

SPECIFICATIONS FOR:

ANN ARBOR FIRE STATION · 6  
BRIARWOOD CIRCLE  
ANN ARBOR MICHIGAN

FOR : CITY OF ANN ARBOR  
100 NORTH FIFTH AVENUE  
ANN ARBOR MICHIGAN

MENEGHINI OVERHISER ASSOCIATES ARCHITECTS  
216 E. HURON ST.  
ANN ARBOR MICHIGAN  
(313) 668-6310

ROBERT DARVAS ASSOCIATES P.C.  
440 S. MAIN ST.  
ANN ARBOR MICHIGAN  
(313) 761-8713

PROFESSIONAL CONSULTANTS INCORPORATED  
19450 HAGGERTY ROAD  
LIVONIA MICHIGAN  
(313) 464-4411

NEIL ADAMS INCORPORATED  
2731 MANCHESTER  
ANN ARBOR MICHIGAN  
(313) 971-4343

1.

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AAFS#6

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INVITATION FOR BIDS  
DIVISION ONE/SECTION A

OWNER: City of Ann Arbor  
A Michigan Municipal Corporation

PROJECT: New Construction of Ann Arbor Fire Station #6

ARCHITECT: Meneghini Overhiser Associates, Architects  
216 East Huron Street  
Ann Arbor, Michigan 48104  
(313) 668-6310

DUE DATE: Until 2:00 P.M. local time, on the 22nd day  
of October, 1980, the Owner will receive  
sealed bids in the Office of the Purchasing  
Department, City Hall and thereafter all proposals  
will be publicly opened and read aloud at the:

Fire Department  
South Conference Room  
107 North Fifth Avenue  
Ann Arbor, Michigan

1. PROPOSALS ARE INVITED FOR THE FOLLOWING

a - Construction of a new Fire Station for the City of Ann Arbor, Michigan.

2. PROPOSAL GUARANTEE

a - A certified check or bank draft payable to the City of Ann Arbor, or a satisfactory bid bond executed by the Bidder and surety company, in an amount equal to not less than five percent (5%) of the maximum proposal amount, shall be submitted with each proposal.

3. CONTRACT SECURITY

a - The successful Bidders will be required to furnish a satisfactory performance bond, and labor and material payment bond in amounts each of one hundred percent (100%) of the accepted bid.



4. CONTRACT DOCUMENTS

a - Contract Documents are on file for reference at the Office of the Architect, Meneghini Overhiser Associates, Architects.

5. COPIES OF DOCUMENTS

a - Copies of Documents may be obtained from the Office of the Architect, Meneghini Overhiser Associates, Architects.

6. WITHDRAWAL OF ANY PROPOSAL

a - Withdrawal of any proposal is prohibited for a period of sixty (60) days after the time set for opening of proposals.

7. INSURANCE

a - The Successful Bidder will be required to maintain Liability Insurance, Contractor's Liability for bodily injury, sickness, disease and property damage and Fire and Extended Insurance in accordance with the American Institute of Architects Standard General Conditions latest edition.

8. BIDDING DOCUMENTS

a - Bidding Documents may be obtained from the Office of the Architect on or after: September 29, 1980.

b - Bidders may obtain three sets of drawings and specifications upon receipt of deposit of \$105.00 per three sets which is refundable when drawings and specifications are returned intact and without marks within 5 days after bids are due.

9. QUALIFICATION OF BIDDERS

a - Contractors must submit Bidder's qualifications to office of the Architect: Meneghini Overhiser Associates, Architects, 216 East Huron Street, Ann Arbor, Michigan 48104, on or before September 29, 1980.

10. RIGHT TO REJECT

a - Right to reject any or all proposals and to waive informalities in bidding, as its interests may require, is reserved by the Owner.

By order of

---

Terry V. Sprenkel,  
City Administrator

---

John D. Bergren,  
Director Central Services

LEGAL STATUS OF BIDDER

(The bidder shall fill out the appropriate form and strike out the other two).

\* A corporation duly organized and doing business under the laws of the state of \_\_\_\_\_, for whom \_\_\_\_\_ bearing the office title of \_\_\_\_\_ whose signature is affixed to this proposal, is duly authorized to execute contracts.

\* A partnership, all members of which with address, are:

_____	_____
_____	_____
_____	_____
_____	_____

\* An individual, whose signature with address, is affixed to this proposal:

_____	_____
-------	-------

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, That we, \_\_\_\_\_

\_\_\_\_\_ of \_\_\_\_\_

hereinafter called the "Principal", and \_\_\_\_\_

\_\_\_\_\_ a corporation duly authorized to do business in the State of Michigan, hereinafter called "Surety" are held firmly bound into the City of Ann Arbor, Michigan, as obligee, and hereinafter called "Obligee", in the just and full sum of \_\_\_\_\_ DOLLARS, the payment whereof principal and surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the above principal has by written agreement entered into a contract with obligee, dated \_\_\_\_\_, 19\_\_, which contract is by reference made a part hereof, which said contract is for: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
and,

WHEREAS, this bond is given in compliance with and subject to the provisions of Act No. 213 of the Michigan Public Acts of 1963.

NOW, THEREFORE, the condition of this obligation is such that if principal shall promptly and faithfully perform said contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

And surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder, or the specifications accompanying the same shall in anywise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work, or to the specifications.

Whenever principal shall be and declared by the obligee to be in default under the contract, 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 submission to obligee for completing the contract in accordance with its terms and conditions, and upon determination by obligee and surety of the lowest responsible bidder, arrange for a contract between such bidder and obligee, and make available as work progresses 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.

SIGNED AND SEALED This \_\_\_\_\_ day \_\_\_\_\_, 19 \_\_\_\_.

WITNESSES:

\_\_\_\_\_  
(Name of Firm or Partnership, etc.)

By \_\_\_\_\_  
(Signature)

Its \_\_\_\_\_  
(Title or Office)

By \_\_\_\_\_  
(Signature)

Its \_\_\_\_\_  
(Title or Office)

\_\_\_\_\_  
(Name of Surety Company)

By \_\_\_\_\_  
(Signature)

Its \_\_\_\_\_  
(Title or Office)

Approved as to form:

\_\_\_\_\_  
City Attorney

LABOR AND MATERIAL BOND

KNOW ALL MEN BY THESE PRESENTS, That we, \_\_\_\_\_  
(Contractor)

\_\_\_\_\_, of \_\_\_\_\_

\_\_\_\_\_, hereinafter called the "Principal", and

\_\_\_\_\_  
(Surety)

a corporation duly authorized to do business in the State of Michigan, hereinafter called "Surety", are held firmly bound unto the City of Ann Arbor, Michigan, as Obligee, and hereinafter called "Obligee" for the use and benefit of claimants as defined in Act 213 of Michigan Public Acts of 1963, in the just and full sum of \_\_\_\_\_

\_\_\_\_\_ 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, the above principal has by written agreement entered into a contract with obligee, dated \_\_\_\_\_, 19\_\_\_\_, which said contract is by reference made a part hereof, which said contract is for:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

and

WHEREAS, this bond is given in compliance with and subject to the provisions of Act No. 213 of the Michigan Public Acts of 1963.

NOW, THEREFORE, the condition is such that if the principal shall promptly make payment to all claimants, as herein 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. The above named principal and surety hereby jointly and severally agree with the obligee that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after date on which the last of such claimants work or labor was done or performed, or materials were furnished by such claimants may sue on this bond for the use of such claimant in the name of the obligee, prosecute the suit to final judgment for such sum or sums as may be justly due claimant and have

execution thereon, provided however that the obligee shall not be liable for the payment of any costs of any such suit.

2. No suit or action shall be commenced hereunder by any claimant,

(a) Unless claimant shall have given written notice to the obligee, the principal and 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. Each notice shall be served by mailing the same by certified mail, postage prepaid in an envelope addressed to the principal, or surety, or obligee at any place an office is regularly maintained for the transaction of business.

(b) After the expiration of one (1) year following the date on which final payment was made to the principal.

(c) Other than in the Circuit Court for the County of Washtenaw.

3. The surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

SIGNED AND SEALED This \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_.

WITNESSES:

\_\_\_\_\_  
(Name of Firm or Partnership, etc.)

By \_\_\_\_\_  
(Signature)

Its \_\_\_\_\_  
(Title or Office)

By \_\_\_\_\_  
(Signature)

Its \_\_\_\_\_  
(Title or Office)

\_\_\_\_\_  
(Name of Surety Company)

WITNESSES:

\_\_\_\_\_

By \_\_\_\_\_  
(Signature)

Its \_\_\_\_\_  
(Title or Office)

Approved as to form:

\_\_\_\_\_  
City Attorney

INSTRUCTIONS TO BIDDERS  
DIVISION ONE/SECTION B

OWNER: City of Ann Arbor  
A Michigan Municipal Corporation

PROJECT: New Construction of Ann Arbor, Fire Station #6

ARCHITECT: Meneghini Overhiser Associates, Architects  
216 East Huron Street  
Ann Arbor, Michigan 48104  
(313) 668-6310

1. LOCATION

2. WORK NOT INCLUDED

a - The following items of work will be let under a separate contract:

- 1) Carpet
- 2) Furniture
- 3) Communication consoles shall be by others. Electrical Contractor shall verify power requirements.
- 4) Telephone system with the exception that conduit and outlet boxes required by Bell Telephone shall be supplied and installed by the Electrical Contractor. Electrical Contractor shall verify locations of outlets with the Fire Department and locations of interior and exterior conduit with Bell Telephone.
- 5) Access road and access road utilities to property from Briarwood Ring Road.
- 6) Communication Antenna



3. PROPOSALS AND SCOPE

- a - The Owner will receive sealed proposals for work as herein set forth at the place and until the time as stated in the "INVITATION FOR BIDS" a copy of which is bound herewith, at which time and place all proposals will be publicly opened and read aloud.
- b - Proposals are invited for work in accordance with these specifications and the accompanying drawings prepared by the Architect.
- c - Proposals must be submitted, in duplicate, on forms which will be furnished with the documents. The forms must be filled out in ink or typewriting with signature in longhand; the completed forms shall be without interlineations, alterations or erasure; and shall contain no recapitulation of the work to be done. Proposal amounts shall be stated in writing and figures. In case of a discrepancy between the written statement and the figures, the written statement shall govern. Proposals submitted in any other form will not be considered.

- d - Proposals must be delivered in an opaque sealed envelope, properly addressed, and labeled as follows:

THIS ENVELOPE CONTAINS PROPOSAL AND PROPOSAL GUARANTY FOR  
THE ANN ARBOR FIRE STATION #6 PROJECT, TO BE  
RECEIVED AND READ AT: October 22, 1980, 2:00 P.M.,  
LOCAL TIME.

SUBMITTED BY \_\_\_\_\_  
NAME OF BIDDER

- e - After the time set for opening of proposals no proposal shall be withdrawn for a period of sixty (60) days. However, any Bidder may withdraw his proposal at any time prior to the time set for opening of proposals.
- f - Bidders are required to return all documents to the Architect without marks, notes or other mutilations thereon.
- g - American Institute of Architects General Conditions of the latest edition shall apply to all operations which are to be conducted in the performance of any contract entered into for the work described in the Invitation. These documents are available for examination by interested parties.

4. REQUIREMENTS FOR SIGNING PROPOSALS

a - Proposals which are not signed by individuals making them should have attached thereto a power of attorney evidencing authority to sign the proposal in the name of the person for whom it is signed.

b - Proposals which are signed for a partnership should be signed by all of the partners or by an attorney-in-fact. If signed by an attorney-in-fact, there must be attached to the proposal a power of attorney evidencing authority to sign the proposal, executed by the partners.

c - Proposals which are signed for a corporation, should have the correct corporate name thereof and the signature of the president or other authorized officer of the corporation, manually written below the corporate name following the word, "By \_\_\_\_\_." If such a proposal is manually signed by an official other than the president of the corporation, a certified copy of resolution of the Board of Directors evidencing the authority of such official to sign the bid should be attached to it. Such proposal should also bear the attesting signature of the secretary of the corporation and the impression of the corporate seal.

d - All manual signatures must have the name typed directly under line for signature

5. TELEGRAPHIC MODIFICATION

a - Any Bidder may modify his bid by telegraphic communication at any time prior to the scheduled closing time for receipt of bids, provided such telegraphic communication is received by the Owner prior to the closing time, and, provided further, the Owner is satisfied that a written confirmation of the telegraphic modification over the signature of the Bidder was mailed prior to the closing time. The telegraphic communication should not reveal the bid price but should provide the addition or subtraction or other modification so that the final prices or terms will not be known by the Owner until the sealed bid is opened. If written confirmation is not received within four days from the closing time, no consideration will be given to the telegraphic modification.

6. EXAMINATION OF SITE

a - Before submitting a proposal, each Bidder shall inspect the site of the proposed work to arrive at a clear understanding of the conditions under which the work is to be done. He will be held to have compared the premises with the drawings and specifications, and to have satisfied himself as to all conditions affecting the execution of the work.

b - No allowance or extra compensation concerning any matter or thing about which the Bidder might have fully informed himself will be allowed.

## 7. ALLOWANCES

- a - The Contractor shall include the following allowances in the base bid proposal.
- b - The allowance amounts are net to the Owner and may be deducted in total from the Contract is desired. The amount includes No profit to the Contractor.
- c - Should the cost of the items be in excess of or less than the allowance specified, the Contract sum will be adjusted accordingly.
- d - Allowances include all labor, material, taxes and delivery charges unless otherwise stated.
- e - The Owner reserves the right to require from the General Contractor two or more competitive bids for all allowance work.
- f - Allowances:
  - 1. Finish hardware allowance: \$3,500 (includes material, taxes and delivery to site only).
  - g. - If the Owner elects to remove any of the above described work from the Contract, the General Contractor shall state in the proposal the percentage amount of the allowance for General Contractor's profit and overhead to be deducted from the Contract sum.

## 8. ALTERNATES

- a - Each alternate described in the specification shall be quoted in the Proposal, stating the amount which is to be added to or deducted from the Base Proposal amount in each case or a statement shall be made that the alternate involves no change in the Base Proposal. No other alternates will be considered, but this is not to be construed as preventing the Bidder from quoting on substitutions as hereinafter specified.

## 9. SUBSTITUTIONS

- a - Proposals shall be based on various brands, makes and standards of materials specified. The Bidder may list proposed substitutions showing the amount to be added or to be deducted from the bid, if the substitution is accepted. No substitutions shall be made without written consent of the Architect or Owner.

10. TAXES

a - Each proposal submitted shall include, and the successful Bidder will be required to pay all taxes which are levied by Federal, State or Municipal Governments upon labor and for materials entering into the work. The Owner reserves the right to require evidence of payment of such taxes prior to final payment.

11. OWNER'S OPTIONS

a - Proposals shall be based on the employment of sub-contractors, fabricators or processes named in the Specifications and on the furnishing of the makes, types or styles or articles, materials and equipment specified, provided, however:

1. Where only one such name, make, type or style is specified in any instance, whether or not followed by the phrase "or other approved" or other words to that effect, proposals shall be based on the name, make, type or style so specified and the proposal shall clearly state, under the heading "Owner's Options," as provided therein, names, makes, types or styles which the Bidder may propose other than those designated in the Specifications.
2. Where more than one name, make, type or style are specified in any instance, the Bidder shall base his proposal on one of those so named, and shall state the amount to be added to or deducted from the proposal for other names, makes, types or styles, which the Bidder may propose.

12. PROPOSAL GUARANTEE

a - Each proposal shall be accompanied by a proposal guarantee in the form of a check properly and unconditionally certified by a solvent bank, or a bank draft, payable to the order of The City of Ann Arbor, or a satisfactory bid bond executed by the Bidder and surety company, licensed to do business in the State of Michigan, in an amount equal to not less than five percent of the maximum proposal amount. Such bid bond or check shall be submitted with the understanding that it shall guarantee that the Bidder will not withdraw his bid for a period of sixty (60) days after the scheduled closing time for the receipt of bids; that if his bid is accepted, he will enter into a formal contract with the Owner in accordance with the form of agreement included as a part of the Contract Documents, and that the required performance and payment bonds will be given; and that in the event of the withdrawal of said bid within said period, or the failure to enter into said contract and give said bonds within ten (10) days after he has received notice of the acceptance of his bids, the Bidder shall be liable to the Owner for the full amount of the bid guarantee as representing the damage to the Owner on account of the default of the Bidder in any particular hereof.

b - The proposal guarantee of all except the three lowest Bidders will be returned within three days after the opening of proposals. The proposal guarantee of the three lowest Bidders will be returned within forty-eight (48) hours after the Owner and the accepted Bidder have executed the contract and the executed performance and payment bonds have been approved by the Owner. If the required contract and bonds have not been executed within sixty (60) days after the date of the opening of bids, then the bond or check of any Bidder will be returned upon his request, provided he has not been notified of the acceptance of his bid prior to the date of such request.

c - Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

### 13. CONTRACT SECURITY

a - The amount contained in each submitted proposal shall include the premiums and all other charges, if any, for two surety bonds, each in the full amount of the proposal sum.

b - The bonds shall consist of performance bond as security for the faithful performance of the contract, and labor and material bond as security for the payment of all persons performing labor and furnishing materials in connection with the contract. Bonds and sureties shall be acceptable to the Owner.

c - However, nothing contained herein or in the General Conditions relating to waivers and sworn statements in connection with payments shall make the Architect or Owner liable to the surety for adequacy of waivers and sworn statements. It shall be the responsibility of the surety to determine the adequacy of the waivers and sworn statements.

### 14. INTERPRETATION OF DOCUMENTS AND ADDENDA

a - Neither the Owner nor Architect will give verbal answers to inquiries regarding the meaning of drawings and specifications, or verbal instruction previous to the award of the contract. Any verbal statement regarding same by any persons, previous to the award, shall be unauthoritative.

b - Any explanation desired by Bidders must be requested of the Architect in writing, and if explanation is necessary, a reply will be made in the form of an addendum, a copy of which will be forwarded to each Bidder, who has received a set of the Contract Documents and to such other prospective Bidders as have requested that they be furnished with a copy of each addendum.

c - Any addenda issued to Bidders prior to date of receipt of proposals shall become a part of these Specifications and all proposals are to include the work therein described. Each proposal submitted shall list all addenda which have been received prior to time scheduled for receipt of proposals.

d - All questions and inquiries relative to this project shall be directed to the Architect.

15. QUALIFICATIONS OF BIDDERS

a - The Owner may request the Bidder to whom it is intended to award the contract to submit information necessary to satisfy the Owner that the Bidder is adequately prepared to fulfill the contract. Such information may include past performance records, list of available personnel, plant and equipment, description of work which will be done simultaneously with the Owner's project, financial statement, or any other pertinent information.

16. NOTICE OF AWARD

The contract shall be deemed as having been awarded when formal notice of acceptance of his proposal has been duly served upon the intended awardee by some officer or agent of the Owner duly authorized to give such notice.

17. TIME OF STARTING AND COMPLETION

a - The successful Bidder shall furnish required bonds and insurance and commence active work on the project within ten (10) days after date of notice of award, unless a longer period is stated in such notice, and shall complete the work within the time stated in the contract.

18. FORM OF AGREEMENT

a - The Standard Form of Agreement Between Contractor and Owner for Construction issued by the AIA will be used for each Contract between Contractor and Owner

19. SUBCONTRACTORS

a - The Contractor shall submit a list of the proposed subcontractors which shall not be changed without the Owner's approval.

20. DOCUMENTS FOR BIDDING

a - The drawings which will be issued for the use of Bidders and upon which all proposals are to be based consist of those listed in these specifications.

b - In the event that additional documents are required to explain revisions which are made during the bidding period or to give additional information to the Bidders, the Architect will prepare such documents in the form of an addendum with accompanying drawings, if required, and will send copies of the same to all Bidders of the trades affected, prior to the date for receipt of proposals. All proposals are to include the work described and indicated on such additional documents.

21. REJECTION OF BIDS

a - The Owner does not obligate himself to accept the lowest or any other bid, nor to award the work in any definite time. The Owner reserves the right to waive informalities in the proposal.

22. HUMAN RIGHTS INFORMATION

Division 1G, Page 14 outlines the requirements for fair employment practices under City of Ann Arbor Contracts. To establish compliance with this Ordinance, the Contractor shall submit with his proposal, the information outlined herein, and subsequent to bidding he shall supply such other information as required by the Human Rights Director. Information to be included with the bid is:

1. A completed copy of Form K-12 (a copy of the form is included with these documents or can be obtained from the Human Rights Department, City Hall).
2. A copy of the bidders Affirmative Action Program; if one has been adopted.
3. A letter indicating what actions the bidder intends to take to insure equal opportunity employment.

23. PREVAILING WAGES

The Contractor is advised that under this Contract, he shall in particular conform to Chapter 14 of Title I of the Code of the City of Ann Arbor as amended; which in part states "...that all craftsmen, mechanics and laborers employed directly on the site in connection with said improvements, including said employees of subcontractors, shall receive the prevailing wage for the corresponding classes of craftsmen, mechanics and laborers, as determined by statistics for the Ann Arbor area compiled by the United States Department of Labor. At the request of the City, any contractor or subcontractor shall provide satisfactory proof of compliance with the contract provisions required by this Section."

PROPOSAL FORM  
DIVISION ONE/SECTION C

OWNER: The City of Ann Arbor  
A Michigan Municipal Corporation

PROJECT: Construction of a New Fire Station

ARCHITECT: Meneghini Overhiser Associates, Architects  
216 East Huron Street  
Ann Arbor, Michigan 48104  
(313) 668-6310

Contract: General Contract for the Construction of a New Fire  
Station for the City of Ann Arbor to be know as Ann  
Arbor Fire Station #6 located at:

Name of Bidder:

Address:

To:

GENTLEMEN:

The Bidder, in compliance with your invitation for bids for the construction of a New Fire Station, having examined the plans and specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the project in accordance with the Contract Documents, within the time set forth herein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents, of which this Proposal is a part.

The Bidder hereby agrees to commence work under this Contract on or before a date to be specified in a written "Notice to Proceed" by the Owner and to fully complete the project within the specified allotted consecutive calendar days thereafter as stipulated below.



1. BASE PROPOSAL

The Undersigned agrees to enter into an agreement with the Owner to complete the work set forth in the Contract Documents for the sum of:

\_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_)

2. ALTERNATES

ALTERNATE NO. 1: a - Delete light weight concrete block walls with painted finish from Rooms #6, 7, 8, 9, 10, 15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 30, 31 and 32. See Room Finish Schedule for wall locations.

Deduct \$ \_\_\_\_\_

b - Add face ground single scored concrete block. Clean block and field apply one (1) coat clear acrylic matte finish coating. Applicable to above mentioned rooms only.

Add \$ \_\_\_\_\_

ALTERNATE NO. 2: a - Delete 2 x 4 lay-in acoustical ceiling tile and exposed ceiling suspension system from Rooms #7, 8, 9, 10, 15, 17, 20, 23 and 25.

Deduct \$ \_\_\_\_\_

b - Add suspended drywall metal furring system and 1/2" gypsum board ceiling to the above mentioned rooms. Provide USG 200-B metal edge to drywall at abutments to vertical surfaces.

Add \$ \_\_\_\_\_

ALTERNATE NO. 3: a - Delete two (2) panel brick wing walls, 190 sf. of 12" light weight concrete block, drywall at wing walls, lean-to skylight, metal flashing, and 190 sf. of 8" light weight concrete block.

Deduct \$ \_\_\_\_\_

b - Add two (2) 1-4 lintels spanning 4'-0" each, roof system of 3-ply built-up roof over 1/2" fiberboard over 4" rigid insulation over 1-1/2" metal deck and 14H4 steel joists required to cover 125 square feet of roof area, 190 square feet of panel brick with 1-1/2" rigid insulation and 8" light weight concrete block back-up, and drywall ceiling on 2 x 4 wood framing for an 8'-0" ceiling heights.

Add \$ \_\_\_\_\_

[illegible]

ARTICLE, WORK OR PROCESS	SPECIFIED NAME, MAKE, TYPE OR STYLE	ALTERNATE NAME MAKE, TYPE OR STYLE	ADD	DEDUCT
			\$	\$

Date: \_\_\_\_\_

Name of Bidder: \_\_\_\_\_

6. ADDENDA

a - The Undersigned has included in the proposal the modifications to the work described in the following addenda received prior to the submission of this proposal.

Addendum No. \_\_\_\_\_, Dated \_\_\_\_\_.

Addendum No. \_\_\_\_\_, Dated \_\_\_\_\_.

Addendum No. \_\_\_\_\_, Dated \_\_\_\_\_.

(If none have been received, write "NONE")

7. PROPOSAL GUARANTEE

a - The Undersigned includes with the proposal the required proposal guarantee consisting of \_\_\_\_\_.

(State nature of guarantee and amount)

8. ACCEPTANCE OF PROPOSAL

The Undersigned agrees to execute a contract for work covered by this proposal provided that he be notified of its acceptance within sixty (60) days after the opening of proposal.

Date \_\_\_\_\_ Name of Bidder \_\_\_\_\_  
By \_\_\_\_\_  
In Presence of: Type Name: \_\_\_\_\_  
\_\_\_\_\_  
(Title)

This form is to be supplied in triplicate. Submit two (2) copies and retain one for your file.

ALTERNATE BIDS  
DIVISION ONE D

1. GENERAL

a - The following is a description of the various items of alternate construction required. The alternate price submitted shall include the total price differential from all trades involved in both the base bid and the alternate bid.

b - All specifications in this Specification shall apply to all work in alternates.

c - Each alternate shall include all charges incidental to the work including taxes, insurance, overhead profit and bonds.

2. ALTERNATE NO. 1

a - Delete light weight concrete block walls with painted finish from Rooms #6,7,8,9,10,15,17,18,19,20,21,23,24,25,27,28,29,30,31, and 32. See Room Finish Schedule for wall locations.

b - Add face ground single scored concrete block. Clean block and field apply one (1) coat clear acrylic matte finish coating. Applicable to above mentioned rooms only.

3. ALTERNATE NO. 2

a - Delete 2 x 4 lay-in acoustical ceiling tile and exposed ceiling suspension system from Rooms #7,8,9,10,15,17,20,23, and 25.

b - Add suspended drywall metal furring system and 1/2" gypsum board ceiling to the above mentioned rooms. Provide USG 200-B metal edge to drywall at abutments to vertical surfaces.

4. ALTERNATE NO. 3

a - Delete two (2) panel brick wing walls, 190 sf. of 12" light weight concrete block, drywall at wing walls, lean-to skylight, metal flashing, and 190 sf. of 8" light weight concrete block.

b - Add two (2) L-4 lintels spanning 4'-0" each, roof system of 3-ply built-up roof over 1/2" fiberboard over 4" rigid insulation over 1-1/2" metal deck and 14H4 steel joists required to cover 125 square feet of roof area, 190 square feet of panel brick with 1-1/2" rigid insulation and 8" light weight concrete block back-up, and drywall ceiling on 2 x 4 wood framing for a 8'-0" ceiling height.

THIS AGREEMENT is made on the \_\_\_\_\_ day of \_\_\_\_\_,  
A.D., 19\_\_ by and between the CITY OF ANN ARBOR, a Municipal Corporation,  
duly organized and existing under and by virtue of the Laws of the State  
of Michigan, party of the first part, hereinafter called the City, and

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(an individual) (a partnership) (a corporation, incorporated under laws of  
the State of \_\_\_\_\_) of the City of \_\_\_\_\_,  
County of \_\_\_\_\_, State of \_\_\_\_\_,  
party of the second part, hereinafter called the Contractor.

Unless the Contractor is otherwise notified in writing by the City,  
the Engineers shall be the Engineering Department, City of Ann Arbor,  
Michigan.

WITNESSETH, That the Contractor and the City, for the considerations  
hereinafter names, agree as follows:

ARTICLE I - Scope of the Work

The Contractor hereby agrees to furnish all of the materials, and  
all of the equipment and labor necessary; and to perform all of the work  
described in the specifications for the project titled \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

all in accordance with the requirements and provisions of the following  
Documents which are hereby made a part of this Agreement:

Advertisement  
Instructions to Bidders  
Proposal  
Bid Forms  
Contract  
Forms of Bonds  
General Conditions

Specifications  
General Specifications  
Detailed Specifications  
Addenda  
Plans and/or Drawings

ARTICLE II - Time of Completion

- (A) The work to be completed under this Contract shall be commenced immediately after the receipt of a fully executed Contract.
- (B) The entire work under this Contract shall be completed in \_\_\_\_\_.
- (C) Failure to complete the work within the number of calendar days or the dates above stated in this Article, including extension granted thereto as determined by the Engineer, shall entitle the City to deduct from the monies due to the Contractor as "Liquidated Damages" and not as a penalty an amount equal to One Hundred ----- Dollars (\$100.00) for each calendar day of delay in the completion of work.

ARTICLE III - Delays

If the Contractor refuses or fails to prosecute the work, or any separate part thereof, with such diligence as will insure its completion, ready for operation, within the number of consecutive calendar days specified herein or any extension thereof, or fails to complete said work within such time, the City may, by written notice to the Contractor, terminate his right to proceed with the work or such part of the work as to which there has been delay. In such event the City may take over the work and prosecute the same to completion, by contract or otherwise, and the Contractor and his sureties shall be liable to the City for any excess cost occasioned the City thereby. If the Contractor's right to proceed is so terminated, the City may taken possession of and utilize in completing the work, such materials, appliances and plant as may be on the site of the work and necessary therefor. The right of the Contractor to proceed shall not be terminated or the Contractor charged with liquidated damages because of any delays in the completion of the work due to unforeseeable causes beyond control and without the fault or negligence of the Contractor, including, but not restricted to, Acts of God, or of the public enemy, acts of the City, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather or delays of a subcontractor due to such causes. The Contractor shall, within ten (10) days from the beginning of any such delay notify the Engineer in writing of the cause of the delay. The Engineer shall ascertain the facts and the extent of delay and extend the time for completing the work when, in his judgment, the findings of fact thereon warrant same, and his decision shall be final and conclusive on the parties thereto.

ARTICLE IV - The Contract Sum

- (A) The City shall pay to the Contractor for the performance of the Contract, the lump sum price of:

\_\_\_\_\_ Dollars (\$\_\_\_\_\_)

- (B) The amount paid shall be equitably adjusted to cover changes in the work ordered by the Engineer but not required by the specifications. Such increases or decreases in the Lump Sum Price shall be determined by agreement between the City and Contractor.

IN WITNESS WHEREOF: The party of the first part has caused its seal to be affixed hereto, and the signatures of the Mayor and Clerk in its behalf, to be hereunto subscribed and the Contractor has hereunto set his hand and seal, the day and year first above written.

WITNESSES

CONTRACTOR

\_\_\_\_\_  
(Name of firm, partnership, etc.)

By \_\_\_\_\_  
(Signature)

Its \_\_\_\_\_  
(Title or Office)

By \_\_\_\_\_  
(Signature)

Its \_\_\_\_\_  
(Title or Office)

CITY OF ANN ARBOR

By \_\_\_\_\_  
City Engineer

By \_\_\_\_\_  
MAYOR

By \_\_\_\_\_  
City Administrator

By \_\_\_\_\_  
CITY CLERK

By \_\_\_\_\_  
Human Rights Director

Approved as to Form:

By \_\_\_\_\_  
City Attorney



## GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

### ARTICLE 1

#### CONTRACT DOCUMENTS

##### 1.1 DEFINITIONS

###### 1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents consist of the Owner-Contractor Agreement, the Conditions of the Contract (General, Supplementary and other Conditions), the Drawings, the Specifications, and all Addenda issued prior to and all 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 written interpretation issued by the Architect pursuant to Subparagraph 2.2.8, or (4) a written order for a minor change in the Work issued by the Architect pursuant to Paragraph 12.4. The Contract Documents do not include Bidding Documents such as the Advertisement or Invitation to Bid, the Instructions to Bidders, sample forms, the Contractor's Bid or portions of Addenda relating to any of these, or any other documents, unless specifically enumerated in the Owner-Contractor Agreement.

###### 1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. This Contract represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification as defined in Subparagraph 1.1.1. The Contract Documents shall not be construed to create any contractual relationship of any kind between the Architect and the Contractor, but the Architect shall be entitled to performance of obligations intended for his benefit, and to enforcement thereof. Nothing contained in the Contract Documents shall create any contractual relationship between the Owner or the Architect and any Subcontractor or Sub-subcontractor.

###### 1.1.3 THE WORK

The Work comprises the completed construction required by the Contract Documents and includes all labor necessary to produce such construction, and all materials and equipment incorporated or to be incorporated in such construction.

###### 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.

##### 1.2 EXECUTION, CORRELATION AND INTENT

1.2.1 The Contract Documents shall be signed in not less than triplicate by the Owner and Contractor. If either the Owner or the Contractor or both do not sign the Conditions of the Contract, Drawings, Specifications, or any of the other Contract Documents, the Architect shall identify such Documents.

1.2.2 By executing the Contract, the Contractor represents that he has visited the site, familiarized himself with the local conditions under which the Work is to be performed, and correlated his observations with the 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. The Contract Documents are complementary, and what is required by any one shall be as binding as if required by all. Work not covered in the Contract Documents will not be required unless it is consistent therewith and is reasonably inferable therefrom as being necessary to produce the intended results. Words and abbreviations which have well-known technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings.

1.2.4 The organization of the Specifications into divisions, sections and articles, and the 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.

##### 1.3 OWNERSHIP AND USE OF DOCUMENTS

1.3.1 All Drawings, Specifications and copies thereof furnished by the Architect are and shall remain his property. They are to be used only with respect to this Project and are not to be used on any other project. With the exception of one contract set for each party to the Contract, such documents are to be returned or suitably accounted for to the Architect on request at the completion of the Work. Submission or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's common law copyright or other reserved rights.

### ARTICLE 2

#### ARCHITECT

##### 2.1 DEFINITION

2.1.1 The Architect is the person lawfully licensed to practice architecture, or an entity lawfully practicing architecture identified as such in the Owner-Contractor Agreement, and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term Architect means the Architect or his authorized representative.

##### 2.2 ADMINISTRATION OF THE CONTRACT

2.2.1 The Architect will provide administration of the Contract as hereinafter described.

2.2.2 The Architect will be the Owner's representative during construction and until final payment is due. The Architect will advise and consult with the Owner. The Owner's instructions to the Contractor shall be forwarded

through the Architect. 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 Subparagraph 2.2.18.

**2.2.3** The Architect will visit the site at intervals appropriate to the stage of construction to familiarize himself generally with the progress and quality of the Work and to determine in general if the Work is proceeding in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. On the basis of his on-site observations as an architect, he will keep the Owner informed of the progress of the Work, and will endeavor to guard the Owner against defects and deficiencies in the Work of the Contractor.

**2.2.4** The Architect will not be responsible for and will not have control or charge of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, and he will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Architect will not be responsible for or have control or charge over the acts or omissions of the Contractor, Subcontractors, or any of their agents or employees, or any other persons performing any of the Work.

**2.2.5** The Architect shall at all times have access to the Work wherever it is in preparation and progress. The Contractor shall provide facilities for such access so the Architect may perform his functions under the Contract Documents.

**2.2.6** Based on the Architect's observations and an evaluation of the Contractor's Applications for Payment, the Architect will determine the amounts owing to the Contractor and will issue Certificates for Payment in such amounts, as provided in Paragraph 9.4.

**2.2.7** The Architect will be the interpreter of the requirements of the Contract Documents and the judge of the performance thereunder by both the Owner and Contractor.

**2.2.8** The Architect will render interpretations necessary for the proper execution or progress of the Work, with reasonable promptness and in accordance with any time limit agreed upon. Either party to the Contract may make written request to the Architect for such interpretations.

**2.2.9** Claims, disputes and other matters in question between the Contractor and the Owner relating to the execution or progress of the Work or the interpretation of the Contract Documents shall be referred initially to the Architect for decision which he will render in writing within a reasonable time.

