, type, grade, class and all other qualifying information, including UL and other specified insurance agency's labels for specified roof construction.
- b. Storage of Materials - Store all materials in properly protected and dry storage facilities until ready for use. Installation of wet or damp materials will not be accepted. Do not use materials which have been damaged in any manner.
- c. Protect work from damage during construction period so that it will be without any indication of abuse or damage at time of acceptance.
- d. Protect the building from damage resulting from and dropping of materials. Repair and restore other work damaged during operations.

7F-06. STANDARD OF QUALITY

- a. To establish a standard of quality and types of materials desired, specifications have been based on the following:
 - 1. Sealant, in conjunction with metal flashings - Tremco Mono-Lasto-Meric.
- b. Other manufacturers of similar materials and systems will be considered for approval as an equal, by the ARCHITECT, upon receipt of adequate supporting data, and samples, unless otherwise requested.

7F-07. SHEET METAL AND FLASHING MATERIALS

- a. Pre-formed metal items and other pre-formed flashing systems shall be shop built or aluminum in standard gauges of manufacturer. Color to be selected by ARCHITECT from samples submitted.
 - 1. Pre-formed metal drip edge.
- b. Install all pre-formed metal items in accordance with manufacturer's instructions and coordinate with roofing materials supplier.
- c. Other flashings - Aluminum, .032 min. thickness, where shown on DRAWINGS. Color to match other flashings , as determined by ARCHITECT.
- d. Sealant in conjunction with flashings - One part acrylic sealant, Tremco Mono-Lasto-Meric, Pecora Unicrylic, or approved equal, in color closely matching the base metal to which it will be in contact.
- e. Plastic Cement - Conformance to Federal Specifications SS-C-153.

III. INSTALLATION

7F-08. INSTALLATION CONDITIONS

- a. The GENERAL CONTRACTOR will be responsible for the providing of proper receiving surfaces flashing items. Notify the GENERAL CONTRACTOR of any defects or other characteristics in the receiving surfaces which may be detrimental to the installation and performance of the items to be furnished and installed hereunder. Request correction of such surfaces and do not commence work until defects have been corrected. Commencement of flashing shall constitute acceptance of surface conditions and the FLASHING AND SHEET METAL SUBCONTRACTOR shall be responsible for leakage's in roofs and flashed surfaces and any other defects in these surfaces.

7F-09. INSTALLATION OF METAL FLASHING

- a. General - All new roofs shall be flashed and made watertight at all edges and intersections of roof with vertical surfaces of any nature, using built-up base flashing, except as otherwise shown on the DRAWINGS or specified hereunder.
1. All sheet metal work shall be fabricated and placed in accordance with the best practices and the following additional requirements, as specified herein.
 2. Generally, flashing and sheet metal work shall be in lengths not exceeding eight (8) feet and free from longitudinal joints. All flashing in contact with dissimilar metal shall be coated with asphalt paint.
 3. Expansion joints in running flashing work shall be formed by joining ends of sheets together with a three (3) inch loose lock, filled with plastic cement. Expansion joints shall be installed every twenty-four (24) feet in straight runs.
 4. All metal flashings in direct conjunction with roofing shall be installed as per roofing manufacturer's details and specifications.
 5. Check all surfaces for nailing, verify wood backing.

7F-10. CLEANING

- a. At the completion of the work, clean, remove, and cart away from the premises, all rubbish and accumulated materials and leave the work in a satisfactory condition.

- b. NOTE: All stains and/or damage to the exterior finish of building caused by faulty workmanship and/or improper handling of materials in regard to the installation of FLASHING AND SHEET METAL shall be cleaned or removed and replaced at the expense of the FLASHING AND SHEET METAL SUBCONTRACTOR.

7F-11. GUARANTEE AND BONDS

- a. FLASHING AND SHEET METAL SUBCONTRACTOR, as a condition precedent to final payment, shall execute his own written guarantee direct to the OWNER, warranting all FLASHING, and sheet metal work weather and watertight and perfect for a period of one (1) year after date of Substantial Completion of the Building. Any imperfections, as a whole or in part, by reason of defective materials, workmanship or arrangement of the various parts shall be made good to the satisfaction of the OWNER at the FLASHING AND SHEET METAL SUBCONTRACTOR'S expense.
- b. In addition to the afore specified guarantee, the FLASHING AND SHEET METAL SUBCONTRACTOR shall furnish to the GENERAL CONTRACTOR for transmission to the ARCHITECT , manufacturer's standard (10) year Guarantee Bond for flashing and sheet metal work. The bonds shall be paid for by the FLASHING AND SHEET METAL SUBCONTRACTOR and shall be included in his Base Bid.

END OF SECTION

SECTION 7G
INSULATION

I. GENERAL

7G-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

7G-02. WORK TO BE PERFORMED

- a. Furnish and install the following items, as shown on the DRAWINGS and specified herein:
1. Fiberglass batt insulation in thicknesses shown on the DRAWINGS.

7G-03. RELATED WORK

- a. The following related work is to be performed under the designated SECTIONS;
1. Pipe and Duct Insulation, SECTION 15A, MECHANICAL.

II. MATERIALS

7G-04. FIBERGLASS BATT INSULATION

- a. Thermal Fiberglass Batt Insulation shall be flameresistant fiberglass batt insulation of width required to accommodate spacing of framing members, as manufactured by Johns Manville, Owens-Corning Fiberglass Corporation or United State Gypsum.

III. INSTALLATION

7G-05. FIBERGLASS BATT INSTALLATION

- a. Refer to DRAWINGS for specific thicknesses and locations. Thoroughly insulate around all mechanical penetrations.

END OF SECTION

SECTION 7N
PREFORMED VINYL SIDING

I. GENERAL

7N-01. GENERAL PROVISIONS

- a. PART A AND DIVISION 1 of PART B are hereby made a part of this SECTION.

7N-02. WORK TO BE PERFORMED

- a. Furnish and install the following items, as shown on the DRAWINGS and specified herein:
1. Complete vinyl siding system and all accessories.
 2. Vinyl soffits, rakes, exterior ceilings, and all accessories.
 3. Metal wrapping of all exterior trim; including, but not limited to: fascias, rakes, frieze boards, window and door casings, miscellaneous trim items.

7N-03. RELATED WORK

- a. The following related work is to be performed under the designated sections;
1. Exterior trim; SECTION 6B, FINISH CARPENTRY.

7N-04. SUBMITTALS

- a. Submit samples of siding design, size, and color for approval by the ARCHITECT and OWNER.

7N-05. DELIVERY, STORAGE, AND HANDLING

- a. Prior to application, vinyl siding and accessories are to be stored in an area that is clean, dry, and out of direct sunlight.
- b. Handle material in a manner to prevent damage.

II. PRODUCTS

7N-06. MANUFACTURER

- a. Vinyl siding, soffit, ceiling, and accessories shall be as manufactured by Certainteed Corporation. Siding shall be "Mainstreet" Double 4" woodgrain clapboard. Soffits and ceilings shall be "Certavent", Triple 4", woodgrain, center vented.

7N-07. ACCESSORIES
a. Accessories shall be consistent with the shape, size, and properties shown in the DRAWINGS and as required for a complete installation. Color shall be matched or color coordinated to the siding. Accessories shall be produced from the same compound materials and with comparable properties as the siding.

7N-08 METAL WRAP FOR TRIM
a. All metal for wrapping trim, casing, etc. shall be .032" thick, with factory applied white baked enamel finish and be field applied in shapes and locations as shown on the DRAWINGS.

III. INSTALLATION

7N-09. EXAMINATION
a. Commencement of siding installation implies acceptance of the substrate as suitable to accept siding by the CONTRACTOR.

7N-10. PREPARATION
a. Any substrate flaws or defects must be repaired before the vinyl siding is applied. Vinyl siding must be applied to walls that are in plane and free from obstructions. Furr where necessary.

7N-11. INSTALLATION OF VINYL SIDING SYSTEM
a. The vinyl siding and accessories shall be installed in accordance with the best practice, with all joint members plumb and true.

7N-12. INSTALLATION OF METAL WRAP ON TRIM, CASING, ETC.
a. Install metal wrap per industry standards and maintain the highest level of workmanship.

7N-13 FIELD QUALITY CONTROL
a. After installation of siding check entire surface for obvious flaws or defects. Replace and repair any problem areas.

7N-14. CLEAN-UP

- a. After vinyl siding application, clean as necessary to remove all fingerprints and soiled areas. Upon completion of the siding application, the entire area is to be cleaned, removing all scrap, packaging and unused building materials.

END OF SECTION

SECTION 7P
PREFORMED FIBER-CEMENT SIDING

I. GENERAL

7P-01. GENERAL PROVISIONS

- a. PART A AND DIVISION 1 of PART B are hereby made a part of this SECTION.

7P-02. WORK TO BE PERFORMED

- a. Furnish and install fiber-cement siding and accessories where shown on drawings or as specified herein:
- b. Coordinate this section with interfacing and adjoining work for proper sequence of installation.

7P-03. RELATED WORK

- a. Work in other sections affecting this work;
1. Wood framing and bracing.
 2. Sheathing.
 3. Insulation.

7P-04. SUBMITTALS

- a. Submit three 6" x 6" pieces hardiplank in texture and widths shown or specified herein.
- b. Submit three copies of specifications, installation data and other pertinent manufacturer's literature.

7P-05. PRODUCT HANDLING

- a. Hardiplank should be stacked on edge or laid flat on a smooth, level surface. Edges and corners should be protected from chipping. To ensure optimum performance, store sheets under cover and keep dry prior to installing. If sheets should become wet, allow to dry thoroughly before installing.

II. PRODUCTS

7P-06. HARDIPLANK SIDING

- a. Fiber-cement siding to comply with ASTM Standard Specification C1186 Grade II, Type A.
- b. Plank siding will have the following nominal physical or mechanical properties:
1. Density average at EMC 90lb/ft.
 2. Moisture content at EMC 7%.
 3. Thermal conductivity at 77F 0.47W/mk.
 4. Linear Thermal Expansion (avg.) 7.1 x 10/F.

5. Modulus of Elasticity at EMC
 - In Tension:
 - Across sheet 1,200,000 psi
 - Along sheet 1,100,000 psi
 - In Static Cross Bending:
 - Along sheet 739,999 psi
 - Across sheet 710,000 psi
 6. Modulus of Rupture (avg.) 2100 psi
 7. Tensile strength at EMC
 - Across sheet 1,100 psi
 - Along sheet 725 psi
- c. Fiber-cement siding to be noncombustible when tested in accordance with ASTM test method E136.
 - d. Surface burning characteristics when tested in accordance with ASTM E184.
 1. Flame Spread 0
 2. Fuel Contributed 0
 3. Smoke Density 5
 4. NFPA Class A
 5. UBC Class 1
 - e. Source: James Hardie Building Products, 10901 Elm Ave., Fontana, CA. 92337. 1-800-9-HARDIE.
- 7P-07. FASTENERS
- a. Wood framing: 6d common corrosion resistant nails or 1 1/4" roofing nails.

III. INSTALLATION

- 7P-08. SURFACE CONDITIONS
- a. Correct conditions detrimental to timely and proper completion of work.
- 7P-09. INSTALLATION - HARDYPLANK SIDING
- a. Framing: hardiplank lap siding can be installed directly to wood or steel studs spaced up to 24" on center. Framing, bracing and installation must meet local building code.
 - b. Starting and Joining Methods: Install a minimum 1/4" thick lath starter strip at the bottom course of the wall. Planks are applied horizontally with 1 1/4" wide laps at the top. The bottom edge of the first plank overlaps the starter strip. The vertical joints of the planks shall align over framing members or studs.

- c. Off-Stud Splice: When vertical joints occur between stud or framing members an off-stud or framing members an off-stud metal joiner is utilized. The metal joiner is positioned so that the bottom lip is resting on the solid course of planks. The plank is then fastened to the framing. The abutting plank is positioned and fastened into place insuring that the lower edges of the two planks align. The metal joiner is located centrally behind the joint. Off-stud splices shall be located a minimum of two stud cavities from wall corners. Successive splices within the same plank course shall be located no closer than 48". Splices shall be a least one stud cavity away from window and door openings. All splices shall be staggered at minimum 24" intervals when located in the same wall cavity.

- d. Wind Resistance: Where a specified level of wind resistance is required Hardyplank lap siding is installed to framing members and secured with fasteners described in Table No. II in National Evaluation Service Report No. NER-405.

7P-10. FINISHING

- a. To achieve a weather-resistive barrier finish hardyplank siding with a high quality, exterior grade, semi-gloss or flat acrylic or latex paint which may be sprayed, rolled, or brush applied. Follow the paint manufacturer's written application instructions.

END OF SECTION

SECTION 8A
METAL DOORS AND FRAMES

I. GENERAL

8A-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

8A-02. WORK TO BE PERFORMED

- a. Furnish the following for installation under the designated SECTIONS:
1. Pressed steel frames for doors: SECTION 6A, ROUGH CARPENTRY
 2. Embossed panel metal insulated doors: SECTION 6B, FINISH CARPENTRY.
- b. Perform all cut-out work in doors and frames, and furnish and install all required reinforcing therein, from hardware templates provided under SECTION 8G HARDWARE.
- c. Perform all shop priming and galvanizing, as specified hereunder.

8A-03. RELATED WORK

- a. The following related work is to be performed under the designated SECTIONS:
1. Finish painting for items furnished hereunder: SECTION 9I, PAINTING.
 2. Building-in of frame anchors: by trade responsible for wall and partition erection.
 3. Furnishing finish hardware and templates for cut-outs and reinforcing in doors and frames: SECTION 8G, HARDWARE.
 4. Application of hardware: SECTION 6B, FINISH CARPENTRY

8A-04. SHOP DRAWINGS

- a. Submit complete SHOP DRAWINGS in accordance with the requirements of the GENERAL CONDITIONS AND SUPPLEMENTARY CONDITIONS.

- b. Include a complete door and frame schedule, large scale details of door and frame construction, indicating all gauges, reinforcing, cut-outs, and anchors , as well as certification from the manufacturer that all U.L. fire resistive requirements for the required labels have been met.

8A-05. SAMPLES

- a. No Samples will be required in this SECTION

II. MATERIALS

8A-06. DOORS

- a. General - Refer to the DOOR SCHEDULE for various types of doors, including sizes and fire-resistive label ratings.
- b. Manufacture - To establish a standard of quality and design desired, SPECIFICATIONS have been based on "All American" Builder Series as manufactured by Brosco. Similar doors of other manufacturers will be considered for approval as an equal, by the ARCHITECT, upon receipt of adequate supporting data, including samples. if requested, and a certificate of compliance as specified hereunder.
 - 1. Embossed Panel Doors: Model AA-89
- c. Door construction - Full flush or embossed panel, beveled on hinge and lock edges, fabricated with vertical edge joints completely filled and ground smooth, and meeting the following additional requirements:
 - 1. Faces - 25 gauge stretcher-leveled steel (galvanized steel for exterior doors).
 - 2. Core - Kraft honeycomb, foamed-in-place polyurethane or continuous steel reinforcing spaces not more than six (6) inches on center with sound deadening insulation, as standard with the specified manufacturers.
 - 3. Hardware reinforcement - Hinges, 20 gauge, locks, 10 gauge, minimum kick plates, 18 gauge, minimum; all other hardware 10 gauge, minimum.
 - 4. Top and bottom weather caps - Flush, 18 gauge, minimum, fully welded to exclude water.

5. Glazing beads - Steel or aluminum, as standard with the manufacturer, with edges flush with faces.
 6. Galvanizing for exterior doors - as specified hereunder.
 7. Treatment and priming - as specified hereunder.
 8. Underwriters' Laboratories Label Doors - Provide all modifications to specified door construction, as required by Underwriters' Laboratories, Inc. and National Board of Fire Underwriters', to meet required, fire-resistive rating, including astragals therefore, and equip each door with the appropriate U.L. identification plate.
- d. Doors shall be pre-hung with wood jambs, with no casing. Casing shall be field applied in sizes as shown on the DRAWINGS.
- 8A-08. GALVANIZING AND SHOP PRIMING
- a. Fabricate all exterior doors, frames, anchors, reinforcing, and other related items therefore, from zinc-coated steel. This coating shall consist of zinc applied by a hot-dipped process on both sides of all base metals.
 - b. Apply zinc in such a manner as to provide a ductile coating that is tightly adherent to base metal and which will conform to bend tests conducted in accordance with ASTM Specification A-525. Zinc coating shall not be less than 1.25 ounces per square foot of steel. Following fabrication of exterior frames, touch up all welds with liquid zinc (Galvicon, Z.R.C., or other approved equal method).
 - c. Clean all surfaces of door, frames, anchors, and related items specified hereunder, by hot or cold phosphate treatment standard with the manufacturer. Following cleaning, apply one coat of rust-inhibitive prime and bake on. Prime all surfaces, including those which will be inaccessible
- 8A-09. PACKAGING
- a. Doors shall be fully wrapped in corrugated cardboard, single faced paper 42 pound with a 26 pound liner medium "B" flute, protecting all surfaces of the door. Flute shall run the full height of the door.