**2.2.10** All interpretations and decisions of the Architect shall be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. In his capacity as interpreter and judge, he will endeavor to secure faithful performance by both the Owner and the Contractor, will not

show partiality to either, and will not be liable for the result of any interpretation or decision rendered in good faith in such capacity.

**2.2.11** The Architect's decisions in matters relating to artistic effect will be final if consistent with the intent of the Contract Documents.

**2.2.12** Any claim, dispute or other matter in question between the Contractor and the Owner referred to the Architect, except those relating to artistic effect as provided in Subparagraph 2.2.11 and except those which have been waived by the making or acceptance of final payment as provided in Subparagraphs 9.9.4 and 9.9.5, shall be subject to arbitration upon the written demand of either party. However, no demand for arbitration of any such claim, dispute or other matter may be made until the earlier of (1) the date on which the Architect has rendered a written decision, or (2) the tenth day after the parties have presented their evidence to the Architect or have been given a reasonable opportunity to do so, if the Architect has not rendered his written decision by that date. When such a written decision of the Architect states (1) that the decision is final but subject to appeal, and (2) that any demand for arbitration of a claim, dispute or other matter covered by such decision must be made within thirty days after the date on which the party making the demand receives the written decision, failure to demand arbitration within said thirty days' period will result in the Architect's decision becoming final and binding upon the Owner and the Contractor. If the Architect renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence but will not supersede any arbitration proceedings unless the decision is acceptable to all parties concerned.

**2.2.13** The Architect will have authority to reject Work which does not conform to the Contract Documents. Whenever, in his opinion, he considers it necessary or advisable for the implementation of the intent of the Contract Documents, he will have authority to require special inspection or testing of the Work in accordance with Subparagraph 7.7.2 whether or not such Work be then fabricated, installed or completed. However, neither the Architect's authority to act under this Subparagraph 2.2.13, nor any decision made by him in good faith either to exercise or not to exercise such authority, shall give rise to any duty or responsibility of the Architect to the Contractor, any Subcontractor, any of their agents or employees, or any other person performing any of the Work.

**2.2.14** The Architect will review and approve or take other appropriate action upon Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for conformance with the design concept of the Work and with the information given in the Contract Documents. Such action shall be taken with reasonable promptness so as to cause no delay. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

**2.2.15** The Architect will prepare Change Orders in accordance with Article 12, and will have authority to order minor changes in the Work as provided in Subparagraph 12.4.1.

2.2.16 The Architect will conduct inspections to determine the dates of Substantial Completion and final completion, will receive and forward to the Owner for the Owner's review 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 Paragraph 9.9.

2.2.17 If the Owner and Architect agree, the Architect will provide one or more Project Representatives to assist the Architect in carrying out his responsibilities at the site. The duties, responsibilities and limitations of authority of any such Project Representative shall be as set forth in an exhibit to be incorporated in the Contract Documents.

2.2.18 The duties, responsibilities and limitations of authority of the Architect as the Owner's representative during construction as set forth in the Contract Documents will not be modified or extended without written consent of the Owner, the Contractor and the Architect.

2.2.19 In case of the termination of the employment of the Architect, the Owner shall appoint an architect against whom the Contractor makes no reasonable objection whose status under the Contract Documents shall be that of the former architect. Any dispute in connection with such appointment shall be subject to arbitration.

### **ARTICLE 3**

#### **OWNER**

##### **3.1 DEFINITION**

3.1.1 The Owner is the person or entity identified as such in the Owner-Contractor Agreement and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term Owner means the Owner or his authorized representative.

##### **3.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER**

3.2.1 The Owner shall, at the request of the Contractor, at the time of execution of the Owner-Contractor Agreement, furnish to the Contractor reasonable evidence that he has made financial arrangements to fulfill his obligations under the Contract. Unless such reasonable evidence is furnished, the Contractor is not required to execute the Owner-Contractor Agreement or to commence the Work.

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

3.2.3 Except as provided in Subparagraph 4.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for the construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

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

3.2.5 Unless otherwise provided in the Contract Documents, the Contractor will be furnished, free of charge, all copies of Drawings and Specifications reasonably necessary for the execution of the Work.

3.2.6 The Owner shall forward all instructions to the Contractor through the Architect.

3.2.7 The foregoing are in addition to other duties and responsibilities of the Owner enumerated herein and especially those in respect to Work by Owner or by Separate Contractors, Payments and Completion, and Insurance in Articles 6, 9 and 11 respectively.

##### **3.3 OWNER'S RIGHT TO STOP THE WORK**

3.3.1 If the Contractor fails to correct defective Work as required by Paragraph 13.2 or persistently fails to carry out the Work in accordance with the Contract Documents, the Owner, by a 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, this right of the Owner to stop the Work shall not give rise to any 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.

##### **3.4 OWNER'S RIGHT TO CARRY OUT THE WORK**

3.4.1 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within seven days 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 seven days following receipt by the Contractor of an additional written notice and without prejudice to any other remedy he may have, make good such deficiencies. In such case an appropriate Change Order shall be issued deducting from the payments then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and the amount charged to the Contractor are both subject to the prior approval of the Architect. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

### **ARTICLE 4**

#### **CONTRACTOR**

##### **4.1 DEFINITION**

4.1.1 The Contractor is the person or entity identified as such in the Owner-Contractor Agreement and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term Contractor means the Contractor or his authorized representative.

##### **4.2 REVIEW OF CONTRACT DOCUMENTS**

4.2.1 The Contractor shall carefully study and compare the Contract Documents and shall at once report to the Architect any error, inconsistency or omission he may discover. The Contractor shall not be liable to the Owner or

the Architect for any damage resulting from any such errors, inconsistencies or omissions in the Contract Documents. The Contractor shall perform no portion of the Work at any time without Contract Documents or, where required, approved Shop Drawings, Product Data or Samples for such portion of the Work.

#### **4.3 SUPERVISION AND CONSTRUCTION PROCEDURES**

**4.3.1** The Contractor shall supervise and direct the Work, using his best skill and attention. He shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract.

**4.3.2** The Contractor shall be responsible to the Owner for the acts and omissions of his employees, Subcontractors and their agents and employees, and other persons performing any of the Work under a contract with the Contractor.

**4.3.3** The Contractor shall not be relieved from his obligations to perform the Work in accordance with the Contract Documents either by the activities or duties of the Architect in his administration of the Contract, or by inspections, tests or approvals required or performed under Paragraph 7.7 by persons other than the Contractor.

#### **4.4 LABOR AND MATERIALS**

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

**4.4.2** The Contractor shall at all times enforce strict discipline and good order among his employees and shall not employ on the Work any unfit person or anyone not skilled in the task assigned to him.

#### **4.5 WARRANTY**

**4.5.1** The Contractor warrants to the Owner and the Architect that all materials and equipment furnished under this Contract will be new unless otherwise specified, and that all Work will be of good quality, free from faults and defects and in conformance with the Contract Documents. All Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. This warranty is not limited by the provisions of Paragraph 13.2.

#### **4.6 TAXES**

**4.6.1** The Contractor shall pay all sales, consumer, use and other similar taxes for the Work or portions thereof provided by the Contractor which are legally enacted at the time bids are received, whether or not yet effective.

#### **4.7 PERMITS, FEES AND NOTICES**

**4.7.1** Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit and for all other permits and governmental

fees, licenses and inspections necessary for the proper execution and completion of the Work which are customarily secured after execution of the Contract and which are legally required at the time the bids are received.

**4.7.2** The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of the Work.

**4.7.3** It is not the responsibility of the Contractor to make certain that the Contract Documents are in accordance with applicable laws, statutes, building codes and regulations. If the Contractor observes that any of the Contract Documents are at variance therewith in any respect, he shall promptly notify the Architect in writing, and any necessary changes shall be accomplished by appropriate Modification.

**4.7.4** If the Contractor performs any Work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Architect, he shall assume full responsibility therefor and shall bear all costs attributable thereto.

#### **4.8 ALLOWANCES**

**4.8.1** The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by these allowances shall be supplied for such amounts and by such persons as the Owner may direct, but the Contractor will not be required to employ persons against whom he makes a reasonable objection.

**4.8.2** Unless otherwise provided in the Contract Documents:

- 1** these allowances shall cover the cost to the Contractor, less any applicable trade discount, of the materials and equipment required by the allowance delivered at the site, and all applicable taxes;
- 2** the Contractor's costs for unloading and handling on the site, labor, installation costs, overhead, profit and other expenses contemplated for the original allowance shall be included in the Contract Sum and not in the allowance;
- 3** whenever the cost is more than or less than the allowance, the Contract Sum shall be adjusted accordingly by Change Order, the amount of which will recognize changes, if any, in handling costs on the site, labor, installation costs, overhead, profit and other expenses.

#### **4.9 SUPERINTENDENT**

**4.9.1** The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during the progress of the Work. The superintendent shall represent the Contractor and all 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 so confirmed on written request in each case.

#### **4.10 PROGRESS SCHEDULE**

**4.10.1** The Contractor, immediately after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information an estimated progress sched-

ule for the Work. The progress schedule 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.

#### **4.11 DOCUMENTS AND SAMPLES AT THE SITE**

**4.11.1** The Contractor shall maintain at the site for the Owner one record copy of all Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to record all changes made during construction, and approved Shop Drawings, Product Data and Samples. These shall be available to the Architect and shall be delivered to him for the Owner upon completion of the Work.

#### **4.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

**4.12.1** Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or any Subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

**4.12.2** Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate a material, product or system for some portion of the Work.

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

**4.12.4** The Contractor shall review, approve and submit, with reasonable promptness and in such sequence as to cause no delay in the Work or in the work of the Owner or any separate contractor, all Shop Drawings, Product Data and Samples required by the Contract Documents.

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

**4.12.6** The Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data or Samples under Subparagraph 2.2.14 unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation. The Contractor shall not be relieved from responsibility for errors or omissions in the Shop Drawings, Product Data or Samples by the Architect's approval thereof.

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

**4.12.8** No portion of the Work requiring submission of a Shop Drawing, Product Data or Sample shall be commenced until the submittal has been approved by the Architect as provided in Subparagraph 2.2.14. All such

portions of the Work shall be in accordance with approved submittals.

#### **4.13 USE OF SITE**

**4.13.1** 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 any materials or equipment.

#### **4.14 CUTTING AND PATCHING OF WORK**

**4.14.1** The Contractor shall be responsible for all cutting, fitting or patching that may be required to complete the Work or to make its several parts fit together properly.

**4.14.2** The Contractor shall not damage or endanger any portion of the Work or the work of the Owner or any separate contractors by cutting, patching or otherwise altering any work, or by excavation. The Contractor shall not cut or otherwise alter the work of the Owner or any separate contractor except with the written consent of the Owner and of such separate contractor. The Contractor shall not unreasonably withhold from the Owner or any separate contractor his consent to cutting or otherwise altering the Work.

#### **4.15 CLEANING UP**

**4.15.1** The Contractor at all times shall keep the premises free from accumulation of waste materials or rubbish caused by his operations. At the completion of the Work he shall remove all his waste materials and rubbish from and about the Project as well as all his tools, construction equipment, machinery and surplus materials.

**4.15.2** If the Contractor fails to clean up at the completion of the Work, the Owner may do so as provided in Paragraph 3.4 and the cost thereof shall be charged to the Contractor.

#### **4.16 COMMUNICATIONS**

**4.16.1** The Contractor shall forward all communications to the Owner through the Architect.

#### **4.17 ROYALTIES AND PATENTS**

**4.17.1** The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Owner harmless from loss on account thereof, except that the Owner shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified, but if the Contractor has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Architect.

#### **4.18 INDEMNIFICATION**

**4.18.1** To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner and the Architect and their agents and employees from and against all claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom,

and (2) is caused in whole or in part by any negligent act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this Paragraph 4.18.

**4.18.2** In any and all claims against the Owner or the Architect or any of their agents or employees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this Paragraph 4.18 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

**4.18.3** The obligations of the Contractor under this Paragraph 4.18 shall not extend to the liability of the Architect, his agents or employees, 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, his agents or employees provided such giving or failure to give is the primary cause of the injury or damage.

## **ARTICLE 5**

### **SUBCONTRACTORS**

#### **5.1 DEFINITION**

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

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

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

**5.2.1** Unless otherwise required by the Contract Documents or the Bidding Documents, the Contractor, as soon as practicable after the award of the Contract, shall furnish to the Owner and the Architect in writing the names of the persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions 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 any such proposed person or entity to whom the Owner or the Architect has made reasonable objection under the provisions of Subparagraph 5.2.1. The Contractor shall not be required to contract with anyone to whom he has a reasonable objection.

**5.2.3** If the Owner or the Architect has reasonable objection to any such proposed person or entity, the Contractor shall submit a substitute to whom the Owner or the Architect has no reasonable objection, and the Contract Sum shall be increased or decreased by the difference in cost occasioned by such substitution and an appropriate Change Order shall be issued; however, no increase in the Contract Sum shall be allowed for any such substitution unless the Contractor has acted promptly and responsively in submitting names as required by Subparagraph 5.2.1.

**5.2.4** The Contractor shall make no substitution for any Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objection to such substitution.

#### **5.3 SUBCONTRACTUAL RELATIONS**

**5.3.1** By an 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 the 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 the Architect. Said agreement shall preserve and protect the rights of the Owner and the Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that the subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the Contractor-Subcontractor agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with his Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the Subcontract, copies of the Contract Documents to which the Subcontractor will be bound by this Paragraph 5.3, and identify to the Subcontractor any terms and conditions of the proposed Subcontract which may be at variance with the Contract Documents. Each Subcontractor shall similarly make copies of such Documents available to his Sub-subcontractors.

## **ARTICLE 6**

### **WORK BY OWNER OR BY SEPARATE CONTRACTORS**

#### **6.1 OWNER'S RIGHT TO PERFORM WORK AND TO AWARD SEPARATE CONTRACTS**

**6.1.1** The Owner reserves the right to perform work related to the Project with his own forces, and to award



separate contracts in connection with other portions of the Project or other work on the site under these or similar Conditions of the Contract. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, he 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 work 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 will provide for the coordination of the work of his own forces and of each separate contractor with the Work of the Contractor, who shall cooperate therewith as provided in Paragraph 6.2.

## 6.2 MUTUAL RESPONSIBILITY

6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work, and shall connect and coordinate his Work with theirs as required by the Contract Documents.

6.2.2 If any part of the Contractor's Work depends for proper execution or results upon the work of the Owner or any separate contractor, the Contractor shall, prior to proceeding with the Work, promptly report to the Architect any apparent discrepancies or defects in such other work that render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acceptance of the Owner's or separate contractors' work as fit and proper to receive his Work, except as to defects which may subsequently become apparent in such work by others.

6.2.3 Any costs caused by defective or ill-timed work shall be borne by the party responsible therefor.

6.2.4 Should the Contractor wrongfully cause damage to the work or property of the Owner, or to other work on the site, the Contractor shall promptly remedy such damage as provided in Subparagraph 10.2.5.

6.2.5 Should the Contractor wrongfully cause damage to the work or property of any separate contractor, the Contractor shall upon due notice promptly attempt to settle with such other contractor by agreement, or otherwise to resolve the dispute. If such separate contractor sues or initiates an arbitration proceeding against the Owner on account of any damage alleged to have been caused by the Contractor, the Owner shall notify the Contractor who shall defend such proceedings at the Owner's expense, and if any judgment or award against the Owner arises therefrom the Contractor shall pay or satisfy it and shall reimburse the Owner for all attorneys' fees and court or arbitration costs which the Owner has incurred.

## 6.3 OWNER'S RIGHT TO CLEAN UP

6.3.1 If a dispute arises between the Contractor and separate contractors as to their responsibility for cleaning up as required by Paragraph 4.15, the Owner may clean up

and charge the cost thereof to the contractors responsible therefor as the Architect shall determine to be just.

## ARTICLE 7

### MISCELLANEOUS PROVISIONS

#### 7.1 GOVERNING LAW

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

#### 7.2 SUCCESSORS AND ASSIGNS

7.2.1 The Owner and the Contractor each binds himself, his partners, successors, assigns and legal representatives to the other party hereto and to the partners, successors, assigns and legal representatives of such other party in respect to all covenants, agreements and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any moneys due or to become due to him hereunder, without the previous written consent of the Owner.

#### 7.3 WRITTEN NOTICE

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

#### 7.4 CLAIMS FOR DAMAGES

7.4.1 Should either party to the Contract suffer injury or damage to person or property because of any act or omission of the other party or of any of his employees, agents or others for whose acts he is legally liable, claim shall be made in writing to such other party within a reasonable time after the first observance of such injury or damage.

#### 7.5 PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

7.5.1 The Owner shall have the right to require the Contractor to furnish bonds covering the faithful performance of the Contract and the payment of all obligations arising thereunder if and as required in the Bidding Documents or in the Contract Documents.

#### 7.6 RIGHTS AND REMEDIES

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

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

## 7.7 TESTS

7.7.1 If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any portion of the Work to be inspected, tested or approved, the Contractor shall give the Architect timely notice of its readiness so the Architect may observe such inspection, testing or approval. The Contractor shall bear all costs of such inspections, tests or approvals conducted by public authorities. Unless otherwise provided, the Owner shall bear all costs of other inspections, tests or approvals.

7.7.2 If the Architect determines that any Work requires special inspection, testing, or approval which Subparagraph 7.7.1 does not include, he will, upon written authorization from the Owner, instruct the Contractor to order such special inspection, testing or approval, and the Contractor shall give notice as provided in Subparagraph 7.7.1. If such special inspection or testing reveals a failure of the Work to comply with the requirements of the Contract Documents, the Contractor shall bear all costs thereof, including compensation for the Architect's additional services made necessary by such failure; otherwise the Owner shall bear such costs, and an appropriate Change Order shall be issued.

7.7.3 Required certificates of inspection, testing or approval shall be secured by the Contractor and promptly delivered by him to the Architect.

7.7.4 If the Architect is to observe the inspections, tests or approvals required by the Contract Documents, he will do so promptly and, where practicable, at the source of supply.

## 7.8 INTEREST

7.8.1 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 at the place of the Project.

## 7.9 ARBITRATION

7.9.1 All claims, disputes and other matters in question between the Contractor and the Owner arising out of, or relating to, the Contract Documents or the breach thereof, except as provided in Subparagraph 2.2.11 with respect to the Architect's decisions on matters relating to artistic effect, and except for claims which have been waived by the making or acceptance of final payment as provided by Subparagraphs 9.9.4 and 9.9.5, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then obtaining unless the parties mutually agree otherwise. No arbitration arising out of or relating to the Contract Documents shall include, by consolidation, joinder or in any other manner, the Architect, his employees or consultants except by written consent containing a specific reference to the Owner-Contractor Agreement and signed by the Architect, the Owner, the Contractor and any other person sought to be joined. No arbitration shall include by consolidation, joinder or in any other manner, parties other than the Owner, the Contractor and any other persons substantially involved in a common question of fact or law, whose presence is

required if complete relief is to be accorded in the arbitration. No person other than the Owner or Contractor shall be included as an original third party or additional third party to an arbitration whose interest or responsibility is insubstantial. Any consent to arbitration involving an additional person or persons shall not constitute consent to arbitration of any dispute not described therein or with any person not named or described therein. The foregoing agreement to arbitrate and any other agreement to arbitrate with an additional person or persons duly consented to by the parties to the Owner-Contractor Agreement shall be specifically enforceable under the prevailing arbitration law. The award rendered by the arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

7.9.2 Notice of the demand for arbitration shall be filed in writing with the other party to the Owner-Contractor Agreement and with the American Arbitration Association, and a copy shall be filed with the Architect. The demand for arbitration shall be made within the time limits specified in Subparagraph 2.2.12 where applicable, and in all other cases within a reasonable time after the claim, dispute or other matter in question has arisen, and in no event shall it be made after the date when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statute of limitations.

7.9.3 Unless otherwise agreed in writing, the Contractor shall carry on the Work and maintain its progress during any arbitration proceedings, and the Owner shall continue to make payments to the Contractor in accordance with the Contract Documents.

## ARTICLE 8

### TIME

#### 8.1 DEFINITIONS

8.1.1 Unless otherwise provided, the Contract Time is the period of time allotted in the Contract Documents for Substantial Completion of the Work as defined in Subparagraph 8.1.3, including authorized adjustments thereto.

8.1.2 The date of commencement of the Work is the date established in a notice to proceed. If there is no notice to proceed, it shall be the date of the Owner-Contractor Agreement or such other date as may be established therein.

8.1.3 The Date of Substantial Completion of the Work or designated portion thereof is the Date certified by the Architect when construction is sufficiently complete, in accordance with the Contract Documents, so the Owner can occupy or utilize the Work or designated portion thereof for the use for which it is intended.

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

#### 8.2 PROGRESS AND COMPLETION

8.2.1 All time limits stated in the Contract Documents are of the essence of the Contract.



**8.2.2** The Contractor shall begin the Work on the date of commencement as defined in Subparagraph 8.1.2. He shall carry the Work forward 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 the progress of the Work by any act or neglect of the Owner or the Architect, or by any employee of either, or by any separate contractor employed by the Owner, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in transportation, adverse weather conditions not reasonably anticipatable, unavoidable casualties, or any causes beyond the Contractor's control, or by delay authorized by the Owner pending arbitration, or by any other cause which the Architect determines may justify the delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

**8.3.2** Any claim for extension of time shall be made in writing to the Architect not more than twenty days after the commencement of the delay; otherwise it shall be waived. In the case of a continuing delay only one claim is necessary. The Contractor shall provide an estimate of the probable effect of such delay on the progress of the Work.

**8.3.3** If no agreement is made stating the dates upon which interpretations as provided in Subparagraph 8.2.2 shall be furnished, then no claim for delay shall be allowed on account of failure to furnish such interpretations until fifteen days after written request is made for them, and not then unless such claim is reasonable.

**8.3.4** This Paragraph 8.3 does not exclude the 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 Owner-Contractor Agreement and, including authorized adjustments thereto, is the total amount payable by the Owner to the Contractor for the 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 the 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 only as a basis for the Contractor's Applications for Payment.

#### **9.3 APPLICATIONS FOR PAYMENT**

**9.3.1** At least ten days before the date for each progress payment established in the Owner-Contractor Agreement, the Contractor shall submit to the Architect an itemized Application for Payment, notarized if required, supported

by such data substantiating the Contractor's right to payment as the Owner or the Architect may require, and reflecting retainage, if any, as provided elsewhere in the Contract Documents.

**9.3.2** Unless otherwise provided in the Contract Documents, payments will be made on account of materials or equipment not incorporated in the Work but delivered and suitably stored at the site and, if approved in advance by the Owner, payments may similarly be made for materials or equipment suitably stored at some other location agreed upon in writing. Payments for materials or equipment stored on or off the site shall be conditioned upon submission by the Contractor of bills of sale or such other procedures satisfactory to the Owner to establish the Owner's title to such materials or equipment or otherwise protect the Owner's interest, including applicable insurance and transportation to the site for those materials and equipment stored off the site.

**9.3.3** The Contractor warrants that title to all Work, materials and equipment covered by an Application for Payment will pass to the Owner either by incorporation in the construction or upon the receipt of payment by the Contractor, whichever occurs first, free and clear of all liens, claims, security interests or encumbrances, hereinafter referred to in this Article 9 as "liens"; and that no Work, materials or equipment covered by an Application for Payment will have been acquired by the Contractor, or by any other person performing Work at the site or furnishing materials and equipment for the Project, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person.

#### **9.4 CERTIFICATES FOR PAYMENT**

**9.4.1** The Architect will, within seven days after the receipt of the Contractor's Application for Payment, either issue a Certificate for Payment to the Owner, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor in writing his reasons for withholding a Certificate as provided in Subparagraph 9.6.1.

**9.4.2** The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on his observations at the site as provided in Subparagraph 2.2.3 and the data comprising the Application for Payment, that the Work has progressed to the point indicated; that, to the best of his knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents (subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to the results of any subsequent tests required by or performed under the Contract Documents, to minor deviations from the Contract Documents correctable prior to completion, and to any specific qualifications stated in his Certificate); and that the Contractor is entitled to payment in the amount certified. However, by issuing a Certificate for Payment, the Architect shall not thereby be deemed to represent that he has made exhaustive or continuous on-site inspections to check the quality or quantity of the Work or that he has reviewed the construction means, methods, techniques,

sequences or procedures, or that he has made any examination to ascertain how or for what purpose the Contractor has used the moneys previously paid on account of the Contract Sum.

## 9.5 PROGRESS PAYMENTS

9.5.1 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.

9.5.2 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 Work, the amount to which said Subcontractor is entitled, reflecting the percentage actually retained, if any, from payments to the Contractor on account of such Subcontractor's Work. The Contractor shall, by an appropriate agreement with each Subcontractor, require each Subcontractor to make payments to his Subsubcontractors in similar manner.

9.5.3 The Architect may, on request and at his discretion, furnish to any Subcontractor, if practicable, information regarding the percentages of completion or the amounts applied for by the Contractor and the action taken thereon by the Architect on account of Work done by such Subcontractor.

9.5.4 Neither the Owner nor the Architect shall have any obligation to pay or to see to the payment of any moneys to any Subcontractor except as may otherwise be required by law.

9.5.5 No Certificate for a progress payment, nor any progress payment, nor any partial or entire use or occupancy of the Project by the Owner, shall constitute an acceptance of any Work not in accordance with the Contract Documents.

## 9.6 PAYMENTS WITHHELD

9.6.1 The Architect may decline to certify payment and may withhold his Certificate in whole or in part, to the extent necessary reasonably to protect the Owner, if in his opinion he is unable to make representations to the Owner as provided in Subparagraph 9.4.2. If the Architect is unable to make representations to the Owner as provided in Subparagraph 9.4.2 and to certify payment in the amount of the Application, he will notify the Contractor as provided in Subparagraph 9.4.1. If the Contractor and the Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which he is able to make such representations to the Owner. The Architect may also decline to certify payment or, because of subsequently discovered evidence or subsequent observations, he may nullify the whole or any part of any Certificate for Payment previously issued, to such extent as may be necessary in his 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, or
- .7 persistent failure to carry out the Work in accordance with the Contract Documents.

9.6.2 When the above grounds in Subparagraph 9.6.1 are removed, payment shall be made for amounts withheld because of them.

## 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 any amount certified by the Architect or awarded by arbitration, then the Contractor may, upon seven additional days' written notice to the Owner and the Architect, stop the Work until payment of the amount owing has been received. 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 effected by appropriate Change Order in accordance with Paragraph 12.3.

## 9.8 SUBSTANTIAL COMPLETION

9.8.1 When the Contractor considers that the Work, or a designated portion thereof which is acceptable to the Owner, is substantially complete as defined in Subparagraph 8.1.3, the Contractor shall prepare for submission to the Architect a list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. When the Architect on the basis of an inspection determines that the Work or designated portion thereof is substantially complete, he will then prepare a Certificate of Substantial Completion which shall establish the Date of Substantial Completion, shall state the responsibilities of the Owner and the Contractor for security, maintenance, heat, utilities, damage to the Work, and insurance, and shall fix the time within which the Contractor shall complete the items listed therein. 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 the Contractor for their written acceptance of the responsibilities assigned to them in such Certificate.

9.8.2 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 FINAL COMPLETION AND FINAL PAYMENT

9.9.1 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 he finds the Work acceptable under the Contract Documents and the Contract fully performed, he will promptly issue a final Certificate for Payment stating that to the best of his knowledge, information and belief, and on the basis of his observations and inspections, the Work has been completed in accordance with the 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 the conditions precedent to the Contractor's being entitled to final payment as set forth in Subparagraph 9.9.2 have been fulfilled.

**9.9.2** Neither the final payment nor the remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or his property might in any way be responsible, have been paid or otherwise satisfied, (2) consent of surety, if any, to final payment and (3), if required by the Owner, other data establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of liens arising out of the Contract, to the extent and in such form as may be designated by the Owner. If any Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify him against any such lien. If any such lien remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all moneys that the latter may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

**9.9.3** If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by the 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 the retainage stipulated in the Contract Documents, and if bonds have been furnished as provided in Paragraph 7.5, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

**9.9.4** The making of final payment shall constitute a waiver of all claims by the Owner except those arising from:

- .1 unsettled liens,
- .2 faulty or defective Work appearing after Substantial Completion,
- .3 failure of the Work to comply with the requirements of the Contract Documents, or
- .4 terms of any special warranties required by the Contract Documents.

**9.9.5** The acceptance of final payment shall constitute a waiver of all claims by the Contractor except those previously made in writing and identified by the Contractor as unsettled at the time of the final Application for Payment.

## 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 Work.

#### 10.2 SAFETY OF PERSONS AND PROPERTY

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

- .1 all employees on the Work and all other persons who may be affected thereby;
- .2 all the Work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any of his Subcontractors or Sub-subcontractors; and
- .3 other property at the site or adjacent thereto, including 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 all notices and comply with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the 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 progress of the Work, all 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 utilities.

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

**10.2.5** The Contractor shall promptly remedy all damage or loss (other than damage or loss insured under Paragraph 11.3) to any property referred to in Clauses 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, any Subcontractor, any Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them 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 the 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 his obligations under Paragraph 4.18.

**10.2.6** The Contractor shall designate a responsible member of his 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 the Architect.

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

### **10.3 EMERGENCIES**

**10.3.1** In any emergency affecting the safety of persons or property, the Contractor shall act, at his discretion, to prevent threatened damage, injury or loss. Any additional compensation or extension of time claimed by the Contractor on account of emergency work shall be determined as provided in Article 12 for Changes in the Work.

## **ARTICLE 11**

### **INSURANCE**

#### **11.1 CONTRACTOR'S LIABILITY INSURANCE**

**11.1.1** The Contractor shall purchase and maintain such insurance as will protect him from claims set forth below which may arise out of or result from the Contractor's operations under the Contract, whether such operations be by himself or by any 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;
2. claims for damages because of bodily injury, occupational sickness or disease, or death of his employees;
3. claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees;
4. claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor, or (2) by any other 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; and
6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

**11.1.2** The insurance required by Subparagraph 11.1.1 shall be written for not less than any limits of liability specified in the Contract Documents, or required by law, whichever is greater.

**11.1.3** The insurance required by Subparagraph 11.1.1 shall include contractual liability insurance applicable to the Contractor's obligations under Paragraph 4.18.

**11.1.4** Certificates of Insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work. These Certificates shall contain a provision that

coverages afforded under the policies will not be cancelled until at least thirty days' prior written notice has been given to the Owner.

#### **11.2 OWNER'S LIABILITY INSURANCE**

**11.2.1** The Owner shall be responsible for purchasing and maintaining his own liability insurance and, at his option, may purchase and maintain such insurance as will protect him against claims which may arise from operations under the Contract.

#### **11.3 PROPERTY INSURANCE**

**11.3.1** Unless otherwise provided, the Owner shall purchase and maintain property insurance upon the entire Work at the site to the full insurable value thereof. This insurance shall include the interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Work and shall insure against the perils of fire and extended coverage and shall include "all risk" insurance for physical loss or damage including, without duplication of coverage, theft, vandalism and malicious mischief. If the Owner does not intend to purchase such insurance for the full insurable value of the entire Work, he shall inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance which will protect the interests of himself, his Subcontractors and the 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 failure of the Owner to purchase or maintain such insurance and to so notify the Contractor, then the Owner shall bear all reasonable costs properly attributable thereto. If not covered under the all risk insurance or otherwise provided in the Contract Documents, the Contractor shall effect and maintain similar property insurance on portions of the Work stored off the site or in transit when such portions of the Work are to be included in an Application for Payment under Subparagraph 9.3.2.

**11.3.2** The Owner shall purchase and maintain such boiler and machinery insurance as may be required by the Contract Documents or by law. This insurance shall include the interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Work.

**11.3.3** Any loss insured under Subparagraph 11.3.1 is to be adjusted with the Owner and made payable to the Owner as trustee for the insureds, as their interests may appear, subject to the requirements of any applicable mortgagee clause and of Subparagraph 11.3.8. The Contractor shall pay each Subcontractor a just share of any insurance moneys received by the Contractor, and by appropriate agreement, written where legally required for validity, shall require each Subcontractor to make payments to his Sub-subcontractors in similar manner.

**11.3.4** The Owner shall file a copy of all policies with the Contractor before an exposure to loss may occur.

**11.3.5** If the Contractor requests in writing that insurance for risks other than those described in Subparagraphs 11.3.1 and 11.3.2 or 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.

**11.3.6** The Owner and Contractor waive all rights against (1) each other and the Subcontractors, Sub-subcontractors, agents and employees each of the other, and (2) the Architect and separate contractors, if any, and their sub-contractors, sub-subcontractors, agents and employees, for damages caused by fire or other perils to the extent covered by insurance obtained pursuant to this Paragraph 11.3 or any other property insurance applicable to the Work, except such rights as they may have to the proceeds of such insurance held by the Owner as trustee. The foregoing waiver afforded the Architect, his agents and employees shall not extend to the liability imposed by Subparagraph 4.18.3. The Owner or the Contractor, as appropriate, shall require of the Architect, separate contractors, Subcontractors and Sub-subcontractors by appropriate agreements, written where legally required for validity, similar waivers each in favor of all other parties enumerated in this Subparagraph 11.3.6.

**11.3.7** If required in writing by any party in interest, the Owner as trustee shall, upon the occurrence of an insured loss, give bond for the proper performance of his duties. He shall deposit in a separate account any money so received, and he shall distribute it in accordance with such agreement as the parties in interest may reach, or in accordance with an award by arbitration in which case the procedure shall be as provided in Paragraph 7.9. If after such loss no other special agreement is made, replacement of damaged work shall be covered by an appropriate Change Order.

**11.3.8** The Owner as trustee shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within five days after the occurrence of loss to the Owner's exercise of this power, and if such objection be made, arbitrators shall be chosen as provided in Paragraph 7.9. The Owner as trustee shall, in that case, make settlement with the insurers in accordance with the directions of such arbitrators. If distribution of the insurance proceeds by arbitration is required, the arbitrators will direct such distribution.

**11.3.9** If the Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion thereof, such occupancy or use shall not commence prior to a time mutually agreed to by the Owner and Contractor and to which the insurance company or companies providing the property insurance have consented by endorsement to the policy or policies. This insurance shall not be cancelled or lapsed on account of such partial occupancy or use. Consent of the Contractor and of the insurance company or companies to such occupancy or use shall not be unreasonably withheld.

#### **11.4 LOSS OF USE INSURANCE**

**11.4.1** The Owner, at his option, may purchase and maintain such insurance as will insure him against loss of use of his property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of his property, including consequential losses due to fire or other hazards however caused, to the extent covered by insurance under this Paragraph 11.4.

## **ARTICLE 12**

### **CHANGES IN THE WORK**

#### **12.1 CHANGE ORDERS**

**12.1.1** A Change Order is a written order to the Contractor signed by the Owner and the Architect, issued after execution of the Contract, authorizing a change in the Work or an adjustment in the Contract Sum or the Contract Time. The Contract Sum and the Contract Time may be changed only by Change Order. A Change Order signed by the Contractor indicates his agreement therewith, including the adjustment in the Contract Sum or the Contract Time.

**12.1.2** The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and the Contract Time being adjusted accordingly. All such changes in the Work shall be authorized by Change Order, and shall be performed under the applicable conditions of the Contract Documents.

**12.1.3** The cost or credit to the Owner resulting from a change in the Work shall be determined in one or more of the following ways:

- .1 by mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 by unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 by cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 by the method provided in Subparagraph 12.1.4.

**12.1.4** If none of the methods set forth in Clauses 12.1.3.1, 12.1.3.2 or 12.1.3.3 is agreed upon, the Contractor, provided he receives a written order signed by the Owner, shall promptly proceed with the Work involved. The cost of such Work shall then be determined by the Architect on the basis of the reasonable expenditures and savings of those performing the Work attributable to the change, including, in the case of an increase in the Contract Sum, a reasonable allowance for overhead and profit. In such case, and also under Clauses 12.1.3.3 and 12.1.3.4 above, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data for inclusion in a Change Order. Unless otherwise provided in the Contract Documents, cost shall be limited to the following: cost of materials, including sales tax and cost of delivery; cost of labor, including social security, old age and unemployment insurance, and fringe benefits required by agreement or custom; workers' or workmen's compensation insurance; bond premiums; rental value of equipment and machinery; and the additional costs of supervision and field office personnel directly attributable to the change. Pending final determination of cost to the Owner, payments on account shall be made on the Architect's Certificate for Payment. The amount of credit to be allowed by the Contractor to the Owner for any deletion

or change which results in a net decrease in the Contract Sum will be the amount of the actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in any one change, the allowance for overhead and profit shall be figured on the basis of the net increase, if any, with respect to that change.

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

## **12.2 CONCEALED CONDITIONS**

**12.2.1** Should concealed conditions encountered in the performance of the Work below the surface of the ground or should concealed or unknown conditions in an existing structure be at variance with the conditions indicated by the Contract Documents, or should unknown physical conditions below the surface of the ground or should concealed or unknown conditions in an existing structure of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this Contract, be encountered, the Contract Sum shall be equitably adjusted by Change Order upon claim by either party made within twenty days after the first observance of the conditions.

## **12.3 CLAIMS FOR ADDITIONAL COST**

**12.3.1** If the Contractor wishes to make a claim for an increase in the Contract Sum, he shall give the Architect written notice thereof within twenty days after the occurrence of the event giving rise to such claim. This notice shall be given by the Contractor before proceeding to execute the Work, except in an emergency endangering life or property in which case the Contractor shall proceed in accordance with Paragraph 10.3. No such claim shall be valid unless so made. If the Owner and the Contractor cannot agree on the amount of the adjustment in the Contract Sum, it shall be determined by the Architect. Any change in the Contract Sum resulting from such claim shall be authorized by Change Order.

**12.3.2** If the Contractor claims that additional cost is involved because of, but not limited to, (1) any written interpretation pursuant to Subparagraph 2.2.8, (2) any order by the Owner to stop the Work pursuant to Paragraph 3.3 where the Contractor was not at fault, (3) any written order for a minor change in the Work issued pursuant to Paragraph 12.4, or (4) failure of payment by the Owner pursuant to Paragraph 9.7, the Contractor shall make such claim as provided in Subparagraph 12.3.1.

## **12.4 MINOR CHANGES IN THE WORK**

**12.4.1** The Architect will have authority to order minor changes in the Work not involving an adjustment in the Contract Sum or an 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 the Contractor.

The Contractor shall carry out such written orders promptly.

## **ARTICLE 13**

### **UNCOVERING AND CORRECTION OF WORK**

#### **13.1 UNCOVERING OF WORK**

**13.1.1** If any portion of the Work should be covered contrary to the request of the Architect or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the Architect, be uncovered for his observation and shall be replaced at the Contractor's expense.

**13.1.2** If any other portion of the Work has been covered which the Architect has not specifically requested to observe prior to being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work be found in accordance with the Contract Documents, the cost of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner. If such Work be found not in accordance with the Contract Documents, the Contractor shall pay such costs unless it be found that this condition was caused by the Owner or a separate contractor as provided in Article 6, in which event the Owner shall be responsible for the payment of such costs.

#### **13.2 CORRECTION OF WORK**

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

**13.2.2** If, within one year after the Date of Substantial Completion of the Work or designated portion thereof or within one year after acceptance by the Owner of designated equipment or within such longer period of time as may be prescribed by law or by the terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of a written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. This obligation shall survive termination of the Contract. The Owner shall give such notice promptly after discovery of the condition.

**13.2.3** The Contractor shall remove from the site all portions of the Work which are defective or non-conforming and which have not been corrected under Subparagraphs 4.5.1, 13.2.1 and 13.2.2, unless removal is waived by the Owner.

**13.2.4** If the Contractor fails to correct defective or non-conforming Work as provided in Subparagraphs 4.5.1, 13.2.1 and 13.2.2, the Owner may correct it in accordance with Paragraph 3.4.



13.2.5 If the Contractor does not proceed with the correction of such defective or non-conforming Work within a reasonable time fixed by written notice from the Architect, the Owner may remove it and may store the materials or equipment at the expense of the Contractor. If the Contractor does not pay the cost of such removal and storage within ten days thereafter, the Owner may upon ten additional days' written notice sell such Work at auction or at private sale and shall account for the net proceeds thereof, after deducting all the costs that should have been borne by the Contractor, including compensation for the Architect's additional services made necessary thereby. If such proceeds of sale do not cover all costs which the Contractor should have borne, the difference shall be charged to the Contractor and an appropriate Change Order shall be issued. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

13.2.6 The Contractor shall bear the cost of making good all work of the Owner or separate contractors destroyed or damaged by such correction or removal.

13.2.7 Nothing contained in this Paragraph 13.2 shall be construed to establish a period of limitation with respect to any other obligation which the Contractor might have under the Contract Documents, including Paragraph 4.5 hereof. The establishment of the time period of one year after the Date of Substantial Completion or such longer period of time as may be prescribed by law or by the terms of any warranty required by the Contract Documents relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which his 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 his obligations other than specifically to correct the Work.

### 13.3 ACCEPTANCE OF DEFECTIVE OR NON-CONFORMING WORK

13.3.1 If the Owner prefers to accept defective or non-conforming Work, he may do so instead of requiring its removal and correction, in which case a Change Order will be issued to reflect a reduction in the Contract Sum where appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

## ARTICLE 14

### TERMINATION OF THE CONTRACT

#### 14.1 TERMINATION BY THE CONTRACTOR

14.1.1 If the Work is stopped for a period of thirty days under an order of any court or other public authority

having jurisdiction, or as a result of an act of government, such as a declaration of a national emergency making materials unavailable, through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing any of the Work under a contract with the Contractor, or if the Work should be stopped for a period of thirty days by the Contractor because the Architect has not issued a Certificate for Payment as provided in Paragraph 9.7 or because the Owner has not made payment thereon as provided in Paragraph 9.7, then the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner payment for all Work executed and for any proven loss sustained upon any materials, equipment, tools, construction equipment and machinery, including reasonable profit and damages.

#### 14.2 TERMINATION BY THE OWNER

14.2.1 If the Contractor is adjudged a bankrupt, or if he makes a general assignment for the benefit of his creditors, or if a receiver is appointed on account of his insolvency, or if he persistently or repeatedly refuses or fails, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if he fails to make prompt payment to Subcontractors or for materials or labor, or persistently disregards laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, or otherwise is guilty of a substantial violation of a provision of the Contract Documents, then the Owner, upon certification by the Architect that sufficient cause exists to justify such action, may, without prejudice to any right or remedy and after giving the Contractor and his surety, if any, seven days' written notice, terminate the employment of the Contractor and take possession of the site and of all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor and may finish the Work by whatever method he may deem expedient. In such case the Contractor shall not be entitled to receive any further payment until the Work is finished.

14.2.2 If the unpaid balance of the Contract Sum exceeds the costs of finishing the Work, including compensation for the Architect's additional services 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 to the Owner, as the case may be, shall be certified by the Architect, upon application, in the manner provided in Paragraph 9.4, and this obligation for payment shall survive the termination of the Contract.

SUPPLEMENTARY GENERAL CONDITIONS  
DIVISION ONE/SECTION G

1. GENERAL CONDITIONS

a - The general provisions of the Contract including: the Invitation for Bids, the Instructions to Bidders, Proposal Form, Alternate Bids, the General Conditions of the Contract, and the Special Conditions of the Contract as herein described will apply to all the work covered in the following specifications. This section is written for the guidance and information of all the trades. It forms a part of each of the sections of the specifications hereinafter written for all work under the General Contract as well as for all work under separate contracts. The execution of certain work, as specified, and the responsibility for proper correlation of all parts of the work of this section rests with the General Contractor.

b - The General Conditions of the Contract for Construction, Standard Form A201 of the American Institute of Architects, Thirteenth Edition, is on file in the office of the Architect and is included as a part of the Contract Documents. These specifications will, however, take precedence over and modify any statements of the above mentioned General Conditions of the Contract.

2. WORK INCLUDED

a - The General Contractor is to perform all services and shall include all items of labor, materials, equipment and appliances required to complete the work of all trades, herein enumerated and/or as shown on the accompanying drawings and as hereinafter specified all consisting of:

- 1) Site Work
- 2) Architectural and Structural Trades Work
- 3) Plumbing Trades Work
- 4) Electrical Trades Work
- 5) Heating Ventilating and Air Conditioning Trades Work

b - The General Contractor shall assume full charge of the work and shall be responsible for the organization, direction, execution and protection of all operations in connection with the contract and for all tools and equipment.

3. WORK NOT INCLUDED IN CONTRACT

a - Work which is not included in the Contract consists of items noted as "N.I.C." on the drawings or so specified in the specifications or drawings.



4. ARCHITECT

a - Where the term Architect or Architects is used, it shall refer to Meneghini Overhiser Associates, Architects, 216 E. Huron Street, Ann Arbor, Michigan and said terms shall also include his authorized representatives. Phone (313) 668-6310.

5. DRAWINGS AND SPECIFICATIONS

a - The drawings and specifications are intended to supplement each other, the two being considered cooperative and, therefore, it will not be the province of the specifications to mention any portion of the construction which the drawings are competent to explain or vice versa, and such omissions shall not relieve the Contractor from carrying out such portions of the work only indicated on the drawings and should items be required by the specifications, although not shown on the drawings, they are to be supplied as though covered by both the drawings and specifications.

b - Any items necessary to the completion of the work shown which may not be actually indicated on the drawings or mentioned in the Specifications, but which are obviously necessary and usually employed in common practice, shall be supplied in place as part of this Contract.

c - Discrepancies between Drawings and Specifications shall be immediately referred to the Architect who shall interpret the true intent and meaning of same and their decision shall be final.

d - The drawings consist of the small scale drawings, both engineering and architectural, large scale drawings and full size details and shall take precedence over one another in the reverse of the above order.

e - Figures shall take precedence in all cases over the scale measurements on drawings. Scaling of the drawings for construction purposes will not be allowed. All dimensional questions or discrepancies shall be referred to the Architect.

6. EXECUTION, CORRELATION AND INTENT OF DOCUMENTS

a - "The Contract Documents are complimentary and what is called for by any one shall be as binding as if called for by all."

b - The foregoing will be interpreted as meaning the General Contractor shall include all work shown on the drawings or specified. For example, work which appears on the drawings, but is not specified in any trade section of the specifications, shall be provided and installed under the contract by the General Contractor and proper trade. No extras will be allowed for work which is either shown or specified. In general, where a discrepancy occurs between the drawings and specifications, or between the scale measurements of drawings and the figures on same, the latter shall in such case, govern.

7. WORK SCHEDULE AND CONTRACTORS MEETINGS

a - Project schedule shall be in the form of a Critical Path Method. The General Contractor shall prepare a CPM schedule and shall submit to the Owner and the Architect within twenty (20) days of the start of the project.

b - Meetings of the representatives of the various trades engaged on the project shall be held, as directed, for futhering the progress of the work. If representatives fail to attend these meetings or to carry out the orders or instructions, they shall upon request of the Owner, be dismissed immediately from the work and other representatives substituted.

8. FIELD MEASUREMENTS

a - The Contractor shall be required to make all measurements, establish all lines and grades and execute all layout work required to properly locate and execute the work including mechanical trades and site utilities in accordance with the drawings and these specifications and shall verify all dimensions in field. The General Contractor shall employ a competent surveyor who shall establish and maintain all lines and grades and the General Contractor agrees to assume all responsibility due to any inaccuracy of said work.

9. BARRICADES AND SAFETY MEASURES

a - The General Contractor shall provide and maintain in good repair all barricades, fences, guard railings, etc., at hazardous locations, operations or as required by law or the City for the protection of the public.

b - All exposed material of barricades, fences, guard railings, etc., shall be smoothly dressed.

c - At dangerous points throughout the work, provide and maintain guard rails and colored lights and flags, and do everything possible to protect the public, the workmen, the premises and adjoining property from injury of damage.

d - Permits and fees for barricades shall be the responsibility of the General Contractor.

e - Properly protect all sidewalks, pavements and curbs during construction, and repair all parts of same which become damaged. Repairing of damaged parts shall be done in strict accordance with the requirements of City Authorities or Owner as conditions require.

10. PROTECTION OF WORK AND PROPERTY

a - The Contractor shall substantially brace and hold in place temporarily the various parts of the structure that cannot be maintained in their position with stability until other connecting or abutting parts or members are constructed and permanently secured. The General Contractor shall provide against all damage from the elements, overloading of the structure, undermining or displacement due to conditions of the site or to any method of construction.

11. FIELD OFFICE

a - At the beginning of the work, the General Contractor shall erect where directed a temporary office of ample size for the use of himself, his subcontractors, and the Owner's representatives. The outside shall be boarded tight, painted with two coats, equipped with glazed windows and door with lock. The inside shall be sealed all over, and floor shall be double with heavy building paper between.

b - The section for Owner's representatives shall be not less than 10 x 12 feet, partitioned from adjoining space and equipped with plan table, plan racks lockable closet, shelves for samples, file cabinet, desk and three chairs. Equipment need not be new, but shall be in good, clean, usable condition.

c - The offices shall be provided with electric light, heat and air conditioning, when needed, a temporary toilet with water closet, urinal and lavatory for the exclusive use of the office force; and complete janitor service for the office and supplies for the toilet.

d - In lieu of the foregoing, equivalent accommodations may be provided by the use of portable buildings or trailers.

e - The General Contractor shall provide such other buildings or space as he may require for the use of workmen and safe storage of tools and materials or make arrangements with the owner for use of existing space.

f - Telephone for workers and Owner's representative.

12. PROGRESS PHOTOGRAPHS

a - The Owner will take any progress photographs which are required.

13. WATER

a - The Contractor shall provide all temporary water for construction at no cost to the Owner. The Contractor shall provide and later remove temporary distribution systems to points of use where required.

14. TEMPORARY LIGHT AND POWER



a - The General Contractor shall provide all electric current required for temporary lighting and power, and shall pay all charges in connection with same throughout the life of the Contract. The General Contractor shall provide temporary electric current which shall be made available to all contractors. In case any contractor requires current in excess of the usual lighting circuit capacity, the respective contractor shall make arrangements with the General Contractor for additional service and provide all wiring and accessories required for such installation. The General Contractor shall furnish and install wiring from the temporary service and shall install temporary outlets located at convenient points so that extension cords will reach all parts of the building requiring current. Each Contractor shall furnish all extension cords, sockets, lamps, etc. required by his own use.

b - When the building construction has advanced to a point where the permanent electric service becomes available, the same may be used for purposes of construction and testing with the approval of the Architect, and the Contractor shall pay all charges for current over this service until the building is turned over to and acceptable to the Owner.

15. TEMPORARY HOISTS, LADDERS, ETC.

a - The Contractor shall erect such temporary hoists, ladders, ramps, runways and the like as required for handling material. Construction and maintenance of these items shall be in accordance with the requirements of the manual of Accident Prevention in Construction as published by the Associated General Contractors of America.

16. WEATHER PROTECTION

a - The General Contractor shall provide and maintain weather protection and heating as may be required to properly protect all parts of the structure from damage during construction prior to installation of permanent heating plant. This shall include protective coverings and enclosures, salamanders or stoves with vent pipes to outside of building, fuel and the necessary attendance. Fires shall be maintained for full days of 24 hours each for a period or periods as may be required or as directed by Owner's representative.

17. TEMPORARY HEAT

a - All heating required after enclosure of the building shall be classified as Temporary Heat. The building shall be considered enclosed when it is roofed and has such protection at doorways, windows and other openings as will provide a reasonable heat retention. The Heating Contractor shall have the heating system in readiness for furnishing temporary heat at the time the building is enclosed. The General Contractor shall furnish all fuel for temporary heat until the building is accepted by the Owner.

b - It shall be the responsibility of the General Contractor to see that all concrete, plaster, tile, masonry and other wet work is sufficiently dry before the installation of millwork and trim and other finished items.

c - The General Contractor shall be responsible for any damage to the building, contents or apparatus, due to inadequate heating.

#### 18. TOILET FACILITIES

a - At the beginning of the work, the General Contractor shall provide and maintain sanitary conveniences of sufficient number to accommodate all workmen engaged on the work. Conveniences shall be suitably framed with roof and doors, and shall be constructed and maintained in accordance with regulations of the local health authorities.

b - All conveniences shall be kept lighted and maintained in a sanitary condition by the General Contractor.

c - At completion of the work, all enclosures and temporary fixtures shall be removed and the premises left clean.

d - In lieu of the foregoing arrangements may be made to use existing facilities where existing facilities exist upon obtaining permission from the Owner's representative.

#### 19. PERMITS AND REGULATIONS

a - Permits and certificates of approval shall be obtained and paid for by the Contractor for the trade affected. The Contractor shall comply with all State and Local rules, ordinances and regulations relating to building, employment and the preservation of public safety and health, use of streets, etc.

#### 20. TELEPHONE

a - The General Contractor shall contract for and provide on the site, a telephone for the use of all concerned with the erection of the building. The telephone shall remain during the entire duration of the construction of the building.

#### 21. SCHEDULE OF ESTIMATE

a - After the award of the Contract, the Contractor shall make up a schedule of the estimated cost of the main branches of work based on the amounts included in the Contractor's proposal, the total of which shall equal the amount of the Contract sum. The values employed in making the schedule will be used for only determining partial payments and will not be considered as fixing a basis for additions or deductions from the Contract. One copy of the schedule shall be forwarded to the Architect.

22. WATCHMEN

a - The General Contractor will not be required to maintain watchmen on this project outside regular working hours unless he chooses to do so for the protection of his own work and materials.

b - Regular working hours are defined as 8:00 a.m. to 5:00 p.m. Monday through Friday. (Saturdays, Sundays and legal holidays are excepted.)

23. BROKEN GLASS

a - The General Contractor shall replace all glass throughout the building which is broken, cracked or otherwise injured during construction and leave all lights whole and in good condition at completion.

24. RUBBISH

a - The General Contractor shall remove and dispose of all rubbish and debris resulting from the construction. The project and adjacent grounds shall be kept free from accumulation of rubbish. No rubbish or debris shall be buried on the premises.

25. INDEMNITY

a - The Contractor shall hold harmless from and indemnify the Owner against all claims, suits, actions, costs, counsel fees, expenses, damages, judgments or decrees by reason of any person or persons or property being damaged or injured by the Contractor or by any of his sub-contractors or in any capacity during the progress of the work, whether by negligence or otherwise.

b - No work under the Contract shall be commenced until all insurance required by the Contract Documents has been obtained and approved by the Owner. Unless otherwise provided in the Contract Documents, the insurance maintained shall afford protection in the classifications and minimum limits as follows:

- 1) Compensation Insurance. The Contractor shall take out and maintain during the life of the Contract, Workmen's Compensation Insurance as required by the state in which the work is located, for all of his employees employed at the site of the project and in case any work is sublet, the Contractor shall require the Subcontractor similarly to provide Workmen's Compensation Insurance for all of the latter's employees unless such employees are covered by the Contractor's insurance. In case any class of employees engaged in hazardous work under the Contract at the site of the project is not protected under the Workmen's Compensation statute, the Contractor shall provide or shall cause Subcontractors to provide adequate insurance coverage for the protection of his employees not otherwise protected.

- 2) Public Liability and Property Damage Insurance. The Contractor shall take out and maintain during the life of the Contract such Public Liability and Property Damage Insurance (construed as including Contractor's Contingent or Protective Insurance to protect the Contractor from damage claims arising from operations under the Contract) as shall protect him and any Subcontractors performing work covered by the Contract from claims for damages for personal injury, including accidental death, as well as from claims for property damages which may arise from operations under the Contract, whether such operations by he, himself or by any Subcontractor or by anyone directly or indirectly employed by either of them. The amounts of such insurance shall be as follows:

- a. Public Liability Insurance is an amount not less than \$500,000.00 for injuries, including accidental death to any one person, and subject to the same limit for each person in an amount not less than \$500,000.00 on account of any one accident, and Property Damage Insurance in limits of \$250,000.00 on account of any one accident and \$250,000.00 aggregate.

- 3) Contractor's Vehicle Liability Insurance in an amount not less than \$100,000. for injuries, including accidental death, to any one person and in an amount not less than \$300,000. on account of one accident. The Contractor shall also provide Vehicle Property Damage Insurance in an amount not less than \$100,000.

c - The Contractor shall require Subcontractors, if any, not protected under his insurance policies to secure and maintain insurance of the same nature and with the same limits as specified in the preceding paragraph.

d - All insurance shall be carried with companies authorized to do business in the State of Michigan.

e - In the case of all Contracts involving on site work, copies of such insurance certificates shall be field with the City Clerk before the work to be done under this contract is begun. Said certificates of insurance shall contain a ten day notice of cancellation in favor of the City Clerk, and shall also name the City as an insured party.

26. SURETY BONDS

a - Bonds will be required from the successful bidder as follows:

- 1) A Labor and Material Bond to the people of the State of Michigan for the amount of the bids or bid accepted.
- 2) A Performance Bond for the City of Ann Arbor for the amount of the bids accepted.

b - Bonds shall be executed on forms supplied by the City in a manner and by a Surety Company satisfactory to the City Attorney.

27. FIRE AND EXTENDED COVERAGE INSURANCE

a - The Owner shall effect and maintain insurance against loss or damage arising from fire, explosion, wind damage, riot or civil commotion, physical or malicious mischief, vandalism, sprinkler leakage, smoke damage, aircraft and vehicle damage upon the entire structure on which the work of this Contract is to be done to 100% of the insurable value thereof under a form of Builder's Risk Insurance:

- 1) Such insurance is to include temporary structures, materials, equipment and supplies of all kinds to the construction of said building or structure, all forming a part of or contained in said building or structure, temporary structures, or on vehicles, or in the open; only while on the premises described or within 100 feet thereof.
- 2) The Contractor and his Subcontractors shall separately insure all Contractors' equipment such as tools, equipment, scaffolding, towers, stagings, bunk houses and other temporary buildings owned, borrowed or rented and all materials which do not become part of the construction or included in the cost of work.

b - Additions and Alterations Contracts: The Owner shall insure his interest and the interest of the Contractor and all his Subcontractors hereunder in and to the entire structure on which the work of Contract is to be done, against fire and extended coverage perils, subject to any Co-Insurance Form or a superior form presently being used to insure the Owner's existing property and the amount of such insurance shall be maintained to at least the percent of insurable value as stipulated in the co-insurance clause contained in the policy or policies.



c - The Contractor shall be named or designed in such capacity as insured jointly with the Owner in all policies and all Subcontractors shall be included as insured jointly with the Contractor in all policies by the designation "Subcontractors, as their respective interest may appear." Certificates of such insurance shall be filed with the Contractor and the Architect. If the Owner fails to carry insurance as provided above and so advises the Contractor, the Contractor may insure his interest and that of the Subcontractor at the Owner's expense. If the Owner fails to notify the Contractor that insurance is not carried, the Contractor may recover damages as may be provided under the General Conditions of the Contract for Construction.

d - The following Subrogation Clause shall appear in all policies of insurance, including Contractor's equipment floater covering fire, lightning and the perils insured under the Standard Extended Coverage Endorsement:

- 1) "Subrogation Clause: It is hereby stipulated that this insurance shall not be invalidated should the insured waive in writing prior to a loss any or all right of recovery against any party for loss occurring to the property described herein."

e - The insured loss, if any, is to be adjusted with and payable to the Owner as Trustee for the insureds as their interest may appear, except where payment of all or a proportion of the insurance is to be made to a mortgagee as his interest may appear.

f - In case of a loss under Fire and Extended Coverage Insurance Policy provided for in these insurance provisions protecting the interest of the parties hereto, the Owner, in his capacity as Trustee, shall furnish and shall be empowered to adjust and approve loss settlement with the insurance companies and to receive such insurance loss funds for placement in a special bank account for such purposes only. If any party at interest herein objects to the settlement of a loss and so states in written form prior to signing of proofs of loss by the Trustee, the adjustment of the loss may be submitted to arbitration in accordance with approved arbitration procedure as specified in the General Conditions of the Contract for Construction, and the Trustee shall be governed by the arbitrator's decision.

g - All insurance loss moneys paid to the Trustee shall be distributed in accordance with a mutual agreement between the parties to this Contract, or under arbitration award following approved arbitration procedures as provided for above.

h - The Contractor shall report to the Architect each claim within 20 days after occurrence of loss.

28. DAMAGE CLAIMS

a - The Contractor shall defend, indemnify and save harmless the City, its officers, agents, servants, and employees against and from all suits, losses, demands, payments, actions, recoveries, judgments and costs of every kind and description and from all damages to which the City or any of its officers, agents, servants and employees may be subjected by reason of injury to the person or property of others resulting from the performance of the Contract, or through any improper or defective machinery, implements or appliances used by the Contractor in the Contract, or through any act or omission on the part of the Contractor or his agents, employees or servants; and he shall further defend, indemnify and save harmless the City, its officers, agents, servants and employees from all suits and actions of any kind or character whatsoever which may be brought or instituted by any Sub-contractor, material man or laborer who has performed work or furnished materials in or about the Contract or by, or on account of, any claims or amount recovered for an infringement of patent, trademark or copy-right.

b - The Contractor shall be held responsible for all damages to property of the City or others, caused by or resulting from the negligence of himself, his employees, or agents during the progress of or connected with the prosecution of the work, whether within the limits of the work or elsewhere. He must restore all property injured including sidewalks, curbing, sodding, pipes, conduit, sewers or other public or private property to not less than its original condition with new work.

29. SWORN STATEMENTS

a - The Contractor shall present Sworn Statements and Waivers of Lien with his monthly statements of the amounts due to any laborers, mechanics, material suppliers and subcontractors and shall furnish final waivers of lien from all laborers, mechanics, material suppliers and subcontractors.

30. OSHA REQUIREMENT

a - All Contractors, subcontractors, material suppliers and other involved with the work shall comply with OSHA requirements.

31. GUARANTEE

a - Unless otherwise specified herein, the General Contractor shall guarantee all of his work for one year from the date of completion. If defects should develop in any materials or workmanship within this time, the Contractor shall, upon written request from the Owner, promptly repair and remove, replace or otherwise make good such defective work and other work damaged or defaced in making good such defects without cost to the Owner.

32. CLEANING

a - Immediately before turning the project or portions of same over to the Owner, the General Contractor shall wash and clean the various parts of the work as follows:

- 1) Wash and clean all exposed exterior and interior surfaces of metal and glass in the following divisions of the specifications: Stair Metal Work; Ornamental Metal; Windows; Hollow Metal; Glass and Glazing; Metal Partitions; or other metal equipment and specialities. This work shall be thoroughly cleaned with soap powder and water by professional cleaners. Steel wool, harsh abrasives or acids are not to be used for cleaning. Care shall be taken to avoid scratching glass or metal and any damage to same shall be made good, even to furnishing new materials of same character and replacement of other work disturbed, such as plaster, painting, etc.
- 2) Wash and clean all exposed finished metal and glass parts of Mechanical and Electrical in the same manner as specified in the foregoing paragraph.
- 3) At completion, all floors and stairs shall be thoroughly cleaned. All terrazzo, hard tile, marble and cement floors and stairs shall be mopped clean with soap and water. All other parts shall be swept using a sweeping compound which will not stain or injure surface.

33. REMOVAL OF TEMPORARY WORK

a - All temporary connections for heat, water, sewer and electric current and all temporary structures, barricades, protections and similar work shall be removed by the General Contractor at completion of the project or when directed. Any repairs or alternations necessitated by such removal shall be made by the General Contractor.

34. CONTRACTOR'S SHOP DRAWINGS

a - Regarding additional copies, the General Contractor shall be held to obtain the necessary shop drawings for the use of all trades.

b - Shop drawings which do not bear the approval of the General Contractor are not to be used in the shop or on the work under any conditions.

c - The General Contractor will maintain one (1) complete set of shop drawings on the job site for ready reference by the Owner's representative and all sub-contractors.

d - The Shop Drawing submittal and review process shall occur as follows:

- 1) Where specified in this Specification or called out on the drawings, the Subcontractor/Material Supplier shall, prior to fabrication, submit to the General Contractor four (4) copies of their shop drawings.
- 2) The General Contractor shall review the drawings, affix his approval/disapproval with corrections as required, and submit the four copies to the Architect.
- 3) The Architect shall review the drawings, approve or disapprove them as required and return three (3) copies to the General Contractor.
- 4) The General Contractor shall redistribute the drawings as required.
- 5) Upon receipt of the approved/disapproved shop drawings, the Subcontractor/material supplier shall, as specified on drawings, revise drawings as required and resubmit or initiate fabrication.

35. PARKING AND REROUTING TRAFFIC

a - At the beginning of the field work, the General Contractor shall consult with the Owner's representative relative to parking and rerouting of traffic during construction and shall organize his work in relation thereto in a manner as will be directed, generally, as herein outlined.

b - At the beginning of work on the site, the Owner will designate an area for use by the General Contractor for the parking of cars of all those engaged in the work under the construction contract. The General Contractor shall prepare the parking areas by the installation of proper entrances, temporary surfacing and bumpers, suitable enclosure to define the boundaries and entrances; shall give directions to obtain orderly parking of all vehicles, install directional signs and supervise the parking to limit use of the area to those for whom it is intended; and maintain the area in a neat and clean condition throughout the life of the contract. At completion, remove all temporary work and return the area to the Owner in a rough graded condition ready for the Owner to spread topsoil and do seeding.

c - During construction when use of roads or sidewalks is restricted by construction work, erect temporary barricades, post notices and warning lights and, when required during working hours, direct traffic to prevent congestion. Maintain temporary work as long as required and then remove from the public area.

36. CUTTING, PATCHING & DIGGING

a - New underground utility lines or existing underground utility lines uncovered in the execution of this project shall receive underground warning tape one foot below finish grade prior to completion of rough grading. This work shall be the responsibility of the General Contractor.

37. MATERIAL STATUS REPORTS

a - The General Contractor shall submit to the Owner at regular intervals a material status report. The form shall be provided to the General Contractor at the first project meeting.

38. DRAWINGS AND SPECIFICATIONS ON THE WORK

a - As built drawings from all trades shall accompany their request for final payment.

b - The General Contractor or Prime Contractor shall furnish one complete copy of an As Built Materials List. This list will indicate manufacturer, vendor or supplier, and installer for each applicable item listed, and any other item specified by trade name herein.

39. MATERIALS

a - Materials and equipment delivered to the site are not the responsibility of the Owner until the total building or renovation is accepted by the Owner.

40. FAIR EMPLOYMENT PRACTICES

The Contractor, his agents or sub-contractors, shall comply with all requirements of Chapter 112 of Title IX of the Code of the City of Ann Arbor and in particular the following excerpts therefrom.

9:161 Affirmative Action by City Contractors

(1) All contractors proposing to do business with the City of Ann Arbor, except those specifically exempted by regulations promulgated by the Administrator and approved by City Council, shall receive approval from the Director prior to entering into a contract with the City. Said contractors shall take affirmative action to insure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity and tends to eliminate inequality based upon race, national origin or sex.

(2) Each prospective contractor shall submit to the city data showing current total employment by occupational category, sex and minority group. If, after verifying this data, the Director concludes that it indicates total minority and female employment commensurate with their availability within the contractor's labor recruitment area, i.e., the area from which the contractor can reasonably be expected to recruit, said contractor shall be accepted by the Director as having fulfilled affirmative action requirements for a period of six (6) months at which time the Director shall conduct another review. Other contractors shall develop an affirmative action program in conjunction with the Director. Said program shall include specific goals and timetables for the hiring and promotion of minorities and females. Said goals shall reflect the availability of minorities and females within the contractor's labor recruitment area. In the case of construction contractors, the labor recruitment area shall be the Ann Arbor-Ypsilanti standard metropolitan statistical area.

(3) In hiring for construction projects, contractors shall make good faith efforts to employ local persons, so as to enhance the local economy.

(4) All contracts shall include provisions through which the contractor agrees, in addition to any other applicable Federal or State labor laws:

- (a) to set goals, in conference with the Director, for each job category or division of the work force used in the completion of the City work;
- (b) to provide periodic reports concerning the progress the contractor has made in meeting the affirmative action goals it has agreed to;
- (c) to permit the Director access to all books, records and accounts pertaining to its employment practices for the purpose of determining compliance with the affirmative action requirements.

(5) The Director shall monitor the compliance of each contractor with the affirmative action agreement provisions of each contract. For instances of non-compliance, the Director shall develop procedures and regulations which provide the contractor with notice of his non-compliance. Such procedures and regulations shall include a provision for the posting of contractors not in compliance.

(6) All such contracts shall provide further that breach of the obligation to take affirmative action shall be a material breach of the contract for which the City shall be entitled, at its option, to do any or all of the following:

- (a) To cancel, terminate, or suspend the contract in whole or part and/or refuse to make any required periodic payments hereunder;
- (b) Declare the contractor ineligible for the award of any future contracts with the City for a specified length of time;
- (c) To recover liquidated damages of a specified sum, said sum to be that percentage of the labor expenditure for the time period involved which would have accrued to minority group members had the affirmative action not been breached;
- (d) Impose for each day of non-compliance, liquidated damages of a specified sum, based upon the following schedule:

<u>Contract Amount</u>	<u>Assessed Damages Per Day of Non-Compliance</u>
\$ 5,000 - 24,999	\$ 25.00
25,000 - 99,999	50.00
100,000 - 199,999	100.00
200,000 - 499,999	150.00
500,000 - 1,499,999	200.00
1,500,000 - 2,999,999	250.00
3,000,000 - 4,999,999	300.00
5,000,000 - and above	500.00

- (e) In addition the contractor shall be liable for and costs or expenses incurred by the City of Ann Arbor in obtaining from other sources the work and services to be rendered or performed or the goods or properties to be furnished or delivered to the City under this contract.

#### 41. CHANGE ORDERS

a - No extra work or change shall be made unless in pursuance of a written "Change Order" from the Architect and signed by the Owner. The value of any such extra work or change shall be determined by estimate and acceptance of lump sum.

42. SIGN

a - The General Contractor shall erect one project sign containing the name of the project, names and addresses of the Architect, General Contractor and major Subs. The Color, arrangement and location is to be directed by the Architect. The sign shall be 4' x 8', 3/4" exterior plywood and 4 x 4's in 12" diameter post-holes 24" deep..

b - No other signs or advertisements are to be displayed on the project site.



SITWORK  
DIVISION TWO A

1. GENERAL CONDITIONS

a - The work under this Division All Sections is subject to the General Conditions set forth in Division One and Supplementary General Conditions of the Contract in Division One of this Specification.

b - This Contractor shall read the "Instructions to Bidders", Division One, for complete clarification of the work.

2. SCOPE OF WORK

a - This Contractor shall furnish all labor, materials, equipment and tools and perform all operations necessary for and reasonably incidental to the completion of the work as indicated on the drawings and specified herein, including but not limited to the following:

- 1) Strip topsoil. Topsoil shall remain property of Owner.
- 2) Stock piling topsoil.
- 3) Excavating and backfilling for storm, water and sanitary by Plumbing Contractor
- 4) Site layout including building, drives, walks, parking and utilities.
- 5) Tree protection.
- 6) Removal of site rubbish.
- 7) Excavating for all footings, foundation walls and concrete slabs.
- 8) Excavating for all sidewalks, drives, and parking areas.
- 9) Backfill for foundations.
- 10) Rough site grading, finished grading.
- 11) Redistribution of top soil.
- 12) Fill under walks and interior slabs on grade.
- 13) Compaction of fill as required.
- 14) Asphalt parking lot and drives including fill.
- 15) Removal of trees and shrubs, sand fill and compaction of fill.
- 16) White painted lines for parking spaces.
- 17) Pre-cast parking bumpers if shown on drawings.
- 18) Fine grading and landscaping as shown on Site Plan Sheet and described in Division 2B.

b - Contractor shall visit site and inspect all conditions affecting construction.

c - Any service or drainage lines now in use or uncovered by excavation shall be protected and immediately called to the attention of the Architect, who shall determine their disposition.