- b. Wood strips, 3/8 inches by 2 inches commercial grade, finished one side for marking, extending 1/2 inch beyond the top and bottom of the door shall be temporarily applied to the edges of the door.
- c. The corrugated cardboard and wood strip shall be held firmly in place by three 3/8 inch by .018 steel bands on each door.
- d. Wood strips shall be marked clearly giving door type, size, hand, lock preparation and mark number. The metal banding shall not interfere with the marking.

8A-10. STORAGE AND PROTECTION

- a. Be responsible for the proper storage and protection of this material. Should the priming coats be faulty or rust or scale appear, clean all exposed surfaces to bright metal and apply a suitable approved priming coat, before finish painting is commenced/

III. INSTALLATION

8A-11. DOORS

- a. Installation will be performed under SECTION 6B FINISH CARPENTRY.

8A-12 FRAMES

- a. Installation will be performed under SECTION 6A, ROUGH CARPENTRY.

END OF SECTION

SECTION 8B
WOOD AND PLASTIC DOORS

I. GENERAL

8B-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

8B-02. WORK TO BE PERFORMED

- a. Furnish the following items for installation under the designated SECTIONS:

1. Interior hinged doors, SECTION 6B, FINISH CARPENTRY.

8B-03. RELATED WORK

- a. The following related work is to be performed under the designated SECTIONS:

1. Furnishing of finish hardware: SECTION 8G HARDWARE

2. Painting and finishing of doors: SECTION 9I PAINTING

8B-04. SHOP DRAWINGS

- a. Submit complete shop drawings in accordance with the requirements of the GENERAL CONDITIONS AND SUPPLEMENTARY CONDITIONS.

- b. Include a complete new wood door schedule and a certified statement from the manufacturer that the doors proposed to be furnished meet or exceed the requirements specified hereunder.

8B-05. SAMPLES

None Required

II. MATERIALS

8B-06. WOOD DOOR AND FRAMES

- a. Interior Doors: Provide 1 3/8" thick, molded, textured, hardboard door facings, #500, 6 panel style, hollow core doors as manufactured by Door Craft of Vermont and distributed by Brosco, or equal. Doors shall be manufactured in accordance with basic hardboard product standard ANSI/AHA 135.4 1982 (REV. 1995)
- b. Doors shall be formed of 1/8 in. thick, 65lbs per cu. ft. density hardboard, factory finished ivory. Doors shall be prepared for hardware as specified in SECTION 8G, FINISH HARDWARE.
- c. Doors shall be pre-hung with 11/16" thick pine flat board jamb, finger-joint and primed with bullnose stop applied, with casing cut to size for two sides (shipped loose), #8710 finger-joint and primed.

8B-07. FLUSH WOOD DOORS AND FRAMES

- a. Interior Doors: Provide 1 3/8" thick, hollow core lauan, #800, flush doors. Doors shall be as distributed by Brosco, or equal.
- b. Doors shall be pre-hung with 11/16" thick pine flat board jamb, finger-joint and primed with bullnose stop applied, with casing cut to size for two sides (shipped loose), #8710 finger-joint and primed.

8B-08. DELIVERY, STORAGE AND PROTECTION

- a. Doors shall be properly packaged by the manufacturer and protected during shipment. They shall not be delivered to the job site until the building has thoroughly dried out. Doors shall be stored in a dry area until installation.
- b. All hardware furnished with doors shall be individually boxed and labeled with all necessary literature for installation.

III INSTALLATION

8B-09. DOOR LOCATIONS

- a. Specific locations of door types are indicated on the DRAWINGS. Where door schedules are shown, they are shown, they are provided for the convenience of the CONTRACTOR, but door indications on the scale DRAWINGS shall govern. In case of omissions from schedules, doors in question shall be referred to the ARCHITECT for determination of type.

8B-10. DOOR AND FRAMES

- a. Doors and frames shall be fitted carefully and to the satisfaction of the ARCHITECT. Sandpaper carefully, by hand, and leave finish free from all marks, roughness, and imperfections, repair any damage to pre finished surface.

8B-11. HARDWARE INSTALLATION

- a. The CONTRACTOR shall at all times be responsible for the handling, receiving and storing of hardware, and for the distribution of keys during construction.
- b. Hardware shall be carefully fitted, installed and adjusted by competent mechanics, using the proper templates and jigs following the manufacturer's details and instructions.
- c. After preliminary fitting of hardware, the CONTRACTOR shall remove knobs, escutcheon, strike plates and other trim, as required, to allow painting and finishing work to be performed, after which the hardware shall be installed in a permanent manner.
- d. All doors shall open and close smoothly and easily, without binding at the edges. The CONTRACTOR shall perform all necessary adjustments of hardware so as to produce satisfactory operation of the doors.
- e. Upon completion of the work, before final acceptance by the OWNER, the CONTRACTOR shall, in the presence of the ARCHITECT OR OWNER, show that all hardware is in satisfactory working order; fit all keys in their respective locks, and upon acceptance of the work, shall tag and deliver all keys to the OWNER.

END OF SECTION

SECTION 8D
PVC WINDOWS AND DOORS

I. GENERAL

8D-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

8D-02. WORK TO BE PERFORMED

- a. Furnish and install the following as shown on the DRAWINGS and specified herein:
1. P.V.C. Windows, double glazed with screens, sizes as noted on Window Schedule on the DRAWINGS.
 2. P.V.C. Doors, Double-Glazed with screens, sizes as noted on the Door Schedule on the DRAWINGS.
 3. Sealants and tapes for all exterior joints between assemblies furnished under this SECTION.
 4. Compressible fillers and backing for sealant materials between assemblies and adjacent building surfaces.

8D-03. RELATED WORK

- a. The following related work is to be performed under the designated SECTIONS:
1. Sealant and joint bead back-up for exterior perimeter joints between frames of windows and surrounding materials and caulking for interior perimeter under: SECTION 7A DAMPROOFING AND SEALANTS.
 2. Drywall Accessories: SECTION 9A DRYWALL CONSTRUCTION

8D-04 SHOP DRAWINGS

- a. Submit complete SHOP DRAWINGS in accordance with the provisions of the GENERAL CONDITIONS AND SUPPLEMENTARY CONDITIONS.
- b. Include a complete window schedule, large scale details of all types of windows, glazing details, and erection details.
- c. Dimensions of all openings and portions of the building to which window assemblies are to be bitted shall be verified in field prior to fabrication, and included on the SHOP DRAWINGS.

II. PRODUCTS

8D-05. MANUFACTURER AND TYPES

- a. Window units and door units shall be sliding "Boreal" as manufactured by MBF Windows, 190 Riverside St. Portland, Me., 04102, (207) 772-5782, manufactured from extruded unplasticized polyvinylchloride (UPVC).
- b. Frame shall be extruded UPVC material, .067" thick, with corners fusion welded and cleaned.
- c. Sash shall be 1 3/16" thick total, .067" extruded UPVC. Sash corners shall be fusion welded and cleaned.
- d. Sash locks shall be manufacturers' standard.
- e. All windows shall have 13/16" insulated glass with aluminum, 5/8", white airspace grilles, and removable half screens. Screens shall be 18 x 16 mesh fiberglass.
- f. Finish shall be White.

III. INSTALLATION

8D-06. INSTALLATION OF WINDOWS AND DOORS

- a. All work shall be performed in strict accordance with the approved shop drawings.
- b. Prior to installing of the window and door members, carefully check the position and alignment of all supporting members. Do not commence until all discrepancies have been corrected.
- c. Take special care to plumb and align the nominal face of the windows and doors in a single vertical plane. All horizontal elements shall be oriented to the verticals at right angles, making sure all components are straight. Sliding connections shall be adjusted to permit necessary relative motion between elements.
- d. Check all windows and doors, and operation of hardware, after erection hereof, and make all required adjustments to ensure completely smooth operation.
- e. Clean all surfaces free from dirt, sealants, erection marks, and any other foreign matter. Remove labels from glass, and perform initial cleaning thereon. Final cleaning will be performed by the GENERAL CONTRACTOR under SECTION 1A, SPECIAL CONDITIONS.

END OF SECTION

PVC WINDOWS AND DOORS

8D-2

SECTION 8G
FINISH HARDWARE

I. GENERAL

8G-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

8G-02. ITEMS TO BE FURNISHED ONLY

- a. Furnish the following items for installation under SECTION 6B, FINISH CARPENTRY.
1. All finish hardware for wood and metal doors, except as hereinafter specified.
- b. Furnish templates for hardware cutouts and reinforcing in doors and frames to fabricators for such items.
- c. Furnish passage sets for all doors, not otherwise specified on door to have locks.

II. MATERIALS

8G-03. HARDWARE

- a. Refer to the SCHEDULE SHEET of the DRAWINGS and Door Schedule to determine the quantities needed and the quality desired.
- b. To establish a standard of quality the following manufacturers have been selected:
1. Hinges - Stanley Hardware, New Britan Conn.,
 2. Locksets, Passage Sets, Privacy Sets - Schlage Lock Co., San Francisco, CA. Locksets shall be Schlage "F" Series, bored locks. Knob style shall be "Orbit", and lever style shall be "Elan". Finish for all locksets shall be satin chrome, #626.
 3. Miscellaneous Hardware - H.B. Ives Co. , New Haven, Conn., in finish to match locksets.

END OF SECTION

SECTION 9A
DRYWALL CONSTRUCTION

I. GENERAL

9A-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

9A-02. WORK TO BE PERFORMED

- a. Furnish and install the following, as shown on the DRAWINGS and specified herein:
1. Drywall construction systems for interior partitions, ceiling systems and furred areas, including gypsum wallboard, furring channels, suspension systems, metal drywall accessories, and all related items.
 2. All additional supplementary framing, blocking and bracing required for the support of concentrated loads imposed by items indicated to be attached to, or hung from gypsum board surfaces.
 3. Caulking material, around all items penetrating gypsum board surfaces, at exposed edges of gypsum board at reveals in the surface, between casings and dissimilar materials, between edges of first layer of wallboard in double layer application, at dissimilar materials, and exterior walls, etc. as indicated on DRAWINGS.
 4. Tape-joint finishing system for all exposed to view interior gypsum board surfaces.
- b. Install the following items furnished under the designated sources:
1. Access panels, occurring in gypsum wallboard surfaces: by trade requiring same.

9A-03. RELATED WORK

- a. The following related work is to be performed under the designated SECTIONS:
1. Painting of gypsum wallboard: SECTION 9I PAINTING
 2. Vinyl Base: SECTION 9E RESILIENT FLOORING
 3. Caulking Materials: SECTION 7A DAMPPROOFING AND SEALANTS.

9A-04. SAMPLES

- a. No samples will be required for this SECTION.

II. MATERIALS

9A-05. DRYWALL CONSTRUCTION MATERIALS

- a. General - To establish a standard of quality and design desired, SPECIFICATIONS are based on drywall system members, as manufactured by United States Gypsum Company. Similar items, as manufactured by National Gypsum Company and Georgia Pacific, Bestwall, and other manufacturers, will be considered for review as an equal by the ARCHITECT, upon receipt of adequate supporting data.
- b. Furring Channels - USG Metal Furring Channels and USG Z-Furring channels.
- c. Gypsum Wallboard -
 1. Where indicated on the DRAWINGS to be fire-rated; USG Sheetrock Firecode "C", 5/8 inch thick.
 2. For all other non-specified locations - USG Sheetrock Regular Gypsum Panels, 1/2 inch thick.
- d. Fasteners for gypsum board
 1. For application to metal resilient channels - USG brand Type S, buglehead, screws in sizes required for various conditions.
- e. Laminating adhesive - Duraband Joint Compound, Taping or 90.
- f. Metal Accessories
 1. Corner beads - USG Dur-A-Bead, No. 104, galvanized for finishing with joint compound.
 2. Casing beads - USG No. 200-A, galvanized, for finishing with joint compound.
 3. Caulking Material - USG Sealants.
- g. Joint and internal corner finish treatment - USG joint treatment. Use compound for treatment of all noncaulked joints, screw heads, and other depressions.

III. INSTALLATION

9A-06. ERECTION OF VARIOUS DRYWALL CONSTRUCTION SYSTEMS

- a. General - Erection procedures for the various drywall construction conditions shall be as set forth in the published specifications - folder SA-923 of the United State Gypsum Company, latest editions as of 1/1/88, or comparable specifications of other accepted materials manufacturers, together with additional requirements specified hereunder and as indicated on the DRAWINGS.
- b. Install corner beads at all external corners of gypsum wall board, and casings at edges of gypsum board at all reveals in the surface, and wherever gypsum wallboard abuts a dissimilar materials. Use tape joint treatment for internal corners, for all joints, and joint compound in screw head depressions and on flanges of casings.
- c. Caulk between edges of first layer wallboard (in double layer application) and dissimilar abutting materials, and around all items which penetrate gypsum board surfaces, including electrical receptacle boxes, piping, and the like, including joints between wallboard and floor, on both sides of partition.
- d. Provide cased and reinforced openings for all major items penetrating the gypsum board surfaces.
- e. Furnish and install additional cross bracing and knee bracing, as required to assure a completely rigid assembly on gypsum board partitions, whether or not such bracing has been indicated on the DRAWINGS, and for proper receipt of items which will be attached to gypsum board surfaces.
- f. Install access panels, occurring in gypsum board surfaces, which are furnished by trades requiring same, securing the flanges of the panels, as recommended by the manufacturer.
- g. Erect the various systems to conform to the manufacturer's listed test constructions for the required fire rating for each assembly.

9A-07. CUTTING AND PATCHING

- a. When so directed by the ARCHITECT, and prior to any painting of gypsum board surfaces, check all drywall throughout the work, doing any and all cutting, patching, and joint treatment required in a manner satisfactory to the ARCHITECT.

9A-08. PROTECTION AND CLEANING

- a. During the operation of drywall work, protect the work of other trades against undue soilage and damage by the exercise of reasonable care and precautions. Repair and/or replace any work so damaged and soiled.

END OF SECTION

SECTION 9E
RESILIENT FLOORING

I. GENERAL

9E-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

9E-02. WORK TO BE PERFORMED

- a. Furnish and install the following , as shown on the DRAWINGS and specified herein:
1. Coved and straight Vinyl Bases.
 2. New vinyl composition tile flooring.
- b. Perform all cleaning and finishing of materials furnished and installed hereunder.

9E-03. SAMPLES

- a. Submit the following samples in accordance with the requirements of the GENERAL CONDITIONS AND SUPPLEMENTARY CONDITIONS:
1. Manufacturer's standard samples of the following materials available colors for selection by the ARCHITECT.
 - (a) One vinyl composition tile sample chip set, in specified pattern.
 - (b) Vinyl Base.

II. MATERIALS

9E-04. FLOORING AND RELATED MATERIALS

- a. Vinyl Composition Tile - to be one-eighth (1/8) inch thick by twelve by twelve (12 x 12) inch, vinyl composition tile, "Standard Excelon - Imperial Texture." as manufactured by Armstrong World Industries.
- b. Vinyl Bases - Homogeneous vinyl, 4" high, .080" (inch) thick, coved or straight, in colors as selected by the OWNER and the ARCHITECT. Furnish with matching end stops wherever ends of base are exposed to view. Bases shall be as manufactured by Johnsonite, or approved equal.

- c. Adhesives, Primers, and Leveling Materials - As recommended by the manufacturer(s) whose flooring is used.

III. INSTALLATION

9E-05. PRE-INSTALLATION CONDITIONS

- a. Inspect all surfaces and assure that they are in proper condition to receive work to be performed under this SECTION.
- b. Perform all corrective and preparation work as required to bring surfaces into a proper condition to receive the new work.
- c. Fill all minor cracks in subfloors with mastic, as recommended by the tile manufacturer.
- d. A temperature of not less than seventy (70) degrees F. shall be maintained for not less than forty-eight (48) hours before commencing installation of resilient materials and continued for forty-eight (48) hours after completion.
- e. No work shall start until samples have been submitted to, and approved by, the ARCHITECT. All materials shall be labeled, stating colors, locations, type of adhesive and primer (if required), and the areas in which materials are to be used.