*Assignment 1*

*#2*

*except asphalt*

3. WORK NOT INCLUDED

a - The following work will be furnished and installed by others:

- 1) Excavation and backfill for gas, power and telephone lines shall be by construction trades.

4. LAYING OUT WORK

a - Employ a competent engineer to do the layout work.

b - Establish levels by referring to the permanent bench mark noted on the plot plan and stake out all site improvements.

c - Check existing conditions against the finished grades on all the drawings before starting any excavation or work.

5. TREE PROTECTION

a - Box the trunks of any trees to be saved to prevent possible damage from construction operations or delivery of material.

b - Do not store materials or equipment within the drip line. Use a qualified tree surgeon for tree damage repair. Replace trees that cannot be restored to full growth, as determined by tree surgeon, unless otherwise acceptable to the Architect.

6. TOPSOIL

a - Before any excavation, cutting or filling work is started, strip off all topsoil to its full depth from the area of the structure, concrete walk, aprons and parking areas.

b - Separate and dispose of all vegetation, heavy roots and other debris and stockpile clean topsoil where and as directed by Architect in location where it will not interfere with the work of any trade nor block the natural run-off of surface water. The best topsoil shall be reserved for finish grading and lawn areas, the poorer topsoil shall be stockpiled for lawn sub-grade material.

c - Take extreme care when stripping adjacent to any and all existing work to remain, so as not to cause damage to same. Any damage caused by this trade shall be restored to original condition at this trade's expense.

7. CLEARING AND CLEANING OF SITE

a - This subcontractor shall remove any and all obstructions on the site, whether below or above grade, as may be necessary for the entire and proper completion of the work within the "Contract Limits" as shown, including existing pavements and other surface and subsurface obstructions as required. All existing structures, footings, slabs, pavements, etc., shall be removed from the site. The resulting depressions left from the removal of said existing structures shall be backfilled with engineered fill to a density of 95% of an A.A.S.H.O. T-180 value.

b - Remove from site trees, shrubs, including stumps and major roots, and other vegetation from areas to be occupied by building structures and surface improvement. Surface improvements shall include new walks, drives, etc. Fill the depressions resulting from the removal of stumps, etc., with suitable material and compact to make the surface conform to the surrounding ground surface. No rubbish or debris shall be buried or burned on the premises.

c - Clearing operations shall be conducted so as to prevent damage by falling trees left standing; to public sidewalks, paving and curbs; to existing structures and installations and to those under construction, and so as to provide for safety of employees and others. Any such items damaged by the work of this sub-contractor shall be restored at no additional cost to the Owner.

d - Do not interfere with normal traffic on roads, streets, walks, and other adjacent occupied or used facilities. Provide alternate routes around closed or obstructed traffic ways as required by governing regulations.

e- Salvageable Items may be removed at any time after demolition work starts; storage or sale on the site of removed items will not be permitted.

f - Use of explosives will not be permitted.

g - Maintain existing utilities and protect from damage during demolition operations. Do not interrupt existing utilities; provide temporary services if required, as acceptable to the Architect.

h - Control air pollution caused by dust and dirt; comply with governing regulations.

## 8. EXCAVATING

a - Excavate for all footings, foundation walls, sidewalks and slabs to elevations and dimensions indicated plus sufficient space to permit erection of forms and foundations, inspection of foundations, and related items.

b - No pavements, slabs, or footings shall be placed on existing fill material.

c - Placing of footings and foundations on fill will not be permitted. Fill excess cuts under footings and foundations with concrete. Excavation contractor shall pay for extra concrete required to accomplish the above.

d - All footing trenches shall be excavated 4" short of final depth by machine equipment. The last 4" of excavation to elevations indicated to bottom of footings shall be done by hand.

3 - Maintain all excavations free from water and clean free of rubbish, foreign matter, and materials.

f - Any piping, drains, utility lines, etc., shown on the drawings or not, that are encountered in the excavating, unless ordered removed, shall be supported, braced, and protected from damage. If utility lines are encountered, this contractor shall notify the Architect and shall not disturb any lines unless so directed. If existing utility lines are damaged during excavating in any manner, this Contractor shall immediately repair the lines and any damage related to the damaged line at no additional cost to the Owner.

g - No footings, pavements or slabs shall be placed on a frozen sub-grade.

h - The finished surface shall be within one inch of the established grade. Excavation shall not be made below the indicated grade except where rock or masonry is encountered or removal of unstable soil is directed by the Architect. Material removed below grade shall be replaced by approved granular material thoroughly compacted. Disposition of excavated materials, except topsoil, not required in fills shall be the responsibility of the Contractor.

i - Provide bracing and shoring as required in excavations, to maintain sides and to protect adjacent structures from settlement, complying with local codes and regulations. Maintain until excavations are backfilled.

j - In general, all acceptable excavated material is to be used for backfilling, filling or site grading. Refer to soil boring data.

k - Remove and dispose of material encountered to obtain required subgrade elevations, including pavement, obstructions visible on ground surface, underground structures and utilities indicated to be removed.

l - Stockpile excavated acceptable backfill and fill materials where directed, until required for backfill and fill.

## 9. FILLING AND BACKFILLING

a - All fill material shall meet the graduation requirements of the Michigan Department of State Highway specifications for granular material, Class II.

b - Furnish and install fill for the following areas as required:

- 1) Inside building area; clean compactible sand, gravel or sand-gravel mixture.
- 2) Space between foundation walls and excavation (exterior)
  - a) Clean material from excavations or clean compactible fill sand. Material must not contain large stones or be of such nature as to damage dampproofing or waterproofing. Debris, concrete, wood, large lumps of clay, etc., will not be permitted.

3) Exterior fill under walks, drives and parking lots:

- a) Clean compactible sand, sand-gravel, or material as approved by the Architect. No excavated materials from the site (clay) will be permitted for use as fill under slabs, parking lots and drives.
- b) Road and parking lot subbase fill material shall be MSHD 8:02:05, Class 11 granular material free from frost, stumps, trees, roots, sod, peat and muck. It shall not be placed on frozen ground. Sloped surfaces steeper than 4:1 shall be scarified to bond with new material.

c - Fill material shall be capable of proper compaction. Suitable soil obtained from required excavating or cuts may be used, as approved by the Architect.

d - Fill areas shall be free of frost when placing fill and brought to the required level with successive layers of earth fill not more than 8" average thickness, each layer finished level and compacted uniformly solid. Roll or compact each layer with a mechanical tamper until maximum compaction is obtained. Use of rubber tire equipment will not be permitted.

e - Filling and backfilling materials required to achieve the desired grades under pavements, floor slabs, walks, or miscellaneous concrete slabs should consist of clean, well graded granular soils, free of any vegetation, organic or unsuitable materials. The fill should be placed in uniform layers not exceeding 8" in thickness with the material in each layer compacted to a density of 95% of an A.A.S.H.O. T-180 value. All fill material should be approximately the optimum moisture content while being compacted. Fill soils should not be frozen or placed on frozen soils. Verify with soils engineer or Architect the use of existing on-site materials for fill and backfill under slabs, drives, and walks.

f - Stones in earth shall be well distributed. No stones over four inches in diameter shall be left within twelve inches of finished sub-grade.

g - Fill Installation:

- 1) Fill under all concrete floors, slabs, walks, etc. shall be spread in layers 8" or less and shall be completely compacted by a vibration type mechanical tamper. Use of rubber tire equipment will not be permitted.
- 2) Exterior backfill shall be placed and compacted so that no settlement will result. Do not backfill until the work has been inspected. Brace securely all walls before backfilling. Any damaged wall must be replaced at the excavating contractor's expense. Grade all fill properly, to a tolerance of one-tenth of a foot from the established grades.

- 3) Porous fill around drain tile shall be washed pea gravel with 8" minimum coverage over tile.

h - Use suitable excavated materials for exterior backfilling under lawn areas, free of vegetation, roots, broken masonry, rubbish, lumps or clods exceeding 3". Use no debris or frozen materials. Provide all additional fill required to bring areas to the grades shown.

i - Repair and re-establish grades in settled, eroded, rutted, or otherwise damaged areas. In damaged compacted areas, scarify the surface, re-shape and compact to required density prior to further construction.

j - Remove excess excavated material, trash, debris and waste material from the site.

#### 10. ROUGH GRADING

a - Do all cutting, filling, and grading necessary to bring planting beds, lawn, interior and exterior paved areas, to the required subgrades.

b - Subgrade: Finish to depth below final grade as required for turf and/or pavement.

c - Tolerances:

- 1) For walks and other paved and hard-surfaced areas to the underside of their respective bases as indicated on details: tolerance  $\pm 0.1'$ .

- 2) For seeded and sodded area, to six (6) inches below finish grades: tolerance  $\pm 0.1'$ .

d - Cooperate with other sub-contractors and/or owner, for the installation of sidewalks, paving, finish grading, seeding, sodding or other site work shown or specified

e - Grades not otherwise indicated shall be uniform levels or slopes between points where elevations are given, or between such points and existing grades. Finished surfaces shall be reasonably smooth, compacted and free from irregular surface changes. Hand grade areas immediately adjacent to building walls, to slope away for proper drainage.

f - Interior and exterior grading shall be brought to the proper elevations, where shrinkage and settlement has occurred during the progress of the work as required, or at such time as directed.

11. FINISH GRADING

a - Spread the stockpiled topsoil to meet the required finish grades (4" total thickness) over all the lawn areas. If excess topsoil is evident, this excess soil shall be removed from the site. If more topsoil is required, the additional topsoil will be provided and placed as directed in Finish Landscaping contract.

b - Before placing topsoil, if crust has formed on surface of rough grade, loosen to a depth of at least 2" by harrowing or other means, to provide for bonding of topsoil.

c - Finish all slopes smooth and even and free of sticks, hard lumps, stones and debris of every kind, larger than will pass a rake.

d - Roll, while moisture content is such as not to cause packing, with a hand roller of weight suitable for the type and condition of the topsoil.

12. SOIL EROSION CONTROLS

a - In planning the execution of earthwork operations, special consideration should be given to providing measures to prevent or minimize soil erosion and the subsequent sedimentation into any nearby waterways, or storm water disposal or retention systems. These measures may include some or all of the following:

- 1) Scheduling of earthwork operations such that the smallest possible erodable areas are exposed for the shortest possible time.
- 2) Using special grading practices, diversion or interceptor structures to reduce the amount of run-off water from an erodable area.
- 3) Providing vegetative buffer zones, filter beams or sedimentation basins to trap sediments from surface run-off water.

b - A specific and detailed soil erosion and sedimentation control program may be required in accordance with Michigan Public Act Number 347 of 1972 which has been in effect since January 1st, 1975. General Contractor shall be responsible for verifying such soil erosion controls with the City of Ann Arbor, and for providing such controls as required by the City.

## 13. ASPHALT CONCRETE PAVING

a - Weather Limitations: Do not apply prime and tack coats when temperature is below 50 degrees F. or when base is wet. Apply asphalt concrete paving (AsCon-Paving) only when temperature is above 40 degrees F. and when base is dry.

b - Paving Tolerances: In-place compacted a.c. paving will not be acceptable if exceeding the following tolerances:

- 1) Thickness of base course not more than 1/2" plus or minus.
- 2) Thickness of binder course, not more than 1/4" plus or minus.
- 3) Wearing course surface smoothness, not more than 3/16" when measured with a 10' straightedge.

c - Materials: Use locally available materials and aggregate gradations, which exhibit a satisfactory record of previous installations, and as follows:

- 1) Prime Coat, cut-back asphalt.
- 2) Tack Coat, emulsified asphalt.
- 3) Asphalt cement, AASHTO M 226 (ASMT D 3381)
- 4) Viscosity grade AC 20, AR-8000
- 5) Asphalt Pavement Type I
- 6) Base Course - 8" minimum - MDSH 301-21AA
- 7) Binder Course - 1-1/2" minimum - MDSH 4:12-25A
- 8) Wearing Course - 1" minimum - MDSH 4:12 - 31

d - Surface Preparation: Remove loose material from compacted sub-base before applying prime coat. Do not begin paving work until unsatisfactory subbase conditions have been corrected.

e - Apply tack coat at the rate of 0.05 to 0.15 gallons per square yard to in-place asphalt or concrete contact surfaces and other surfaces which will contact paving.



f - Apply prime coat at the rate of 0.20 to 0.50 gallons per square yard over compacted subgrade.

g - Paving: Place mixture at not less than 255 degrees F, spread and strike off. Place each course to required grade, cross section, and compacted subgrade.

h - Provide joints between old and new pavements and between successive days' work for continuous bond between adjoining work. Clean contact surfaces and apply tack coat.

i - Construct curbs over compacted pavement surfaces to cross section shown, or, if not shown, to local standard shapes. Refer to site plan to determine whether asphalt curbs or concrete curbs and gutters are required.

j - Rolling: Begin rolling when mixture will bear roller weight without excessive displacement. Repair surface defects with hot material as rolling progresses. Cut out and patch defective areas and roll to blend with adjacent satisfactory paving. Continue rolling until maximum density attained and roller marks eliminated.

k - Protect paving from damage and vehicular traffic until mixture has cooled and attained its maximum degree of hardness.

l - Traffic and Lane Markings: Apply 2 coats of chlorinated rubber type traffic lane marking paint (FS TT-P-115. Type III) over cleaned paving surface. Layout area and review with Architect before paint application. Use white color, unless otherwise directed.

#### 14. GUARANTEE

a - Upon acceptance, the Contractor shall furnish the Owner a written guarantee to replace any blacktop which becomes defective due to poor workmanship or materials, improper subgrade preparation, or improper base construction within two years after acceptance without expense to the Owner.

LANDSCAPE  
DIVISION TWO B

1. GENERAL CONDITIONS

a - The work under this Division is subject to the General Conditions set forth in Division One of this Specification.

b - This Contractor shall read the "Instructions to Bidders," Division 1B, for complete clarification of the work.

2. SCOPE OF WORK

a - This Contractor shall furnish all labor, materials, equipment and tools necessary for and reasonably incidental to the completion of the landscape as indicated on the drawings and specified herein, including (but not limited to) the following:

1. Sod
2. Mulch
3. Trees
4. Shrubs
5. Manure and commercial fertilizer
6. Materials for staking
7. Straw
8. Peatmoss

3. MATERIALS

a - Topsoil shall be obtained from natural, well drained areas and shall be fertile, without mixtures of subsoil, stone, roots, debris and other objects that may hinder planting operations. Topsoil and spreading of topsoil shall be a part of the site excavators work.

b - The contractor shall furnish a certificate analysis made by a recognized authority. Topsoil shall have an acidity range between ph 5.0 to ph 7.00 unless drawings indicate type of plants needing different range of ph.

c - Limestone: Agricultural limestone containing not less than 85 per cent of calcium carbonate or calcium carbonate equivalent; meeting the following minimum gradations. 100 percent passing a 10 mesh sieve, 98 per cent a 20 mesh sieve, 55 per cent passing a 60 mesh sieve, and 40 per cent a 100 mesh sieve; delivered in original unopened containers with identifying mark and analysis meeting specification requirements. Apply at the rate shown on drawings.

d - Manure shall be well-rotted, unleached, cattle manure reasonably free from shavings, sawdust or refuse, and shall not contain harmful materials. It shall be between 8 months and two years old.

e - Commercial fertilizer shall conform to the applicable state fertilizer law. They shall be uniform in composition, dry and free flowing and shall manufacturer's guaranteed analysis. Fertilizer which becomes caked or otherwise damaged, shall not be used. It shall be a complete plant food containing Nitrogen (50%) organic. Phosphoric acid (form superphosphate, bone meal or tankage) and Postash (Muriate of Potash). Plant hormone shall be the vitamin powder, "Transplantone" as manufactured by Amehem Products, Inc. or approved equal.

f - Water suitable for irrigation will be furnished by the Owner without cost to the Contractor and the Contractor shall furnish his own attachments and accessories. No responsibility shall attach to the Owner if the water supply should prove inadequate for reasons beyond his control and in such event, the contractor shall meet his needs from other sources at his own expense.

g - Materials for staking and wrapping shall be as follows:

- 1) Wire - No. 12 guage pliable, galvanized iron.
- 2) Hose - 2 ply reinforced rubber garden hose, 5/8" or 3/4" I.D.
- 3) Stakes shall be of sound wood and shall be of sizes shown on detailed drawings.
- 4) Wrapping material for tree trunks shall be waterproof paper or other suitable material in strips 6" - 10" wide, applied spirally from bottom with 50% overlap and tied with stout cord at top and bottom and at 12" intervals between.

h - Anti-desiccant shall be "Wilt Pruf" as manufactured by Nursery Specialty Products, Inc. or approved equal. It shall be delivered in manufacturer's containers and mixed and applied according to his directions.

i - Straw shall be clean, threshed out wheat straw from latest crop available.

j - Peatmoss shall be free from mineral matter harmful to plant life and low in content of woody material. It shall be natural, shredded or granulated, German Peat - 7-1/2 cu. ft. bales similar to that supplied by Premier Peat Co. or equal.

k - Topsoil mixture for backfilling plant pits and ground cover beds shall consist of 5 parts by volume of topsoil mixed with one part of peatmoss and one part of dehydrated manure (free of weeds) or mushroom soil. Super-phosphate shall be added at the rate of 5 lbs. per cubic yard of planting mixture.

l - Ground bark shall be of type obtained from local utility companies, preferably weathered. They shall be applied with 10-6-4 fertilizer at the rate of 20 lbs. of 10-6-4 per 1,000 sq. ft. of mulched area. Similar to Perma-Mulch as manufactured by Forest Products, Inc. or equal.

m - Paint for painting plant and tree wounds shall be R.I.W. Tree Surgery Paint manufactured by Toch Bros., Tree Kote as manufactured by Walter E. Clarke and Son or approved equal.

n - Plant materials shall be as follows:

- 1) Plant and material lists as included on the drawings.
- 2) Names of plants required under this contract conform to those given in a Standardized Plant Names, latest Edition, prepared by the American Joint Committee on Horticultural Nomenclature.
- 3) Quantities necessary to complete the planting as shown and located on drawings shall be furnished.

#### 4. CONSTRUCTION

a - Bed Preparation:

1) If no new topsoil is required, thoroughly loosen soil in areas to be seeded to a minimum depth of 2" with approved power or hand equipment. Remove rocks, debris, clods or other harmful substances and maintain grading and drainage patterns.

2) Where new topsoil is required, place topsoil on previously scarified subsoil to a minimum depth of 4"; apply basic fertilizer and limestone at the rate specified. Spread evenly and incorporate to the full depth of the topsoil by disking, rototilling, or other approved method. The incorporation machine shall pull a drag or some other smoothing device in order to keep the area smooth.

b - Fertilizing: Spread uniformly by an approved method, and mix thoroughly into the prepared seedbed to a depth of 4".

c - Seeding: Sow uniformly at the prescribed rate; make 2 applications at right angles to each other; use an approved method; lightly roll all seeded areas immediately after sowing with 200 to 250 pound hand roller. Do not sow during high winds or other adverse weather conditions.

d - Subgrade Conditions: The subgrade will be established at a point 4 to 6 inches below finished grade on lawn and planted areas, unless otherwise indicated on the drawings or specified under Earthwork before starting work, the Contractor shall examine the site and verify the subgrade conditions for conformity with the above. After his acceptance, the Contractor shall be responsible for the preservation of all accepted subgrades and the finished grades. Finished grades shall be understood to be final grades as shown on the drawings.

e - Construction Methods: The Contractor shall be notified in writing by the Architect or owners when to commence work on lawns and planting. Thereafter, planting 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 local area. Planting operations may be conducted at other times only with the written permission of the Architect, but with the Contractor assuming full responsibility and without additional compensation. The Contractor shall spray all new plants, except ground cover, with an anti-desiccant, using approved sprayer to apply an adequate film over trunks, branches, twigs and foilage. The time and place of the spraying shall be subject to the approval of the Architect. If the planting takes place between June 1 and August 31, the plants shall be sprayed with an anti-desiccant before digging.

f - Upon completion of the work under this contract, all trees and shrubs including those indicated on the plans as existing trees to remain shall be pruned and any injuries repaired. The amount of pruning shall be limited to the minimum necessary to remove dead or injured twigs and branches to compensate for the loss of roots as a result of transplanting operations. Pruning shall be done in such a manner as not to change the natural habit or shape of plant. All cuts over 3/4" in diameter and bruises or scars on the bark, the injured cambium shall be traced back to listing tissue and removed, wounds shall be smoothed and shaped so as not to retain water; and the treated areas shall be coated with shellac or a recognized similar material.

g - New planting shall be located where shown on the plans, excepting where obstructions below ground or overhead are encountered or where changes have been made in the construction. Observe proper precautions so as to not disturb or damage subsurface improvements. Before doing any excavation or driving stakes, ascertain location of electrical cables, conduits, utility lines, oil tanks and supply lines and sub-surface drainage. Necessary adjustments shall be approved by the Architect. No planting except ground cover shall be placed closer than 18" to pavements or structures.

h - Planting pits shall be dug and soil for plant ready before plants are delivered. Circular pits with vertical sides shall be excavated for all plants except for hedges and other plants to be planted in beds. Diameter of pits for trees and B & B shrubs shall be at least 18 inches greater than the diameter of the ball or spread of roots. Diameter of pits for BR shrubs shall be at least one foot greater than the spread of roots. The depth of pits for trees, shrubs and vines shall be enough to accomodate the ball or roots when the plant is set to finished grade allowing for 4 inches of compacted topsoil or prepared soil in the bottom of the pit. For all ground cover, planting beds will be prepared with 4 inches compacted section of planting mixture, excess excavated soil shall be removed by the contractor.

i - Plants shall have a habit of growth that is normal for the species, shall be sound, healthy, vigorous and free from insect pests, plant diseases and injuries. All plants shall equal or exceed the measurement specified which are minimum acceptable sizes. They should also conform in all respect to the American Standard for Nursery stock, latest Edition. They shall be measured before pruning, with branches in normal position. Any necessary pruning shall be done as directed by the Architect. All plants shall be subject to the inspection and approval of the Architect as to size and quality. This Contractor shall be responsible that the plants specified shall be true to name.

j - Substitutions will be permitted only upon submission of proof that any plant is not obtainable within reasonable distance and authorization by the Architect of a change order providing for use of the nearest equivalent obtainable size or variety of plant having the same essential characteristics with an equitable adjustment of contract price.

k - Unless otherwise specified all plants shall be planted in pits, centered and set to such depth that the finished grade level at the plant was grown. They shall be planted upright and faced to give the best appearance. Burlap shall be pulled and removed from top of balls but no burlap shall be pulled out from under balls. Wire and surplus binding from top and sides of balls shall be removed. Roots shall be spread in their normal position. All roots, that are broken or frayed shall be cut off cleanly. Prepared soil shall be placed and compacted carefully to avoid injury to roots and to fill all voids, when the hole is nearly filled, add water as necessary to allow it to soak away. Fill the hole to finished grade and form a shallow saucer around each plant by placing a ridge of topsoil around the edge of each pit. After the ground settles, additional soil shall be filled in to the level of the finished grade. Apply plant hormone dissolved in water used to water plants. Rate of application shall be recommended by the manufacturer.

l - Shrubs shall be planted in beds having a minimum depth of 6 inches of prepared topsoil. Shrubs shall be planted on centers as required in the detail drawings, with spacing between plants so adjusted that planting area is evenly filled.

m - All plants shall be mulched with a one inch layer of Greenlife Pine Bark Mulch within 2 days after planting. This mulch shall entirely cover the area of planting, pit, bed or saucer around each plant. In or adjacent to paved areas, the finished level of the mulch when settled shall be 1/2 inch below the paving. After the wood chips are installed, 10-6-4 fertilizer shall be broadcast at the rate of 25 lbs. per 1,000 sq. ft. of mulched area. All plants within the mulched area shall be hosed down.

n - Support trees immediately after planting. All trees 3-1/4 inches and over in trunk diameter shall be guyed and wrapped and smaller trees shall be staked. Any other method shall be approved by the Architect. Stakes shall be equally spaced about each tree driven into the ground in such a manner as not to injure the ball or roots. Trees of 2 inch caliper, or less have 2 stakes. Trees 2 to 3-1/4 inches in caliper shall have at least 3 stakes.

o - Wrapping shall be done promptly after planting with the trunks wrapped spirally from the ground line to height of second branches. All wrapping shall be neat and snug and material shall be held in place by a stout cord at top and bottom and at 12 inch intervals between.

p - All areas within the contract limit lines not required to be developed otherwise shall be seeded. Subsoil shall be graded and uniformly compacted so it will be parallel to proposed finished grade. Subgrade shall be loosened and mixed to a depth of 2 inches to 4 inches and all stones over 2 inches in size, sticks and rubbish removed. No heavy objects except lawn roller shall be moved over lawn areas after the subgrade soil has been prepared.

5. CLEAN UP:

a - Any soil, peat or similar material shall be removed promptly keeping paved areas clean at all times. Upon completion, all excess soil, stones and debris shall be removed from the site or disposed of as directed by the Architect. All lawns and planting areas shall be prepared for final inspections.

b - Lawns shall be protected and maintained by watering, mowing and resodding as necessary for at least 60 days and as much longer as necessary to establish a uniform stand of specified grasses and until acceptance. Scattered bare spots, none of which is larger than 1 sq. ft. will be allowed to a maximum of 3% of any lawn area. New planting shall be protected and maintained until the end of the lawn maintenance period or if installed after the lawn maintenance period, until installation of planting is complete. Maintenance shall include water, cultivating, mulching, removal of dead material, resetting plants to proper grades or upright position and restoration of the planting saucer, and other necessary operations. If planting is done after lawn preparation, proper protection to lawn areas shall be provided and any damage resulting from planting operations repaired promptly.

6. PLANT GUARANTEE AND REPLACEMENT

a - Plants shall be guaranteed for one year after acceptance. They shall be alive and in satisfactory growth at the end of the guaranty period. At the end of the guaranty period, inspection will be made by the Architect upon written notice requesting such inspection submitted by the Contractor at least ten days before anticipated date. Any plant required under this contract that is dead or not in satisfactory growth as determined by the Architect will be removed from the site; these and any plants missing, shall be replaced as soon as conditions permit but during the normal planting season. In case of any question regarding the condition and satisfactory establishment of a rejected plant, this Contractor may elect to allow such plant to remain through another complete growing season at which time the rejected plant, if found to be dead, in an unhealthy or damaged, impaired condition shall be replaced. All replacements shall be plants of the same kind and size as specified in the plant list. They shall be furnished and planted as specified; the cost shall be borne by the Contractor, except for possible replacements resulting from removal, loss or damage due to occupancy of the project in any part, vandalism, or acts of neglect on the part of others.



CONCRETE  
DIVISION THREE A

1. GENERAL CONDITIONS

a - Work under this Division is subject to the General Conditions set forth in Division One of this Specification.

b - This Contractor shall read the "Instructions to Bidders", Division 1B, for complete clarification of the work.

2. SCOPE OF WORK

a - This Contractor shall furnish all labor, materials, forms and equipment necessary for the supply, installation and completion of the following concrete work:

- 1) Footings.
- 2) Foundation walls (other than masonry block).
- 3) Setting of anchor bolts and setting plates at pad footings.
- 4) Interior slabs on grade and columns.
- 5) Control and expansion joints.
- 6) Sidewalks, slabs and curbs and gutters as shown on drawings.
- 7) Reinforcing steel and required accessories.
- 8) Vapor barrier.
- 9) All sleeves for plumbing, electrical, mechanical rough-ins and equipment.
- 10) Concrete pad at trash dumpster, condensers and transformer.
- 11) Footings for exterior light posts and handicap reserved signage.
- 12) Post footings for wood fence at dumpster.

3. CONCRETE MATERIALS

a - Portland Cement: ASTM C 150, Type as required.

b - Aggregates: ASTM C-33, except local aggregates of proven durability may be used when acceptable to Architect.

c - Water: Clean, drinkable.

d - Air-Entraining Admixture: ASTM C 260.

e - Water-Reducing Admixture: ASTM C 494. Only use admixtures which have been tested and accepted in mix designs, unless otherwise acceptable.

f - Calcium Chloride or admixtures containing calcium chloride shall not be used in the work.

4. RELATED MATERIALS

a - Moisture Barrier: Clear 8-mils thick polyethylene; polyethylene-coated barrier paper.

b - Membrane-Forming Curing Compound: ASTM C 309, Type I.

c - Expansion Joint Filler: Premolded composed of fiberboard impregnated with not less than 35%, nor more than 50% asphalt by weight. Full thickness of slab and unless otherwise indicated: 1/2" thick.

5. FORMS

a - Forms shall be of all new materials for this construction and may be re-used unless surfaces are damaged. Damaged forms shall not be re-used for exposed work. Forms shall be as follows:

- 1) Forms for concrete which is to remain exposed to view shall be at least 3/4" thick of new Ext. D.F.P.A.-B-B Plyform, with high density overlay one side, except where specifically shown or called for to the contrary.
- 2) Forms for concrete unexposed to view may be of approved sound rough lumber.
- 3) Corrugated Metal Forms shall be galvanized product of Granco Steel Products Co., or approved equal and be in sizes and gauges indicated on the Structural Drawings.

6. REINFORCING MATERIALS

a - Bars shall conform to ASTM A-615, "Deformed Billet Steel Bars for Concrete Reinforcement with 60,000 PSI Minimum Yield Strength" or A-60, "Deformed Rail Steel Bars for Concrete Reinforcement with 60,000 PSI Minimum Yield Strength"

b - All bars 3/8" (No. 3) and larger shall be deformed in accordance with ASTM A-305.

c - Wire Mesh shall conform to ASTM Specification A-185, Welded Steel Wire Fabric for Concrete Reinforcement.

7. FORM INSTALLATION

a - Forms shall be erected under the supervision of a competent foreman, to the exact line and elevations and shall be carefully checked for plumbness, adequacy, trueness to line, and level immediately prior to placing of concrete.

- b - Forms shall conform to shapes, lines and dimensions of members as shown on drawings, and shall be substantial and so designed to keep their shapes and prevent bulging under liquid weight of the concrete.
- c - Construct forms to facilitate their removal without damage to the concrete.
- d - Provide removable sections at bottom of wall forms, and elsewhere as required, for cleaning out, inspections, etc. Leave these sections loose until ready to place concrete.
- e - Make all joints tight to prevent leakage of mortar. Fill joints in exposed work with patching plaster, or equal, to produce surfaces free from projections, indention and other defects. Take special care in forming of all work and form in as large sections as possible, 2' x 8' panels shall not be used. Joints in form work of exposed beams and slabs shall be symmetrically located.
- f - Form ties shall be as specified under "Materials". Wire ties shall not be used.
- g - Footings shall be placed into excavations cut to exact size, except that if soil conditions require, forms shall be provided.
- h - Forms of solid lumber shall be kept wet when necessary to prevent shrinkage.
- j - Form all chases, recesses, and other openings required for the work of others.
- k - The inside of forms shall be coated with oil as specified under "Materials" before reinforcing is placed.
- l - Provide for installation of anchors, nailers, inserts, and other fastenings.
- m - Thoroughly clean all forms before re-using them. Patching of forms for exposed work will not be permitted.
- n - Apply joint sealer tape to butt joints on concrete side of all form work for exposed surfaces of concrete walls, beams, etc., at exterior perimeter of building except where control joints or keyed construction joints occur.
- o - Earth cuts as forms for vertical surfaces shall be permitted when neat and clean for footings, subject to Engineer's approval.

8. REINFORCING - INSTALLATION

a - Prepare bar list, bending and erection drawings of all reinforcing steel and submit copies for approval.

1) Reinforcement shall be furnished cut and bent in accordance with the approved bar lists, and shall be free from paint, dirt, oil and rust.

b - Place reinforcement accurately and securely tie it in place with annealed wire not lighter than 18 guage. Place no reinforcement until the forms have been approved. Lap mesh at splices and wire together.

c - Furnish and place all chairs, ties, bolsters, spacers and other accessories required to properly install the reinforcement all in accordance with the Manuals of Standard Practice (CRSI) and for Detailing Reinforced Concrete Structures (ACI 315-65), unless otherwise shown on the drawings. Accessories for use in forms where concrete will be exposed shall be plated or plastic tipped.

d - Finished work shall be shipped to the job neatly bundled and clearly and securely tagged with marks corresponding to those used on placing diagrams. Marks shall be machine pressed or embossed on zinc tags wired to bundles or on other tags approved by the Architect.

e - Bars shall be sorted to the job and stored on racks clear of the ground, systematically arranged in the order of their use. Bars for other than immediate use shall be protected from the weather and from dirt, greased, etc. Any bars which become dirty, greasy, rusty, or covered with scale or frost shall be cleaned to the satisfaction of the Architect before use.

f - Concrete Covering Over Steel Reinforcement: Thickness of concrete covering over steel reinforcement shall not be less than the following, except where noted otherwise on structural drawings:

- 1) Footings and the like where concrete is deposited against ground: 3" between steel and ground.
- 2) Where concrete surfaces, after removal of forms, are exposed to weather or ground: 2".
- 3) For slabs and walls where concrete surfaces are not exposed directly to weather or ground: 3/4"

9. CONCRETE MIXES

a - All concrete shall be ready-mix or transit-mix concrete meeting ASTM Standard Specification for ready-mix concrete C-94-55T.

b - Quality working stresses for design of this structure is based on specified minimum 28 day compressive strength of concrete unless otherwise specified.

c - Strength of concrete at specified ages for which all parts of the structure were designed are as follows:

- |                                       |                           |
|---------------------------------------|---------------------------|
| 1) Footings, foundations, and columns | $f'_c = 3000 \text{ psi}$ |
| 2) Supported slabs and slabs-on-grade | $f'_c = 3000 \text{ psi}$ |

d - Air entraining admixture conforming to ASTM C-260 shall be used in all concrete walks, slabs, and pavement curbs outside the building proper. Entrained air in concrete as placed, 6.5% with tolerance plus or minus 1.5%. If air content is suspected to vary from that specified, tests shall be made by Contractor to determine air content. Use for all exterior concrete work.

e - When temperatures are below 40 degrees F. during the 24-hour period after placing, provide adequate equipment for heating the concrete materials and protecting the concrete. Use no frozen materials or material containing ice. Temperatures of separate materials, including the mixing water, when placed in the mixer, shall not exceed 104 degrees F. When placed in forms, the concrete shall have a temperature of between 50 degrees F. and 90 degrees F.

f - A delivery slip showing cement content, aggregate size and quantity of water shall be furnished in duplicate to the General Contractor for each batch of concrete.

g - Protect concrete from physical damage or reduced strength due to weather extremes during mixing, place and curing.

h - In cold weather comply with ACI 306.

i - In hot weather comply with ACI 305.

## 10. PLACING CONCRETE

a - Comply with ACI 304, placing concrete in a continuous operation within planned joints or sections. Do not begin placement until work of other trades affecting concrete is completed.

b - Place no concrete until the forms and reinforcements have been inspected and approved.

c - Remove water from excavations before depositing concrete. Divert any water flow through proper side drains, and remove without washing over freshly deposited concrete. Remove hardened concrete, debris, ice and other foreign materials from form interiors, reinforcements, and mixing and conveying equipment inner surfaces.

d - The amount of concrete in each placing shall be limited to approximately 200 cu. yds., per day and shall be done in checkerboard fashion for floors, stopping at construction joints as directed. A minimum of 24 hours shall elapse before placing of adjacent slabs.

e - Fill forms completely and take all precautions to prevent voids and surface defects. During and immediately after depositing, compact the concrete with suitable tools, and work it around reinforcement, inserts and into corners of forms to prevent voids. Tapping or other external vibration will not be allowed. Vibration tools and methods shall be approved in advance by the Architect.

## 11. JOINTS

a - Joints not indicated on the drawings or specified herein shall be designed and located so as to least impair the strength and appearance of the structure. At construction joints in walls, beams, slabs and footings, provide suitable bulkheads and keyways.

b - Before depositing new concrete on or against concrete that has hardened, the forms shall be tightened, the surface of the hardened concrete roughed as required, thoroughly cleaned of foreign matter and laitance and moistened with water. Place layer of cement-sand mortar of same proportion as the regular concrete mix, (with coarse aggregate omitted) against hardened concrete immediately before depositing concrete.

c - At all points of contact between exterior and interior foundation walls and concrete slabs on ground and wherever indicated, provide 1/2" thick pre-molded impregnated non-extruding expansion joint material, as specified for joint filler, full thickness of slab. Install joint material as isolation material around all columns. Hold expansion joint material down 1/2 " below finish, and fill with expansion joint compound where exposed to view. Provide 1/2" thick expansion joint material at perimeter of equipment foundations.

d - Provide keyed control joints through all slabs on ground, and where else shown. Concrete slabs, where left exposed to view, shall be placed in approximate 20 feet square panels, unless otherwise indicated or directed. Break wire mesh reinforcing at joints.

- 1) Provide 1/2" wide by 1-1/3" deep slot at above mentioned joints as indicated where slab is exposed to view. Fill joints with expansion joint compound.

## 12. FINISHING

a - Do no patching or finishing until the concrete has been examined and approved.

b - All voids left by removal of form ties and any and all honeycombing or other surface voids, shall be cleaned, cut, roughened, wetted and neatly pointed up.

c - Cut out and neatly point all joints, holes, and cracks in concrete exposed to view with cement mortar. Cut all honeycomb and porous surfaces back to solid concrete and fill with grout or mortar. Mortar shall be composed of one part Portland Cement (white and natural mixed as directed ) and two parts sand.

d - Patches shall be screeded off slightly higher than surrounding surfaces and left undisturbed for a period of one to two hours to permit initial shrinkage before final finishing.

e - All patching, pointing, etc., shall be rubbed with fine abrasive stone to produce a smooth, even surface as approved by the Architect.

f - Exposed surfaces of concrete when complete shall present a surface free from projections, depressions, or cracks, and shall have a uniformly smooth finish.

g - Pitch all concrete walks away from building as indicated on drawings or at a rate of 1/8" per ft., if not noted on drawings.

h - Keep tops of slabs down as required to receive their respective fills and/or finishes. Finish concrete floors level as follows: All slabs under quarry tile shall be depressed 1-1/2", below the finished floor elevation or as noted on drawings.

- 1) To receive resilient tile, ceramic tile, or carpeting, lay, compact, screed , and finish all concrete floor slabs with a steel trowel, trowelling until floors are a smooth finish, level and even surface. Tolerances for finish shall be in strict accordance with ACI 301-66 Article 1106 for Class A tolerance and must be adhered to.

i - Architectural Concrete Finish No. 2 - For exterior exposed slabs. Finish using broom texture.

j - Architectural Concrete Finish No. 3 - For surfaces not to be exposed. Screed to level conditions and proper depth; not to be troweled.

k - Architectural Concrete Finish No. 1 - For interior exposed slabs. Finish using steel trowel. After concrete has completely cured (45 to 90 days) apply "West #11 Finish" by West Chemical Products, Inc. according to manufacturer's specifications. If installed after occupancy has occurred or if soiled by construction debris, acid wash concrete slab 24 hours prior to installation of "#11 Finish".

### 13. INSTALLATION OF EMBEDDED ITEMS

a - Set and build into the work anchorage devices and other embedded items required for other work that is attached to, or supported by cast-in-place concrete. Use setting diagrams, templates and instructions provided by others for location and setting.

b - Items furnished by either this or other contractors as required.

### 14. LEVELING PLATE SETTING

a - Provide and place specified non-shrink grout beds approximately 1" thick on all piers under all leveling plates for steel column bases. Place and finish grout true, level and smooth at the exact elevation of the bottom of each column and base plate. Grout shall be permanently set before steel columns are erected. Leveling plates to be furnished by the Structural Steel Contractor.

b - Non-Shrink Grout: All column base plates, equipment bases, and other such locations noted on the drawings shall be grouted with "Firmix" by the Euclid Chemical Co., or "Embeco 153" by Master Builders. All exposed grout shall be "Euco N-S" by the Euclid Chemical Co.

c - This Contractor shall furnish and place grout under all leveling plates at column base.

### 15. CONCRETE FOOTINGS

a - Footings have been designed to bear on firm soil with bearing strength and soil conditions as outlined in Division 2, Site Work. No footings shall be cast prior to the soil testing and approval of the soil by a soils engineer.

b - If undesirable soil conditions exist, the Architect shall be immediately contacted.



c - The Architect's approval of soil shall be obtained before any footings are cast. No footings shall be placed on fill except as noted. Any excess cut under foundations due to negligence shall be filled with concrete at Contractor's expense.

d - Trenches of forms for footings shall be cleaned of all debris and free of water and kept so until concrete is set.

e - Reinforce all footings passing over sewers or drains with #6 rod, 8' long, using 4 bars in footings over 2 feet wide or as otherwise directed in the field.

#### 16. CURBS AND GUTTER

a - Construct curbs as detailed on the drawings in locations shown on the plans.

b - Forms: On radii curbs, use 3/4" oiled sheeting forms. Set top of forms to finish grade. Use snap-ties of proper length, spacers, and braces 2' - 6" maximum as required to secure forms. Metal forms may be used on all straight sections.

c - Joints: Construct concrete curb in sections 20 feet maximum length by use of 1/2" non-extruding premolded filler or mastic strip division plates. Such plates shall be of size and shape conforming to cross section of curb.

d - Finish: Use concrete as specified, fill any honey-combed places with 1:2 mortar and give exposed surfaces a smooth finish without plastering. Finish edges of joints including vertical joints to 1/8" radius, and other corners to radii shown.

e - Curing Process: Protect concrete curbs from pedestrian traffic for a period of three days after pouring. Cover all concrete surfaces using two layers of burlap kept wet for a minimum of five days. Coat concrete with a mixture 50-50 (by volume) of boiled linseed oil and kerosene. Two coats, the first applied at a rate of about 40 square yards per gallon, the second at a rate of about 67 square yards per gallon. The first coat must be dry before the second coat is applied.

f - Protection: Remove no forms (except face forms) for 24 hours after placing concrete. Barricade against pedestrians for three days and against vehicular traffic for seven days. Backfill behind curb shall be compacted.

## 17. PAVING

a - Expansion Joints: Provide 1/2" transverse expansion joints in locations shown on the plan, also at walk, drive or apron junctions and intersections, where walks, drives or aprons, abut curb returns, buildings, platforms, or other fixed structures. Expansion joints shall be at right angles to slab and extend full depth thereof; premolded filler shall be extended from bottom of slab to the top of walk surface.

b - Subgrade: Place concrete only on a moist compacted base consisting of 22A processed gravel or clean sand, 4" deep.

c - Forms: All forms shall be free from warp and substantial enough to maintain their shape and position without springing or settlement when concrete is placed or vibrated. Forms shall be staked, braced and/or tied together securely. Forms shall be clean and those for surfaces to be exposed shall produce a smooth, even finish without fins or board marks. Set top of form to form finish grade.

d - Grades: Provide grade stakes not less than 25 feet apart for walk construction. Check tops of forms of grade before placing concrete. Introduce vertical curves in walks as shown on the drawings or at points where change in walk grade exceeds 2.00%. Provide 1/8" per foot crown or cross slope to low side, or as indicated on the drawings.

e - Dimensions: Concrete paving shall be of one course construction, four or eight inches thick, as indicated on the drawings. Furnish and install No. 8, 6" x 6" wire mesh mat in center of slab.

f - Deposit concrete so as to require as little rehandling as practicable. Placing shall be continuous between transverse joints or in individual sections of the work. Spade concrete thoroughly along forms and expansion joints, and work carefully into corners and around reinforcement. Tamp and screed to a dense mass. Vibrators may be used provided they are operated under experienced supervision and forms are constructed to withstand their action. Mix and place no concrete when the air temperature is below freezing. If the temperature is expected to fall below 40 degrees F. within 24 hours after the concrete is placed, heat water and aggregates to bring the temperature of concrete mix to at least 50 degrees F.

g - Finish: Tamp and screed concrete true to grade and section bringing sufficient mortar to surface for finishing, use wood float and steel trowel lightly and give heavy fiber street broom finish as approved by the Architect. Round all edges with 1/8" radius 3/4" deep, including those along expansion joints and grooves. Broom out smooth margins of of scoring tool.

h - Protection and Sealing: Protect concrete walks, drives, and aprons from pedestrian or vehicular traffic for a period of three days after pouring. All freshly placed concrete shall be protected from premature drying and excessively hot or cold temperatures and shall be maintained with minimal moisture loss at a relatively constant temperature for a period of time necessary for hydration and proper hardening. An approved colorless curing compound may be used; submit a sample for approval.

i - Samples: The Contractor shall pour a paving sample (minimum size of 100 square feet) which is to include a typical expansion joint and control joint for approval by the Architect.

18. CLEANING

a - As work progresses, this Contractor shall remove all debris, excess concrete, etc., relating to this work and leave the site and the building in a clean condition.

19. ALTERNATE BIDS

a - Refer to the Alternate Bid Division of this Specification for additions or omissions of work pertaining to this division of the specification.

MASONRY  
DIVISION FOUR A

1. GENERAL CONDITIONS

a - The work under this Division is subject to the General Conditions set forth in Division One of this Specification.

b - This Contractor shall read the "Instructions to Bidders," Division 1B, for complete clarification of the work.

2. SCOPE OF WORK

a - This Contractor shall furnish all labor, materials, equipment and tools necessary for and reasonably incidental to the completion of masonry work as indicated on the drawings and specified herein, including (but not limited to) the following:

- 1) Masonry block walls.
- 2) Exterior walls consisting of 4" tile and masonry block back-up, including reinforcing, ties, control joint strips, etc.
- 3) Wall flashing.
- 4) Brick cleaning
- 5) Sleeves for plumbing, electrical, mechanical rough-ins and equipment.
- 6) Coloring of panel brick mortar.
- 7) Foundation and cavity wall insulation.

b - This Contractor shall install the following items to be furnished by others:

- 1) Miscellaneous anchors, plates, etc.
- 2) Loose steel lintels.

c - Build into masonry all work furnished and located by other trades to be built into masonry. Build all chases, recesses and openings required for installation of work of other trades.

d - Set all steel loose lintels, shelf angles, etc., required for opening in masonry walls.

3. MATERIALS

a - Face Brick: Will be Whitacre-Greer Iron Spot 8 x 8 x 4 panel brick. The Architect will have final selection of all face brick.

b - Block: Hollow load-bearing concrete masonry units shall meet ASTM C 90-70, "Hollow Load-Bearing Concrete Masonry Units", Grade N, Type I. Nominal face dimensions of block shall be 8" x 16", as adapted to 3/8" mortar joint, thickness to be as shown on drawings. Provide solid units where shown or hereinafter specified.

- 1) Below grade use standard weight units having machine smooth finish on surfaces facing earth according to ASTM Specification C 33-74 (weight range shall be 105 to 125 pounds per cubic foot).
- 2) Lightweight concrete masonry units having a weight range of 70 to 105 pounds per cubic foot may be used for above-grade work.
- 3) Concrete masonry units for single-story non-load bearing interior partitions shall be as above specified, or shall satisfy ASTM Specification C 129-73, "Non-Load-Bearing Concrete Masonry Units," Type I, with above characteristics.

c - Masonry Mortar, Exterior: ASTM C 270, Type S; approximately 3: 1:11 portland cement, lime, sand.

d - Setting Bed Mortar and Grout: ASTM C 270, Type M; approximately 6:1:18 portland cement, lime, sand.

e - Portland Cement: ASTM C 150, Type I, non-staining, no air entrainment, white if needed for color match.

f - Lime: Hydrated lime, ASTM C 207, Type S.

g - Sand: ASTM C 144, or finer if needed for joint sizes less than 1/4".

h - Duro-Wall Adjustable Rectangular Type: 22 gauge corrugated steel, 1" wide, 1.5 oz. hot-dip zinc coating or 7-mil copper coating, for wood or metal frame

i - Continuous Masonry Wire Reinforcing: Truss or ladder design, minimum 9 gauge welded steel wire, 0.8 oz. Hot-dip zinc coating (after fabrication) for exterior walls, mill-galvanized wire for interior walls, width 1-1/2" to 2" less than wall thickness.

- 1) Wherever inside back-up wythe of exterior wall is hollow CMU, provide third wire located for proper embedment at internal face shell of CMU.

j - Copper-Paper Masonry Flashing: 3 oz. copper sheet with waterproofed creped Kraft paper laminated on both faces.

k - Premolded Control Joint Strips: Solid rubber extruded section of profile to fit masonry unit and wall thickness. Material to conform to ASTM D-2000 2AA 805 with durometer hardness of 80 when tested in conformance with ASTM-D-2240.

l - Mortar Waterproofing Agent: "O.M." by Master Builders Company. Use in all exterior cement lime mortars.

m - Water: Non-alkaline, clear, devoid of salts and injurious elements.

n - Mortar Color - Color additive as selected by Architect.

o - Foundation Wall and Cavity Wall Insulation: The insulation material shall be rigid board insulation as manufactured by the Celotex Corporation or Dow Chemical. Size and locations as called for on Architectural Drawings.

#### 4. STORAGE

a - Handle and store masonry materials in such a manner as to prevent deterioration damage or inclusions of foreign matter. All masonry materials shall be stacked on planks off the ground and protected from the weather. Protect all steel reinforcing from the elements. Use of rusted reinforcing will not be permitted.

#### 5. PRECAUTIONS

a - No masonry shall be constructed when the temperature is below 32 degrees F and rising or below 40 degrees F and falling unless the following protection and precautions are provided:

b - At temperatures below 40 degrees F and 32 degrees F:

- 1) The gauging water shall be heated to a temperature not to exceed 160 degrees F prior to mixing of the mortar.
- 2) The temperature of the mortar shall be between the temperature of 70 degrees F and 100 degrees F when place in the wall.
- 3) Newly erected wall shall be protected for a period of not less than 48 hours from the elements.

c - At temperatures between 32 degrees F and 15 degrees F:

- 1) The gauging water shall be heated to a temperature not to exceed 160 degrees F and one quart of an accelerating admixture shall be added directly to the gauging water for each sack of prepared mortar and shall result in a reduction of 10% in the amount of water used.
- 2) The temperature of the mortar shall be between 70 degrees F and 100 degrees F when placed in the wall.
- 3) Sand shall be heated to a minimum of 40 degrees F to assure the removal of all frozen particles. Special care shall be taken to prevent scorching the sand.
- 4) Masonry units, both hollow and solid, shall be heated to a minimum of 40 degrees F but not to exceed 70 degrees F prior to placement in the wall.
- 5) Newly erected walls shall be completely protected and a minimum temperature of 40 degrees F maintained under the protection for 48 hours after erection, or until the mortar has cured properly.

d - No masonry shall be constructed at temperatures below 15 degrees F unless otherwise directed by the General Contractor at which time additional protection shall be provided.

e - The Contractor shall take special care in providing cold weather protection because walls containing frozen mortar shall not be permitted.

f - No calcium chloride or admixtures containing calcium chloride shall be used in the work. No antifreeze material shall be used in the work.

## 6. TYPES OF MORTAR

a - Type M: Shall consist of one part Portland Cement, 1/4 part lime putty, three parts sand by volume, plus 1 lb. "O.M." admixture per sack of Portland Cement, or 1 part masonry cement plus 1 part Portland Cement plus 4-1/2 - 6 parts sand. Use for all masonry work below grade.

b - Type N: Shall consist of 1 part Portland Cement, 3/4 part lime putty, 4-1/2 parts sand, plus 1 lb. "O.M." admixture per sack of Portland Cement, or 1 part masonry cement, 2-1/2 parts sand by volume: Use for all other masonry work.

## 7. MIXING

a - Proportion materials by volume, with weight-to-volume correlations as stated in applicable ASTM mortar specifications.

b - All mortar materials shall be measured by volume or weight in such a method the proportions can be controlled with an error of not over 2%.

c - Mortar shall be mixed in mechanical type batch mixer. Use of a continuous mortar mixer will not be permitted.

d - When mixing is done in a mechanical mixer, the mortar should continue mixing for not less than three minutes after all materials are in the drum.

## 8. BLOCK WORK

a - All block walls shall be laid with vertical face joints broken at center with full beds of mortar and all joints filled. The ends of headers shall be closed. All courses shall be straight and true with the bond kept plumb throughout. Exposed joints shall be neatly tooled. Furnish and install all precast lintels as shown and as required.

b - Install metal reinforcing and mason's flashing throughout, as here-in before specified. Install reinforcing accurately, so that side rods are fully engaged in mortar, for their full length.

c - All required cutting of masonry units that will be exposed to view shall be done with equipment which will produce true edges, free of chipping.

- d - When mortar is thumb-print hard, tool joints in all exposed masonry, in a manner to insure firm adhesion of the mortar to the block. Use a jointer that will produce a slightly concave surface.
- e - Where anchor bolts are to be set in concrete block, fill all cells in block to depth of anchor bolts with mortar.
- f - Install all loose steel lintels and other miscellaneous metal items required to be built in.
- g - Leave pockets in masonry, as may be necessary to provide for the installation of any horizontal structural framing members not required to be set as masonry is laid up and brick in around same after installation is complete.
- h - Provide solid concrete block under structural steel beams in the first two courses under the line of bearing.
- i - All units shall be carefully handled. Units with chipped edges, spall or other damage to their appearance which would show in the finished wall, shall not be built into the work.
- j - Build in all sleeves, hangers, anchors, control joints and other items that are to be installed or anchored in the masonry.
- k - Door frames, louvers, etc. shall be set at location shown on drawing. Build in required ties and fill door frame solid with mortar.
- l - Protect concrete block walls against staining and keep top of wall covered with waterproof material when work is not in progress.
- m - Contractor shall take all necessary precautions to protect and brace walls during construction.
- n - Provide control and expansion joints at locations shown and keep clean of mortar droppings.
  - 1) If locations are not shown, space joints 50'0" (horizontally) for clay masonry, 30'0" for CMU masonry and for composite clay/CMU masonry.

## 9. WALL FLASHING

- a - Wall flashing where called for on the drawings shall be one of the following:
  - 1) AFCO "Cop-A-Bond" as manufactured by AFCO Products Inc. (2 ounce per sq. ft.
  - 2) Copper Amored Sisalkraft ( 2 ounce).
  - 3) Dryseal (2. ounce) as manufactured by Revere Copper and Brass, Inc.



b - Installation shall be in accordance with manufacturer's specifications.

c - Install through-wall flashings over all shelf angles, plates, or other assemblies, spandrel beams, and lintels over openings in exterior walls. Carry flashings over lintels down over top of lintel flashing.

d - Dampproof course on top of foundation walls will be provided under another section of the specifications.

e - Install flashings so they are carried entirely through to about 1/4" from outside faces of walls. Lap joints 2" and seal them with mastic.

#### 10. BRICK WORK

a - Lay brick plumb, level and true to line with uniform joints and in full beds of mortar. Spread beds of mortar smooth and only far enough ahead to assure laying brick while mortar is plastic. Do not furrow bed. Shove brick into place to insure absolutely full head joints and do not resort to slushing in an attempt to fill head joints as this kind of workmanship will not be acceptable.

b - Bond brick work with strap metal reinforcing with wall. Provide one tie for every four square feet of wall surface.

c - Make joints in brick work uniform and of such thickness as indicated and as required to bond with the standard back-up units.

d - Thoroughly wet a few hours before laying all brick having an absorption of 5% or over, except in freezing weather.

e - Do not shift or realign any brick after it has once been laid. Remove brick and re-lay it in fresh mortar when any shifting or realignment is necessary.

f - Upon removal of line-pins or nails, immediately fill all holes with fresh mortar.

g - Lay all exterior face brick from exterior scaffolds.

h - Rake all joints in brick work to a 1/4" depth.

i - Provide fiberglass rope weep holes at 2'-0" c/c at all ledge angles.

j - Cut exposed masonry units, where necessary, with a power saw. Avoid the use (by proper layout) of less than half size units.

k - Carefully lay out face work in advance to make all joints fit the openings. reveals and other work, in regular bond except where shown otherwise.

l - No spalled, chipped, or broken-cornered face brick shall be used on exposed work. Limits covered under ASTM Specification C 216 for Type FBX shall govern for allowable chippage percentage, size, etc.

## 11. METAL JOINT REINFORCING

a - Install continuous welded wire reinforcing in every second joint of all interior and exterior masonry walls, beginning at the top of the first course above the foundation for walls on concrete foundations and continuing at 16" centers vertically except as herein noted or otherwise detailed on drawings.

- 1) Above and below all openings in walls and partitions, install lengths of reinforcing, at least 4'0" longer than opening width and centered, so that reinforcing is present in the bed joint of the second and third block course above and the first and second block course below all openings.
- 2) Provide reinforcing at locations not specifically named which will insure minimization of cracking of masonry.

b - Do not bridge control and expansion joints in wall system.

c - Lap all lengths of continuous reinforcing not less than 6" and "turn" all corners, using either the manufacturer's pre-formed corners or cutting and forming the material in accordance with the manufacturer's recommendations.

d - Coordinate coursing location of truss reinforcement with rigid insulation in wall cavity.

## 12. CLEANING AND POINTING

a - All exposed surfaces of the brick shall be thoroughly cleaned to remove all mortar or dirt and joints pointed up full and even. In general, only clean water, soap and sand shall be used. Where necessary to remove stains, a solution of 5% commercial muretic acid and water may be used. The surface shall be thoroughly flushed with clean water after cleaning.

## 13. CHASES AND PIPE OPENINGS

a - This Contractor shall consult the Mechanical and Electrical Drawings, the Architect and respective contractors and determine at what points ventilating ducts, sewage, plumbing, water, electric conduit, gas and other piping of any nature pass through footings, foundations, floors or other concrete or masonry work. He shall provide and install sleeves or pockets required for this purpose. These must be carefully located both as to plan and elevation.

b - After the installation of all pipes, conduit, ducts and sleeves that pass through concrete floors and wall has been completed, this contractor shall grout around the installations. The grouting shall be neatly finished and shall be 1:2 cement mix.

14. WORKMANSHIP

a - Masonry workmanship shall be first quality, all jointing shall be properly worked out and in true horizontal and vertical lines.

b - Provide neatly cut and fitted masonry units around all electrical outlets and similar openings. All units must be so fitted and cut so that cover plates, will cover the mortar joints between block and outlet boxes, etc. In exposed locations where cutting is required, all cutting shall be done with a power driven saw to assure true and even edges.

15. GUARANTEE

a - This Contractor shall guarantee and maintain all masonry work in weathertight condition for a period of one year after date of final payment. Any defective work shall be repaired or replaced as required.

16. ALTERNATE BIDS

a - Refer to the Alternate Bid Division of this specification for additions or omissions of work pertaining to this division of the specification.

STRUCTURAL STEEL  
DIVISION FIVE A

1. SCOPE OF WORK

a - This work consists of furnishing all labor, materials, and equipment required, and of furnishing, fabricating and erecting, or delivering to site for installation by others where so specified, of all structural steel framing, complete with anchors, connections, accessories and incidentals in accordance with the Drawings and Specifications.

b - Structural steel shall include all steel framing shown on the Structural Steel Design Drawings, and all steel framing shown on the Architectural Drawings that is noted "by S.S." or with notations of similar intent.

2. WORK NOT SPECIFIED IN THIS SECTION

a - Setting and building-in of column anchor bolts.

b - Metal deck permanent slab forming, floor and roof.

c - Fireproofing of framing, by spray, plaster and masonry.

d - Perimeter wall framing supporting window wall work, including girts and posts, but not including columns and beams forming a part of the structural steel framing.

e - Loose lintels, floor edgings, railings, girder covering, ladders and other items specified as miscellaneous metal work.

f - Metal deck soffits and acoustical ceilings, including supporting framing for same.

g - Metal support framing for plaster work.

3. SHOP DRAWINGS

a - Prepare completely detailed shop drawings showing all items to be provided, in accordance with AISC's "Structural Steel Detailing".

b - Show complete details for cutting, fabricating and connecting of all pieces on the shop drawings. Provide separate shop drawings for erection. Indicate the marks for all pieces on all shop drawings, and use a marking system compatible with and referenced to, the marking system noted on the Design Drawings. Indicate welding by using AWS symbols, showing type, size and location of all welds, and provide auxiliary views of welds as required to clarify the welded connections.

#### 4. REFERENCE SPECIFICATIONS

Except as otherwise specified herein, materials and workmanship shall conform to the following specifications, which shall form a part of this Section:

- a - "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings" and "Commentary" thereon, as adopted by American Institute of Steel Construction, for Type 2 & 3 Construction, November 1, 1978, and all effective supplements.
- b - "Code for Welding in Building Construction" of American Welding Society (The term "Building Commissioner" shall mean "Architect"), AWS.
- c - "Specification for Structural Joints Using ASTM A-325 or A-490 Bolts", approved by Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation, April 26, 1978, including Commentary by American Institute of Steel Construction.

#### 5. MATERIALS

- a - Rolled steel shapes, steel plate: ASTM A-36, 36 ksi minimum yield point.
- b - Steel tubing: ASTM A-500, 46 ksi minimum yield point, hot formed structural tubing.
- c - High tensile bolts: ASTM A-325-N, heavy hex type, with matching heavy hex bolts and hardened steel washers.
- d - Welding electrodes: AWS A5.1 or A5.5, E 70 XX.
- e - Priming paint: Sherwin William's "Kromik Primer", Truscon's "Bar Ox Kromokote Orange", Tnemec's "99 Red", Glidden's "Rustmaster", or approved equal zinc chromate, iron oxide, red lead, alkyd resin vehicle priming paint.

#### 6. FRAMING MEMBERS

- a - The building has been designed on the basis of the steel sections indicated on the Drawings, and it is the intention of the Contract that the designated shapes, thicknesses, arrangements and grades of material be furnished.
- b - If for any reason the sections indicated on the Drawings are not available, substitute sections may be proposed for use. The Architect will approve such substitutions only if the proposed members provide equal or greater strength with deflection compatible with adjacent construction, and do not interfere in any way with the architectural construction or the installation of mechanical and electrical utilities. No increase in payment will be made because of substitutions.

## 7. WORKMANSHIP AND CONNECTIONS

a - The design and details and the execution of the work shall conform with the Reference Specifications except where specifically amended herein or superseded by requirements of Local or State Building Codes.

b - In general, the type of connections for the various members shall be as shown on the Drawings. Where the required type of connection is not shown or designated on the Drawings, connections shall be high-strength bolted or welded. All connections shall be made carefully and fitted neatly. High-strength bolted connections shall be bearing type unless specifically noted on the Drawings. Combination bolted and welded connections shall be avoided.

c - All details shall be in accordance with the Architect's Drawings and accepted shop drawings. All connections shall develop the full strength of the main members, except where members have been determined by using the minimum size, the connectors need develop only the theoretical stresses. Connections for main members shall conform to the latest AISC Standards. Field connections shall be designed to permit field bolting wherever possible. Bolted connections shall have a minimum of two bolts.

d - All bolt holes shall be spaced accurately and shall have a diameter  $1/16$ " larger than the diameter of the bolt. Holes in material  $7/8$ " thick or greater shall be drilled, not punched. Burning of holes will not be permitted.

e - Only light drifting will be permitted to draw members together. Drifting to match unfair holes will not be permitted. Any enlargement of holes necessary to make connections in the field shall be done by reaming to accept the next larger size bolt. Any error in shop work which prevents the proper assembling and fitting of parts by the moderate use of drift pins or a moderate amount of reaming, chipping or cutting, shall be corrected at the expense of this Contractor.

f - There shall be no burning of members in the field without consent of the Architect. If consent is given, burned members shall be free from serrations and gouges at radius burns at reentrant corners. Occasional serrations not exceeding  $1/16$ " in depth will be permitted along straight cuts. Machine burning will be permitted in the shop.

g - This trade shall notify other trades of his intent to detail and fabricate steel members and shall provide holes for the attachment of the work of other trades to steel members in his shop, as required. It is imperative that other trades notified promptly, otherwise this trade shall provide the necessary holes in the field without extra charge to the Owner. The other trades will reimburse this Trade for field costs of holes in steel members in those cases where they fail to give this Trade the necessary information in time so as not to delay his work.

h - All items of structural steel that are to be built into or anchored into masonry or concrete shall be completely fabricated, and shall be complete with bolts, anchors and clips for securing of adjacent masonry.

i - This trade shall provide all clips, ties, lugs, separators, bolts, fittings, connections, welds and miscellaneous items as required for the complete fabrication and erection of all steel work.

j - All workmanship shall be first-class in all respects, and any members not presenting a finished and workmanlike appearance will be rejected. All finished members shall be free from twists, bends, distortions and open joints.

k - All members shall be true to length so that assembling may be done without fillers, except where fillers are shown in the approved shop drawings. There shall be no sharp projections, serrated edges, or sharp corners at joints where members are joined or assembled. All coping, blocking, mitering, grinding and easing of edges shall be done with care.

## 8. WELDING

a - All shop and field welding shall be performed with the shielded metal-arc process used by qualified welders. Provide all necessary jigs and holding devices for shop welding. All work shall be efficiently dogged or clamped down to prevent distortion during welding.

b - Only welders and welding operators who have been tested and certified in accordance with Appendix A, AWS D1.0-69, and the applicable provisions of AWS D1.0-66 will be permitted. All operators shall pass all applicable qualification tests while in the current and continuous employment of the fabricator or erector regardless of previous qualifications and certifications.

## 9. HIGH TENSILE STEEL BOLTING

a - High tensile bolting shall be provided in accordance with the Reference Specifications.

b - All bolt holes shall be spaced accurately and shall be the size shown on the drawings and the approved shop drawings. Bolts and nuts, once tightened, may not be untightened and reused. After completion of each joint containing more than four bolts, each bolt shall be retightened.

## 10. ORDINARY BOLTING

a - Bolts for ordinary bolting shall be unfinished bolts that conform to the requirements of ASTM A-307. Bolts shall be of the proper length to suit the thickness of the material being joined and shall not project more than 1/4" beyond the nut, without the use of washers. Hexagon heads and nuts shall be provided where the connection will be exposed in the finished work.

b - Connections shall be drawn up tight and the bolt threads deformed to prevent loosening of the nut.

## 11. PAINTING

a - Unless otherwise noted, all structural steel shall be given one shop coat of paint. All surfaces in contact, inaccessible after assembling, shall have one additional shop coat of paint before assembling. Faying surfaces in contact after assembly and surfaces embedded in concrete shall have no paint. Paint shall be applied thoroughly and evenly to clean, dry surfaces by brush, sprayer, roller or other approved means to provide a dry paint film not less than 2.0 mils in thickness. Use of paints other than those approved in the Specifications will not be allowed without the Architect's approval. Use of a color other than that approved by the Architect will not be allowed. All structural steel for which shop paint is required shall be painted before shipping. Paint shall be dry before handling or loading steel work for shipment.

b - All steel shall be cleaned in accordance with the provisions of SSPC-SP-2 except that for incorporation into these Specifications, Section 5.1. "INSPECTION" shall be deleted. Loose mill scale, loose rust, weld slag, weld splatter, dirt and other foreign materials shall be removed from the surface to be coated prior to painting.

c - Portions of bolts, washers and faying surfaces remaining exposed after assembly; unpainted splice plates, cover plates and the like; welded areas; and paint damaged during shipment and erection; shall be degreased, cleaned, and given a field coat of the same type prime paint used in the shop. All areas which will remain unpainted shall be designated in the shop and erection drawings. Areas embedded in concrete shall remain unpainted; all other unpainted areas shall receive field touch-up paint.

d - After erection of the steel, the shop coat of paint on exposed framing shall be suitable to receive the general painter's field coats. Where surfaces are damaged during erection or where necessary for the general painter to scrape off the shop coat and repaint same, or to remove clay, mud or other foreign materials, the cost of this work will be borne by this Trade.

e - Shop paint according to Steel Structures Painting Council, "Guide to Shop Painting of Structural Steel".

### 1. Steel Joists

- a. Non-exposed: Use Type 1 Red Oxide primer conforming to SSPC-015.

### 2. Structural Steel

- a. Non-exposed: Use Red Oxide primer conforming to SSPC-13.
- b. Exposed, to receive finish coat: Use Oil-base primer conforming to SSPC-14 or equivalent; green color.



f - Finish Paint exposed steel using SSPC-104.

## 12. ANCHOR BOLTS

a - This Trade shall furnish the Concrete Trade, at the building site, all column anchor bolts, complete with nuts and washers, and all leveling plates required in connection with this work, and an anchor bolt and leveling plate setting detail and placing drawing. Bolts and plates shall be properly marked.

b - Column anchor bolts and leveling plates will be set and built-in by the Concrete Trade. This Trade shall furnish and install all other anchor bolts required.

c - Before proceeding with erection, in time to permit correction of defective setting, and without delaying the erection of steel, this Trade shall verify the location and elevation of all anchors, bolts, and leveling plates set by others.

d - This Trade shall immediately report to the Architect all discrepancies found in anchor bolt locations, and leveling plate locations and elevations; otherwise, this Trade shall pay the entire cost of removing and resetting all incorrectly placed anchor bolts or leveling plates as well as the cost of repairing or replacing all concrete damaged during relocation of incorrectly placed anchor bolts and plates. Alternately, this Trade, where approved by the Architect, shall pay the cost of all changes in the steel work required to fit incorrectly placed anchor bolts.

## 13. COLUMNS

a - All columns shall be of rolled steel shapes or structural tubes of sizes noted, selected for straightness and freedom from twists, bends and other defects. Columns shall be spliced only in locations and in accordance with the details shown on the Drawings.

b - Columns shall have milled ends where shown on the Drawings.

c - Anchor bolt holes in base plates shall be 3/16" oversize to provide for adjustment and alignment in the field.

## 14. PURLINS AND BEAMS

Purlins and beams shall be rolled sections of the size indicated, with natural camber up. Members shall be straight and without camber of more than 1/8" for every 10 feet of span except where special camber is indicated on the Drawings. Connections, in all cases shall be sufficient to develop full strength of the member.

15. MISCELLANEOUS FRAMING

- a - Provide all wall framing, parapet framing, opening framing and other miscellaneous framing as shown on the Drawings, with holes, and other connection work as herein specified.
- b - Provide 9/16" holes for connection of wood nailers where indicated. Holes for wood nailers shall be in pairs at 2'-0" centers wherever possible. Where the width of flanges prevents placing such holes in pairs, holes shall be staggered at 1'-0" centers

16. ERECTION

- a - This Trade shall visit the site and familiarize himself with all existing conditions. He shall make a careful study of the Drawings and familiarize himself with the work to be performed by others and their schedule of operation before and during steel erection and shall make full allowance for any obstructions encountered resulting from work done by other trades or contractors.
- b - All members shall be set accurately to lines and elevations shown on the Drawings. Vertical members shall be plumb. Horizontal members shall be level except where indicated to be sloped and except where otherwise noted. If members do not fit properly in the field, any new holes required shall be drilled, and cutting required shall be by hacksaw. The use of a burning torch will not be permitted. All parts shall be secured in a rigid and substantial manner.
- c - This Trade shall furnish all temporary bracing necessary to square up the building immediately on erecting, and shall leave same in place until after permanent bolting and bracing is installed. If, for any reason, the permanent installation cannot be made immediately, it is the duty and responsibility of this Trade to maintain the structure in a safe, stable condition until permanent installation is made.