9E-06. INSTALLATION

- a. All products covered by this SECTION shall be installed by qualified personnel, in strict accordance with the manufacturer's written specifications, and the additional provisions herein specified.
- b. Vinyl materials shall be laid so as to insure good, uniform contact with tight joints uniformly staggered and with all finished surfaces smooth and in a plane, free from buckles, waves, or other imperfections. Vinyl flooring shall be completely fitted and joints shall be as inconspicuous as possible.
- c. New vinyl flooring shall extend under any equipment shown on the DRAWINGS and into the wall lines, unless otherwise noted on the DRAWINGS. Vinyl flooring shall be carried to fit neatly into breaks and recesses, against non-resilient bases, around pipes, and under saddles. Flooring shall be cut to and around excessively weight fixed object. Use joint seam tool for all joints in flooring.

- d. Vinyl bases shall be firmly cemented to the vertical surfaces. Where base is to be applied to masonry walls, apply sufficient underlayment material to surface of masonry to provide a smooth, even surface to which base may be cemented.

9E-07. CLEANING AND WAXING

- a. Not sooner than five days after installation, the finished vinyl flooring, including bases, shall be cleaned with a cleaner recommended by the flooring manufacturer, followed by a thorough rinsing with clear water. After cleaning, all vinyl flooring installed hereunder shall be finished with one (1) coat of heavy-duty water-emulsion finish of a type recommended by the flooring manufacturer. Buff all finish flooring with a mechanical buffer. Actual time of cleaning and finishing shall be established by the ARCHITECT.

9E-08. ADDITIONAL MATERIALS

- a. Upon completion of the vinyl flooring work, furnish to the maintenance representative of the OWNER the following materials for future maintenance replacement:
 1. Fifty square feet of vinyl composition tile.
 2. Twelve (12) lineal feet of each type base, in every color used.
 3. Four (4) end stops, in color used.
- b. Additional materials shall be taken from the same manufacturer's run used on the project, to avoid possible deviation in colors.

END OF SECTION

SECTION 9F
CARPETING

I. GENERAL

9F-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

9F-02. WORK TO BE PERFORMED

- a. Furnish and install the following, under the specified ALLOWANCE amount, in SECTION 1F, ALLOWANCES, as shown on the DRAWINGS, and specified herein:
1. Carpet and pad, of the type to be selected, tackless stripping adhesive, edging, and all other related items required to complete the installation. Pad will not be installed in any handicapped accessible units.

9F-03. RELATED WORK

- a. The following related work will be performed under the designated SECTIONS:
1. Vinyl bases, in conjunction with carpeted areas:
SECTION 9E, RESILIENT FLOORING.

9F-04. QUALITY ASSURANCE

- a. All carpet must meet the requirement of HUD UM44D as well as requirements of this section. Flame spread rating of all components is 0-75. All carpeting shall be stamped on backing for all approvals.
- b. All carpet must meet all requirements of the American with Disabilities Act.

II. & III. MATERIALS & INSTALLATION

9F-05. CARPETING

- a. General -Refer to the DRAWINGS for location of carpeting.
- b. Install carpet, Jute Direct, with waterproof adhesive appropriate for carpet backing.

END OF SECTION

SECTION 9I
PAINTING

I. GENERAL

9I-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made of part of the SECTION.

9I-02. WORK TO BE PERFORMED

- a. Perform the following items of work required to complete the work of this SECTION , as shown on the DRAWINGS and specified herein:
1. Examine the various trade SECTIONS of the SPECIFICATIONS and be thoroughly familiar with all provisions regarding painting and finishing work included therein.
 2. Apply specified finish coats of paint to all preprimed items and complete finishing system to unprimed items required to be painted or to receive a stain/varnish finish.
 3. Paint all exposed to view mechanical and electrical work , including piping, radiation covers, electrical panels and other items , unless specified in the respective SECTIONS to be prefinished.
 4. Apply specified finish coats of paint to all rooms, as noted on finish schedule. Prime all new gypsum drywall before applying finish coats of paint, or wall covering.
 5. Apply specified coats of paint to exterior trim and siding materials.

9I-03. RELATED WORK

- a. The following items of work do not require painting or finishing under this SECTION 9D:
1. Prefinished items, in addition to those listed hereunder.
 2. Copper, stainless steel, and aluminum.
 3. Concrete slabs and foot traffic surfaces.
 4. Surfaces which are permanently concealed from view.

9I-04. SAMPLES

- a. Submit the following samples. in accordance with the requirements of the GENERAL CONDITIONS AND SUPPLEMENTARY CONDITIONS:
1. Samples of all colors, stains and finishes shall be prepared in advance of requirements so as not to delay work, and shall be submitted to the ARCHITECT for approval before any work is begun. All work done without such approval shall be redone to the ARCHITECT'S satisfaction at the CONTRACTOR'S expense
Paint samples shall be on separate Masonite hardboard panels.
 2. Natural finish and stain samples shall be submitted on species of wood intended for the project on 8 in. x 12 inch boards.

9I-05. COLORS AND SAMPLES

- a. Color scheme shall be in accordance with schedules provided by the ARCHITECT , and all tinting and matching shall be to the satisfaction of the ARCHITECT. The ARCHITECT reserves the right to select up to fifteen (15) percent of the total interior wall surfaces to receive bright accent colors at no additional cost.
- b. Provide all facilities for comparison and adjustment of colors, and place final samples for approval directly on the surface to be finished. machine mixing by the manufacturer's representative will be permitted where advantageous, but only after final approval of colors involved by the ARCHITECT.

9I-06. QUALITY ASSURANCE

- a. All materials used on work shall be exactly as specified in brand and quality. No claim by the PAINTING SUBCONTRACTOR as to unsuitability or unavailability of any material specified, or his unwillingness to use same or his inability to produce first-class work with same, will be entertained unless such claims are made in writing and submitted to the ARCHITECT. All paints, varnishes, enamels, lacquers, stains, paste fillers and similar materials must be delivered in original containers, with seals unbroken and labels intact.
- b. Before purchasing materials for the work, the PAINTING SUBCONTRACTOR shall submit to the OWNER a list of products be proposes to use, and the list shall be satisfactory to the OWNER and approved by him before commitment for materials is made.

9I-07. PRODUCT DELIVERY, STORAGE AND HANDLING

- a. Store all materials used on job in a single place designated by the GENERAL CONTRACTOR. keep storage places neat and clean. Any damage thereto, or to its surroundings, shall be made good by the PAINTING SUBCONTRACTOR.

II. MATERIALS

9I-08. PAINTING SCHEDULE

- a. To establish a standard of quality, all products are based on Sherwin-Williams Products, unless specifically noted otherwise or approved equal.
- b. All paint colors shall be selected by the OWNER/ARCHITECT from the paint manufacturers' standard colors.
- c. Prepare all surfaces to receive paint/stain, and follow all application instructions and recommendations as required by the paint/stain manufacturer. Perform all painting and staining as specified below:

d. **Exterior Work:**

1) Factory Primed Metal Items:

Latex Satin Finish 1st coat: Sherwin Williams A-100
Satin Latex House &
Trim, A82 Series

2nd coat: Sherwin Williams A-100
Satin Latex House &
Trim, A82 Series

2) Wood trim 2 coats Olympic solid color premium
and/or siding: acrylic latex stain,
Solid Stained mold & mildew resistant

3) Decking: 1 coat Olympic semi-transparent
deck stain, linseed oil
based, with scuff guard, UV
protectants, waterproofing
protection, and mildew
inhibitors

e. **Interior Work:**

1) Drywall Surfaces: 1st coat: Sherwin-Williams Promar 200
Latex Semi-Gloss Finish latex wall primer
B28W200 series

2nd coat: Sherwin-Williams Promar 200
latex semi-gloss,
B31W200 series

3rd coat: Sherwin-Williams Promar 200
latex semi-gloss,
B31W200 series

- 2) Drywall Surfaces: 1st coat: Sherwin-Williams Promar 200
Latex Eg-Shell Finish latex wall primer
 B28W200 series
- 2nd coat: Sherwin-Williams Promar 200
 latex Eg-Shell,
 B20W200 series
- 3rd coat: Sherwin-Williams Promar 200
 latex Eg-Shell,
 B20W200 series
- 3) Drywall ceilings: 1st coat: White latex base
 primer/sealer
- 2nd coat: New spraying Flat White -
 medium textured finish.
- (All ceilings except Bathroom Ceiling, these ceilings
 receive two coats ceiling flat white paint, no texture)
- 4) Wood: 1st coat: Sherwin-Williams wall &
Latex Semi-Gloss Finish wood primer, B49W22
- 2nd coat: Sherwin-Williams Promar 200
 Latex semi-gloss,
 B31W200 Series
- 3rd coat: Sherwin-Williams Promar 200
 Latex semi-gloss,
 B31W200 Series
- 5) Wood (Pre-Primed) 1st coat: Sherwin-Williams Promar 200
Latex Semi-Gloss Finish Latex semi-gloss,
 B31W200 Series
- 2nd coat: Sherwin-Williams Promar 200
 Latex semi-gloss,
 B31W200 Series

III. APPLICATION

9I-09. ACCEPTANCE OF SURFACES

- a. Inspect all surfaces and assure that they are in proper condition to receive work to be performed under this SECTION, 9I. Any questions as to the proper performance of the various paint systems specified herein shall be brought to the OWNER'S attention no later than fifteen (15) calendar days prior to the date of commencing work, otherwise, the PAINTING SUBCONTRACTOR shall assume the responsibility for providing the desired results.
- b. If the surfaces are not thoroughly dry, or if they cannot be put in proper condition to receive paint by customary cleaning methods, or sanding, the PAINTING SUBCONTRACTOR shall notify the GENERAL CONTRACTOR in writing requesting necessary corrections.

- c. The commencement of work in any space by the PAINTING SUBCONTRACTOR will be construed as acceptance of the surface as being satisfactory, and any defects to his work resulting from such accepted surfaces shall be corrected by him at his own expense.

9I-10. PROTECTION

- a. Furnish and lay drop cloth in all rooms and areas where painting and finishing is being done to adequately protect flooring and other work from damage during the prosecution of the painting work.
- b. Remove all canopies of lighting fixtures, all electric switch plates, and similar equipment, set them carefully away, and cover adequately; protect the fixtures, etc., replace the canopies, plates, etc., in as good condition as when found.
- c. Materials shall be stored only where directed, Oily rags and waste must be removed from the building every night, and under no circumstances will they be allowed to accumulate. Each space containing stored paint material shall be provided with a two and one-half (2 1/2) gallon fire extinguisher bearing the label of the National Board of Fire Underwriters.

9I-11. WORKMANSHIP

- a. Perform all work with skilled mechanics under adequate supervision.
- b. Apply all materials under adequate illumination, spreading and smoothly flowing the materials on without runs, sags, or holidays.
- c. Perform no work in the rain, dew, or fog, when the temperature is below fifty (50) degrees F., or before the other finish materials have been thoroughly dried out.
- d. Clean all surfaces to be painted free of loose dirt and dust before painting is started.

9I-12. SURFACE PREPARATION

- a. Wood to be finished natural
 - 1. Minor defects shall be made smooth by sanding and/or by the use of steel wool.
 - 2. Fill up nail holes, cracks, etc., with lead putty or plastic wood, tint putty to match finished wood.

- b. Ferrous metals
 - 1. Remove rust and all foreign materials down to bright metal by wire brushing or sanding.
 - 2. Remove all grease or dirt with mineral spirits before applying the paint.
- c. Galvanized metal - All galvanized metal surfaces shall be treated with copper sulfate or with a compound made for this purpose (Lithoform, Solfo Metallic Coating, etc.) in accordance with the manufacturer's directions, before applying the first coat of paint.
- d. Drywall
 - 1. Any rough spots in drywall surfaces shall be sanded before applying primer coat.
 - 2. All suction spots of the compound surfaces (hot spots) after the application of the first coat shall be touched up before applying the second coat to produce an even result in the finish coat.

9I-13. APPLICATION

- a. Apply all materials in accordance with the manufacturer's specific recommendations, coverage rates, thinning no more than the recommended amount. Assure that all materials are free from skinning, lumps, or any foreign matter and keep well stirred during application.
- b. Evenly brush out each finish coat and permit to dry for at least twenty-four (24) hours before applying any subsequent coats.
- c. Make each coat a different tint from that of the preceding coat, with final coat tinted to the exact shade selected by the OWNER. Lightly sand surfaces between each coat of gloss and semi-gloss enamels, and wipe clean.
- d. Perform all required back-priming work before items are installed.

9I-14. COMPLETION

- a. Cleaning - At the completion of the work of this SECTION, remove all paint spots and oil or grease stains, caused by this work from floors, walls, fixtures, hardware and equipment, leaving their finishes in a satisfactory condition. Remove all materials and debris and leave the site of work in a clean condition so far as this work is concerned.

- b. Final Inspection - protect all painted and finished surfaces against damage until the date of final acceptance of the work. The ARCHITECT will conduct a final inspection of all painters' work and the PAINTING SUBCONTRACTOR will be required to repaint, refinish, or retouch any areas found which do not comply with the requirements of this SECTION 9I.

- c. NOTE: Any retouch work required after painted and finished faces have been accepted by the ARCHITECT, will be paid for by the PAINTING SUBCONTRACTOR.

END OF SECTION

SECTION 10A
MISCELLANEOUS SPECIALTIES

I. GENERAL

10A-01. GENERAL PROVISIONS

- a. PART A and DIVISION a of PART B are hereby made a part of this SECTION.

10A-02. WORK TO BE PERFORMED

- a. Furnish and install the following items, as shown on the DRAWINGS and specified herein:
1. Portable fire extinguishers; one(1) in each boiler room.

10A-03. SHOP DRAWINGS

- a. Submit a complete shop drawings in accordance with the requirements of the GENERAL CONDITIONS AND SUPPLEMENTARY CONDITIONS.
- b. Shop Drawings shall include cuts and dimensioned details of miscellaneous items to be furnished hereunder.

II. MATERIALS

10A-04. INTENT

- a. It is the intent of the SECTION 10A to include only items which require no special manufacture, and all items indicated hereunder are standard products of the specified manufacturers.
- b. Names and model numbers of manufacturers set forth hereunder are specified to indicate the minimum standard of quality which will be acceptable and for sizes used in the design. To be considered for approval as an equal by the ARCHITECT, substitute items must be reasonably similar to specified items in all respects. The ARCHITECT will be the sole judge as to whether or not substitute items are equal.

10A-05. PORTABLE FIRE EXTINGUISHERS

- a. Type - Dry Chemical type for Class ABC fires, 10 pound capacity, U. L. rated 4A-60BC, enameled steel case, J. L. Industries Cosmic 10E, Larsen MP-10, Kidde 10 TAS-1, or equal.

- b. Wall Brackets - Larsen's B-2 for MP series extinguishers or approved equal, unless fire extinguisher is supplied with manufacturer's standard wall bracket.

III INSTALLATION

10A-06. INSTALLATION AND PLACEMENT

- a. Furnish items, required to be built in by other SECTIONS, in sufficient time as not to delay the respective work and provide specific instructions regarding the installation of such built-in items.

- b. Install specialty items in strict accordance with the approved shop drawings, the CONTRACT DRAWINGS, and specific recommendations of the various manufacturers.

END OF SECTION

SECTION 10B
TOILET ACCESSORIES

I. GENERAL

10B-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

10B-02. WORK TO BE PERFORMED

- a. Furnish the following items for installation under the designated SECTIONS:
1. Toilet room accessories, of the types specified hereunder, SECTION 6B, FINISH CARPENTRY.
 2. Templates, for drilling of holes in walls as required to receive grab bars and other accessories required to be attached: SECTION 6B FINISH CARPENTRY.

10B-03. SHOP DRAWINGS

- a. Submit a complete schedule of all toilet and bath accessories to be provided, along with product cuts and information for each item for review and approval by the ARCHITECT.

II. MATERIALS

10B-04. MANUFACTURE

- a. Toilet accessories shall be manufactured by Nutone-Hall Mack, Division of Scoville, Cincinnati, Ohio; Bobrick Washroom Equipment, Inc., Brooklyn, New York; Miami Carey, Monroe, Ohio; Allom Florence Corp., Franklin Brass, Kent Monarch, or Lawson.

10B-05 ACCESSORIES SCHEDULE

- a. Unless otherwise noted, the finish of all metal accessories shall be polished stainless steel or polished chrome.
1. Include all fastening and attachment devices suitable for the surface to which the accessory will be applied.
 2. Shower Curtain Rod shall be equal to Miami Carey #8068, or Lawson Pilgrim, 300 series, 1 in. diameter, 20 gauge stainless steel, exposed screw installation. Curtains are not included.

3. Grabrails shall be 1 1/2" OD. heavy duty knurled stain less steel equal to Nutone-Hall Mack. (To meet ANSI 117.1, 1980)
 - At Handicap bathtub: provide one 24" HN-5202 horizontal bar and two 48" HM-5202 horizontal bar.
 - At Handicap toilets provide one 36" HM-5202 horizontal bar and one 42" HM-5202 horizontal bar.