17. DAMAGE TO MATERIALS

This Trade shall use care in storing, handling, and erecting all material and shall support same properly at all times to insure that no piece will be bent, twisted or otherwise injured. Material damaged due to carelessness or accident shall be corrected at this Trade's expense, to the approval of the Architect, before being erected. Where warped or bent members cannot be properly and satisfactorily straightened by approved procedures, damaged or out-of-tolerance members shall be replaced.

STEEL JOISTS  
DIVISION FIVE B

1. GENERAL CONDITIONS

- a - The General Conditions, Special Conditions, and all other parts of the Contract Documents shall apply to this Section of the work.
- b - The Contractor shall provide all items, articles, materials, operations, etc., necessary for the completion of the work.

2. SCOPE

- a - Furnish all labor, materials, services, equipment and apparatus necessary to fabricate, deliver, and erect all steel joists as shown on drawings and as herein specified.

3. SHOP DRAWINGS

- a - This Contractor shall submit one sepia and two prints of all shop drawings to the Architect for approval. Shop drawings are to be checked and initialed by this Contractor before submittal. Fabrication shall not proceed until approved shop drawings are received.
- b - Shop drawings shall include a plan of erection, and are to show dimensions, sizes, fabrication and erection details. Indicate each piece by identification number.

4. STANDARDS

- a - Materials, design, working stresses, fabrication and erection shall conform to the following Steel Joist Institute Specifications:
  - 1. Standard Specifications for Open-Web Steel Joists "H" Series.
- b - Joist sizes indicated on the drawings are based on load tables or the above-noted standard specifications.

5. FABRICATION

- a - Provide ceiling extensions over all finish ceilings. Provide holes where necessary for fastening work of other trades. Deduct area of holes from gross section when computing net section of the member. Do not cut or drill these members in field.
- b - Provide special sloped and/or raised end bearings as required and as indicated on the drawings.
- c - Clearly mark each joist corresponding to approved shop drawings for proper location in the construction.

6. ERECTION

- a - Manufacturer shall be responsible for the erection of the system so as to insure the structural integrity of the building and erection shall be in accordance with S.J.I. Specifications.
- b - Bridging: Provide joist bridging as per Steel Joist Institute specifications. Connect joist bridging to each joist and bridging anchors before construction loads are placed on the joists. Anchor bridging to termination walls or beams.
- c - During construction provide means for distribution of concentrated loads so that the carrying capacity of any joist is not exceeded.
- d - Provide approved S.J.I. masonry anchors at the end bearings of all joists resting on masonry.
- e - Weld all joist bearings over steel supports. Welding shall be performed by a certified welder according to AWS and SJI standards.

7. PAINTING

- a - Paint joist in accordance with the Steel Structures Painting Council Specifications SSPC-PS-755T with paint meeting SSPC 15 Type 1, or equivalent; green color.
- b - Clean surface of oil or grease using solvent. Remove loose mill scale, loose rust, accessible welding slag, dirt, or soil by wirebrushing or equivalent methods selected by the fabricator.
- c - Before shipment, all steel joists shall receive one (1) shop coat or rust-inhibiting paint by dipping or spraying.
- d - Touch-up in the field all steel bolted and welded connections.

STEEL DECK  
DIVISION FIVE C

1. GENERAL CONDITIONS

- a - The General Conditions, Special Conditions, and all other parts of the Contract Documents shall apply to this Section of the work.
- b - The Contractor shall provide all items, articles, materials, operations, etc., necessary for the completion of the work.

2. SCOPE

- a - Furnish all labor, materials and equipment required to fabricate and install steel deck shown on the Drawing.

3. SHOP DRAWINGS

- a - Submit shop drawings for approval before fabrication. Indicate direction of span and all openings through the deck on the shop drawings.

4. STANDARDS

- a - Steel deck shall conform to latest Steel Deck Institute specifications as applicable, and shall support a 30 psf live load in addition to superimposed dead loads.
- b - Welding shall be done by a certified welder and shall conform to the latest American Welding Society standards.

5. MATERIALS & FABRICATION

- a - Painted steel deck shall be 1½" deep, 22 gauge, intermediate rib deck, as per SDI standards. Steel deck shall have overlapping end and side laps.
- b - Painted steel deck shall have a dipped on, oven baked, rust-inhibiting primer ; gray color, suitable to receive finish paint coat.
- c - Steel decking shall be manufactured by Inland-Ryerson, Epic, Granco or an Architect approved equal.

6. ERECTION

- a - Steel deck shall be properly aligned upon supports and end joints shall be overlapped at supports with a min. 2" lap and fastened to supports with ¾" diameter welds through the intermediate rib at 6" centers, using approved welding washers. Side laps shall be pinched together at no further than 36" centers. The deck shall be welded to intermediate supports at 12" centers with ¾" diameter welds.

6. ERECTION (Continued)

- a -Immediately after erection touch up all weld spots or areas, top and underside, where the shop finish has been damaged.
- b -All welding shall be done by a certified welder. Do not burn through steel supports (joists, beams, angles, plates) for the decking.

METAL DECK  
DIVISION FIVE D

1. GENERAL CONDITIONS

General Conditions and Amendments to the General Conditions of this Specification apply equally to all Sub-Contracts. All Contractors performing work under this division are presumed to have familiarized themselves thoroughly with all provisions contained therein.

2. SCOPE

- a - Provide all labor, materials, equipment and supervision required to complete work of this section to the full intent of the drawings and specifications.
  - 1. Erection of metal deck for metal forms for concrete where shown on drawings.
  - 2. Installation of supporting angles around openings even though not specifically shown on the drawings.
  - 3. Attaching deck to supports as specified herein.

3. SHOP DRAWINGS

- a - This Contractor shall submit one sepia and two prints of all shop drawings to the Architect for approval. Shop drawings are to be checked and initialed by this Contractor before submittal. Fabrication shall not proceed until approved shop drawings are received.
- b - Shop drawings shall include a plan of erection and are to show decks, overlaps, and connection points.
- c - Resubmit corrected copies in quadruplicate.
- d - Furnish sufficient copies to Job Superintendent for construction purposes.

4. MATERIALS

- a - Metal deck shall be formed deck units, fabricated of steel of gauge shown on drawings and of the type shown on drawings. The deck shall support the loads noted on the drawings. The maximum allowable deflection under live load shall not be greater than  $1/360$  of span. Finished deck shall be so constructed after installation as to prevent the flow of concrete through joints. The deck shall be galvanized.

## 5. INSTALLATION

- a - Erection shall follow procedures recommended by the manufacturer unless higher standards are stated herein.
- b - Metal deck shall be fastened to all bearings by 3/4" diameter welds located along edge of unit and spaced not more than 12" apart across width of unit.
- c - Side joints of units shall be nested and fastened over bearings and between bearings at mid-span by means or welding or other approved method.
- d - All welding shall be performed by a certified welder according to AWS Specifications.
- e - Care shall be exercised that welds do not burn through steel joist, beam or angle supporting members. The Deck Erector assumes full responsibility for any repairs required by welds burning through supporting members.
- f - Reinforce the deck at all openings with two stiffener angles, long enough to extend two ribs beyond opening and weld angle to each rib.
- g - Minimum requirements of manufacturer for deck span shall be maintained.



MISCELLANEOUS METALS  
DIVISION FIVE E

1. GENERAL CONDITIONS

- a - The work under this Division is subject to the General Conditions set forth in Division One of this specification.
- b - This Contractor shall read the "Instruction to Bidders" Division 1B, for complete clarification of the work.

2. SCOPE OF WORK

- a - Work included: Furnish all material, labor and equipment to complete all the work as specified herein and as shown on the drawings.

- 1) Metal joist hangers.
- 2) Ladder at hose tower.
- 3) Hoist track at hose tower.
- 4) Hose drying hangers at hose tower.
- 5) Steel gratings at hose tower platform.
- 6) Interior steel handrails.
- 7) Interior steel stair.
- 8) Cast iron gratings at trench drains. See Division 15B.
- 9) Exterior ladder rails/See Sheets 5,6 & 9 of architectural drawings.
- 10) Exterior signage supports.
- 11) All other miscellaneous steel items as shown on Architectural Drawings and as required.
- 12) Coat, helmet and boot storage racks at bunker/coats.
- 13) Antennae support at hose tower exterior.

3. SHOP DRAWINGS

- a - Furnish for General Contractor's approval, four copies of the drawings on all miscellaneous metals, prior to starting fabrication.

4. MATERIALS

- a - Steel shall conform to applicable ASTM specifications.

5. WORKMANSHIP

- a - All steel shall be well formed to shape and size, with sharp lines or angles. Shearing and punching shall leave clean true lines and surfaces. Weld permanent connections. Do not use screws or bolts where they can be avoided.
- b - Castings shall be sound and free from warp, holes and other defects that impair their strength or appearance. Exposed surfaces shall have a smooth finish and sharp, well defined lines and arrises. Machined joints, where required, shall be milled to close fit. Provide necessary rabbets, lugs and brackets so that work can be assembled in neat and substantial manner.

c - Fastenings shall be concealed where practicable. Thickness of metal and details of assembly and supports shall be given ample strength and stiffness. Joints exposed to weather shall be formed to exclude water. Provide holes and connections for the work of other trades.

d - At proper time, deliver and set in place items of metal work to build into adjoining construction.

e - Fastenings of items to floors, walls, etc., shall be made in a substantial manner so as to withstand heavy use.

#### 6. PAINTING AND PROTECTIVE COATING

a - All ferrous metal shall be given one shop coat of Sherwin-Williams Kormik Primer. Anchors that are built into masonry or concrete shall be coated with asphalt paint unless specified to be galvanized. Where zinc coated metal is required, it shall not be shop primed unless specifically called for; but all abraided places and welding shall be touched up with aluminum paint.

#### 7. MEASUREMENTS AND FITTINGS

a - Measurements for work joining or connecting to other work shall be taken at the site, not from drawings. Work shall be fitted together in shop and delivered complete and ready to set. Workmen shall not damage finish surfaces.

#### 8. MISCELLANEOUS

a - See Structural Steel Division for other specified miscellaneous steel items.

#### 9. ALTERNATE BIDS

a - Refer to the Alternate Bid Division of this specification for additions or omissions of work pertaining to this Division of the specification.

CARPENTRY  
DIVISION SIX A

1. GENERAL CONDITIONS

- a - The work under this Division is subject to the General Conditions set forth in Division One of this Specification.
- b - This Contractor shall read the "Instructions to Bidders", Division 1B, for complete clarification of the work.

2. SCOPE OF WORK

- a - Furnish all labor, materials and equipment to perform all necessary carpentry as shown, scheduled and hereinafter specified, including but not necessarily limited to the following:
  - 1) Hollow metal doors and frames. Installation of frames by Masonry Contractor.
  - 2) Exterior soffit framing.
  - 3) Wood doors and frames.
  - 4) All rough and finish hardware.
  - 5) Exterior dumpster enclosure.
  - 6) Rough framing consisting of framing for ceilings, doors, and windows.
  - 7) Interior finish carpentry including plastic laminate countertops.
  - 8) Janitorial utility shelf. See Division 10B.
  - 9) Pole and shelf at Room #32. See Division 10C for pole.
  - 10) Insulation: Thermal fiberglass batt

3. ROUGH CARPENTRY MATERIALS

- a - Lumber shall conform to the American Lumber Standards. Grades shall conform to the grading rules of the manufacturer's association under whose rules the lumber is produced and all materials shall bear such grade marks. Adequate protection shall be provided for all materials while in transit and while on the site.

- b - Materials shall be of the sizes called for and of the species listed below unless otherwise noted on the drawings:

- 1) Framing Lumber: Construction grade, Douglas Fir, No. 2 and better or dressed NO. 2 Yellow Pine. Construction grade, Fb-1200 psi, E=1, 500,000 psi.
- 2) Grounds and Furring: No. 3 White Pine
- 3) Subfloor shall be combined Subfloor-Underlayment EXT-APA, C-C Plugged, 3/4", tongue-and-groove long sides.

c - Where rough materials are to be left exposed, they shall be selected for freedom from checks, knots and imperfections so that the best possible appearance will be achieved.

d - The grades of lumber and plywood shall be as defined by the rules of a recognized association of manufacturers producing the materials herein specified.

e - Where materials are described in these specifications by species of wood and by grade designation, and alternate species are mentioned, the quality of the alternate species shall be equal in all respects to the material for which grade designation is specified.

f - All materials shall be protected and kept under cover both in transit and at the job. Materials shall not be delivered unduly long before required for execution of the work. Lumber shall be well seasoned and kiln dried; moisture content shall not exceed 15% except that finish materials shall not exceed 7% moisture. Lumber shall be free from defects impairing strength, durability, appearance or utility. All material shall be free from warp that cannot be corrected in the process of bridging or nailing and shall be so delivered, piled and handled as to protect it from damage.

g - All plywood subflooring shall be identified with a AFPA grade trademark and shall be same thickness called for on drawings. Any plywood with an edge permanently exposed to weather or exposed to weather during construction shall be exterior type.

#### 4. WOOD TREATMENT

a - Preservation Pressure-Treated Wood: AWPB LP-2, pressure-treated with water-borne preservatives.

b - Kiln-dry to 15% moisture content after treatment, except for wood in contact with ground.

c - Treat cants, nailers, blocking, stripping and similar items in conjunction with roofing, flashing, vapor barriers and waterproofing.

d - Treat sills, sleepers, blocking, furring, stripping and similar items in direct contact with masonry, stonework or concrete.

#### 5. BLOCKING, GROUNDS, FURRING

a - Space blocking, grounds and furring not over sixteen inches (16") on centers, unless noted, and of thickness required for intended purpose. Provide grounds of one and one-half inches (1-1/2") minimum width. Fasten grounds by expansion bolts to concrete; by toggle bolts, or by nails in metal wall plugs to masonry; by stove bolts to thin metal; and wire to metal lath. The use of wood plugs will not be permitted.

b - Use beveled grounds in brickwork and concrete, and elsewhere as indicated. Set grounds rigidly, in perfect alignment and true up with long straight edge.

c - Provide all temporary grounds required for screeding purposes and all permanent grounds for attaching items of finish and equipment.

6. FURRED CEILING

a - See plans and sections for furred ceilings.

b - All furring shall be 2 x 4's at 16 in. center to center or larger as required.

7. ROUGH HARDWARE

a - Provide and install all rough hardware and metal fasteners required for proper installation of carpentry and millwork.

8. FINISH HARDWARE

a - This Contractor shall provide and install all door, closet and other finish hardware, including, but not limited to, the following:

- |                 |                     |
|-----------------|---------------------|
| 1) Butts        | 5) Closures         |
| 2) Passage Sets | 6) Stops            |
| 3) Lock Sets    | 7) Push-Pull Plates |
| 4) Privacy Sets | 8) Kick Plates      |

b - The hardware shall be of the quality furnished by Schlage, Corbin, or Russwin Companies. Selection is to be made by the Architect.

c - Receive, store, and be responsible for all finished hardware. Properly tag, index and file all keys as directed. All hardware shall be applied in accordance with manufacturer's instructions, fit accurately, applied securely and adjusted carefully.

d - Cover door knobs and pulls with heavy cloth until painting is completed. Prior to completion of building, examine all doors, and other movable parts, adjust as required and leave hardware in good working order.

9. EXTERIOR AND INTERIOR DOORS AND FRAMES

a - See the Door Schedule on the Architectural Drawings for information concerning all Exterior and Interior doors and frames.

10. INTERIOR FINISH CARPENTRY MATERIALS

a - Finish material shall be of the species, grade, size and shape as called for and as detailed on the drawings.

11. GENERAL REQUIREMENTS FOR FINISH WORKS

a - All finish carpentry, millwork and cabinetwork shall be executed by skilled mechanics in accordance with the custom grade requirements of the Architectural Woodworking Institute, as herein modified.

b - Materials for interior wood finish shall be perfectly fitted together and to adjoining work with all corner joints mitered and other joints coped. Secure work with fine finishing nails and with screws and glue where necessary. Set all nail heads. Countersink all screw heads and cover same with neatly fitted wood plugs to match the grain, except where exposed fasteners are specified. Wood trim wherever possible shall be hollowed out on back.

c - All joints shall be neatly and accurately made, closely fitted and put together so as to conceal any shrinkage. Joints shall be either mortised and tenoned, tongued-and-grooved, splined, doweled or otherwise put together as may be suited for each particular part of the work. Joints made at the buildings shall be equal in quality and workmanship to those made at the mill.

d - All joints shall be glued (except joints which would be left loose for shrinkage and swelling), using the very best grade of cabinet glue, which shall be hot when applied. Glueing shall be done in a warm room where the work must remain clamped up and under pressure until the glue has set.

12. DUMPSTER SCREEN WALL

a - This Contractor shall build screen fences as shown on the drawings. Fence material shall be of 1 x 4 rough texture cedar, knotted grade. Posts shall be 4 x 4 and horizontal rails 2 x 4 construction grade fir. Treat 4 x 4 posts with WOODLIFE wood preservative as manufactured by U.S. Plywood prior to imbedding into concrete post footings.

b - Fence shall be as shown and detailed.

13. WEATHERSTRIPPING AND THRESHOLD

a - Exterior hollow metal doors shall receive #254-4AFG Aluminum Threshold, #234 AV Door Bottom Seal, and #75B Cushion Bronze Weatherstrip by Pemko Manufacturing Company or approved equal.

b - Exterior aluminum doors shall receive #253-3AFG aluminum threshold by Pemko Manufacturing Company, or approved equal.

c - Interior Doors #12 and #23 shall receive #196-A aluminum threshold by Pemko Manufacturing Company, or approved equal.

14. PLASTIC LAMINATE COUNTERTOPS

a - Countertops shall be Formica, Micarta or Textolite, 1/16" thickness on U.S. Plywood "Nevaply" core.

- b - Colors to be solid and selected by Architect.
- c - See working drawings for location and exact details.

15. CABINETS

- a - Kitchen and dayroom cabinets shall be of plastic laminate finish as by Euro 2000 by Millbrook Custom Kitchens, Tielsa System 11 "Carat", Poggenpohl CG 71, or Kem Kraft Cabinet.
- b - Color to be solid and selected by Architect.
- c - See working drawings for location and details.
- d - Submit shop drawings of specified products or equals.

16. CLEANING

- a - As work progresses, this Contractor shall remove all debris, rubbish, lumber waste, etc., relating to his work and shall leave the building and the site in a clean condition.

17. ALTERNATE BID

- a - Refer to the Alternate Bid Division of this specification for additions or omissions of work pertaining to this division of the specification.

ROOFING  
DIVISION SEVEN A

1. GENERAL CONDITIONS

- a - The work under this Division is subject to the General Conditions set forth in Division One of this Specification.
- b - This Contractor shall read the "Instructions to Bidders", Division 1B, for complete clarification of the work.

2. SCOPE OF WORK

- a - Furnish all labor, materials, equipment and tools necessary for the completion of a membrane and insulation assembly consisting of the following work:

- 1) Slag or gravel
- 2) Asphalt felt
- 3) Vented base sheet
- 4) Fiberboard
- 5) Rigid insulation

3. CONNECTING WORK

- a - This Contractor shall examine and try all surfaces on which or against which his work is to be applied and notify the Architect in writing of all that are not square, true, nor have the required pitch or are otherwise unsuited to receive his work and shall see to it that same are corrected before installing his work; otherwise, this Contractor shall replace in proper manner at his own expense all work which may have to be removed to correct defects or that is damaged thereby.

4. INSULATION

- a - Manufacturer: Celotex.
- b - Type: Thermax Roof Insulation or approved equal. Class 1 Roofing System.
- c - Thickness: Minimum of 2 staggered layers, total of 4" (2" + 2").
- d - Each layer having a minimum insulation value of:
  - 1) R-factor 14.3
  - 2) C-value 0.07



5. BUILT-UP ROOF

a - Fiberboard roof insulation.

b - Celotex Series #300, Spec. No. 340-C, U.L. Class A Rating.

c - Install as per manufacturers specifications, Series 80-M.I.A.

d - Upon completion of the built-up roofing, the Contractor shall deliver to the General Contractor a two (2) year written guarantee covering all materials and labor on the built-up roofing and flashing in lieu of the 20 year bond.

6. ALTERNATE BIDS

a - Refer to the Alternate Bids Division of this Specification for additions or omissions of work pertaining to this Division of the Specification.

FLASHING AND SHEET METAL  
DIVISION SEVEN B

1. GENERAL CONDITIONS

- a - The work under this Division is subject to the General Conditions set forth in Division One of the specification.
- b - This Contractor shall read the "Instruction to Bidders", Division 1B, for complete clarification of the work.

2. SCOPE OF WORK

- a - Provide labor, materials, equipment and supervision required to complete work of this division to the full intent of the drawings and specifications.
- b - Deliver to other trades materials installed by them.
- c - Furnish and install all base flashing, metal flashing at steel lintels, copper faced paper at base of brick, gutters and downspouts, flashing at exterior door sills, flashing at brick window sills, etc.

3. FLASHING MEMBRANE AT BRICK

- a - Manufacturer: AFCO Products Inc.
- b - Type: AFCO Copper Fabric; 3 oz. per sq. ft.
- c - Membrane flashing shall be installed at:
  - 1) Steel lintels.
  - 2) Base of brick veneer walls.
  - 3) Brick window sills.
  - 4) Exterior door sills.

4. ROOF FLASHING MEMBRANE

- a - Manufacturer: Celotex.
- b - Type: Abestos base flashing. Spec. No. AB-20.
- c - Membrane flashing shall be installed at:
  - 1) Curbs.
  - 2) All Cants.
  - 3) Parapets.

5. ELASTOMERIC ROOF FLASHING

- a - Manufacturer: Gates Engineering
- b - Type: CONTOURFLASH Elastomeric flashing. Spec. CM-62.
- c - Membrane flashing shall be installed at:
  - 1) Roof penetrations or protrusions
- d - Flashing of vent stacks and all pipe protrusions through built-up roof shall be by Plumbing Contractor.

6. COPING

- a - Materials
  - 1) Coping shall be .050 inch thick aluminum with baked enamel finish. Finish and color to be selected by Architect.
  - 2) A 6" concealed joint plate.
  - 3) Fasteners shall be 1-3/4" screw shank aluminum nails.
  - 4) Aluminum hold-down clips.
  - 5) A 10" field formed aluminum flashing at all expansion joints.
- b - Installation
  - 1) Butt type joints, 12 feet on center.
  - 2) Concealed anchorage with hold-down clips at 3 feet O.C.
  - 3) All corners shall be prefabricated and heliarc welded to insure watertight joints.
  - 4) All coping to be set straight and true in accordance with erection instructions from the manufacturer.

7. GUARANTEE

- a - Upon completion of the built-up roofing, the Contractor shall deliver to the General Contractor a two (2) year written guarantee covering all materials and labor on the built-up roofing and flashing in lieu of the 20-year bond.

SEALANT  
DIVISION SEVEN C

1. GENERAL CONDITIONS

- a - The work under this Division is subject to the General Conditions set forth in Division One of this Specification.
- b - This Contractor shall read the "Instructions to Bidders", Division 1B, for complete clarification of the work.

2. SCOPE OF WORK

- a - This work comprises the furnishing and installation of sealant work and incidental and related items necessary to complete the work as shown on the drawings and/or specified herein, including but not necessarily limited to the following:

- 1) Preparation of surfaces.
- 2) Sealing of dissimilar materials generally, including masonry or concrete to metal (steel).
- 3) Sealing of joints between similar materials as detailed.
- 4) Cleaning and removal of excess materials.
- 5) Perimeter of metal door and window frames, both interior and exterior.
- 6) Along metal flashing in masonry.
- 7) Perimeter of wall jacks, exhaust fans, hose bibbs, grilles, exposed conduit or pipes penetrating exterior walls, etc.
- 8) All places as shown or called for on the drawings and/or to insure a weather-tight job.
- 9) Bed of continuous sealant below all metal thresholds.

3. MATERIALS

- a - Caulking compound for interior joints - acrylic-latex or butyl rubber types, acid-resistant, waterproof and paintable. They shall not stain or injure adjacent materials. Compound shall form a thin, tough, elastic film on surface but remain permanently plastic underneath.
- b - Sealant compound for exterior joints - silicone rubber sealant furnished in standard colors by products of Tremco, General Electric or Dow-Corning. Caulking shall adhere firmly to all adjacent materials, shall have minimum elongation of 200%, shall be pliable at temperatures of from -40 degrees F. to +200 degrees F. Before applying caulking, apply primer to type recommended by the manufacturer for each type of surface encountered.
- c - Sub-caulking material
  - 1) Heavy, closely woven cotton fabric, non-staining, to be used for interior caulking only.

- 2) Expanded polyethylene foam, round or semi-round in section, containing no oils, solvents, or other materials which will cause staining.

d - In general, color of sealant shall be chosen to blend with surrounding materials and colors. All final color selections shall be approved by the Architect prior to installation.

#### 4. PREPARATION OF JOINTS

a - All joints to be sealed shall be examined by this Contractor and he shall report any unsatisfactory condition before starting this work.

b - All joints shall be thoroughly cleaned of dirt, dust, loose mortar, moisture, etc.

c - It is important that joints be properly prepared before sealant is installed. Prime if necessary to insure proper adhesion to the sides. See sealant manufacturer's specifications.

#### 5. WORKMANSHIP

a - All joints shall be sealed under pressure, completely filling the space without smearing adjoining materials. All sealant shall be installed immediately after the adjoining work of other trades is in proper condition to receive same and in a manner to prevent any damage occurring by reason of any delay in providing the work herein specified.

b - Sealant installation shall follow the sealant manufacturer's written specifications.

c - At conclusion of caulking and when directed, clean off excess material from adjoining surfaces and materials.

#### 6. INSTALLATION

a - Joint backing: Joint width shall determine the depth of joint. Joints shall be backed with proper joint-backing of sizes affording 30% compression. Allowable widths to depths of sealants are as follows:

- 1) 3/8" wide x 3/8" deep
- 2) 1/2" wide x 1/2" deep

b - Application: Apply compound with gun having size nozzle or knife as required. Use sufficient pressure to fill all voids and joints and leave surface neat, smooth, and clean. After tooling, immediately apply anti-tack agent to assure dust free surface. All joints shall be concave, water-tight and without wrinkles. Any evidence of flowing or sagging shall be corrected.

c - No caulking during damp weather or when temperature is below 40 degrees F.

7. GUARANTEE

a - As a condition precedent to final payment, this Contractor shall execute a guarantee warranting all caulking and sealant to be non-staining and to remain in a serviceable, watertight, elastic adhesive and perfect condition (ordinary wear and tear, abuse causes excepted) for two years from the date of final acceptance of the work; and that he will make good, at his own expense, any imperfections which may develop in this work during the period specified and any damage to other work caused by such imperfections or the repairing of same.

8. ALTERNATE BIDS

a - Refer to the Alternate Bid Division of this Specification for additions or omissions of work pertaining to this Division of the Specification.

ROOF ACCESSORIES  
DIVISION SEVEN D

1. GENERAL CONDITIONS

a - The work under this division is subject to the General Conditions set forth in Division One of this Specification.

b - This Contractor shall read the "Instructions to Bidders", Division 1B, for complete clarification of the work.

2. SCOPE OF WORK

a - Furnish all labor, materials, equipment and tools necessary for the completion of the following work:

- 1) Lean-to skylight
- 2) Pre-fabricated metal curbs

3. CONNECTING WORK

a - This Contractor shall examine and try all surfaces on which or against which his work is to be applied and notify the Architect in writing of all that are not square, true, nor have the required pitch or are otherwise unsuited to receive his work and shall see to it that same are corrected before installing his work; otherwise, this Contractor shall replace in proper manner at his own expense all work which may have to be removed to correct defects or that is damaged thereby.

4. SKYLIGHT

a - Specifications: The skylight shall be Naturalite Lean-To Skylight System Model LTS as manufactured by Naturalite, Inc., P.O. Box 2267 Garland, Texas 75041. These skylights shall be supported by heavy aluminum structural members. The skylights shall comprise factory assembled, pre-glazed sections supplied in maximum lengths of 20' ready for installation and consist of extruded aluminum frame, dome retaining angle, mullions, and tubular structural mullion support. The domes shall be acrylic plastic separated from the mullions by neoprene seals. Expansion joints shall be provided as required and provisions made for the installation of flashing without the necessity for disassembling any part of the skylight. Manufacturer must submit complete structural calculations.

b - Double glazing

c - Acrylic plastic domes shall be of clear material (interior and exterior)

5. PREFABRICATED METAL CURBS

a - Fabricate units from 14 gauge steel sheet, 1.25 oz. hot-dip zinc-coated and mill phosphatized; to the sizes and profiles indicated as required to support or accommodate other work as indicated. Weld joints and reinforce as necessary to support indicated loads.

b - Provide 45 degree cants and roof-deck flanges as indicated to accommodate insulation and roofing, similar to the Pate Company pc - 5a x 13-1/2" high.

c - Reinforce openings in metal deck with matching 14 gauge channel-shaped closure strips.

d - Provide pressure-treated wood nailer top member on curbs, 1-1/2" thick x width of curb; AWPI LP-2, water-borne, for above-grade use.

e - Provide metal cap flashing (counter flashing), to match profile of curbs and extend 3" over roof flashing.

f - Standard: Comply with SMACNA "Architectural Sheet Metal Manual" for the fabrication of units, including flanges and self-flashing to coordinate with the type of roofing indicated.

6. INSTALLATION

a - Anchor roof accessories securely in place as indicated and in accordance with manufacturer's recommendations, in a manner which will permit roofing and flashing work to achieve a watertight and weatherproof installation.

7. SHOP DRAWINGS

a - Material supplier shall submit shop drawings of above specified products or equals to General Contractor for approval prior to supplying material to site.

8. GUARANTEE

a - This Contractor shall and hereby does warrant and guarantee that all work executed under this Contractor will be free from defects of materials and workmanship for a period of one year from the date of final certificate. The Contractor further agrees that he will, at his own expense, repair and replace all such defective work and all other work damaged thereby which becomes defective during the term of the Guarantee.



HOLLOW METAL DOORS AND FRAMES  
DIVISION EIGHT A

1. GENERAL CONDITIONS

- a - The work under this Division is subject to the General Conditions set forth in Division One of this Specification.
- b - This Contractor shall read the "Instructions to Bidders", Division 1B, for complete clarification of the work.

2. SCOPE OF WORK

- a - Furnish all labor, material and equipment required to fabricate and install all hollow metal doors and frames as listed in door schedule including hollow metal frames for wood doors.

3. HOLLOW METAL DOORS

- a - Doors shall be 1-3/4" flush type, seamless, continuous weld, ground down or spot welding with filler ground down so that in either case, no seam is showing. 18 gauge stretcher leveled steel reinforced inside with continuous stiffeners spaced as stated in manufacturer's standard literature. Doors shall be sound insulated. Surface sheets shall be phosphatized or bonderized and given a shop coat of rust inhibitive paint. Doors shall be by one of the following: Republic Steel, Ceco Corporation and Pioneer Industries.
- b - Exterior doors shall have integral channel filler in top and bottom channels.

4. DOOR FRAMES

- a - Frames shall be 16 gauge cold rolled steel, cross section as shown on drawings. Frames shall be complete with reinforcing for hardware, galvanized dust covers, three anchors each side per door, floor anchor clips, angle spreaders.
- b - Frames shall be bonderized and given a coat of baked-on primer. Frames shall be given a coat of rust inhibitive paint.
- c - Frames shall be manufactured by the same manufacturer as hollow metal doors.

5. ANCHORS

- a - Anchors for frames shall be appropriate for wall system receiving frame.
- b - Floor anchoring shall be two holes per anchor, anchor shall be galvanized.

## 6. HARDWARE

- a - Mortise and reinforce, tap and drill, for all hardware from accurate templates furnished in hardware section.
- b - Provide hardware reinforcements in accordance with standard practice of door manufacturer and information furnished by supplier of hardware. Mortise, drill and tap for all mortised parts.
- c - Reinforce all frames and doors for both mortise and surface applied hardware. Hinge reinforcements shall be 1/8" thick, reinforcements for other items, not less than 12 gauge.
- d - Prepare frames for door silencers.

## 7. LABELS

- a - Frames and doors must bear labels as shown on drawing. "B" Label required 1½ hour rating. Anchoring must conform to Underwriter's requirements.

## 8. PROTECTION AND CLEANING

- a - Protect doors and frames from damage during transportation and at job site. Doors shall be stored in a dry place, under roof, and in accord with the manufacturer's printed recommendations. After installation, protect doors and frames from damage during construction activities. Damaged work will be rejected and shall be replaced with new work.

## 9. INSTALLATION

- a - Work shall be installed prior to construction of enclosing walls and ceilings so that construction will make tight joints against the metal work; otherwise, this Subcontractor shall furnish and install metal scribe moldings against masonry to cover the joints. Install metal closures in locations shown and where else required.
- b - All work shall be installed in straight lines in correct relation to finished surfaces, with vertical portions plumb and horizontal parts level. Work shall be securely anchored in place so as to be rigid and secure. Anchor bottom of frames to floor with expansion bolts or power driven fasteners. Build all required wall anchors into masonry walls or secure to adjoining structure as indicated. Where frames require ceiling struts and other structural overhead bracking, furnish same.
- c - All field joints shall be continuously welded and ground smooth. Indicate location of field joints, where required, on shop drawings.
- d - After erection, touch up damaged or marred areas, all unpainted areas and all weld spots using same paint as used for the shop coat, ready for painting.

## 10. SHOP DRAWINGS

- a - Material supplier shall submit shop drawings of above specified products or equals to General Contractor for approval prior to supplying material to site.

11. GUARANTEE

a - This Contractor shall and hereby does warrant and guarantee that all work executed under this Contract will be free from defects of materials and workmanship for a period of one year from the date of final certificate. The Contractor further agrees that he will, at his own expense, repair and replace all such defective work and all other work damaged thereby which becomes defective during the term of the Guarantee.

12. ALTERNATE BIDS

a - Refer to the Alternate Bid Division of this Specification for additions or omissions of work pertaining to this division of the specification.

GLASS, GLAZING AND ALUMINUM WORK  
DIVISION EIGHT B

1. GENERAL CONDITIONS

a - The work under this Division is subject to the General Conditions set forth in Division One of this Specification.

b - This Contractor shall read the "Instructions to Bidders", Division 1B, for complete clarification of the work.

2. SCOPE OF WORK

a - Furnish all labor, materials and equipment for the complete installation of the following work:

- 1) 1" bronze insulating glass at Dispatch Room.
- 2) 1" tempered insulating safety glass at entry door sidelights and Dining Room.
- 3) 1/4" tempered safety glass at all glass entry doors.
- 4) 5/8" insulating glass at Bunk Rooms and Kitchen.
- 5) 1/4" polished plate glass mirrors with chrome channel top and bottom.
- 6) Setting blocks, gaskets and glazing compound.
- 7) Glazing of all aluminum fixed and operable windows.
- 8) Glazing of all aluminum store front material and entrance doors.
- 9) Aluminum overhead doors and matching fixed panel between doors.
- 10) Aluminum facing over steel tube supports at overhead doors.
- 11) Aluminum store front material and doors and window frames.

b - Comply with latest applicable provisions of FGMA (Flat Glass Mfrs. Assn. - Glazing Manual.)

3. ALUMINUM STORE FRONT MATERIAL

a - Provide and install aluminum store front sections as detailed.

- 1) Install aluminum store front sections at Entry and Dining.
- 2) Aluminum sections shall be Kawneer TRI FAB "451" aluminum frames with 2" head, jambs, sill and internal drainage system.
- 3) Provide and install stiffeners as required.
- 4) All aluminum sections shall be anodized Permanodic #40 Dark Bronze.

b - Submit shop drawings prior to fabrication.

#### 4. ALUMINUM DOORS

- a - Furnish and install "190" Narrow Stile type aluminum door at entrance and Dining of size noted in drawings of same manufacture and finish as entrance frames. Assemble door members so as to be non-sagging, with internal corner reinforcements, tie rods or other suitable methods. Guarantee doors to be non-sagging and non-warping. Doors shall be provided with a metal stop arrangement to receive glass lights, non-removable from exterior. Provide neoprene glazing gaskets for setting of glass, same as for frames. Prepare doors to receive all hardware and provide internal reinforcing plates same as for frames.
- b - Door shall be single acting with offset pivots.
- c - All hardware for doors except locksets will be furnished under this Contract. This trade shall install all hardware and mount the doors. Install hardware in accordance with manufacturer's direction, and adjust to operate properly. Do not damage or mar door or frame surface, or hardware during installation. Secure thresholds in place over a continuous sealant bed so as to be weathertight. Doors shall swing easily and quietly, without binding and without touching floor. When closed doors shall make full and uniform contact with stops on frames.
- d - Hardware for aluminum entrance shall be furnished and installed in the door by the door manufacturer, and shall include standard items as follows:
  - 1) Finish items to match door latch lock - Adams Rite 4510 Dead Bolt Latch with 4565 lever handle.
  - 2) Pull style "U" (interior and exterior).
  - 3) Threshold of same width as frame.
  - 4) Concealed Overhead Door Closer - Kawneer SA/M-2 or approved equal.
- e - Doors and hardware to be Permanodic #40 Dark Bronze.
- f - Submit shop drawings.

#### 5. ALUMINUM WINDOWS

- a - 2" projected out aluminum window sash shall be Kawneer TRIFAB "451" framing.
- b - Fixed windows shall be framed with TRIFAB "451" frame members.
- c - Finish to be Permanodic #40 Dark Bronze.
- d - Sizes noted on drawings are approximate and shall be used for estimating only. All final sizes shall be taken from field measurements.
- e - Submit shop drawings.

#### 6. ALUMINUM OVERHEAD DOORS

- a - Furnish and install commercial heavy duty aluminum overhead doors as by Overhead Door Series 511, Aluminum Panoramic Doors or Crawford Custom Model 520.

- 1) Size as per drawings, 4 panels wide and 7 panels high.
- 2) All panels to be glazed with double strength glass.
- 3) Finish to be dark bronze duronodic finish to match Kawneer dark bronze anodized aluminum framing.
- 4) Doors to be electrically operated,
- 5) Standard lift hardware.
- 6) Aluminum stop mold.

b - Furnish and install fixed panel between doors.

- 1) Materials, construction and finish will be identical to the main door.
- 2) Glass arrangement matched to main door.
- 3) Glaze with double strength glass.

#### 7. TINTED INSULATING GLASS

a - Glazing at exterior fixed glass windows shall be 1" thick tinted insulating glass where called for on the architectural drawings.

b - All tinted insulating glass shall be LOF Thermopane, or approved equal.

c - Exterior light of tinted insulating glass shall be bronze tinted and the interior light clear.

#### 8. CLEAR INSULATING TEMPERED GLASS AND CLEAR INSULATING GLASS

a - Glazing at all operable and fixed windows shall be 1" thick clear insulating glass.

b - Tempered glass shall be required at all areas where glazing is extended to finish floor.

c - Clear insulating tempered safety glass shall be LOF Tuf-flex, or approved equal.

#### 9. GLASS SIZES

a - All sizes for glass shall be taken from the actual frames, doors, etc. This Contractor shall assume all responsibility in regard to correct sizes. Sizes noted on drawings are approximate and shall be used for estimating only.

#### 10. MIRRORS

a - Provide and install 1/4" plate glass mirror in lavatory as shown on plans and interior elevation sheets.

b - Mirrors shall be 1/4" thick mirror glazing quality plate glass. Mirror backs shall be silvered 2 coats, heavy electro-plated with copper, prime coat and coat mirror backing paint. Mirrors to have chrome setting channel top and bottom.

11. CLEANING

a - At completion of work, leave glass whole and free from cracks and rattles. Clean glass of all putty and grease caused by this installation.

12. FITTINGS

a - Fittings at all windows, doors and store front sections shall be the continuous type and shall be color anodized to match the aluminum store front material specified.

b - General: Measure all glass openings at the job site. Field nipping of edges of oversize lights is not allowed.

c - Installation:

- 1) Before glazing, glazing rabbets shall be cleaned and wiped dry. If glazing is accomplished at temperature below 40 degrees F, follow recommendations of compound manufacturer regarding warming or other preparation of glass and rabbet surfaces to avoid seal failures.
- 2) Only skilled mechanics shall be employed on the work. Glass shall be without springing, accurately fitted and carefully set, centered in the glazing rabbet, using spacer and setting blocks as recommended to achieve a minimum thickness of 1/8" of compound. Glass shall be free from edge clips, cracks or other defects.
- 3) Compound shall be furnished to the job in original containers and stored in a warm location. Gasoline, benzine or similar substances shall not be used except by written consent of the Architect. Glazing stop shall be removed and reset by Contractor
- 4) Glazing must be clearly done and where disturbed before compound has set, must be touched up to original condition. Remove excess compound from glass, and all traces of compound from other materials before it has cured. Labels are to remain on glass until final cleaning.

13. GUARANTEE

a - Guarantee shall include reglazing as required to eliminate the following defects:

- 1) Loose and rattling glass.
- 2) Loosening compound or glass stops.
- 3) Glass breakage due to faulty setting or insecure glazing.

b - During two-year period from date of substantial completion of work, replace defective material or workmanship causing leaks, within 30 days written notice from Owner, without cost to Owner.

14. ALTERNATE BIDS

a - Refer to the Alternate Bid Division of this Specification for additions or omissions of work pertaining to this division of the specification.



ACOUSTICAL CEILING  
DIVISION NINE A

1. GENERAL CONDITIONS

- a - The work under this Division is subject to the General Conditions set forth in Division One of this Specification.
- b - This Contractor shall read the "Instructions to Bidders", Division 1B, for complete clarification of the work.

2. SCOPE OF WORK

- a - Furnish all labor, materials, equipment and services necessary for the complete installation of all acoustical ceiling tile work indicated on the drawings and specified.

3. MATERIALS

- a - Lay-In Acoustical Panel 2 x 4 shall be Armstrong Minaboard Panels 24" x 48" x 5/8" lay-in in FISSURED DESIGN.
- b - Surface Finish factory applied washable white vinyl latex paint.
- c - Suspension System: As required to support acoustical units, fixtures and other components as indicated, and including anchorages, hangers, runners, cross runners, splines, clips, moldings, fasteners and other members, devices and accessories.
- d - Structural Class: Intermediate-duty..
- e - Hanger Wire: Not less than 12 gage (0.106") galvanized steel.
- f - Carrying Channels: Not less than 1-1/2" cold-rolled steels, weighing 0.475 lbs. per lin. ft.
- g - Type: Direct-hung or indirect-hung, at Contractor's option.
- h - Exposure: Fully-exposed (lay-in) suspension system.
- i - Exposed Finish: White baked enamel, Low Gloss (Armstrong).
- j - Edge Moldings: Metal channel type with single flange exposed.
- k - Finish: White baked enamel, Low Gloss (Armstrong) to match exposed suspension member finish.

#### 4. INSTALLATION

a - Installer shall be a firm that is previously approved by the manufacturer of each product selected. Coordinate with lighting fixtures, diffusers and other elements in and on ceilings. Provide additional suspension system hanger at lighting fixtures and diffusers as required for adequate support to prevent deflection. Do not penetrate ducts with hangers, nor support from duct system or duct system hangers. Hang entire installation in level planes for each surface. Lay out tiles from center lines of rooms or spaces in straight lines, providing border tiles of equal width of not less than half tiles.

b - Edge Moldings: Secure to substrate with screw anchors spaced 16" o.c. Set with concealed bead of acoustical sealant. Miter corner joints.

c - Cope exposed flanges of intersecting suspension members for flush intersections.

#### 5. SAMPLES

a - Submit samples of full tiles and suspension system to Architect for approval per specifications prior to ordering actual materials.

#### 6. CLEANING

a - Clean tile surfaces upon completion of installation. Replace permanently soiled, broken, damaged or improperly installed tile with new tile. Leave entire work in perfect condition without imperfections or blemishes at time of final inspection. Provide owner with two (2) boxes of each type of ceiling tile.

#### 7. ALTERNATE BIDS

a - Refer to the Alternate Bids Division of this Specification for additions or omissions of work pertaining to this Division of the specification.

GYPSUM BOARD  
DIVISION NINE B

1. GENERAL CONDITIONS

- a - The work under this Division is subject to the General Conditions set forth in Division One of this Specification.
- b - This Contractor shall read the "Instructions to Bidders", Division 1B, for complete clarification of the work.

2. SCOPE OF WORK

- a - Furnish all materials, equipment and labor and perform all operations necessary for the complete installation of drywall and related materials as shown on drawings and specified herein including, but not limited to the following:
  - 1) Interior ceilings shall receive 1/2" drywall as per Room Finish Schedule.
  - 2) Interior ceiling at toilet rooms and shower room shall be 1/2" moisture resistant board.
  - 3) Exterior soffit shall be 1/2" exterior ceiling soffit board.

3. MATERIALS

- a - Board:
  - 1) 1/2" thick tapered edge Exterior Ceiling Soffit Board by U.S. Gypsum Gold Bond (National Gypsum Co.) or approved equal.
  - 2) 1/2" thick tapered edge Sheetrock by U.S. Gypsum Gold Bond (National Gypsum Co.) or approved equal.
  - 3) 1/2" thick moisture resistant "Greenboard" tapered edge Sheetrock by U.S. Gypsum Gold Bond (National Gypsum Co.) or approved equal.
  - 4) All wallboard shall conform to current ASTM Specifications.
- b - Tape: Perf-A-Tape and Perf-A-Tape Cement.
- c - Trim Accessories: U.S. Gypsum #200-B metal trim at all exposed edges.
- d - Corner Bead: U.S. Gypsum Dur-A-Bead reinforcement or #900 corner bead.

4. SUSPENSION SYSTEM

- a - A wood furring system to be provided by Carpentry Subcontractor.
- b - Metal suspension system by this contractor.

5. ALTERNATE BIDS

a - Refer to the Alternate Bid Division of this Specification for additions or omissions of work pertaining to this division of the specification.

TILE  
DIVISION NINE B

1. GENERAL CONDITIONS

- a - The work under this division is subject to the General Conditions set forth in Division One of this Specification
- b - This Contractor shall read the "Instructions to Bidders", Division 1B, for complete clarification of the work.
- c - This Contractor shall comply with the latest applicable provisions of the Tile Council of America "Handbook for Ceramic Tile Installation".

2. SCOPE OF WORK

- a - Furnish all labor, materials, equipment and services necessary for the complete installation of all tile work.
- b - See working drawings for surfaces to receive tile.

3. MATERIALS

- a - All tile shall be Standard Grade and shall be quality certified by the Tile Council of America, Inc. to equal or exceed Standard Grade requirements and shall meet all requirements of ANSI A137.1. Deliver to the job in unopened containers.
- b - Tile shall be as specified in the working drawings.
- c - Color of tile shall be selected by Architect. Submit samples for approval.
- d - Grout color to be selected by Architect.
- e - Dry-set mortar - ANSI A118.1-1976 and preparation under Tile Council Formula F113-75.
- f - Latex-Portland cement mortar to conform with ANSI A118.4-1973 (R1976).
- g - Grout: Sand-Portland Cement; 1 part Portland Cement to 1 part fine graded sand.
  - 1) Portland Cement - Waterproof type of Standard manufactured gray or white as required; conforming to ASTM C-150 Type 1.
  - 2) Grout shall be wet cured; floor covered after grouting with polyethylene sheeting for three days. Water added to entire surface on second day and sheeting replaced.

4. INSTALLATION

- a - Method of installation shall be in full conformity with the current specifications of the Tile Council of America.
- b - Ceramic floor tile, handmolded tile, and brick pavers shall be installed according to ANSI Installation Specification A108.1-1976.
- c - Lay out tile on floor prior to actual installation so that no tile less than half size occurs.
- d - All tile at door openings shall terminate at the center line of the door.

5. SAMPLES

- a - Samples of all materials shall be submitted for approval to the Architect prior to ordering.
- b - Architect will select all colors.

6. EXAMINATION OF SURFACES

- a - This Contractor shall carefully examine all surfaces on which his work is to be applied and shall notify the Architect in writing of any surfaces which are unsuitable to receive the tile work and he shall see that the same are corrected before tile is set; otherwise, he shall replace in proper manner at his own expense, all work which may have to be removed to correct defects of which is damaged thereby.

7. CLEANING AND PROTECTION

- a - This Contractor shall provide and install all necessary protective barricades to prevent damage to the work.
- b - Upon completion, all tile work shall be given preliminary cleaning and sizing. After cleaning, the floors shall be covered with a layer of protective paper taped in place.
- c - Removal of paper and final cleaning by others.

8. ALTERNATE BIDS

- a - Refer to the Alternate Bids Division of this Specification for additions or omissions of work pertaining to this division of the specification.

PAINTING  
DIVISION NINE D

1. GENERAL CONDITIONS

- a - The work under this Division is subject to the General Conditions set forth in Division One of this Specification.
- b - This Contractor shall read the "Instructions to Bidders", Division 1B, for complete clarification of the work.

2. SCOPE OF WORK

- a - Furnish all materials, labor and equipment required to complete all painting and finishing as indicated on the drawings and as specified. This Contractor shall acquaint himself with all divisions of work and specifications and shall paint and finish all materials customarily painted for appearance or protection unless otherwise specified herein. Follow special instructions on details.
- b - Colors to be selected by the Architect.
- c - All drywall shall be painted.
- d - All wood and steel doors and frames shall be painted.
- e - Exposed steel lintels, deck, beams, columns, joists, and trusses shall be painted.
- f - Refer to plans, details and Room Finish Schedule for locations of finishes.
- g - Paint all wall jacks and exterior wall grilles, gas meter and exterior piping.
- h - Stain wood fence at refuse area.
- i - Paint all steel handrails.
- j - Paint exposed furnace flues and caps at roof.
- k - Seal cap of free-standing brick wall.

3. WORK NOT INCLUDED

- a - Brass, bronze, nickel, copper, aluminum shall not be painted and any paint spattered, spilled or applied on such surfaces shall be removed.
- b - Prime coats will not be required on items delivered with prime or shop coats already applied. This Contractor shall be responsible for touch-up of prime coats if necessary.

c - No painting, staining or finishing will be required on the following surfaces:

- 1) Brick.
- 2) Aluminum frames.

#### 4. APPROVAL OF SAMPLES

a - This Contractor shall obtain the necessary instructions from the Architect and prepare for his approval a sample of every color and finish required for work under these specifications, at least thirty (30) days in advance of field work.

#### 5. PAINT MATERIALS

a - Paint materials shall be manufactured by one of the following companies:

- 1) Sherwin-Williams.
- 2) Pittsburgh Paint.
- 3) Pratt & Lambert.
- 4) Olympic Paint.
- 5) Other manufacturers must receive Architect's approval.

b - All paint shall be delivered to the site in manufacturer's sealed containers. Each container shall be labeled by the manufacturer. Labels shall give manufacturer's name, type of paint, color of paint and instructions for reducing. Thinning shall be done only in accordance with manufacturer's directions. Job mixing or job tinting may be done when approved by the Architect.

#### 6. PAINT SCHEDULE

a - Exterior Surfaces:

##### 1) Steel

1st coat:	(Shop)	By Steel Fabricator
2nd coat:		S-W Kromik Metal Primer
3rd coat:		Flat Finish A-100 Latex

##### 2) Wood Fences

1st coat:	Olympic Solid Color Stain
2nd coat:	Olympic Solid Color Stain

##### 3) Galvanized Metal

1st coat:	S-W Galvanized Iron Primer
2nd coat:	S-W Flat Finish Hi-Level Exterior Flat Paint



4) Exterior Drywall Soffit

1st coat: S-W Fast Dri Latex Wall Primer  
2nd coat: S-W A-100 Latex Paint - Flat Finish

b - Interior Surfaces:

1) Steel Joists, non-exposed

1st coat: Shop Paint using Type 1 Red  
Oxide Primer Conforming to SSPC-15

2) Steel Joists, exposed

1st coat: Shop paint using oil base primer  
conforming to SSPC-14; green color

2nd coat: Finish paint using SSPC-104

3) Structural Steel, non-exposed

1st coat: Shop paint using Red Oxide primer  
conforming to SSPC-13

4) Structural Steel, exposed

1st coat: Shop paint using oil base primer  
conforming to SSPC-13

5) Metal

1st coat: By Steel Fabricator  
2nd coat: S-W Kromick Metal Primer  
3rd coat: S-W Quali-Kote Latex Flat Wall Paint

6) Drywall Walls and Ceiling, and Wood Door

1st coat: S-W Fast-Dri Latex Wall Primer - Flat Finish  
2nd coat: Quali-Kote Latex Flat Wall Paint

7. SEALER AT TOP OF FREE-STANDING BRICK WALLS

a - Brick course at top of brick retaining wall shall be treated with Thoroclear 777 by Standard Drywall Products.

b - Surfaces to be treated shall be clean, free of stains and efflorescence, dry, sound and in good repair. Completely flood entire surface with Thoroclear 777 so that there is a rundown of at least 6 to 12". All adjacent surfaces and shrubbery shall be protected. Thoroclear 777 shall not be applied on surfaces which have been wet or rained upon during the four preceding days or if rain is anticipated within two hours after application.

8. GUARANTEE

a - The Painting Contractor shall guarantee his work for a period of one year using the material specified by the Architect. If the Contractor cannot guarantee his work using the material specified, he shall notify the Architect immediately.

b - The Contractor shall repair any defect due to faulty material or workmanship caused by him for the period specified at no expense to the Owner.

9. ALTERNATE BIDS

a - Refer to the Alternate Bid Division of this Specification for additions or omissions of work pertaining to this division of the specification.

TOILET PARTITIONS  
DIVISION TEN A

1. GENERAL CONDITIONS

a - The work under this Division is subject to the General Conditions set forth in Division GC and Special Conditions of the Contract in Division SC of this Specification.

b - This Contractor shall read the "Instructions to Bidders", Division ITB, for complete clarification of the work.

2. SCOPE OF WORK

a - Furnish all materials, equipment and labor and perform all operations necessary for the complete installation of privacy screens and related materials as shown on drawings and specified herein including, but not limited to the following:

- 1) Toilet Partitions
- 2) Urinal Screen.

3. MATERIALS

a - Steel sheets for face plates shall be cold rolled galvanized bonderized and stretcher levelled steel. The minimum thickness of zinc coating shall conform to Federal Specifications QQ-S-775 Class 4 when applied by the hot dip process and ASTM Specifications A-164-SS Type RS when applied by the electrolytic process. Strip for edge binding shall be similar but not stretcher levelled. The steel and the galvanizing shall not fracture, flake or peel from the necessary forming and die drawing operations. Flash coated steel is not acceptable.

b - Sound deadening cores shall be pads of honeycomb paper expanded to 1" maximum cell size walls of .009 caliber kraft paper.

c - Steel for concealed reinforcement shall be hot rolled.

d - Fittings: Stirrup bracket support at wall and front or partitions and for wall and pilasters shall be extruded polished anodized aluminum or die cast zinc alloy chromium plated.

e - Fastenings: Sex bolts and machine screws shall be brass. Bolts and screws into masonry shall be cadmium plated steel.

4. SHOP DRAWINGS

- a - Immediately after award of contract, submit transparency to the Contractor for approval of complete shop and erection drawings.
- b - Shop drawings shall show dimensions, details of construction, partition layout, hardware, fittings and fastenings.
- c - Do not commence fabrication until approved shop drawings have been received from the Architect.

5. GAUGES

- a - Prior to zinc coating and fabrication, minimum thickness of sheet or strip steel (in U.S. Standard Gauges) and of stainless steel (in inches) shall be as follows:

- 1) Face plates of doors and of partitions, 48" and less in greatest dimension -- 22 gauge.
- 2) Face plates of partitions greater than 48" in greatest dimension -- 20 gauge.
- 3) Face plates of fronts -- 18 gauge.
- 4) Reinforcement for tapping -- 14 gauge.
- 5) Concealed reinforcement for anchoring devices.

6. CONSTRUCTION (Toilet Partitions)

- a - Type: Toilet partitions shall be wall mounted type such as manufactured by Sanymetal Products Company, Inc., Mills Company, and Global Steel Products Corporation.
- b - Panels shall be 58" high and set 12" above floor. Enclosure doors shall be 58" high by 24" wide for all 36" wide enclosures.
- c - Doors and panels shall be 1" thick, constructed of two face plates with formed edges, cemented under pressure over the sound-deadening core and sealed at all edges, (excepting at anchoring device with continuous rounded locking strip with corners mitered and welded). Grind welds smoothly. Doors and panels shall have concealed tapping reinforcements for attachment for hardware and accessories where machine screws are required for fastening. Surfaces shall be smooth, free from wave, warp or buckle.
- d - Pilasters shall be 1-1/4" thick, of same construction as doors and panels.
- e - Fittings: Panels and pilaster shall be attached to one another and/or to wall with brackets of approved type.

f - Door Hardware: Doors shall be hung on gravity type hinges adjustable to hold door ajar 30 degrees when unlatched; all operating parts shall be concealed within door. Each door shall be equipped with latch, combination stop and keeper fitting with rubber bumper. Machine screws for attaching door hardware shall have theft resistant heads.

#### 7. CONSTRUCTION (Urinal Screen)

a - Type: Urinal screen shall be wall hung flush type as manufactured by Sanymetal Products Company, Inc., Mills Company, and Global Steel Products Corporation.

b - Panels shall be 1" thick made of two sheets of #20 gauge vitreous porcelain sheet steel with edges formed, assembled over and cemented under pressure to a dense sound-deadening Bridgecore insulation. The two face plates shall have formed edges and shall be electrically welded together and sealed with a continuous oval-crown locking strip of polished stainless steel. Surfaces shall be smooth, free from wave, warp or buckle.

c - Fittings: Panels to have integral formed, reinforced mounting flanges with stainless steel trim.

d - Panels shall be 24" x 42" and set 12 " above floor.

#### 8. FINISH

a - Enamel Finish: Metal surfaces, other than chrome plated, stainless steel or aluminum surfaces, shall be thoroughly cleaned and given a prime coat and finish coat of high grade synthetic enamel and oven-baked to produce a highly mar-resistant surface.

b - Colors will be selected by the Architect from manufacturer's standard color range.

c - Hardware Finishes: Exposed surfaces of door hardware shall be dull chrome finish, except the stainless steel and aluminum components. Stainless steel pilaster cap shall be electro polished.

#### 9. ERECTION

a - General

- 1) Erect work in rigid, substantial manner, straight and plumb with horizontal lines level. Wall connection shall be to concealed 3/8" diameter studs, welded to a heavy gauge full height wall channel. Studs shall securely anchor panel in position with locking nuts and shall provide a mechanical means to level panel vertically and laterally. Wall channel shall be secured to walls with 3/8" diameter studs, welded to backing plates. Installation of the wall plates are to be coordinated with the supporting masonry wall work for setting in place during wall construction. Plates are to be set by Mason Contractor in accordance to dimensions of manufacturer.

b - Completion

- 1) Conceal evidence of drilling, cutting, and fitting of wall connections in finished work. Make clearance at vertical edges of doors uniform from top to bottom not to exceed 3/16". Carefully adjust door hardware. Clean finish surfaces and leave free of imperfections.

10. CLEAN UP

- a - All rubbish and debris from this work shall be removed and the job site shall be left clean.

11. GUARANTEE

- a - This Contractor shall and hereby does warrant and guarantee that all work executed under this Contract will be free from defects of materials and workmanship for a period of one year from the date of final certificate unless otherwise specified. The Contractor further agrees that he will at his own expense, repair and replace all such defective work and other work damaged thereby which becomes defective during the term of the guarantee.

12. ALTERNATE BIDS

- a - Refer to the Alternate Bid Division of this specification for additions or omissions of work pertaining to this division of the specification.

TOILET ACCESSORIES  
DIVISION TEN B

1. GENERAL CONDITIONS

a - Work under this Division is subject to the General Conditions set forth in Division One of this Specification.

b - This Contractor shall read "Instructions to Bidders", Division 1B, for complete clarification of the work.

2. SCOPE OF WORK

a - This Contractor shall furnish all labor, materials, and equipment necessary for the complete installation of the following work:

- 1) Pair of handicap grab bars at Toilet Room #19.
- 2) Wall mounted paper towel dispenser unit at Toilet Room #19.
- 3) Surface mounted toilet paper holders.
- 4) 1/4" polished plate glass mirror with chrome channels top and bottom and stainless steel angle framed glass mirror.
- 5) Waste receptacles.
- 6) Soap Dispensers.
- 7) Janitorial utility shelf, mop holders, towel drying rack.

b - Furnish shop drawings to General Contractor for approval prior to fabrication.

3. GRAB BARS

a - Furnish and install one pair of grab bars at Toilet Room #19 as shown in the working drawings.

b - Grab bars shall be 1-1/4" outside diameter with a smooth polished finish and concealed mounting with one 48" long and one 36" long grab bar.

c - Grab bars shall be mounted to solid blocking at 33" from finish floor or 3" above the top of the toilet tank and be capable of supporting 300 pounds and with the front end positioned 24" in front of the water closet.

d - Grab bars shall be American Dispenser Co., #9000C series or approved equal.

4. PAPER TOWEL DISPENSER/DISPOSAL

a - Furnish and install one wall mounted paper towel dispenser unit at Toilet Room #19.

b - Paper towel dispenser shall be American Dispenser Company, #578.

c - See Working Drawings for location.

5. SURFACE MOUNTED TOILET PAPER HOLDER

a - Furnish and install one surfaced mounted single roll toilet tissue dispenser at each toilet.

b - Paper holder shall be American Dispenser Company, #820.

c - See Working Drawings for location.

6. WASTE RECEPTACLES

a - Provide one surface mounted waste receptacle at Toilet Room #19.

b - Waste Receptacle shall be American Dispenser Company, #886.

7. SOAP DISPENSER

a - Furnish and install one surface mounted stainless steel combination shelf and soap dispenser at Toilet Room #19. Dispenser shall be American Dispenser Company, #83.

b - Furnish and install three "Basin/Vanity" mounted soap dispensers at Lav Room #15. Dispensers shall be American Dispenser Co., #31L Likwidurn.

c - Furnish and install one surface amounted stainless steel liquid soap dispenser at each shower head in Shower Room #16. Dispenser shall be American Dispenser Company, #16 Likwidurn.

d - See Working Drawings for location.

8. TOWEL BAR

a - Furnish and install one towel bar at Lav Room #15.

b - Towel bar shall be 1-1/4" outside diameter with a smooth polished finish and concealed mounting and 9'0" length.

c - Towel bar shall be American Dispenser Co., #9000C Series.

d - See Working Drawings for location.

9. MIRROR

a - Provide and install one wall mounted mirror above countertop lavatory and one above wall hung lavatory. See interior elevations on architectural drawings.

b - Mirror shall be 1/4" polished plate glass with polished chrome setting channels top and bottom above countertop lavatory. Stainless steel angled 1/4" polished plate glass mirror, 20" x 40", above wall hung lavatory.



c - Edges of mirrors at countertop lavatory shall be polished smooth.

10. JANITORIAL UTILITY SHELF

a - Provide and install one stainless steel wall mounted utility shelf at Mechanical Room #14, west wall.

b - Utility shelf shall be American Dispenser Company, #549.

11. MOP HOLDERS

a - Provide and install three mop holders at Storage #3. Locate on east wall.

b - Mop holders shall be American Dispenser Company, #517.

12. TOWEL DRYING RACK

a - Provide and install one towel supply shelf to be used for towel drying at Storage #3. Locate on east wall.

b - Towel rack shall be American Dispenser Company, #133X24.

13. GUARANTEE

a - This Contractor shall and hereby does warrant and guarantee that all work executed under this Contract will be free from defects of materials and workmanship for a period of one year from the date of final certificate. The Contractor further agrees that he will, at his own expense, repair and replace all such defective work and all other work damaged thereby which becomes defective during the term of the Guarantee.

14. SHOP DRAWINGS

a - Material supplier shall submit shop drawings of above specified products or equals to General Contractor for approval prior to supplying material to site.

15. ALTERNATE BIDS

Refer to the Alternate Bid Division of this Specification for additions or omissions of work pertaining to this division of the Specification.

MISCELLANEOUS  
DIVISION TEN C

1. GENERAL CONDITIONS

- a - The work under this Division is subject to the General Conditions set forth in Division GC and Special Conditions of the Contract in Division SC of this Specification.
- b - This Contractor shall read the "Instructions to Bidders", Division IB, for complete clarification of the work.

2. SCOPE OF WORK

- a - Furnish all materials, equipment and labor and perform all operations necessary for the complete installation of the materials as shown on drawings and specified herein including, but not limited to the following:

- 1) Lockers
- 2) Signage
- 3) Closet Pole
- 4) Nylon wall hooks and neoprene coat hooks
- 5) Flagpole

3. MATERIALS

- a - LOCKERS: Lyon; single tier, 15 x 21 x 72 inch and finishing strips at locker room, steel 24 ga. body flat-top, and 16 ga. door and frame, with 3 hinges and standard 3 point locking chrome handle, with 1/2" diameter perforations top and bottom of door, shelf 9" below top, one double prong ceiling hook and four single prong hooks, number plates with raised digits mounted center near top of door, floor and wall anchored plus fittings and fasteners; treated and baked enamel finish, colors as selected by Architect.
- b - SIGNS:
  - 1) Lawn: Physically Handicapped Parking sign 16" x 20" with symbol of access and lettering silk-screened on 1/8" aluminum blank. Helvetica medium lettering. Sign shall be post projected with post ground mounted. Sign shall be by Mohawk Engraving Company, Inc., Model #HC-1000.
  - 2) Building Exterior: Letters shown on drawings shall be fabricated from sheet aluminum heliarc welded construction, finished to satin texture, etched and degreased to receive baked-on enamel finish. Color selection by Architect. Letters shall be back-lighted by one (1) tube of 13 mm white neon and powered by normal power factor transformers installed in building. Letters shall be manufactured by Mills Manufacturing Company, 1920 Port City Boulevard, Muskegon, Michigan. Manufacturer shall furnish detail drawings for approval before fabrication.

- 3) Building Interior: Die cut pressure sensitive vinyl letters, 3.5 mils in thickness. Letters shall be provided spaces and aligned with the entire message on a single application carrier tape. Letter style shall be helvetica medium. Color selection by Architect. See drawings for letter size, message, and location.

c - CLOSET POLE: Extension closet rod for Room #32 shall be Model KV2 by Knappe and Vogt Manufacturing Company, Grand Rapids, Michigan.

d - COAT HOOKS: Provide and install wall mounted neoprene coat hooks in Room #13. Coat hooks shall be Forms and Surfaces, Model # HC 250 (HP2). See Working Drawings for location.

e - WALL HOOKS: Provide and install wall mounted nylon hooks in Lav Room #15. Wall hooks shall be Ironmonger, Model #520.70.1. Color selection by Architect. See Working Drawings for location.

f - FLAGPOLE: Provide a one piece cone tapered aluminum flag pole complete with gold anodized aluminum ball mounted on an aluminum treaded rod, cast aluminum ballbearing double sheave revolving truck assembly containing twenty-six (26) stainless steel ballbearings, polypropylene halyard rope with two bronze swivel snaps, cast aluminum cleat with aluminum screws, corrosion resistant Fibreduct ground socket, with attached lightning spike, aluminum flash collar, all as manufactured by Eder Flag Manufacturing Co., Inc., Oak Creek (Milwaukee), WI 53154. Pole to be made of new 6063-T6 seamless aluminum tubing with a machine sanded centerless fine grain grit satin finish, with an exposed height of 25', butt diameter of 5½", top diameter 3½", pole to taper 1" in every 5'6" in the tapered portion. Double spiral wrapped in heavy paper and hard fibre tube. Finish shall be Duranodic dark No. 313.

#### 4. CLEAN UP

a - All rubbish and debris shall be removed and the job site shall be left clean.

#### 5. GUARANTEE

a - This Contractor shall and hereby does warrant and guarantee that all work executed under this Contract will be free from defects of materials and workmanship for a period of one year from the date of final certificate unless otherwise specified. The Contractor further agrees that he will at his own expense, repair and replace all such defective work and other work damaged thereby which becomes defective during the term of the guarantee.

#### 6. ALTERNATE BIDS

a - Refer to the Alternate Bid Division of this specification for additions or omissions of work pertaining to this division of the specification.

EQUIPMENT  
DIVISION ELEVEN A

1. GENERAL CONDITIONS

- a - Work under this Division is subject to the General Conditions set forth in Division One of this Specification.
- b - This Contractor shall read "Instructions to Bidders", Division 1B, for complete clarification of the work.

2. SCOPE OF WORK

- a - Work to be done includes the furnishing of all labor and materials necessary for the complete installation of a fuel supply system including but not limited to underground storage tanks and dual fuel pump.
- b - General Contractor shall furnish the following equipment:
  - 1. Dishwasher: Kitchen Aid Model KDS-19
  - 2. Countertop Microwave oven: Hotpoint Model RE 931Y and accessory built-in sleeve kit.
  - 3. Refrigerators (3): Hotpoint Model CTF 14EA
  - 4. Freezers (3): Hotpoint Model FV 16 CW
  - 5. Range: South Bend Model 323
- c - Color and Finish selection of appliances by Architect.
- d - Coordination of job installation of above equipment shall be by General Contractor.

3. FIBERGLASS TANKS FOR FUEL STORAGE

- a - Furnish and install two (2) fiberglass U.L. labeled underground storage tanks of 1000 gallon capacity each and with required fittings. Tanks shall be 1000 D-5 as manufactured by Owens-Corning Fiberglas.
- b - Tanks shall be tested and installed with pea-gravel or approved alternate backfill material according to the current installation instructions (Owens-Corning Fiberglas Publications 3-PE-6304 and 3-PE-8461) provided with the tank.

4. DUAL PUMP

- a - Furnish and install one self-contained dual pump with two (2) explosion proof motors and two (2) air separators. Pump shall be as manufactured by Gilbarco, Greensboro, N.C., Model #252-1.
- b - Power supply shall be for two (2) 1/3 H.P., 120-240 volt, 60 cycle, A.C. motors and shall be by the Electrical Contractor.

5. GUARANTEE

a - This Contractor shall and hereby does warrant and guarantee that all work executed under this Contract will be free from defects of materials and workmanship for a period of one year from the date of final certificate. The Contractor further agrees that he will, at his own expense, repair and replace all such work and all other work damaged thereby which becomes defective during the term of the Guarantee.

6. SHOP DRAWINGS

a - Material supplier shall submit shop drawings of above specified products or equals to General Contractor for approval prior to supplying material to site.

7. CLEANING

a - As work progresses, this Contractor shall remove all debris relating to this work and leave the site and the building in a clean condition.

8. ALTERNATE BIDS

a - Refer to the Alternate Bid Division of this Specification for additions or omissions of work pertaining to this Division of the specification.

CONVEYING SYSTEMS  
DIVISION FOURTEEN A

1. GENERAL CONDITIONS

a - The work under this Division is subject to the General Conditions set forth in Division One of this Specification.

b - This Contractor shall read the "Instruction to Bidders", Division 1B, for complete clarification of the work.

2. SCOPE OF WORK

a - Furnish all labor, materials and equipment to perform all operations necessary for the complete installation of conveying system as shown, scheduled and hereinafter specified, including but not necessarily limited to the following outline of equipment:

1) Electric Chain Hoist

3. ELECTRIC CHAIN HOIST

a - Furnish and install one (1) trolley suspension, 1/4 ton, two speed, double chained with geared limit switch electric chain hoist as by Budgit or Robbins and Meyers.

b - 120 volts, 3 phase, 60 cycle. Voltage to be verified before ordering.

c - Power supply by Electrical Contractor.

4. SHOP DRAWING

a - Shop Drawings shall be prepared immediately upon award of this contract.

b - Four (4) copies of shop drawings shall be submitted to the Architect for approval. No equipment shall be ordered or installed until shop drawings have been approved by the Architect.