All grabrails shall be tested and guaranteed to sustain a dead weight of 250 lbs. for 5 minutes.

4. Towel Bar shall be equal to Miami Carey 150 Series Chrome, square bar, or Lawson 400 series with 3/4 in square chrome bar in various lengths, as shown on DRAWINGS. Metal shall be used to provide concealed fastening for flanges. Provide 1 (one) 24" long towel bar per bathroom.
5. Toothbrush, tumbler holder shall be equal to Bobrick #B-679.
6. Robe Hook shall be equal to Nutone-Hall #HM-781.
7. Toilet paper holder shall be surface mounted Miami Carey #167 or Lawson 400 series.

III. INSTALLATION

10B-06. INSTALLATION OF ACCESSORIES

- a. Installation of accessories will be performed under SECTION 6B, FINISH CARPENTRY
- b. Furnish all required templates, and fasteners for all accessories.

END OF SECTION

SECTION 11A
EQUIPMENT

I. GENERAL

11A-01. GENERAL PROVISIONS

- a. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

11A-02. WORK TO BE PERFORMED

- a. Furnish and install the following, as shown on the DRAWING and specified herein:
1. Range Hoods
 2. Ranges
 3. Refrigerators
 4. Dishwashers (See SECTION 1G ALTERNATES)
 5. Disposers

II. EQUIPMENT

11A-03. RANGE HOOD

- a. Kenmore, Model # 22-51040
Dimensions: 30" wide, 6" deep
- b. 120 volts
- c. Hood to be equipped with light.
(Note: Handicap units to have wall mounted switch)
- d. Color: White

11A-04. ELECTRIC RANGE (Front Control)

- a. Kenmore Model #22-62071
Dimensions: 44" high, 30" wide, 28" deep
- b. 240 volts
- c. Color: White
- d. Not self-cleaning

(Include "pigtail" wired to range and ready to plug into receptacle.)
- e. Color: White

- 11A-05. REFRIGERATOR
 - a. Kenmore, Model #46-36601
Dimensions: 64" high, 28" wide, 29" deep.
 - b. 120 volts
 - c. Storage total = 16 cu. ft.
 - d. Frostless
 - e. Color: White

- 11A-06. DISHWASHER (ALTERNATE)
 - a. Kenmore, Model # 22-14071
Dimensions: 24" wide, 24" deep
 - b. 120 volts
 - c. Color: White

- 11A-07. DISPOSER
 - a. Kenmore, Model #42-60514
 - b. 120 volts

- 11-08. HANDICAP UNIT REQUIREMENTS
 - a. All appliances in handicap units shall conform to requirements of ANSI 117.1, 1990.

END OF SECTION

SECTION 02200 - EARTHWORK

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK:

- A. Work Includes: All excavating, filling, backfilling, removal of materials, shoring and bracing, and dewatering.

Earthwork for utilities is included in this section.

1.02 PROTECTION:

- A. Paved Surfaces: Do not operate equipment on paved surfaces which will damage these surfaces.
- B. Maintain excavations with approved barricades, lights, and signs to protect life and property until excavation is filled and graded to a condition acceptable to the Engineer.
- C. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

1.03 QUALITY ASSURANCE:

- A. Testing and Inspection: See Section 01400 for general requirements. Contractor will pay for all aggregate gradation testing. Owner will pay for moisture maximum density tests and field compaction tests as stated in Section 01400.

1.04 SUBMITTALS:

- A. Test Reports: Submit the following reports:
- Reports on Material Gradations

1.05 JOB CONDITIONS:

- A. Site Information: Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that Owner will not be responsible for interpretations or conclusions drawn therefrom by Contractor. Data is made available for

convenience of Contractor. Additional test borings and other exploratory operations may be made by Contractor at no cost to Owner.

- B. Existing Utilities: Locate existing utilities in areas of work. If utilities are to remain in place, provide adequate means of protection during earthwork operations.

Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult Owner immediately for directions. Cooperate with Owner in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of Owner.

Do not interrupt existing utilities serving facilities occupied and used by Owner or others, except when permitted in writing by Engineer and then only after acceptable temporary utility services have been provided.

Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with Owner for shutoff of services if lines are active.

- C. Use of Explosives: Not permitted unless required by change order for rock excavation.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. General:

1. Suitable Materials: Materials shown on the Drawings, or specified herein.
2. Unsuitable Materials: Materials containing clay, vegetation, organic matter, debris, pavement, stones, or boulders over 6 inches in greatest dimension, and frozen material. Any material which, in the opinion of the Engineer, will not provide a suitable foundation or subgrade.
3. On-Site Materials: Any suitable material from on-site excavation.
4. Material for embankments and general fills may contain pieces of excavated ledge having a greatest dimension of up to 12 inches if approved by the Engineer.
5. Inspection: The Engineer may inspect off-site sources of materials and order tests of these materials to verify compliance with these specifications.

- B. Gravel: Hard, durable stone with coarse to fine sand. Sieve analysis by weight:

<u>Sieve Size</u>	<u>% Passing</u>
3"	100
1/4"	30 - 70
40	0 - 30
200	0 - 5

C. Sand: Sieve analysis by weight:

<u>Sieve Size</u>	<u>% Passing</u>
3/8"	100
No. 4	95 - 100
No. 16	50 - 85
No. 100	2 - 10

D. Aggregate Sub-Base: Material shall be a screened or crushed gravel of hard durable particles, free of vegetable matter, lumps or balls of clay, or other deleterious substances. The gradation of that portion passing the 3-inch sieve shall meet the following gradation:

Maine D.O.T. 703.06. (a) Type C. Sieve analysis by weight:

<u>Sieve Size</u>	<u>% Passing</u>
1/4"	25 - 70
No. 40	0 - 30
No. 200	0 - 5.0

E. Aggregate Base: Material shall be a screened or crushed gravel of hard durable particles free of vegetable matter, lumps or balls of clay, or other deleterious substances. The gradation of that portion passing the 3-inch sieve shall meet the following gradation:

Maine D.O.T. 703.06. (a) Type B. Sieve analysis by weight:

<u>Sieve Size</u>	<u>% Passing</u>
1/2"	35 - 75
1/4"	25 - 60
No. 40	0 - 25
No. 200	0 - 5.0

Aggregate for base shall not contain any particle which will not pass the 2-inch square sieve.

- F. 3/4" Crushed Stone: Durable, clean, angular rock fragments obtained by breaking and crushing rock material. Sieve analysis by weight:

<u>Sieve Size</u>	<u>% Passing</u>
1"	100
3/4"	95 - 100
1/2"	35 - 70
3/8"	0 - 25

G.

- H. Refill Material: Crushed stone for refilling excavation below grade or rock excavation unless otherwise directed by the Engineer.
- I. Granular Fill: Sand or gravel of hard, durable particles, free from clay, organic material, vegetation, and debris.

Unsuitable Material for Granular Fill: Pieces of concrete, masonry, and pavement; stones having a dimension of 6 inches or more; material that cannot be properly compacted.

Obtain approval from the Engineer before using any material as granular fill.

PART 3 - EXECUTION

3.01 EXCAVATION:

- A. General: Remove all materials encountered to the limits shown on the drawings, or designated in the specifications.
- B. Classifications: Excavation will be classified as earth excavation or rock excavation when unanticipated rock excavation is encountered in work.

Do not perform rock excavation until material to be excavated has been cross-sectioned and classified by Engineer. Rock excavation will be paid on basis of contract conditions relative to changes in work.

- C. Earth Excavation: Removal and disposal of pavements and other obstructions visible on ground surface, underground structures and utilities indicated to be demolished and removed, and other materials encountered that are not classified as rock excavation or unauthorized excavation.

- D. Excavation for Structures: Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10', and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection.

In excavating for footings and foundations, take care not to disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive other work.

- E. Rock Excavation: Removal and disposal of materials that cannot be excavated without drilling and blasting, or the use of special equipment, except such materials that are classified as earth excavation.

Typical materials classified as rock are solid rock, rock in ledges, and rockhard cementitious aggregate deposits one cubic yard or more in volume.

Intermittent drilling or ripping performed to increase production and not necessary to permit excavation of material encountered will be classified as earth excavation.

Rock Excavation Does Not Include: Removal of material which can be removed with a hand pick or power shovel.

Over excavate rock encountered near the bottom of excavations as directed by Engineer if partial bearing of foundation on rock may result. Refill material, if required, will be paid for as Select Backfill.

- F. Rock Payment Lines:

Two feet outside of concrete work for which forms are required, except footings.

One foot outside perimeter of footings.

Pipe Trenches: As shown on Drawings or as required for installation of pipe and bedding material.

Neat outside dimensions of concrete work where no forms are required.

Under slabs on grade, 6" below bottom of concrete slab.

- G. Excavation for Pavements: Cut surface under pavements to comply with cross-sections, elevations, and grades as shown.

- H. Excavation in Paved Areas: Cut pavement prior to excavation to provide a clean, uniform edge. Minimize disturbance of remaining pavement. Cut and remove the minimum amount of pavement required to do the work.

Use shoring and bracing where sides of excavation will not stand without undermining pavement.

- I. Excavation for Trenches: Dig trenches to the uniform width required for particular item to be installed, sufficiently wide to provide ample working room.

Excavate trenches to depth indicated or required. Carry depth of trenches for piping to establish indicated flow lines and invert elevations. Beyond building perimeter, keep bottoms of trenches sufficiently below finish grade to avoid freeze-ups.

Where rock is encountered, carry excavation 6" below required elevation and backfill with a 6" layer of bedding material prior to installation of pipe.

Grade bottoms of trenches as indicated, notching under pipe bells to provide solid bearing for entire body of pipe.

- J. Unauthorized Excavation: Removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, including refilling, is at Contractor's expense.

- K. Refilling Unauthorized Excavation:

1. Trenches: Use crushed stone or gravel.
2. Earth Excavation for Structures: Use gravel.
3. Elsewhere: Backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Engineer.

- L. Excavation Below Grade: When excavation has reached required subgrade elevations, notify Engineer who will make an inspection of conditions. If unsuitable materials exist at required subgrade elevations, carry excavations deeper and replace excavated material as directed by Engineer.

- M. Material Storage: Stockpile suitable excavated materials where directed, until required for backfill or fill. Place, grade, and shape stockpiles for proper drainage.

Locate and retain soil materials away from edge of excavations.

3.02 STABILITY OF EXCAVATIONS:

- A. General: Slope sides of excavations to comply with OSHA regulations and local codes. Shore and brace where sloping is not possible.

Maintain sides and slopes of excavations in safe condition until completion of backfilling.

- B. Shoring and Bracing: Provide materials for shoring and bracing to comply with OSHA requirements and local codes.

Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.

3.03 DEWATERING:

- A. General: Perform all work in the dry. Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding area.

Do not allow water to accumulate in excavations. Provide and maintain pumps and dewatering system components necessary to convey water away from excavations.

Convey water removed from excavations and rain water to collecting or run-off areas. Establish and maintain temporary drainage ditches and other diversions outside excavation limits for each structure. Do not use trench excavations as temporary drainage ditches.

- B. Payment: Costs of dewatering are incidental to other work. No payment will be made for dewatering, including dewatering required for excavation below normal grade.

3.04 BACKFILL AND FILL:

- A. General: Place acceptable soil material in layers to required elevations as shown on the Drawings and as listed below.

Fill, backfill, and compact to produce minimum subsequent settlement of the material and provide adequate support for the surface treatment or structure to be placed on the material. Place material in approximately horizontal layers beginning at lowest area to be filled. Do not impair natural drainage.

- B. Backfill excavations as promptly as work permits, but not until completion of the following:

Acceptance of construction below finish grade, including dampening, waterproofing, and perimeter insulation.

Inspection, testing, approval, and recording locations of underground utilities and pipe.

Removal of concrete formwork.

Removal of shoring and bracing, and backfilling of voids with satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in manner to prevent settlement of the structure or utilities, or leave in place if required.

Removal of trash and debris.

Permanent or temporary horizontal bracing is in place on horizontally supported walls.

Use care in backfilling to avoid damage or displacement of underground structures and pipe.

- C. Ground Surface Preparation: Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of materials.

- D. Placement: Place backfill and fill materials in layers not more than 12" in loose depth for material compacted by heavy compaction equipment and not more than 6" in loose depth for material compacted by hand operated tampers. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

Place backfill and fill materials evenly adjacent to structures to required elevations. Take care to prevent wedging action of backfill against structures by carrying material uniformly around structure to approximately same elevation in each lift.

Backfill cast-in-place concrete structures when the concrete has developed adequate strength. Do not allow heavy machinery within 5 feet of structure during backfilling and compacting.

- E. Pipe Bedding: See Drawings.

- F. Replacement of Unsuitable Materials:

1. Below Normal Grade: See Paragraph 3.01

2. Above Normal Grade: Replace unsuitable material with suitable on-site material or common borrow. If additional material is required, use Select Backfill. Payment for Select Backfill will be made on the basis of contract conditions relative to change in the work.

3.05 COMPACTION:

A. Methods: Use methods which produce the required degree of compaction throughout the entire depth of material placed without damage to new or existing facilities and which are approved by the Engineer. Adjust moisture content of soil as required. Remove and replace material which is too wet to compact to required density.

B. Degree of Compaction: Compact to the following minimum densities:

Fill & Backfill Location	Density
Under Structure Foundations	95% of max.
Top 2 Feet Under Pavement	95%
Below Top 2 Feet Under Pavement	93%
Trenches Through Unpaved Areas	90%
Embankments	90%
Pipe Bedding	90%
Within 10 Feet of Structure Foundation	
Walls, Tank Walls, & Retaining Walls	91-93%
Subfloor Fill Not Supporting Footings	92%

Maximum Density: ASTM D1557, modified

Field Density Tests: ASTM D1556 (sand cone), ASTM D2167 (rubber balloon), or ASTM D2922 (nuclear)

C. Testing: Determine actual in-place densities using field tests as directed by the Engineer. Tests will be made by an independent laboratory. Costs for initial tests will be paid by Owner; see Section 01400.

Perform additional work to obtain proper compaction if in-place densities do not meet the specified densities. Retesting may be required by the Engineer.

D. Minimum Number of Tests:

1. Paved Areas and Building Slab Subgrade: Make at least one field density test of subgrade for every 2,000 square feet of paved area or building slab, but in no case less than 3 tests. In each compacted fill layer, make one field density test for every 2,000 square feet of overlaying building slab or paved area, but in no case less than 3 tests.
2. Foundation Wall Backfill Outside of Structure: Make at least two field density tests at locations and elevations as directed.

3.06 GRADING:

- A. Grading: Uniformly grade areas within limits of grading, including adjacent transition areas. Smooth finished surface within specified tolerances and compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.
- B. Grading Outside Building Lines: Grade areas adjacent to structure line to drain away from structures and to prevent ponding.
- C. Finish surfaces free from irregular surface changes as follows:
 1. Pavements: Shape surface of areas under pavement to line, grade, and cross-section, with finish surface not more than 1/2" above or below required subgrade elevation.
 2. Fill Under Slabs: Grade smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of 1/2" when tested with a 10' straightedge.
- D. Compaction: After grading, compact subgrade surfaces to the percentage of maximum density for each area classification.
- E. Pavement Base: Place on prepared subgrade in layers of uniform thickness conforming to indicated cross-section and thickness.

3.07 PAVEMENT SUBBASE COURSE:

- A. General: Subbase course consists of placing subbase material, in layers of specified thickness, over subgrade surface to support a pavement base course.
- B. Grade Control: During construction, maintain lines and grades, including crown and cross-slope of subbase course.

- C. Placing: Place subbase course material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting subbase material during placement operations.

When a compacted subbase course is shown to be 6" thick or less, place material in a single layer. When shown to be more than 6" thick, place material in equal layers, except no single layer more than 6" or less than 3" in thickness when compacted.

3.08 MAINTENANCE:

- A. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.

Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

- B. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape, and compact to required density prior to further construction.

3.09 DISPOSAL OF EXCESS AND WASTE MATERIALS:

- A. Removal from Owner's Property: Remove waste materials, including unacceptable excavated material, trash, and debris, and dispose of it off Owner's property.

* END OF SECTION 02200 *

SECTION 02550 - SEWERS AND DRAINS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK:

- A. Provide sanitary sewer and storm drain system as shown on the drawings. This section includes sanitary sewer pipe and house service pipes.
- B. Earthwork: Section 02200 (includes excavation, bedding, backfill).
- C. Catchbasins: Section 02570.

1.02 QUALITY ASSURANCE:

- A. Remove damaged pipe from job site.

1.03 SUBMITTALS:

- A. Manufacturer's product data and installation instructions.

PART 2 - PRODUCTS

2.01 PIPE AND FITTINGS:

- A. General: Furnish fittings of same type and class of materials as pipe.
- B. PVC Non-Pressure Pipe: ASTM D3034 or ASTM D3033, strength requirement SDR 35, push-on joints ASTM D3212, gaskets ASTM F-477.
- C. Underdrain and Drain: Corrugated polyethylene drainage tubing, highway grade, AASHTO M252, ASTM F-405-74, equal to drainage tubing produced by Advanced Drainage Systems.

2.02 MISCELLANEOUS:

- A. Flexible Adaptors: Neoprene sleeve with stainless steel bands equal to those manufactured by Fernco, Calder Couplings.
- B. Manhole Seals: Use segmented neoprene seal with stainless steel bolts as manufactured by Link-Seal Corp.

PART 3 - EXECUTION

3.01 INSTALLATION OF GRAVITY PIPE AND FITTINGS:

- A. Methods: Install in accordance with manufacturer's recommendations using a laser beam for line and grade. Secure each length of pipe with bedding before placing next length. Plug open ends when work is suspended. Bed pipe as shown on drawings.
- B. Grade and Line: Lay pipe to line and grade shown on the drawings. If grade is not shown, determine elevations of start and finish points for each run of pipe. Lay pipe to a uniform grade between these points.
- C. Conditions: Lay pipe in the dry. Do not use installed pipe to remove water from work area.
- D. Flush all pipe and remove debris.
- E. Connections to Catchbasins: Provide short length of pipe so that joints are located within 3 feet of inside surface of manholes.
- F. Repair all pipes not passing tests using materials and methods approved by the Engineer, and retest.

* END OF SECTION 02550 *

SECTION 02570 - CATCHBASINS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK:

- A. Provide manholes as shown on the drawings. This section includes:
 - Precast Catchbasins
 - Frames and Grates
- B. Earthwork: Section 02200
- C. Sewers and Drains: Section 02550

1.02 QUALITY ASSURANCE:

- A. General: Provide complete catchbasin structures capable of supporting AASHTO H2O loading.
- B. Precast Catchbasin Components: ASTM C478

1.03 SUBMITTALS:

- A. Shop Drawings: Submit for precast catchbasins. Show components to be used, elevations of top, base and pipe inverts, location of pipe penetrations, steps, etc.
- B. Product Data: Manufacturers' product data and installation instructions for frames, grates, precast items, and joint sealants for precast sections.

PART 2 - PRODUCTS

2.01 CATCHBASINS:

- A. Base Sections: Precast concrete.
- B. Barrel Sections: Precast concrete with cast-in holes for pipe penetrations where pipes are larger than flexible sleeves.
- C. Top Sections: Precast concrete flat cover with eccentric hole for frame and grate.
- D. Joints Between Precast Sections:

1. Between Sections: 4" shi lap with two strips of 1" diameter butyl rubber sealant.
2. Pipe to Catchbasin Connections:

Pipe Sizes 6" or Larger: Flexible catchbasin sleeves equivalent to CP series manufactured by Interpace Corp. sized to fit diameter and type of pipe without using gaskets.

Pipe sizes larger than manufactured flexible sleeves mortar.

2.02 MASONRY MATERIALS:

- A. Sewer Brick: ASTM C32, Grade SS, hard brick.
- B. Mortar: Type M, ASTM C270. Use Type II Portland cement, Type S lime.

2.03 FRAMES AND COVERS:

- A. General:
 1. Coatings for all Frames, Grates, and Covers: Two coats coal tar pitch varnish applied after sandblasting to provide a smooth, tough, non-brittle, non-scaling finish. Repair damage to coatings to the satisfaction of the Engineer.
 2. Cast Iron: ASTM A48 Class 30.
- B. Frames and Grates:
 1. Catchbasins: Equivalent to Etheridge Foundry No. SA 248 M or SA 246 M where cover requirements dictate use of a shorter frame.

PART 3 - EXECUTION

3.01 INSTALLATION OF CATCHBASINS:

- A. Placement: Place bases on compacted bedding material so catchbasin structure is plumb and pipe inverts are at proper elevations. Place barrel and top sections in the appropriate height combinations. Plug all lifting holes inside and out with non-shrink mortar.

- B. Joints: Follow manufacturer's instructions for sealing joints between precast sections. Point joints with non-shrinking mortar.
- C. Frames and Covers: Set to final grade as shown on the drawings or set flush with pavement grade in paved areas or at grade in unpaved areas. Provide adequate temporary covers to prevent accidental entry until final placement of frame and grate is made.

3.02 REPAIRS:

- A. Determine causes of all leaks and repair them. Perform earthwork required if manhole has been backfilled.
- B. Perform repairs using methods and material approved by the Engineer. Remove and replace or reconstruct manhole if necessary. Remove and replace defective sections if required by Engineer.

* END OF SECTION 02570 *

SECTION 02513 - HOT BITUMINOUS PAVEMENT

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK:

- A. General: Provide hot bituminous pavement as shown on the Drawings. This work includes temporary and permanent trench paving and pavement overlay.

1.02 QUALITY ASSURANCE:

- A. Standards: "Standard Specifications Highways and Bridges," revision of January 1984, Maine Department of Transportation.
- B. Pavement Supplier and Plant: MDOT "Standard Specification," Section 401.08.

1.03 SUBMITTALS:

- A. Material Certificates: Certificates signed by material producer and Contractor stating that each material complies with specified requirements.
- B. Design Mix: Provide for each truckload of hot bituminous material.
- C. Certified Weigh Slips: Provide for each truckload of hot bituminous material.

1.04 JOB CONDITIONS:

- A. Weather and Seasonal Limitations: MDOT "Standard Specification," Section 401.07.
- B. Additional Limitations:
1. Apply bituminous prime and tack coats only when the ambient temperature in the shade is at least 50 degrees F for 12 hours immediately prior to application.
 2. Do not apply when the base surface is wet or contains an excess of moisture which would prevent uniform distribution and the required penetration.

PART 2 - PRODUCTS

2.01 AGGREGATE BASE:

- A. General: See Section 02200 - Earthwork.

2.02 HOT BITUMINOUS PAVEMENTS:

- A. General: Comply with materials requirements, MDOT "Standard Specification," Sections 403.
- B. Base Course: Grading B
- C. Surface Course: Grading C

2.03 BITUMINOUS TACK COAT:

- A. General: MDOT "Standard Specifications," Section 702.04.
- B. Grade: AE-90

PART 3 - EXECUTION

3.01 AGGREGATE BASE AND SUBBASE:

- A. General: MDOT "Standard Specifications," Section 304.

3.02 HOT BITUMINOUS PAVEMENTS:

- A. General: MDOT "Standard Specifications," Sections listed below.
- B. Base Course: Section 301
- C. Surface Course: Section 403

3.03 BITUMINOUS TACK COAT:

- A. General: Apply tack coat immediately prior to placing pavement to edge of cut pavement for adequate bond. Generally, a tack coat will not be required for pavement placed immediately following the rolling of the underlying course.
- B. Rate Application: 0.05 to 0.15 gallons per square yard.

3.04 TRENCH PATCHING:

- A. General: Place aggregate subbase and base as shown on the drawings and as specified in Section 02200.
- B. Permanent Patching:
1. Remove temporary pavement. Mechanically cut edges of existing pavement to a neat square edge to prevent deterioration of remaining pavement. Regrade base material and compact as required.
 2. Provide base and surface courses to the depths shown on the drawings.

3.05 WINTER CONSTRUCTION MAINTENANCE:

- A. General: If hot bituminous pavement is not available, provide cold patch and maintain trench until paving can be completed.

3.06 PAVEMENT OVERLAY:

- A. If more than 60% of the road surface has been damaged or removed as a result of this project, the damaged pavement is to be removed, a 2" thick base coat placed, and a 1" surface placed over the entire roadway width. Any reshaping of the surface is incidental to the paving including materials.

* END OF SECTION 02513 *

SECTION 15000 - SUPPLEMENTAL MECHANICAL GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 WORK SHOWN ON DRAWINGS

- A. The drawings accompanying this specification, as a part thereof, are working drawings indicating the location and arrangement of the increments of the systems of this section of work. The drawings are not intended to show in minute detail minor items of installation or materials such as specific fittings or findings.

1.02 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS

- A. The Contractor shall take field measurements and verify field conditions and shall compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the Architect.

1.03 SUPERVISION AND CONSTRUCTION PROCEDURES

- A. The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention.
- B. The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Owner in the Owner's administration of the Contract, or by tests, inspections or approvals required or performed by persons other than the Contractor.
- C. The Contractor shall enforce discipline and order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

1.04 PROTECTION OF WORK AND MATERIALS

- A. Take all measures necessary to prevent damage to materials before, during and after installation.
- B. Take adequate measures to prevent damage through environmental conditions. Store materials subject to damage through freezing in heated areas during cold weather. Store ferrous metals, wood and other materials subject to water damage, undercover and from direct contact with ground. Store cement and similar items in enclosed, weather tight buildings with raised floors.
- C. In case of damage, provide repairs/replacements to the approval of Architect, at no additional cost to Owner.
- D. As a minimum requirement, comply with recommendations of the material manufacturers for handling, storage, installation, and protection.

1.05 APPLICABLE CODES AND STANDARDS

- A. Work and materials shall conform to the latest rules and regulations listed below and these rules and regulations hereby are made part of this specification. They include, but are not necessarily limited to the following:

Air Moving and Conditioning Association (AMA)
American National Standards Institute (ANSI)
American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE)
American Society of Mechanical Engineers (ASME)
American Society for Testing and Materials (ASTM)

Building Officials Code Administration (BOCA)
Life Safety Code (NFPA 101)
Local and State Fire Code
Local and State Plumbing Codes
National Electric Code (NEC)
National Electrical Manufacturers Association (NEMA)
National Fire Protection Association (NFPA)
Office of Safety and Health Administration (OSHA)
Sheet Metal & Air Conditioning Contractor's National Association (SMACNA)
The Board of Fire Underwriters
Underwriters' Laboratories, Inc. (UL)

1.06 SUBMITTALS

- A. Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.
- B. The Contractor shall perform no portion of the work requiring submittal and review of Shop Drawings until the respective Submittals have been reviewed and accepted by the Engineer.

1.07 SUBSTITUTIONS

- A. Whenever a material, article, or piece of equipment is identified on the Drawings or in the Specifications by reference to manufacturers' or vendors' names, trade names, catalog numbers, or the like, it is so identified for the purpose of establishing a standard, and any material, article, or piece of equipment of other manufacturers or vendors which will perform adequately the duties imposed by the general design will be considered equally acceptable provided the material, article, or piece of equipment so proposed is, in the opinion of the Architect and Engineer, of equal substance, appearance and function. It shall not be purchased or installed by the Contractor without the Architect's and Engineer's written approval.

1.08 USE OF SITE

- A. The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

PART 2 - PRODUCTS / NOT USED

PART 3 - EXECUTION

3.01 REMOVAL AND ALTERATION WORK

- A. Unless indicated otherwise, perform all work necessary for the removal, alteration, relocation of existing work and for the joining of new work to existing. Unless indicated otherwise, provide work to match existing and equal to quality of new work as specified under this Section, and as approved by Engineer and Owner. Removals shall be complete and shall include disposal and disposal fees for removed items.

3.02 CUTTING AND PATCHING

- A. The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit properly.
- B. The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractor by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner

and of such separate contractor; such consent shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

3.03 GRADES AND ELEVATIONS

- A. Establish and maintain grades and elevations in connection with this work.

3.04 EQUIPMENT SUPPORTS

- A. Furnish and install equipment supports for mechanical equipment as required.

3.05 SLEEVES, INSERTS AND PREPARED OPENINGS

- A. Provide anchors, sleeves, inserts, lugs, clips, brackets, braces, hangers, bolts and miscellaneous metal.
- B. Points of traverse of piping through masonry, fire-rated and smoke-rated walls, floors, partitions, and into air plenums shall be through iron sleeves. Sleeves through nonrated wall assemblies may be Schedule 40 PVC. Oversize sleeves for insulation or firestop as required.

3.06 CONNECTION TO EQUIPMENT

- A. Provide piping connections, supports, brackets, compensators or flexible connections to prevent application of excessive stresses to equipment.
- B. Equipment shall be installed with flanges or unions in such a manner as to permit disconnecting for removal of tubes, coils, elements and other equipment for inspection, service and repairs.

3.07 GUARDS

- A. Exposed moving and rotating elements of mechanical equipment items shall be protected with suitable guards for personnel protection. Guards shall be of rigid construction, firmly positioned. Holes shall be provided in guards at shaft centers to facilitate tachometer readings. OSHA requirements will govern.

3.08 LUBRICATION

- A. Furnish and install grease fittings for points requiring lubrication. Furnish extension type fittings as required to provide easy access for maintenance lubrication.
- B. Furnish initial charges of lubricants for equipment. Lubricants shall be in conformance with the manufacturer's requirements and recommendations.

3.09 ELECTRIC MOTORS AND MOTOR CONTROLS

- A. Unless otherwise noted, motors, motor starters and other electrical accessories which are specified under Mechanical specifications shall be selected with characteristics as follows:
 - ½ Horsepower and less - 120 volt, 1 phase 60 Hz.
 - ¾ Horsepower and larger - 240 volt, 1 phase, 60 Hz.
- B. Motors shall be built in accordance with the latest applicable "NEMA, IEEE and ANSI Standards. Motors shall be of the latest type specified under individual items of equipment. Motors shall have a continuous duty service factor of 1.15.
- C. Magnetic motor starters for mechanical items of equipment shall be furnished under Division 16 unless the starter is an integral part of a factory packaged item of equipment. Each starter furnished as an integral item of equipment shall be provided with overload heater elements. Starters shall be equipped with suitable step-down transformers to provide required control voltage.

3.10 STARTING OF EQUIPMENT

- A. Testing or starting of equipment shall be done in collaboration with trades concerned to insure safe and proper operation of the equipment.
- B. Prior to starting equipment, provide lubrication at required points. Before starting any electrical or electric motor driven equipment, insure that proper heater coils are installed in the starters and that the equipment is rotating in the proper direction.

3.11 OPERATIONAL TESTING

- A. Operate systems until successful operation is demonstrated to the Architect. This initial operation shall be in addition to the testing of the system and shall be done after the system is cleaned and finished.

3.12 MANUFACTURER'S INSTRUCTIONS, OPERATION AND MAINTENANCE DATA

- A. Provide for each item of equipment or apparatus furnished, a complete set of printed instructions obtained from the manufacturer covering proper operation, maintenance, lubrication, cleaning, servicing, adjustment, and safety instructions. Manufacturer's data shall include performance data (curves are preferred where applicable) complete parts lists, recommended spare parts lists, piping, and wiring diagrams.

3.13 RECORD DRAWINGS

- A. During construction, keep an accurate record of deviations to the installation of the work indicated on the drawings. Upon completion of the work, furnish a copy of this record to the Architect. Submit record drawings before requesting final payment.

3.14 GUARANTEES

- A. Provide guarantees conforming to the requirements of the General Conditions, Supplementary General Conditions, and Division 1. Provide special guarantees as indicated in the individual sections of Division 15.

END OF SECTION

SECTION 15250 - INSULATION

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. The Supplemental Mechanical General Requirements are hereby made a part of the work of this section.

1.02 DESCRIPTION

- A. The work covered by this Section of the specifications includes the furnishing of labor, materials, equipment, transportation, permits, inspections and incidentals and the performing of operations required to insulate the heating, ventilating, and plumbing systems indicated.

1.03 SUBMITTALS

- A. The items for which the submittals apply are as follows:

- 1. Piping insulation.

1.04 DEFINITIONS

- A. Finished Spaces: Spaces used for habitation or occupancy where surfaces are plastered, paneled, or otherwise treated to provide a finished appearance.
- B. Unfinished Spaces: Spaces used for storage or work areas where appearance is not a factor, such as unexcavated spaces and crawl spaces.
- C. Concealed Spaces: Spaces out of sight. For example, above ceilings; below floors; between double walls; furred-in areas; pipe and duct shafts; and similar spaces.
- D. Exposed: Open to view. For example, pipe running through a room and not covered by other construction.
- E. Fugitive Treatments: Treatments subject to deterioration due to aging, moisture, high humidity, oxygen, ozone, and heat. Fugitive materials are entrapped materials that can cause deterioration, such as solvents and water vapor.
- F. Outside: Open to view up to 5 feet beyond the exterior side of walls, above the roof, and unexcavated or crawl spaces.

1.05 MANUFACTURER'S STAMP OR LABEL

- A. Packages or standard containers of insulation, jackets, cements, adhesives, and coatings delivered to the project site for use must have the manufacturer's stamp or label attached giving name of manufacturer, brand, and description of material. Insulation shall be asbestos-free.

1.06 FLAME SPREAD AND SMOKE DEVELOPED RATINGS

- A. In accordance with NFPA 255, ASTM E 84 or UL 723, the materials shall have a flame-spread rating of not more than 25 and a smoke-developed rating of not more than 50.
- B. Materials Tests: Test factory-applied materials as assembled. Field-applied materials may be tested individually. Use no fugitive or corrosive treatments to impart flame resistance. UL label or satisfactory certified test report from a testing laboratory will be required to indicate that fire hazard ratings for materials proposed for use do not exceed those specified. Flame-proofing treatments subject to deterioration due to effects of moisture or high humidity are not acceptable.
- C. Materials Exempt From Fire-Resistant Rating: Nylon anchors.

PART 2 - PRODUCTS

2.01 PIPING INSULATION

- A. Piping Insulation: Heavy density preformed fiberglass with thermal conductivity of 0.29 btu-in/hr-ft²-°F at 150°F mean temperature. Insulation shall conform to ASTM C547 Class I and shall be suitable for 450°F service. Fitting insulation shall be of same material used for pipe. Insulation Jacket: All service (ASJ) type conforming to Fed. Spec. HH-B-100B Type I, with fire hazard classification (flame/smoke) 25/50 (ASTM E84). Jacket permeability shall not exceed 0.02 perms (ASTM E96). Pipe fitting jacket shall be molded PVC covers with pressure sensitive taped joints, aluminum (AL) type, 0.020" thick.
- B. Piping Insulation: Flexible unicellular with thermal conductivity of 0.27 btu-in/hr-ft²-°F at 75°F mean temperature. Insulation shall conform to ASTM C534, Type I, Tubular and shall be suitable for 200°F service. Fitting insulation shall be of same material used for pipe. Permeability shall not exceed 0.02 perms (ASTM E96). Insulation adhesive shall conform to Mil. Spec. MIL-A-24179A, Type II, Class 1. Insulation and adhesive fire hazard classification (flame/smoke) shall not exceed 25 flame spread, 50 smoke developed (ASTM E84).
- C. Piping Insulation: Flexible closed cell polyolefin unicellular with thermal conductivity of 0.24 btu-in/hr-ft²-°F at 75°F mean temperature. Insulation shall conform to ASTM C534, Type I, Tubular and shall be suitable for 200°F service. Fitting insulation shall be of same material used for pipe. Permeability shall not exceed 0.03 perms/inch (ASTM E96). Insulation adhesive shall conform to Mil. Spec. MIL-A-24179A, Type II, Class 1. Insulation and adhesive fire hazard classification (flame/smoke) shall not exceed 25 flame spread, 50 smoke developed (ASTM E84). Load deflection shall not exceed 25% at 5 PSI (ASTM D-1621). Tensile strength - 50 PSI (ASTM D-412). Insulation and adhesive shall be suitable for direct burial and shall have a guaranteed 10 year outdoor life without painting or other protection, and shall be suitable for painting with latex enamel.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. Inspection:
1. Prior to work of this Section, carefully inspect the installed work of other trades and verify that such work is complete to the point where this installation may properly commence.
 2. Verify that the insulation systems may be installed in accordance with pertinent codes and regulations and the reviewed Submittals.

3.02 PREPARATION

- A. Insulate after system tests have been completed and surfaces to be insulated have been cleaned of dirt, rust, and scale and dried. Install insulation with jackets drawn tight and cement down longitudinal and end laps. Do not use scrap pieces where a full length section will fit. Insulation shall be continuous through sleeves, wall and ceiling openings, except at fire dampers in duct systems and pipe penetrations through fire rated assemblies. Extend surface finishes to protect ends, and raw edges of insulation. Apply coatings and adhesives at the manufacturer's recommended coverage per gallon. Individually insulate piping and ductwork. Keep insulation dry during the application of the finish. Bevel and seal the edges of exposed insulation. Unless otherwise indicated, do not insulate the following:
1. Factory preinsulated flexible ductwork.
 2. Factory insulated ductwork, plenums, casings, mixing boxes, filter boxes.
 3. Chrome plated pipes and fire protection pipes.
 4. Vibration isolating connections
 5. Adjacent insulation
 6. ASME stamps, nameplates, access plates
 7. Acoustically lined ductwork, ductwork exposed to view in a normally occupied space.
 8. Hydronic specialties: Low water cutoff, relief valves, relief valve discharge piping, pressure reducing valves, and expansion tanks.

3.03 PIPING INSULATION

- A. Pipe Insulation (Fiberglass): Place sections of insulation around the pipe and joints, tightly butt into place. Draw jacket laps tight and smooth. Secure jacket with fire resistant adhesive, or factory applied self sealing lap. Cover circumferential joints with butt strips, not less than 3-inches wide, of material identical to the jacket material. Overlap longitudinal laps of jacket

material not less than 1-1/2 inches. Adhesive used to secure the butt strip shall be the same as used to secure the jacket laps.

- B. Flanges, Unions, Valves and Fittings Insulation (Fiberglass): Factory fabricated removable and reusable insulation covers. For inside domestic hot water and heating hot water systems, place factory premolded, precut or field-fabricated segmented insulation of the same thickness and conductivity as the adjoining pipe insulation around the flange, union, valve, and fitting abutting the adjoining pipe insulation. Install factory premolded one-piece PVC fitting covers over the insulation and secure by stapling, taping with PVC vapor barrier tape, or with metal or plastic tacks made for securing PVC fitting covers.
- C. Where penetrating roofs and exterior walls, insulate piping to a point flush with the underside of the deck or wall and seal with a vapor barrier coating.
- D. Pipe Insulation (Flexible Unicellular): Bond cuts, butt joints, ends, and longitudinal joints with adhesive. Miter 90-degree turns and elbows, tees, and valve insulation. Insulate flanges, unions, valves, and fittings.
- E. Hangers and Anchors: Pipe insulation shall be continuous through pipe hangers. Where pipe is supported by the insulation, provide MSS SP-58, Type 40 galvanized steel shields (16 gage maximum). For fiberglass insulation systems on pipe sizes 2 inches through 3", provide insulation inserts at points of hangers and supports. Insulation inserts shall be of molded glass fiber (minimum 12 pcf). Insulation inserts shall cover the bottom half of the pipe circumference, 180 degrees, and be not less than 4" long. Vapor-barrier facing of the insert shall be of the same material as the facing on the adjacent insulation. Seal inserts into the insulation. Insulation inserts for pipe sizes 4" and larger shall be welded pipe saddles. Install insulation in void area of saddle of same material used on adjacent insulation. For pipe sizes 2" and smaller, insulation inserts for flexible unicellular insulation systems shall be wooden doweling set on end of length equal to insulation thickness. Seal dowel to insulation with adhesive.

3.04 INSULATION APPLICATION SCHEDULE

SERVICE	THICKNESS/MATERIAL/JACKET
PIPING:	
Hot Water Supply and Return Piping Above Grade - All Sizes	1-1/2" tk, fiberglass, ASJ
Hot Water Supply and Return Branch Piping Drops in Stud Walls - All Sizes	1/2" tk, flexible unicellular or polyolefin unicellular
Domestic Water Piping Above Grade - All sizes	1" tk, fiberglass, ASJ
Water and Drain Piping Under Handicap Accessible Fixtures	Handi Lav-Guard insulation kit - 3/16" thick, Molded closed cell vinyl insulation, white
Domestic Water Branch Piping in Plumbing Walls	1/2" tk flexible unicellular or polyolefin unicellular

3.05 FIELD INSPECTION

- A. Visually inspect to ensure that materials used conform to specifications. Inspect installations progressively for compliance with requirements.

END OF SECTION

SECTION 15400 - PLUMBING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The General Conditions, Supplemental General Conditions and Division 1 are hereby made a part of the work of this section.

1.02 DESCRIPTION OF WORK

- A. The work covered by this Section of the specifications includes the furnishing of labor, materials, equipment, transportation, permits, inspections and incidentals and the performing of operations required to install a complete and functional plumbing system, as indicated.

1.03 SUBMITTALS

- A. The items for which the submittals apply are as follows:
 - 1. Fixtures and trim
 - 2. Miscellaneous equipment
 - 3. Pipe materials and valves
 - 4. Domestic water heater

PART 2 - PRODUCTS

2.01 FIXTURES AND TRIM

- A. Water Closet, ADA Compliant (P-1): Mansfield Model 137-160 closed-coupled, tank type, floor mount, white, vitreous china toilet with elongated rim, 1.5 gallon siphon-jet flushing action. Provide Bemis 200-TT seat with cover.
- B. Lavatory (P-2): American Standard Model 0355.012 "Lucerne", wall hung lavatory, vitreous china, 20" x 18" with 4" faucet centers. Furnish American Standard Model 5400.172 faucet with dual wrist blade handles, and Model 7723.018 offset drain. Provide concealed arm carrier by Zurn, Wade, or Smith.
- C. Tub/Shower (P-3): Fiberglass reinforced polyester with acrylic finish, Universal/Rundle Model 6200T shower with factory mounted stainless steel grab bars, teakwood seat, in conformance with ANSI 117.1-86 and the Americans With Disabilities Act. Provide Symmons Model S-96-401-X-3H-V-L shower valve, pressure balanced type with integral volume control, service stops, adjustable temperature limit screw, single blade lever handle, hand held shower head, flexible hose, wall hook, and slide bar.
- D. Sink (P-4): Dayton Model 12522, 20 gage stainless steel single bowl sink with 25" x 22" OD and 21" x 16" x 6-1/2" deep bowl, crumb cup strainer. Provide American Standard Model 4205.441, lever handle faucet, 8" centers, swing spout, without spray.
- E. Sink (P-4A): Dayton Model 12522, 20 gage stainless steel single bowl sink with 25" x 22" OD and 21" x 16" x 6-1/2" deep bowl, crumb cup strainer. Provide American Standard Model 4205.417, lever handle faucet, 8" centers, swing spout, and spray. Provide In-Sink-Erator disposal, 1/3 HP, 120 volt, continuous feed, 6" diameter, 12" deep.

2.02 MISCELLANEOUS EQUIPMENT

- A. Strainers: Watts 777 series, MIL-S-16293, 125 psig minimum rating wye strainers, bronze body, screen shall be stainless steel, monel or bronze with 1/32" openings (20 mesh). Provide with blowdown ball valve with 3/4" hose connection.

- B. Expansion Tank (ET-1) (Captive Air Type): State Industries Model ETC-2X, specifically designed for potable water systems, welded steel, constructed and tested hydrostatically in accordance with Section VIII of the ASME Boiler Pressure Vessel Code. The design working pressure of the tank shall be 150 psig. Maximum working temperature shall be 200°F. The tank bladder shall be butyl rubber and shall be removable for inspection. Zinc coat the tank inside and out after fabrication by the hot dip process ASTM A 386. Tank shall have air charging and system connections. Tank shall be factory pressurized to 40 psig.

2.03 PIPING MATERIALS

- A. Soil and Waste (Sanitary), and Vent Piping: Schedule 40 PVC with solvent welded joints. Provide cast iron vent piping through roof.
- B. Hot Water and Cold Water, Piping (Above Grade): ASTM B88, type L hard copper tubing and cast bronze or wrought copper solder fittings conforming to ANSI B16.18 or B16.22.
- C. Exposed Water and Waste Piping at Fixtures: I.P.S. copper with cast brass fittings, chrome plated finish, with one piece chrome plated brass escutcheon plates at traverse points.
- D. Solder: Lead-free (ONLY), 440°F melting point, ASTM B32.

2.04 VALVES

- A. Ball Valves: Milwaukee BA-100S series (threaded ends) or BA-150S series (solder ends) two piece standard port (ONLY) design with cast bronze body, chrome plated ball, reinforced PTFE (ONLY) seal, stainless steel lever handle with vinyl grip, 600 WOG/150 SWP (3/8" thru 2") & 400 WOG/150 SWP (2-1/2" thru 3") rated.
- B. Swing Check Valves: Milwaukee 518 series (threaded ends) with bronze body and disc and stainless steel pin, seat and retainer rings and 400 WOG/200 SWP rated.
 - 1. Fixture Service Stop Valves.
 - 2. Each plumbing fixture shall have individual stop valves in the hot and cold supplies.
 - 3. Service stop valves exposed in finished areas shall be chrome-plated brass; in non-finished areas ball valves shall be used in lieu of chromed supplies.
- C. Temperature and Pressure Relief Valve: Watts bronze bodied valve with extension thermostat, ASME rated, 125 psig/210°F relief settings.

2.05 PIPE HANGERS

- 1. Adjustable Swivel Hanger: Carpenter and Paterson Fig. 800, conforming to MSS-SP-58, oversize for insulated piping systems.

2.06 DOMESTIC WATER HEATER

- A. Domestic Water Heater (60 Gallon) : Heat Transfer Products Inc., Model SS-60 "Super-Stor", 60 gallon stainless steel tank, 150 psi working pressure, cupronickel heat exchanger, 2" thick rigid foam insulation (R-17 minimum), and solid state temperature control. Heater Performance: 128 GPH of 140°F water with 90°F rise and 8 GPM of boiler water at 160° F. Coil pressure drop: 12 ft at 8 GPM.
- B. Domestic Water Heater (40 Gallon): Heat Transfer Products Inc., Model SS-40 "Super-Stor", 40 gallon stainless steel tank, 150 psi working pressure, cupronickel heat exchanger, 2" thick rigid foam insulation (R-17 minimum), and solid state temperature control. Heater Performance: 94 GPH of 140°F water with 90°F rise and 8 GPM of boiler water at 160° F. Coil pressure drop: 12 ft at 8 GPM.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

A. Inspection:

1. Prior to work of this Section, carefully inspect the installed work of other trades and verify that such work is complete to the point where this installation may properly commence.
2. Verify that plumbing may be installed in strict accordance with pertinent codes and regulations and the reviewed Submittals.

3.02 INSTALLATION OF PIPING

- A. In general, piping shall be run concealed above ceilings in occupied areas. Piping in other areas may be run exposed. Piping shall not be exposed in occupied spaces unless written authorization is given by the Architect.
- B. Provide and erect in accordance with the best practice of the trade piping shown on the drawings and as required to complete the intended installation. Make offsets as shown or required to place piping in proper position to avoid other work and to allow the application of insulation and finish painting.
- C. Piping shall be erected so as to provide for the noiseless passage of fluids under working conditions.
- D. Install stops valves and unions to facilitate isolation and removal of equipment. Provide stop valves in plumbing service connections to equipment provided under all sections of the specifications. Provide final plumbing connections to equipment furnished under other sections of the specification.
- E. Copper pipe shall be reamed to remove burrs. Solder joints shall be made with lead free solder. Clean surfaces to be soldered and use a paste flux. Wash joints with sodium bicarbonate and water to remove corrosive effects of heated solder paste. Caution: Lead-bearing solder is not permitted.
- F. Sanitary and vent piping shall be sized and installed at 1/4" per foot slope.

3.03 PIPE HANGERS

- A. Impact driven studs are prohibited.
- B. Piping: supported at intervals with rod sizes as follows, double nuts on hangers and on beam clips.

Copper Tube	Hanger Intervals	Rod Sizes
1/2"	7'	3/8"
3/4"	7'	3/8"
1"	8'	3/8"
1-1/4"	8'	3/8"
1-1/2"	10'	3/8"
2"	10'	3/8"

- C. PVC Pipe: Supported at 4 foot intervals.

3.04 CLOSING IN WORK

- A. General: Cover up or enclose work after it has been properly and completely reviewed.
- B. No additional cost to the Owner will be allowed for uncovering and recovering any work that is covered or enclosed prior to required inspections and review.

3.05 CLEANUP AND CORROSION PREVENTION

- A. Upon completion of the work thoroughly clean and flush piping systems to the sewer with water.
- B. Fixtures, piping and equipment shall be thoroughly cleaned. Dirt, dust, and debris shall be removed and the premises left in a clean and neat condition.
- C. Caulk around fixtures at floor, wall, or countertop as appropriate.
- D. Before covering is applied to piping systems, clips, rods, clevises and other hanger attachments, and before uncovered piping is permitted to be concealed, corrosion and rust shall be wire brushed and cleaned and in the case of iron products, a coat of protective paint applied to these surfaces. When corrosion is from the effects of hot solder paste, the areas shall be cleaned and polished and a wash of bicarbonate of soda and water used to neutralize the acid condition.

3.06 DISINFECTING

- A. Disinfect the water piping in accordance with AWWA C601 and the Maine State Plumbing Code. Fill the piping systems with solution containing a minimum of 50 parts per million of available chlorine and allow solution to stand for minimum of 24 hours. Repeat disinfection if chlorine residual is less than 10 parts per million after 24 hours. Flush the solution from the systems with clean water until maximum residual chlorine contents are not greater than 0.2 parts per million.

3.07 TESTS

- A. Sanitary soil, waste, roof drain and vent piping shall be filled with water to top of vents, and tested as required by Code.
- B. Interior Piping Test: Water piping shall be tested at a pressure of 100 lbs. per square inch for 2 hours. Pressure drop in this period shall not exceed two pounds per square inch. Leaks shall be repaired and system retested. Notify Architect 24 hours before test is to be performed.

END OF SECTION

SECTION 15700 - HEATING SYSTEM

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The General Conditions, Supplemental General Conditions and Division 1 are hereby made a part of the work of this section.

1.02 DESCRIPTION OF WORK

- A. The work covered by this Section of the specifications includes the furnishing of labor, materials, equipment, transportation, permits, inspections and incidentals and the performing of operations required to install the heating system indicated.

1.03 SUBMITTALS

- A. The items for which the submittals apply are as follows:
 1. Piping Materials and Valves
 2. Hydronic Specialties
 3. Boiler / Burner
 4. Automatic Temperature Controls: Manufacturers data and wiring diagrams
 5. Fintube Radiation
 6. Testing and Balancing

PART 2 - PRODUCTS

2.01 PIPING MATERIALS

- A. Hot Water Heating System Piping (Above Slab): ASTM B88 Type M hard copper tubing and cast bronze or wrought copper solder fittings, or ASTM A120 or A53 Schedule 40 carbon steel pipe with threaded joints and steel or malleable iron fittings.
- B. Gas Piping: ASTM A120 or A53 Schedule 40 carbon steel pipe with threaded joints and steel or malleable iron fittings.

2.02 HANGERS

- A. Adjustable Swivel Hanger: Carpenter and Paterson Fig. 800 conforming to MSS-SP-58, oversize for insulated piping systems.

2.03 VALVES

- A. Ball Valves: Apollo 70-200 Series, bronze body, Fed. Spec. WW-V-35, Type II, Class A (bronze), Style 3, blow-out proof stem, 600 pound W.G., screwed connection for steel pipe, sweat connection for copper tube. Provide stem extension to allow operation without interfering with pipe insulation.
- B. Gate Valves: Nibco Model S-113 or T-113, bronze body Fed. Spec. WW-V-54, wedge disc, rising stem, screwed connection for steel pipe, sweat connection for copper tube, 150-pound class.
- C. Check Valves: Nibco Model S-413 or T-413, bronze body Fed. Spec. WW-V-51, regrinding swing check type, 200 pound class.

2.04 HYDRONIC SPECIALTIES

- A. Thermometers: Trerice Model V80445, dial type, Mil. Spec MIL-T-9955, 4-1/2" diameter face. Hot water system thermometers shall have a range of 30°F to 240°F with 2° increments. Provide with brass thermometer wells projecting a minimum of 2" into the pipe with extension to face of insulation. Provide with heat transfer fluid to fill the sealed interstitial space between bulb and well. Evidence of the transfer fluid leaking shall be cause for refilling and sealing the well.

- B. Pressure Gauges: Tetric Series 800, ANSI B40.1, 3-1/2" diameter face installed with shut off petcock and restrictor. Pressure range: 0-50 psig with 5 psi graduations.
- C. Expansion Tanks, Captive Air Type (ET): Size and acceptance volume indicated, welded steel construction and hydrostatically tested, design working pressure of the tank shall be 125 psig. Maximum operating temperature shall be 240°F. The tank bladder shall be butyl rubber. Tank shall have air charging and system connections, and shall be factory pressurized to 12 psig.
- D. Strainers: Watts Model 77S, MIL-S-16293, 125 psig minimum rating wye strainers, cast iron or bronze body, screen shall be stainless steel, monel or bronze with 20 mesh perforations. Provide with blowdown ball valve and 3/4" hose connection.
- E. Automatic Air Vents: Armstrong No. 1-AV, float type to vent air in hydronic systems. Vent constructed with cast iron body and stainless steel internals and with NPT male inlet and outlet for 1/4 inch overflow for safe water connection. 150 psi working pressure, 250°F maximum temperature.
- F. Air Separator (AS): Spirotherm Model VSR150FT bronze construction, designed for 125 psig. Provide fittings for connection of automatic air vent and for connection of expansion tank.
- G. Manual Air Vents: Brass body, fiber discs, 125 psi working pressure, 240°F maximum temperature, adjustable for quick venting at system start-up.
- H. Circulator (inline): Shall be inline type with cast-iron body and bronze-fitted, 175 psig rated working pressure, 220°F maximum water temperature, carbon Ni-resist mechanical seal, flexible coupling, resilient-mounted drip-proof sleeve bearing motor. The pumps shall be factory tested, cleaned, and painted with machinery enamel. A set of installation instructions shall be included with the pump. Provide a spare pump for each model used.
- I. Balancing Valves: Taco circuit setter, bronze or brass body and internals, teflon seats, 175 psi working pressure, 250°F working temperature. Balancing devices shall be adjustable and shall have provisions for connecting a portable differential pressure gauge.
- J. Water Pressure Reducing Valve: Taco Model 335, bronze body, bronze internals, 200 psi working pressure, 200°F maximum temperature, adjustable pressure range 10-25 psig. Provide with inlet strainer (screen).

2.05 BOILER / BURNER UNITS

- A. Boilers shall be cast iron sectional, oil fired wet base type, of manufacturer and model indicated. Boilers shall be 30 psi working pressure rated. The burner shall be on-off control, with electronic ignition.
- B. Primary controls shall include flame detection circuit with manual reset. Safety controls shall include a manual reset low water cut-off and manual and automatic reset high limit aquastat.
- C. The boiler/burner unit shall be furnished with factory mounted control panel housing control components and terminal strip including: programming control, service switch, oil valve, fused power supply and control power transformer. Burner programming control shall provide on-off firing sequence.
- D. Accessories shall include 30 psig ASME rated pressure relief valves, and theraltimeter. Provide automatic vent damper kit.
- E. Provide firestats, emergency shut-off switches, and service switches as required by NFPA 54.
- F. Boiler Breeching: 24 gauge black iron.
- G. Breeching Insulation: Mineral fiber blanket conforming to Fed. Spec. HH-I-558B Form C with thermal conductivity of 0.36 btu-in/hr-ft²-°F at 300 F mean temperature. Insulation shall be suitable for 1200°F service temperature and shall be 6.0 lbs/cu.ft. density. Jacketing shall be 14 oz. rewettable fiberglass glass cloth conforming to MIL-C-20079 Type I Class 4 covered with vinyl-acrylic mastic applied in two coats to a minimum dry film thickness of 1/16 inch.

2.06 FINTUBE RADIATION

- A. Fintube Radiation (FTR): Sterling Kom-Pak, residential hydronic baseboard 530 BTUH capacity, @ 170° average water temperature and 1.0 GPM flow rate.
1. Element: 3/4" copper tube with 2-1/4 x 2-1/2 x 50 fins/FT aluminum fins with integral fin collars mechanically bonded to the tube .
 2. Enclosure: Provide element mounting system consisting of wall mounted mounting brackets and pipe cradles on 4' centers. Cradles shall run on nylon guides for noiseless operation. Enclosures shall be steel, shall be continuous, and shall mount to a continuous channel mounting strip at the top of the enclosure. The bottom of the enclosure shall fasten to the pipe mounting brackets. Provide end caps, corner pieces, access panels and enclosure extensions as required. Provide factory baked enamel paint finish in color selected by Architect.

2.07 AUTOMATIC TEMPERATURE CONTROLS

- A. General: Furnish and install a complete system of automatic temperature controls to provide the sequences as described in these specifications. The boiler control shall be a Tekmar Model 251-4 electric/electronic boiler controller with sensors and control relays.
- B. Sequence of Control:
1. Circulating Pump: P-1: A "hand-off-auto" switch shall be furnished for each pump. In the "hand" position, the pump operates continuously. In the "auto" position the pump operates when the outside air temperature is below 60°F and remains off when the outside air temperature is above 60°F.
 2. Circulating Pump P-2: Shall be controlled by the operating thermostat in the domestic water storage tank. When the thermostat calls for heat, the signal shall be input to the Tekmar controller and the pump shall run.
 3. Boiler Control: The Tekmar controller shall stage the firing of the burner to reset the heating system hot water supply temperature inversely with outside air temperature to provide 170°F water temperature at 0 °F outside air temperature and 120° F water temperature at 60 F outside air temperature. The controller shall; control the minimum boiler water temperature, shall control the boiler water temperature on a call for domestic hot water generation, and shall provide a selector switch to give heating or domestic hot water generation priority. The controller shall shut the system down in warm weather except on a call for domestic hot water.
 4. Unit Heating Control: A wall mounted thermostat shall cycle the unit zone control valve to maintain space temperature. The end switch on the zone valve shall be used to input a "heat demand" signal to the Tekmar boiler control.

2.08 DUCTWORK

- A. Classification of Ductwork: Low pressure ductwork: Less than or equal to 1/2" W.G. static pressure. The duct pressure class shall be determined by multiplying the total static pressure scheduled in the fan schedules by 1.5.
- B. Materials: Unless otherwise indicated, low pressure ductwork shall be galvanized steel. Galvanized sheet metal shall be new copper bearing galvanized steel sheets of lock forming quality with zinc coating that will not flake or peel under forming operation.
- C. Construction for Low Pressure Round and Rectangular Ductwork:
1. Material: Galvanized steel conforming to ASTM A527, weight of galvanized coating shall be not less than 1-1/4 ounces total for both sides of one sq. ft. of a sheet. Construction, metal gage, and reinforcements shall conform with SMACNA "Duct Construction Standards" and NFPA 90A for 1/2" W.G. pressure class.
 2. Fittings: Shall be constructed in accordance with SMACNA Standards.

3. Longitudinal joints shall be Pittsburgh lockseam. Button punch snap locks are not acceptable.

2.09 DUCTWORK ACCESSORIES

- A. Exhaust Fan: fan shall be complete with acoustically insulated galvanized steel casing, direct driven centrifugal blowers with permanently lubricated motors, back draft dampers, disconnect plug and receptacle. Motor and fan shall be removable without disturbing the casing. Provide wall cap as scheduled. Provide white enamel grille or white plastic grille for fan located in the space served. Provide inline adapter plates for cabinet fan used in an inline application.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. Inspection:
 1. Prior to work of this Section, carefully inspect the installed work of other trades and verify that such work is complete to the point where this installation may properly commence.
 2. Verify that the heating system may be installed in accordance with codes, regulations and shop drawings.

3.02 INSTALLATION OF PIPING

- A. In general, piping shall be run concealed in occupied areas. Piping in other areas may be run exposed. Piping shall not be exposed in occupied spaces unless written authorization is given by the Architect.
- B. Provide and erect in accordance with the best practice of the trade piping shown on the Drawings and as required to complete the installation. Make offsets as shown or required to place piping in proper position to avoid other work and to allow the application of insulation.
- C. Piping shall be erected so as to provide for the easy and noiseless passage of heating fluid under working conditions. Inverted eccentric reducing fittings shall be used when pipes reduce in size.
- D. Water mains shall be run level so that no air pockets are formed in the piping. The mains shall be set at elevations such that the runouts feeding equipment shall have no pockets where air can collect except where vents are provided. Provide high points with manual vents. Provide drains at low points in the piping systems.
- E. In the erection of water piping, make allowances for expansion and contraction. Piping shall be anchored as necessary to control expansion. Hot water runouts to units shall be the size as indicated on the Drawings and shall come off the main downward or off the side with a minimum of two 90° elbows provided on runout from main.
- F. Install stop valves and unions to facilitate isolation and removal of equipment.
- G. Steel piping with screwed connections. Threads on piping shall be full length and clean-cut with inside edges reamed smooth to the full inside bore. Close nipples shall not be used. Pipe threads: standard pipe threads, machine cut and full length. Pipe: reamed to remove burrs and up-ended and rapped to dislodge dirt and scale. Joint compound shall be applied to male thread only. If it is necessary to back off a screwed joint after it is made, the thread shall be cleaned and new compound applied. Caulked threads will not be permitted.
- H. Connections between copper and steel piping shall be made with brass fittings.
- I. Solder joints shall be made with non-lead solder. Clean surfaces to be soldered and use a paste flux. Wash joints with sodium bicarbonate and water to remove corrosive effects of heated solder paste.

3.03 PIPE HANGERS

- A. Impact driven studs are not acceptable.
- B. Pipes (copper or steel) shall be supported at intervals and rod sizes as follows, double nuts on hangers and on beam clips.

Pipe Size	Hanger Intervals	Rod Sizes
½"	5'	3/8"
¾"	6'	3/8"
1"	7'	3/8"
1-1/4"	8'	3/8"
1-1/2" & Up	9'	3/8"

3.04 CLOSING IN WORK

- A. Cover up or enclose work after it has been properly and completely tested and reviewed.
- B. No additional cost to the Owner will be allowed for uncovering or recovering any work that is covered or enclosed prior to required test and review.

3.05 INSTALLATION OF BOILER

- A. Assemble boiler sections, jacketing, burner, combustion controls, operating controls, and safety controls per NFPA-54 and manufacturer's instructions. Provide boiler interconnecting power and control wiring. Hydrostatically test the boiler for leaks prior to installation of jacketing. Repair leaks and retest as required.
- B. The boiler/burner unit shall be started and adjusted by a factory representative. The factory representative shall provide a field efficiency report at the completion of the start-up. The report shall include, but not be limited to:
 1. CO₂ reading (%).
 2. Stack draft (in W.G.).
 3. Smoke test number (<#2 Bachrach).
 4. Stack temperature, room temperature.
 5. Combustion efficiency (%).

Incorporate the field test results in the "Operations and Maintenance" manuals.

3.06 TEST AND ADJUST

- A. Piping Systems: Test with water to a pressure of 75 psi for a period of two hours. Repair any leaks and retest the piping system; repeat process until systems are leak-free. Test piping before it is insulated.
- B. Before operating any system, flush the piping to remove foreign materials.
- C. After the installation is complete and ready for operation, test the system under normal operating conditions in the presence of the Architect and demonstrate that the system functions as designed.
- D. Demonstrate that the heating system has free and noiseless circulation of water, that all air has been purged and that systems are watertight.
- E. Correct defects which develop in operational testing, conduct additional testing until defect free operation is achieved.
- F. Balancing:
 1. Balance the water flow through the heating mains and fin tube radiation. The system shall be adjusted to obtain water quantities required.
 2. When balancing is complete, tabulate current draw in each pump motor. Provide copy of the Balancing Report to the Owner.

3.07 CLEANUP AND CORROSION PREVENTION

- A. Piping and equipment shall be cleaned. Dirt, dust, and debris shall be removed and the premises left in a clean and neat condition.
- B. Before covering is applied to piping systems, clips, rods, clevises and other hanger attachments, and before uncovered piping is permitted to be concealed, corrosion and rust shall be wire brushed and cleaned and in the case of iron products, a coat of protective paint applied to these surfaces. When corrosion is from the effects of hot solder paste, the areas shall be cleaned and polished and a wash of bicarbonate of soda and water used to neutralize the acid condition.

3.08 INSTRUCTIONS

- A. On completion of the project, instruct the Owner's representative in the care and operation of the system. The total period of instruction shall not exceed four (2) hours. The time of instruction shall be arranged with the Owner.

END OF SECTION

SECTION 16000 - GENERAL PROVISIONS ELECTRICAL

PART 1 GENERAL

1.01 WORK SHOWN ON DRAWINGS

- A. The drawings accompanying this specification, as a part thereof, are working drawings indicating the location and arrangement of the increments of the systems of this section of work. Material deviation from this arrangement, process or means of application, shall bear the Architect's review stamp before the change is made on the job or materials are ordered. Changes made without review are subject to being ordered removed and replaced with the specified items at no additional expense to the Owner.
- B. The drawings are not intended to show in minute detail minor items of installation or materials such as specific fittings or findings.

1.02 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS

- A. The Contractor shall take field measurements and verify field conditions and shall compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the Architect.

1.03 SUPERVISION AND CONSTRUCTION PROCEDURES

- A. The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention.
- B. The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Owner in the Owner's administration of the Contract, or by tests, inspections or approvals required or performed by persons other than the Contractor.
- C. The Contractor shall enforce discipline and order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

1.04 PROTECTION OF WORK AND MATERIALS

- A. Take all measures necessary to prevent damage to materials before, during and after installation.
- B. Take adequate measures to prevent damage through environmental conditions. Store materials subject to damage through freezing in heated areas during cold weather. Store ferrous metals, wood and other materials subject to water damage, undercover and from direct contact with ground. Store cement and similar items in enclosed, weather tight buildings with raised floors.
- C. In case of damage, provide repairs/replacements to the approval of Architect, at no additional cost to Owner.
- D. As a minimum requirement, comply with recommendations of the material manufacturers for handling, storage, installation, and protection.

1.05 APPLICABLE CODES AND STANDARDS

- A. Materials, equipment and installation shall comply with the following:
 - 1. National Electrical Code, latest approved edition.
 - 2. Federal, State and local codes, applicable ordinances and regulations.
 - 3. Latest approved standards of IEE, ANSI, NEMA, NFPA.
 - 4. Utility Company regulations.
 - 5. Equipment shall be UL listed where listing is available.

1.06 MATERIALS AND LABOR

- A. Materials and labor shall conform to the requirements of the General Conditions, Supplemental General Conditions, and Division 1.

1.07 SUBMITTALS

- A. Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.
- B. The Contractor shall perform no portion of the work requiring submittal and review of Shop Drawings until the respective Submittals have been reviewed and accepted by the Engineer.

1.08 SUBSTITUTIONS

- A. Whenever a material, article, or piece of equipment is identified on the Drawings or in the Specifications by reference to manufacturers' or vendors' names, trade names, catalog numbers, or the like, it is so identified for the purpose of establishing a standard, and any material, article, or piece of equipment of other manufacturers or vendors which will perform adequately the duties imposed by the general design will be considered equally acceptable provided the material, article, or piece of equipment so proposed is, in the opinion of the Architect and Engineer, of equal substance, appearance and function. It shall not be purchased or installed by the Contractor without the Architect's and Engineer's written approval.

1.09 CODES, PERMITS, INSPECTIONS

- A. Codes, permits, inspections shall conform to the requirements of the General Conditions, Supplemental General Conditions, and Division 1.

1.10 INCIDENTAL WORK IN OTHER DIVISIONS AND BY OTHER CONTRACTORS

- A. Excavation, trenching, backfill, cutting, patching and painting shall be as specified in the appropriate Division of the specifications.
- B. Cost of electric power and lamps as described in the General Provisions.

PART 2 PRODUCTS / NOT USED

PART 3 EXECUTION

3.01 TEMPORARY POWER AND LIGHTING SYSTEM

- A. Provide temporary power for all trades. Provide a 200 watt lamp holder for each 200 square feet of space and at least one lamp holder per room. Provide grounded duplex outlets as required. Outlets shall be located so that 50' extension cords (fbo) will reach any point in the building. Power to outlets shall be limited to ½ HP motors 115/240 volts. If additional power is required it shall be furnished by the trade requesting the service.
- B. If the permanent fixtures are used for temporary lighting purposes, install and maintain temporary lamps in same, and remove such lamps prior to the permanent lamping. Fixtures shall be cleaned immediately prior to permanent lamping.

3.02 CUTTING AND PATCHING

- A. The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit properly.
- B. The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractor by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not unreasonably withhold from the Owner

or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

3.03 WORK PROGRESS, COORDINATION, AND COOPERATION

- A. Provide information sufficiently in advance of work of this division, so that work may be coordinated with work of other divisions and installed without delays and in accordance with the General Conditions of the contract.
- B. Where work is concealed, assure that it does not project beyond finished lines of floors, ceilings, or walls.

3.04 COLOR CODING

- A. Wiring, except bare equipment grounding conductors, shall be color coded.
- B. The building power wiring shall be color coded black and red for 240 volt line conductors. The neutral shall be white or gray. Comply with NEC, Article 210. Use green or green with yellow stripe for equipment ground conductors.

3.05 RECORD DRAWINGS

- A. During construction, keep an accurate record of deviations to the installation of the work indicated on the drawings. Upon completion of the work, furnish a copy of this record to the Architect. Submit record drawings before requesting final payment.

3.06 MANUFACTURER'S INSTRUCTIONS, OPERATION AND MAINTENANCE DATA

- A. Provide for each item of equipment or apparatus furnished, a complete set of printed instructions obtained from the manufacturer covering proper operation, maintenance, lubrication, cleaning, servicing, adjustment, and safety instructions. Manufacturer's data shall include performance data (curves are preferred where applicable) complete parts lists, recommended spare parts lists, and wiring diagrams.

3.07 GUARANTEE - WARRANTY

- A. In accordance with the General Conditions, Supplemental General Conditions, and Division 1.
- B. Provide guarantees conforming to the requirements of the General Conditions, Supplementary General Conditions, and Division 1. Provide special guarantees as indicated in the individual sections of Division 16.

3.08 TESTS

- A. After the interior wiring system installation is completed and at such time as the Architect or Owner may direct, conduct an operating test. The electrical systems shall be demonstrated to operate in accordance with the requirements of this specification. The tests shall be performed in the presence of the Owner or his authorized representative. Provide instruments and personnel required for the tests.
- B. Special tests, if required, for certain systems are detailed in the appropriate section of this specification.

3.09 STARTING OF EQUIPMENT

- A. Testing or starting of equipment shall be done in collaboration with trades concerned to insure safe and proper operation of the equipment.
- B. Before operating any electric motor driven equipment, a check shall be made to insure that proper heater coils are installed in the starters and that the equipment is rotating in the proper direction.

END OF SECTION

SECTION 16100 - ELECTRICAL WIRING AND DISTRIBUTION SYSTEMS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. The General Conditions, Supplemental General Conditions and Division 1 are hereby made a part of the work of this section.

1.02 DESCRIPTION OF WORK

- A. The work covered by this section includes the furnishing of labor and materials, equipment, and incidentals and the performing of operations in connection with "electrical work" as indicated on the drawings and/or specified herein and including incidental items to effect a finished, complete and operable system as indicated.

The electrical work shall include but not be limited to service entrance panel, feeders, raceways and fittings, wiring devices, lighting, telephone systems, and power and lighting wiring.

Electrical work shall also include power connections to heating equipment, and plumbing, equipment as indicated on the plans. Provide incidental items to make all systems perform even though some items are not shown or particularly mentioned herein. Work shall be subject to the conditions of the contract and Sections of Division 1.

- B. Provide control wiring for equipment shown on these plans or described in the technical sections of Division 16. Control wiring shown on the electrical drawings shall be wired complete per manufacturer's wiring instructions. Review architectural and special equipment drawings for additional information.

1.03 SUBMITTALS

- A. The items for which the submittals apply are as follows:

1. Outlet, switch, junction and pull boxes.
2. Panelboards, breakers.
3. Receptacles and plates
4. Switches and accessories.

PART 2 PRODUCTS

2.01 CONDUCTORS

- A. Conductors #14, #12, #10, and #8 may be either THHN or THWN. Larger sizes shall be THW (or 90°C insulation applied per NEC). Conductors must be of the temperature of the breaker 60°C, 60°C (or 75°C, 75°C). Wire #8 and larger must be stranded. Conductors shall be UL listed for 600 volt AC.
- B. Ground wire for use above ground shall be bare annealed copper or shall be insulated green or green with yellow stripes.
- C. Lugs for power conductor termination in switchgear, panelboards, etc., shall be bolted or compression type. Lugs shall be UL listed for cu/al.
- D. Armored cable (AC) or (MC), or non-metallic (NMC), may be used in walls and above ceilings.

2.02 PANEL BOARDS

- A. Panels, cabinets, and boxes shall be code gauge. Boxes shall be UL listed for intended uses and shall comply with NEC requirements. Concealed outlet boxes shall be of code gauge galvanized or sherardized metal not less than #14 gauge and sized to NEC requirements of type

PVC boxes. Junction boxes shall be of code gauge steel, cast, or PVC and sized to NEC requirements.

- B. Panelboards shall be UL listed, have main lugs or breakers as sized on plans and shall be furnished with active breakers, spare breakers, spaces (as shown on the plans). Panels shall have an equipment ground bus.
 - 1. The panels shall have a hinged door with typed directory.
 - 2. Terminal connectors shall be UL listed al/cu type.
 - 3. Flush and surface mounted panels shall have factory furnished trim. Panel boxes shall be galvanized steel, code gauge, primed and painted manufacturer's standard finish. Panel boxes shall be of necessary height to accommodate breakers and spaces.
 - 4. Panel breakers shall be UL listed quick make, quick break, thermal magnetic type. Breakers shall have interrupting ratings as shown on the plans. Panel breakers may be bolted or plug in type and rated for 60/75°C conductors. Panelboards shall be General Electric, Westinghouse, ITT, or Square D.
- C. Fused switches shall be General Duty or as required or shown on plans. Fuses shall be furnished for fused disconnect switches. Fuses shall be of required or specified voltage and current rating. Furnish Owner with one set of spare fuses for types installed. Current limiting fuses must be installed when indicated. Fuses for motor disconnects shall be dual element time delay type. Motor fuses shall be dual element time delay type. Non-fused disconnect switches shall be furnished where indicated.
- D. Motor starters shall be magnetic or manual as scheduled on the plans or in the specification. Furnish overloads sized by the NEC for the actual motors furnished. Disconnects and starters shall have nameplates. Control transformers shall be 240/120 volt and shall be fused. Starters and disconnects shall be Square D or General Electric, or Westinghouse.

2.03 WIRING DEVICES

- A. 20 amps, 125 volt, duplex receptacle, NEMA 5-20R, 3 wire, 2 pole, grounding, ivory, GE #5252.
- B. Wall switches shall be 1 pole, 120 volt, 20 ampere, ivory, 3 and 4 way switches shall be equivalent.
- C. Switch and receptacle plates shall be smooth ivory manufactured from high impact nylon.
- D. Range receptacle (where shown) shall be 50 amperes, 125/250 volt, 3 pole, 4 wire grounding, GE #4183-3, black, Simplex NEMA 14-50R. Other special receptacles are scheduled on plans.
- E. Switch with pilot shall be GE 7945-2 or equal, 20 amp switch, one pole with 1/25 W lamp.
- F. Ground fault receptacles shall be 20 amp, 125 volt, duplex, ivory, NEMA 5-20R, Hubbell #GF-5362-I.

PART 3 EXECUTION

3.01 EQUIPMENT CONNECTIONS

- A. Furnish and install disconnect switches as shown or required, rated in horsepower (where required), and fused or unfused as indicated, scheduled or required.
- B. Power wire to motor equipment and special equipment with flexible metallic conduit from disconnect or junction box to equipment (use flexible liquidtight metallic conduit to outdoor equipment and to equipment subject to being wet).

- C. Verify power wiring with equipment wiring diagrams before wiring equipment. Disconnects for motors shall be lockable if beyond 50 feet of motor or out of sight of the motor. Disconnects and starters shall have nameplates indicating the loads they control.
- D. Starters and disconnects furnished with equipment shall also have nameplates.
- E. Wire any special equipment per manufacturer's wiring instruction and furnish disconnect switch if required.

3.02 INSTALLATION OF RACEWAYS AND FITTINGS

- A. Conduit buried underground or incased in concrete shall be galvanized rigid steel, galvanized steel IMC, or schedule 40 PVC. Use schedule 40 PVC unless prohibited by code or required for structural strength.
- B. Concealed wiring in stud walls and above ceilings shall be metal clad (MC), armored cable (AC), or non-metallic (NMC). Exposed raceway shall be run in neat symmetrical lines parallel with the building lines. Do not use PVC where exposed to physical damage or in boiler room, or in rooms that are place-of-assembly or where prohibited by NEC.
- C. Support raceway and boxes in accordance with the NEC. Use double locknuts and bushings at boxes and equipment. Conduit or cables running parallel or crossing uninsulated hot water shall be separated by 12" if parallel or 7" if crossing. Where lines are insulated the wiring shall clear the insulated surfaces by 2". Do not run wiring directly under uninsulated cold water lines. WHERE AN OUTLET BOX IS ATTACHED TO EMT, SUPPORT THE BOX WITH A STRAP, BRACKET OR OTHER APPROVED MEANS. Bond metallic sleeves.
- D. Buried conduit may be steel or PVC schedule 40. EMT is acceptable elsewhere where permitted by the NEC. Raceway size shall be as required by the NEC or as shown on the plans. (Conduits underground may be larger than required by code. Use the larger size!)
- E. Run flexible metallic conduit to equipment with motors or equipment requiring alignment or movement and to sound generating equipment. Use Liquidtight flexible metallic conduit in areas such as outdoor equipment or where subject to moisture.
- F. Conductors run in raceway must be derated per NEC where required.

3.03 INSTALLATION OF CONDUCTORS

- A. Conductor installation shall meet NEC requirements. Conductors shall be sized to meet NEC ampacity and voltage requirements.
- B. Minimum size power wiring shall be #12 AWG. Minimum size control wiring shall be #16 AWG. Branch circuit conductor #8 and larger shall be stranded.
- C. Branch wiring over 120 feet long must not be smaller than #10 AWG at 120 volts.
- D. Splices for #6 and larger shall be bolted or compression connectors.
- E. Follow NE Code Rules when homeruns are combined in a single conduit. See plans for specific notes.
- F. Tape bare surfaces of conductors with a minimum of 2 half lapped layers of electrical tape. Torque electrical connections at panels per manufacturer's recommendations.

3.04 INSTALLATION OF PANEL BOARDS, DISCONNECTS AND STARTERS

- A. Set panelboards and boxes plumb with the building lines. Mount panelboards so that the top of the panel is not higher than 5'-9" AFF. Panels shall have typed directories. Balance panels to comply with utility requirements.

- B. Disconnects and starters shall have nameplates of embossed plastic tape or Permalabel type A labels. Panelboards shall have engraved plastic nameplates listing panel name such as "PANEL B".

3.05 INSTALLATION OF WIRING DEVICES

- A. Switches shall be mounted 48" AFF or as noted and on strike side of doors. Receptacles shall be mounted 18" AFF except as noted.
- B. Install receptacle with ground plug "UP". Install single pole switches with toggle "UP" for "ON". Install and ground devices per NE Code, Article 250.
- C. Before installing outlet boxes for wiring devices, check the heating, plumbing, kitchen and architectural drawings for furniture to prevent conflicts with equipment, furniture and radiation.

END OF SECTION

SECTION 16250 - GROUNDING SYSTEMS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. The General Conditions, Supplemental General Conditions and Division 1 are hereby made a part of the work of this section.

1.02 DESCRIPTION

- A. The work covered by this Section of the specifications includes the furnishing of labor, materials, equipment, transportation, permits, inspections and incidentals and the performing of operations required to install the grounding systems.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Panelboards shall be furnished with equipment grounding terminal board.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Grounding shall be in strict compliance with the National Electrical Code, Article 250, and Utility requirements.
- B. Metallic conduit shall be grounded in accordance with NE Code requirements; but in addition to this, equipment grounding conductors shall be furnished and installed.
- C. Equipment grounding conductors shall be bare copper or insulated copper with green jacket with yellow stripes or green tape as covered by the code.
- D. The bonding jumpers shall be sized by NEC Table 250-95. Grounding and bonding in the building must comply with the latest issue of the National Electrical Code.
- E. Metallic conduit used with power wiring shall be bonded to provide an effective ground. In addition to this, equipment grounding conductors shall also be installed in raceways.

END OF SECTION

SECTION 16500 - LIGHTING FIXTURES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. The General Conditions, Supplemental General Conditions, and Division 1 are hereby made a part of the work of this section.

1.02 DESCRIPTION

- A. The work covered by this Section of the specifications includes the furnishing of labor, materials, equipment, transportation, permits, inspections and incidentals and the performing of operations required to install the lighting system indicated.
- B. The complete lighting system shall consist of lighting including necessary caps, straps, UL listed clips, devices, etc. as required. Devices shall be UL listed and approved for the application. Wiring methods and materials shall comply with the NE code.

1.03 SUBMITTALS

- A. The items for which the submittals apply are as follows:
 - 1. Lighting fixtures, lamps, and ballasts.

PART 2 PRODUCTS

2.01 MATERIALS

- A. The light fixtures shall be as described on the plans and the fixture schedule. Fluorescent fixture shall have energy saving ballasts which shall be UL listed, high power factor, full light output, Class P, rapid start Universal triad. PL lamp fixtures shall be furnished with HIGH POWER FACTOR ballasts.
- B. Light fixtures schedule is shown on plans.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Furnish and install complete to the building electrical system a lighting system ready for proper and satisfactory operation. The number and type of light fixtures are shown on the plans and scheduled on the fixture schedule. The manufacturer's name and catalog number are given for the type, quality, appearance, and performance desired. Proposed substitutions must be equal to or exceed those scheduled.

END OF SECTION