5. CLEANING

a - As work progresses, this Contractor shall remove all debris, relating to his work and shall leave the building and the site in a clean condition.

6. GUARANTEE

a - This Contractor shall guarantee and maintain all conveying system work in good condition for a period of one year after date of final payment. Any defective work shall be repaired or replaced as required.

Hoist  
AAFS#6

14A-2

7. ALTERNATE BIDS

a - Refer to the Alternate Bid Division of this specification for additions or omissions of work pertaining to this division of the specification.

MECHANICAL GENERAL REQUIREMENTS  
DIVISION FIFTEEN A

1. GENERAL

- a - Applicable provisions of General Conditions, Supplementary General Conditions, and instructions to Bidders govern work under this Section.
- b - Provide all items, articles, materials, operations or methods listed mentioned or scheduled on drawings and/or herein, including all labor, materials, equipment and incidentals necessary and required for their completion.

2. CODES, PERMITS, AND FEES

- a - The entire installation shall conform to the Rules and Regulations of the State Codes, National Fire Prevention Association, and any other Governmental and Local Agencies having jurisdiction.
- b - All work shall be executed and inspected in accordance with the Local and State Rules and Regulations and all established Codes applicable thereto; and shall also conform in all respects to the Requirements of all competent authorities having jurisdiction thereover.
- c - Provide, without additional cost to the Owner, all the necessary labor and materials of all kinds required by the above Regulations whether the work may be specified or shown contrary to the above Regulations. Sizes of all pipe shall conform to the Requirements of the Codes, except where larger sizes are shown on the Drawings.
- d - This Contractor shall obtain and pay for all permits that will be required in his work. This includes heating, plumbing, water permits, and any other permits that may be required.

3. INSPECTION OF PREMISES

- a - All Contractors before submitting their proposals shall examine the site carefully and satisfy themselves as to the nature and extent of the work and conditions under which it is to be performed. No allowance will afterwards be made on account of any Contractor failing to make a thorough examination of the site.

4. MECHANICAL DRAWINGS

- a - Contract Drawings for Mechanical Work are in part diagrammatic, intended to convey the Scope of Work and indicate general arrangement of equipment, Ducts, piping and approximate sizes and locations of equipment and outlets. Do not scale drawings for measurements.



4. MECHANICAL DRAWINGS

- b - The Contractor shall follow the Drawings in laying out his work; consult Architectural and Electrical construction drawings to familiarize himself with all conditions affecting his work; and shall verify all spaces in which their work will be installed; consult with other Contractors in arranging the installation of this work to eliminate interference. Contractors shall give full cooperation and shall perform such duties necessary to expedite one another's work.
- c - Where job conditions require reasonable changes in indicated locations or arrangements, make changes without extra cost to the Owner.

5. ACCELERATION OF WORK

- a - All work under this Contract shall be performed at such time as directed by the Architect. This Contractor may be required by the Architect to do work at other than the general working hours without extra cost to the Owner, if his work is behind the other Contractors or if any parts of the work need to be finished in advance of other work. The Contractor shall concentrate his men on such work as directed by the Architect.

6. GUARANTEE

- a - Execute and deliver to the Architect, Before final Certificate, a Written Guarantee in a form satisfactory to the Owner and Architect; that all materials furnished and work performed is in accordance with this Contract, Plans and Specifications and authorized alterations and additions thereto; that, should any defect develop during the Contract Guarantee Period, as hereinafter defined, due to improper materials, workmanship or arrangement, the same shall, upon Written Notice, be made good without expense to the Owner; and that any other work affected in correcting such defects shall also be made good, during a period of one (1) year after date of final acceptance by the Owner.

7. USE OF EQUIPMENT

- a - The use of any equipment, or any part thereof, even with the Owner's consent, shall not be construed to be an acceptance of the work on the part of the Owner, nor shall it be construed to obligate him in any way to accept improper work or defective materials.

8. CHASES AND RECESSES

- a - Provided by the General Contractor, but this Contractor shall be responsible for their accurate location.

9. CUTTING

- a - See Masonry Section.

10. EXCAVATING AND BACKFILLING

- a - All excavating, trenching, tunneling and backfilling to install work specified in the Mechanical Division shall be by the Mechanical Contractor.
- b - Foundations shall be provided by the Mechanical Contractor if required to support underground piping. Particular attention is drawn to the soil conditions outside the building. Refer to Architectural Drawings and Specifications and soil borings.
- c - Backfill inside building and under drives and parking areas with well-tamped sand. Backfill shall be placed in layers not more than 3" in thickness. 95% compaction throughout with approved compaction equipment. Tamp, roll as required. Excavated material shall not be used.
- d - Backfill outside building with sand to a height 12" over top of pipe compacted to 95% compaction as specified above. Backfill remainder of excavation with unfrozen, excavation material in such a way to prevent settling.

11. CLEANING

- a - Work shall not be considered completed until all fixtures and equipment are cleaned; all fittings and plated work polished and the building and site are cleared of debris and rubbish incurred by the work under this Contract. Cleaning shall be performed to the satisfaction of the Architect.

12. DAMAGE TO WORK

- a - This Contractor shall be held responsible for all damage to other work caused by his work or through the neglect of his workman. All patching and repairing of damaged work will be done by the Contractor who installed the work, as directed by the Architect, but the cost of same shall be paid by the Mechanical Contractor.

13. WORKMANSHIP OF OTHER TRADES

- a - Examine the installation of materials and workmanship of other Trades where it affects in any way the installation of the Mechanical Equipment and report any conditions unfavorable to a satisfactory installation of the Mechanical Equipment. Failure to make such a report to the Architect in writing shall be construed as an acceptance of the work of other Trades and this Contractor will be held responsible for the final results.

14. EQUIPMENT FOUNDATIONS AND SUPPORTS

- a - Shall be as required or as shown on plans or specified.
- b - Floor foundations shall be concrete base poured before equipment is installed, with anchor bolts and sleeves to fit machine base.
- c - For equipment suspended from ceilings or walls, furnish and install all inserts, rods, structural steel frames, brackets and platforms required.

15. PIPING - GENERAL

- a - Route piping so as not to interfere with the pipe lines, wires and apparatus of other Contractors. Confer with the other Contractors when locating the pipe lines, adjust the locations so as to prevent interference. Wherever pipe or fittings cannot be installed as shown or as specified, the matter shall be taken up with the Architect's Superintendent.
- b - Arrange and install piping as indicated, straight, plumb and as direct as possible: Form right angles and parallel lines with building walls. Keep pipes close to walls, partitions, ceilings; offset only where necessary to follow walls as directed. Install horizontal piping as high as possible without sags or bumps. Where piping is installed in furred spaces, keep pipes as close to structural members as possible.
- c - Locate groups of pipes parallel to each other; space them at distance to permit applying full insulation and to permit access for servicing valves.
- d - Avoid locating water and drain piping over electrical equipment; where this is unavoidable, provide copper drip pans under such pipe or weld piping and fittings.
- e - Keep piping free from scale and dirt; protect open pipe ends wherever work is suspended during construction; use temporary plugs or other approved material. Flush out piping systems before final connections with water. After flushing, clean all strainers, blow down drain valves, and remove drain caps in order to eliminate debris, sediment, etc., from the piping systems. Domestic water piping shall be disinfected after flushing as specified in Plumbing Section.
- f - Contractor shall conceal all piping wherever possible. Provide swing connections at all risers. Branch connections above the main shall be made off the top of the mains; connections below the mains shall be made off the bottom of the mains and installed so that branches can vent themselves.

15. PIPING - GENERAL

- g - Make all required provisions to prevent noise and damage to pipe caused by expansion and contraction in pipe lines. All bends shall be no lighter than for straight lengths of pipe. Bends shall be of long-radius conforming to Tube Turn, Inc. standard for expansion bend dimensions, or as otherwise dimensioned on the Drawings.
- h - Leaks shall not be repaired by caulking or by using additives. Any defective fittings or pipe shall be removed and replaced with new fittings, or in the case of pipe, the pipe shall be taken down and the threads recut.
- i - All piping shall be continuous between fittings wherever possible. Short links and couplings will not be permitted.
- j - Water piping systems shall be installed in such a manner that the entire systems can be completely drained. Particular care shall be exercised to avoid air and water pockets in piping.
- k - Lay out all the pipe lines, establish all pipe line levels from existing monuments, insure the proper location and installation of pipe sleeves and pipe in building walls and floor slabs.
- l - Elevations and grades of piping shown on the Drawings shall be considered as approximate only, and shall not be used by the Contractor as final for installation of the Work.

16. PIPE JOINTS

- a - All joints in the cast-iron shall be secured with No-Hub bands or rubber gasketed premium joints.
- b - Joints in threaded pipe shall be made with sharp, clean, tapered threads using tite-seal pipe compound of approved type on the male thread only. All pipe ends shall be reamed to the full inside diameter.
- c - Joints between different sizes of piping shall be made with reducing fittings, eccentric where necessary for proper drainage. Bushings will not be allowed.

17. UNIONS

- a - Provide screwed unions, where indicated and/or in long runs of piping to permit convenient disassembly for alterations or repairs.
- b - Unions in copper piping shall be wrought-copper unions, Nibco No. 633, or equal.
- c - Unions in vent piping shall be galvanized clip couplings (Hub union) Boosey No. 555 or No. 556, or equal.
- d - Unions and flanges in galvanized piping shall be galvanized.
- e - Unions in black steel three (3") inches and smaller shall be female unions, ground joints, Dart No. 0832, or equal.

## 18. STRAINERS

- a - Provide screwed line-size strainers where indicated on Drawings.
- b - Strainers shall be "Y" type with easily removable sediment traps, monel strainers, semi-steel body as manufactured by Paget, Adasco, Leslie, or Muessco. Brass bodies are acceptable in sizes 2-1/2" and smaller.
- c - Strainers for piping three (3") inches and smaller shall have screwed ends.
- d - Provide a blow-off valve for each strainer, same size as strainer tapping.

## 19. SLEEVES

- a - Provide and set sleeves to accommodate pipes and ducts passing through foundations, walls, floors, and partitions.
- b - Sleeves shall be of galvanized steel or wrought-iron pipe when they are located in concrete beams or concrete fire-proofing in outside walls, foundations, footings, water-proofed floors or where space between pipe and sleeve is to be lead-caulked. In other locations, sleeves shall be constructed on 22 gauge galvanized sheet steel with lock-seam joints. Extra-heavy cast-iron soil pipe may be used in place of steel or wrought-iron for sleeves in walls below grade.
- c - Where pipe motion due to expansion and contraction will occur, make sleeves of sufficient diameter to permit free movement of pipe. On insulated pipes, make sleeves of sufficient diameter to pass insulation freely.
- d - Terminate sleeves flush with walls, partitions and ceilings. In concealed areas as in chases, terminate sleeves flush with floor.
- e - Sleeves through walls below grade shall be caulked with oakum and lead on both sides of wall.
- f - In cases of pipes or ducts passing through fire walls, the free space in the sleeves shall be packed with suitable, approved non-combustible material.

## 20. FLASHING

- a - Pipes passing through roof shall be flashed and made watertight at the roof with sixteen (16 oz.) ounce soft sheet copper of four (4 lb.) pound sheet lead. Flashings shall extend not less than twelve (12") inches from the vent pipes in all directions. Flashings shall be turned down into top of piping.

## 21. PIPE HANGERS AND SUPPORTS

- a - Provide all the necessary hangers, rods, supports and concrete inserts to properly secure piping and related equipment. Supports and hangers shall prevent vibration, maintain required grading by proper adjustment and provide for expansion and contraction.
- b - Hangers for steel piping shall be of the split-ring or Clevis-type using solid hanger rods Fee & Mason, Figure 239, Carpenter and Paterson Co., 100, or equal, unless otherwise specified, detailed and/or shown on the Drawings, provide vibration and other special hangers where indicated or required.
- c - Minimum hanger rod size and minimum spacing for steel piping shall be as follows.

<u>PIPE DIAMETER (INCHES)</u>	<u>ROD SIZE (INCHES)</u>	<u>SPACING (FEET)</u>
1/2 to 1	3/8	5
1-1/4 to 2	3/8	10
2-1/2 to 3-1/2	1/2	10

- d - Hangers for copper piping shall be Fee & Mason Fig., 364, Carpenter & Paterson, Inc. Company's Fig. 128 copper-plated with spacing as follows:

<u>PIPE DIAMETER (INCHES)</u>	<u>SPACING (FEET)</u>
1/2 to 3/4	5
1- 2-1/2	10

- e - Hangers and/or supports shall also be provided at every change of direction and within three (3') feet of the pipe fitting.

## 22. MISCELLANEOUS EQUIPMENT

- a - Escutcheons: All pipes passing through walls, partitions, floors, ceilings, etc. shall be fitted with chrome or nickel-plated adjustable escutcheons.
- b - Insulation Couplings: Provide EPCO Sales Co., or approved equal, insulating couplings at all locations where copper piping is connected to equipment and/or dissimilar material.
- c - Air Chambers: Provide air chambers in both hot and cold water risers, and supply branch risers to the fixtures. Air chambers shall be concealed in partitions, walls, and pipe spaces.

- d - Thermometers: Industrial thermometer with 9" case, brass separable socket, 30 to 240° F range, form shall be adjustable to permit reading from the floor.

TRERICE - - - - - BX SERIES

WEISS - - - - - -9 v 5

WEKSLER - - - - - AA 5 A

- e - Pressure Gauges: Pressure gauge with 4-1/2" case, bronze-bushed movement, 0 to 100 psi, gauge cock in inlet, form shall be adjustable to permit reading from the floor. Gauge on pumps shall have pulsation dampeners installed on their inlet, between cock and gauge.

TRERICE - - - - - 600 SERIES 865

WEISS - - - - - 4 PGA TC14

WEKSLER - - - - - 900 A-10

## 23. ACCESS DOORS

- a - Shall be furnished by the Mechanical Contractor and installed by the General Contractor. In the walls shall be Milcor No. L or M as required to make all valves, controls, coils, motors, filters, and equipment accessible. Minimum size 12" x 12", others as required. In the ceilings shall be Milcor No. A or B for accessibility as mentioned above, 24" x 24" minimum size. The plaster or acoustical tile insert shall be by the General Contractor. Areas with lay-in ceilings will not require access doors.
- b - When access doors are in fire resistant walls or ceilings, they must bear the Underwriters' Laboratories, Inc. label with time design rating equal to or exceeding that of the wall or ceilings unless they were a part of the tested assembly.

## 24. TESTING AND ACCEPTANCES

- a - When the systems are completed, the Contractor shall operate equipment as directed by Architect. Replace all faulty equipment. Repair all leaks in piping and make necessary adjustments before final acceptance. Upon final acceptance of the work, the Contractor shall give the Owner a written guarantee that he will make good, at his own expense, any defects in materials or workmanship which may develop within one (1) year from date of final acceptance. Tests shall include all piping. Provide complete operating instructions, operating manuals and repair parts lists for the Owner's personnel.
- b - Perform all tests required by State, City, County and/or other agencies having jurisdiction.

- c - Provide all materials, equipment, water, compressed air, etc. and labor required for the tests.
- d - Piping under hydrostatic pressure test shall not lose more than 2 P.S.I. for a period of 5 hours under test pressure. Examine piping for leakage.
- e - Piping under air pressure test shall not lose more than 1% of test pressure for a period of 1 hour. Tests shall be performed with ambient temperature approximately constant.
- f - Tests shall be as follows unless otherwise required by agencies having jurisdiction. Valve off or remove all gauges, equipment, etc. which may be damaged by tests.
  - (1) Domestic water piping outside building shall be 150 P.S.I. hydrostatic.
  - (2) Domestic cold water and hot water piping inside the building shall be 100 P.S.I. hydrostatic.
  - (3) Sanitary piping shall be hydrostatic test.

## 25. ADJUSTMENTS

- a - After the testing has been completed and the installation declared satisfactory, put all the systems in proper adjustment and operation.
- b - All apparatus, equipment, specialties, etc., shall be adjusted to produce the intended results.
- c - Check motor and drive alignment and make necessary adjustments.
- d - Check all bearings for lubrication and lubricate if required.
- e - Check all motors and bearings for overheating and make necessary adjustments if required.

## 26. MOTORS

- a - All motors shall be built to applicable NEMA Specifications and shall be designed for adequate torque and/or thermal capacity to start and accelerate the driven equipment under conditions of specified voltage. Motors shall be equipped with conduit connections boxes.
- b - The windings of motors which are required to be installed in locations where they may be subjected to higher than ordinary room temperature shall be so designed and insulated as to be capable of operation without damage due to the temperature to which they may be subjected.



- c - The driven equipment manufacturer and the motor manufacturer shall exchange sufficient engineering information to permit the above specifications to be met without exception.

NOTE: Unless distinctly stated otherwise, the motor horsepower specified shall be understood to be the minimum acceptable and specified motor speeds the maximum acceptable.

- d - Motor speed shall be 1750 RPM, unless otherwise noted.
- e - Motors shall be as manufactured by Allis, G.E., Howell, Westinghouse, Alliance or Wagner.

## 27. ELECTRICAL CONNECTIONS

- a - All starters are by the Mechanical Contractor. All wiring, excluding the temperature control wiring, unless otherwise noted, is by the Electrical Contractor. T.C.C. wiring by Mechanical Contractor.

## 28. ELECTRICAL CHARACTERISTICS

- a - All motors shall be suitable for operation on 115 volt, single-phase, 60-cycle alternating current.
- b - Motors larger than 1/3 HP shall be suitable for operation on 208 volt, single phase, 60-cycle alternating current, unless otherwise noted.

## 29. SHOP DRAWINGS

- a - See ... "General Conditions."
- b - Submit checked 6 copies of Shop Drawings for each piece of equipment and/or apparatus to be used, together with such descriptions and/or explanatory notes as may be required to give a clear idea of its arrangement and construction.
- c - No apparatus or equipment shall be shipped from stock or fabricated until Shop Drawings for same have been approved.
- d - Submit performance curves and certified ratings on equipment and Shop Drawing Submittals.

## 30. AS-BUILT DRAWINGS

- a - This Contractor shall submit to the Architect sets of transparencies which have been neatly marked to represent as-built drawings for all underground piping and sewers.

31. SUBSTITUTIONS

- a - Proposals are to be based on the various brands, makes and standards of materials and/or equipment specified and/or noted on the drawings, and unless other substitutions are authorized by the Architect, in writing, all contracts are to be so awarded. Each bidder shall state in his proposal the names of substitutions which he proposes to use, if approved, and the amount which is to be added or deducted from the proposal in the event that same are accepted.

1. GENERAL CONDITIONS

- a - General Conditions and Amendments and General Requirements of this specification apply equally to all sub-contracts. All Contractors performing work under this division are presumed to have familiarized themselves with all Provisions contained therein.

2. GENERAL

- a - Major items of work and equipment included under this Section of the Specifications are as follows:

SANITARY DRAINAGE SYSTEM

STORM DRAINAGE SYSTEM

DOMESTIC HOT AND COLD WATER SYSTEMS

PLUMBING FIXTURES, DRAINS, SPECIALTIES, ETC.

EXCAVATION (See...General Mechanical Specifications)

NATURAL GAS SYSTEM

3. WORK BY OTHERS

- a - Electrical Wiring.

4. STORM, SANITARY DRAINAGE SYSTEM

- a - General

1. The mechanical contractor shall apply for and pay for all fees, costs, permits, required to provide a connection to the City and/or County sewer, except capital charges or assessments will be paid for by the Owner.
2. Drainage lines shall be laid to a minimum pitch of one-eighth (1/8") inch per foot, unless otherwise noted, within the building.
3. Connections and changes in direction of drainage lines shall be made by means of Y's and long quarter bonds.
4. Changes in direction shall be made by special fittings and not shifting the pipe in the joints. All elbows, bends, etc., shall be securely braced and blocked in an approved manner.
5. Verify invert elevation of existing sewer manhole or existing sewer at point of connection.

b - Pipe Materials and Fittings:

Storm, Soil Waste and Vent Piping:

1. Soil, storm and vent piping below grade and/or below floor slabs inside of building and extending to a point 5'-0" outside of the building shall be service weight, coated cast-iron, centrifugally spun bell-and-spigot pipe and fittings with weight and trademark cast on each length, or "No-Hub" if approved by Local Authorities.
2. Storm, soil, waste and vent above ground 3" and larger shall be cast-iron pipe with hub ends, or "No-Hub" if approved by Local Authorities.
3. Storm, soil, waste and vent above ground 2-1/2" and smaller shall be cast-iron pipe and/or galvanized steel pipe with cast-iron drainage fittings, or "No-Hub" if approved by Local Authorities.

c - Site Work:

Sanitary Sewers:

1. Extra-strength vitrified clay sewer pipe with bell-and-spigot and Tylox or Wedgelock joints.

d - Storm Sewer

1. 10" and less shall be extra-strength vitrified clay sewer pipe with bell-and-spigot and Tylox or Wedgelock joints.

e - Storm and Combined Sewer

1. 12" and larger shall be reinforced concrete sewer pipe with a premium sewer joint compound.

f - Laying of Sewers

1. All pipe shall be laid to the line and grade called for on the Drawings and shall be checked with line and grade pole to insure that this result is obtained. Construction shall begin at the outlet end and proceed up grade with spigot ends pointing in direction of flow.
2. Bell holes shall be excavated so that the full length of the barrel will bear uniformly on the subgrade.
3. Whenever the ground is made or filled, or where there is danger of settlement for any cause, the sewer or drain must be made of extra-heavy cast-iron with lead-caulked joints and must be supported in an approved manner satisfactory to the Architect.

g - Minimum Depth of Bury

1. Where no elevations are given, the minimum depth of bury from grade to top of sewer shall be as follows:

SANITARY SEWERS - - - - - 3'-6"

STORM SEWERS - - - - - 2'-0"

Except that storm under the parking lot  
or paved areas shall be 3'-6"

h - Cleanouts and Access Covers

1. Provide Zurn Co., Josam, Smith, Wade or approved equal, cleanouts at the foot or base of each vertical waste or soil stack, rain conductors, and in drainage lines at all changes in direction of flow and at 50'-0" intervals in straight runs 6" and larger.
2. Cleanouts shall be readily accessible and shall have eighteen (18") inches clearance behind the plug for rodding, except where a removable access cover is provided. Cleanouts shall be same nominal pipe size as lines served but no larger than four (4") inches. Exact locations shall be determined before installation and approved by the Architect's Superintendent.
3. All cleanouts shall have proper fittings, ferrules, and plugs. Fittings shall be long-sweep or sanitary TY fittings: ferrules and plugs shall be heavy cast brass or bronze.
4. The finish of coverplates and access covers shall be nickel-bronze, except in paved areas where "dura-coated" shall be used.

i - Schedule

<u>Location:</u>	<u>Model No.</u>
Plaster Walls - - - finished areas - - - - -	Z-1460-9
Masonry Walls - - - finished areas - - - - -	Z-1460-9
Floors - - - - - finished areas with tile floor covering 1/8" recess - - - - -	Z-1420-6
Floors - - - - - finished areas with ceramic tile or terrazzo finish 3/4" min. recess - - - - -	Z-1400-10
Floors - - - - - plain cement finish - - - - -	Z-1420-2
Paved and Planting Area - - - - -	Z-1450-1

j - Roof Sumps

1. Provide Zurn, Josam, Smith, Wade or approved equal, roof sumps where shown and rain conductors of sizes indicated. Flashings will be provided by Architectural Trades.

k - Roof Sump Schedule

Main Roof - - - - - Zurn Z-100 EC

l - Floor Drains

1. Provide Josam, Smith, Wade or Zurn floor drains per following schedule, with deep-seal traps, coated cast-iron body, clamping collar where required and nickel-bronze strainer unless otherwise noted. Zurn Model Numbers are used to establish a standard.

Equipment Rooms	Z-550-Y	Med. Duty Drain	9" Coated
Toilet Rooms	Z-415	Triumph	5" Type "B", N.B.
Storage & General	Z-507	Gibraltar	7" Coated

2. This Contractor shall work with the General Contractor and Mason Contractor to obtain the right setting height for all floor drains, and he will be held responsible for the proper setting.

m - Traps

1. Furnish and install cast-iron traps on all hub outlets, floor drains, slop sinks and where required. Provide lead pans for ceiling hung drains, mop basins and hub outlets.

n - Equipment Drains

1. Provide valved drain connections at all low points in piping.
2. Valved drains shall be 3/4" unless otherwise noted.

5. DOMESTIC HOT AND COLD WATER SYSTEM

a - General

1. Minimum depth of bury for cold water piping outside the building shall be 5'-0" below grade.
2. Provide a gate valve at each piece of equipment requiring a water connection, and in the main service feeding toilet rooms or groups of fixtures.
3. Do not use gate valves for throttling flow.
4. Provide check valves where necessary to prevent back flow.
5. All valves shall be line size.

b - Pipe Materials and Fittings

1. Pipe above ground shall be Type L, hard-temper & soft-temper copper tube with wrought-copper fittings and 50/50 soldered joints.
2. Below grade and/or floor slab shall be Type K, soft-temper copper tube with no fittings; use one continuous length.
3. Copper pipe shall be Revere Brass, Anaconda, Chase Copper and Brass or approved equal.

c - Valves

1. Shall be Crane, Fairbanks, Jenkins, Kennedy, Powell, Lunkenheimer, Hammond, Nibco-Scott, Stockham or equal; Crane Figure Numbers are used to establish a standard. All valves shall be of one manufacturer unless otherwise specified.

d - Valves Schedule (Crane Numbers, except as noted)

<u>Type and Size</u>	<u>Flanged</u>	<u>Soldered</u>
Gate V.	465-1/2	1320
Globe V.	351	1310
Check V.	373	1303
Check V.	Mission Duo Check	
Globe V. 2" and smaller		<u>Fairbanks Figure No.</u> 0508
Check V. 2" and smaller		0680
Stop and Waste 2" and smaller		0584

e - Cold Water Service

1. Make connections to the water line where shown on Drawings and extend service to meter location.
2. Provide a compound meter, setting and vertical bypass. The water meter shall be as sized on Plans.
3. The entire installation shall conform to the Local Water Department Codes and Regulations.
4. Pay all fees, costs and permits required to provide a new water service and meter installation.

f - Backflow Preventor

1. Provide a reduced pressure backflow preventor equal to Beeco in the water line to the building.
2. Unit to be Beeco, Cla-Val Co. Clayton or Crane Co.

g - Wall Hydrants

1. Woodford #70, 3/4" or approved equal, non-freeze with loose key and brushed, chrome-plated face.

h - Vacuum Breaker

1. Provide a Nidei #3/4 HD vacuum breaker for each wall hydrant.

i - Valve Box

Kennedy Fig. I20 two-piece sliding-type with tee handle operation wrench.

j - Hot and Cold Water Branches

Branch Sizes Shall Be:

Lavatory - - - - -	1/2"
Water Closet - - - - -	
Sinks - - - - -	1/2"
Bath Tubs - - - - -	1/2"
Hose Bibbs - - - - -	3/4"
Wall Hydrants - - - - -	3/4"

k - Domestic Hot Water Circulators

1. Provide Bell & Gossett, Taco or Dunham Bush centrifugal booster type, sleeve bearings, all bronze circulator with mechanical seals.

l - Air Chambers

1. All hot and cold water supply piping fittings and fixtures shall be protected from water hammer surge pressures by a properly sized mechanical pneumatic air chamber similar to Zurn or Wade Mfg. Co., Shokstop design or by properly designed air chambers in the piping system. Air Chambers shall be located on the laterals near the risers feeding the fixtures directly upstream from the first fixture.



m - Disinfection of Domestic Water System Piping

1. The piping shall be flushed thoroughly with clean water and then shall be filled with a solution containing 100 parts per million of available chlorine and allowed to stand 2 hours. The piping shall be flushed again and refilled with clean water. The Local Health Department shall be notified that a water sample may be taken at this time for bacteriological analysis.

6. PLUMBING FIXTURES

- a - Provide and connect all fixtures shown on the Drawings or herein called for.
- b - Unless otherwise specified, all exposed fixtures trimmings shall be first quality, chromium-plated brass. All faucets shall have renewable seats and discs.
- c - Lavatories shall be supported on wall brackets attached to walls with through bolts.
- d - Fixtures secured to concrete or block walls shall be fastened with brass bolts or machine screws screwed into lead anchors.
- e - Wall -mounted water closets shall be connected to C.I. closet carriers. Zurn, Josam, Smith, or Wade equal to Zurn C.I. support system.
- f - After all fixtures have been set, clean all fixtures of plaster, stickers, rust stains, and other foreign matter of discoloration.
- g - This Contractor shall be responsible for protecting against injury from building materials, acids, tools and equipment, all plumbing fixtures included in this Section of the Specifications.
- h - The cost of replacing and repairing plumbing fixtures, made necessary by failure of this Contractor to provide suitable protection, shall be paid by this Contractor.
- i - Fixture connections shall be chrome-plated flexible brass pipe.
- j - Provide a stop or shut-off valve in the water connection to each plumbing fixture equal to Speedway.
- k - Plumbing fixtures shall be Kohler, Crane, Gerber, Eljer, Briggs, Universal Rundel, American Standard. All flush valves shall have vacuum breakers. Flush valves shall be Sloan, Watrous and Delany similar to the Sloan numbers specified herein. Toilet seats shall be Church, Olsonite, Bemis or Beneke.

1. Water Closet: White, American Standard, elongated "AFWALL" toilet, siphon jet, flush valve, off-the-wall, vitreous china, white solid plastic open front check hinged seat #2477.016 and #110 Sloan "Royal" flush valve with vacuum breaker, c.p., screw driver stop.
2. Urinal: White, American Standard "Allbrook" #6540.017, siphon jet vitreous china, 1-1/4" top spud, 2" IPS outlet, wall hangers; spud; strainer and trap; Slone Royal #180 flush valve, c.p., screw driver stop, vacuum breaker.
3. Lavatory - Wall Hung: White vitreous china, 4" centers for faucet, front overflow, soap depression, 20" x 18", wall hanger, American Standard #0361.055, "Scotian", code chrome plated p-trap, chrome plated angle supplies.
4. Lavatory Faucet: Delta #520, chrome plated cast brass center set with pop-up drain, aerator, single lever or Moen #4695, barrier free lever length.
5. Kitchen Sink - (Double bowl): Self rimming stainless steel, 18 gauge, four hole drilling for center set, 33" x 19-1/2" overall with 14" x 14" x 7-1/2" bowls, Elkay #LR-3319, angle stop, code p-trap.
6. Kitchen Sink Faucet: Delta #100-DX 8" center set, aerator, with double dispenser and dishwashing attachment mounted in fourth hole, or Moen #7841-A.
7. Garbage Grinder: Rubber cushioned mounting, continuous feed, cutting hammers, built-in overload protection with manual reset, perm. lubricated bearings, insinkerator #333/55, 1/2 HP.
8. Drinking Fountain: Sunroc, Oasis, Westinghouse, G.E., Eaton-Cordley, or Halsey-Taylor, wall hung wheelchair height, surface mounted, heavy gauge, satin finish stainless steel, one piece, die-formed basin, cold rolled steel apron and cabinet. Oasis #ODF-10
9. Grab Bars and Bath Accessories: Provided by General Contractor and installed by Mechanical Contractor.
10. Showerhead and Valve: Showerhead shall be Symmons or Acorn #802-2 with ball joint feature, 2-1/2 GPM flow controls. Valve shall be Symmons or Powers #425-11-00, "Hydroguard".
11. Shower Stall: Shower Room shall be provided by General Trades Contractor.
12. Lavatory - Counter Top: White enameled C.I., 4" centers for faucet, front overflow, 19" x 16" oval, American Standard #3211.059 "Leogelyn", code chrome plated "P" trap, chrome plated angle supplies.  
Faucet: Same as Item 4.

13. Service Sink: One piece precast terrazzo mop basin, ground and polished, 24" x 24" x 12" deep. Integral C.P. brass drain, stainless steel or anodized rim guard. Williams, stainless steel or anodized aluminum rim guard. Williams #SB-900 "Serviceceptor" or Fiat #SB "Mop Basin". Chrome-plated, double faucet with 3/4" hose end, vacuum breaker, pail hook wall brace and stop-in-arms, Chicago #897.
  14. Floor Sink - Hose Drying Room: Zurn, Josam, Smith or Wade equal to Zurn #560, 12" x 12" light duty drain, dura-coated C.I., light duty drain.
  15. Dishwasher: Furnished by General Contractor and plumbing connections by Mechanical Contractor.
7. GARAGE INTERCEPTOR
- a - Furnish and install interceptor as detailed on the Drawings. Cover and Rim shall be Neenah, Clow or East Jordan #3170-MM (heavy duty).
8. NATURAL GAS SYSTEM
- a - General:
    1. Minimum depth of bury for gas mains outside the building shall be 3'-0" below grade.
    2. Provide a plug valve and a gas-pressure regulator at each piece of equipment and/or appliance requiring a gas connection.
  - b - Pipe Materials and Fittings:
    1. 2-1/2" and smaller shall be standard weight, black steel pipe and screwed malleable iron fittings.
    2. 3" and larger shall be standard weight, black steel pipe with long-radius, butt-welded fittings.
  - c - Valves:
    1. Plug valves shall be Walworth Co., Crane Co., or approved equal.

Plug Valves ----1" and smaller----Crane No. 298  
Plug Valves ----1-1/2" to 2-1/2"---Walworth No. 1796  
Plug Valves ----3" and larger ----Walworth No. 1797-F
  - d - Gas Service:
    1. The service to the gas meter, meter manifold and setting of the gas meter will be provided by the local gas company.
    2. The Mechanical Contractor will pay all costs, fees and permits pertaining to the gas service.

8. NATURAL GAS SYSTEM (Continued)

e - Regulations:

1. The entire gas system shall be installed in accordance with the Regulations and Standards of the Local Gas Company.

f - Dirt Pockets:

1. Provide full-size dirt pockets at bottom of gas risers to water heaters and make-up air unit.

9. GAS-FIRED WATER HEATER

- a - Storage type gas-fired hot water heater; complete with all controls, insulated enameled iron jacket, drain valve, draft regulator, glass lined tank, safety flame sensor, 2" fiberglass insulation, 3 year guarantee, magnesium rod, thermometer on inlet and outlet pipe, hand hole cleanout, 100% safety shut-off electric aquastat and gas valve. AGA certified.

10. CLEANING AND TESTING

- a - At the completion of his work, the Mechanical Contractor shall thoroughly clean all fixtures, clean out all traps, remove all refuse and dirt, make any and all adjustments required and leave his work in clean and proper working order.
- b - Upon the completion of the plumbing work, complete tests shall be made to the satisfaction of the Architects.

11. TRENCH DRAINS

- a - Grating for trench drains shall be equal to Neenah model R-4990-D, type "B" grate and type "L" frame.

HEATING AND AIR CONDITIONING  
DIVISION FIFTEEN C

1. GENERAL

- a - Applicable provisions of General Conditions, Supplementary General Conditions, Special Conditions and instructions to Bidders govern work under this Section.
- b - The Contractor shall provide all items, articles, materials, operations or methods listed, mentioned or scheduled on drawings and/or herein, including all labor, materials, equipment and incidentals necessary and required for their completion.
- c - Major items of work and equipment included under this Section of the Specifications are as follows:  
GAS-FIRED UNIT HEATERS  
WARM AIR HEATING SYSTEM W/BONNET COILS & CONDENSING UNITS.  
CONTROL WIRING

2. WORK BY OTHERS

- a - Electrical Wiring (except as noted).
- b - Wall louvers and Screens (except as noted).

3. WARM AIR FURNACES

- a - Gas-fired downflow and up flow furnaces: U.L. listed, complete with baked enameled heavy-gauge steel unitized cabinet, fiberglass insulated heating compartment, heavy-gauge steel, air-tight heat exchanger; continuous port steel burner, rubber mountings isolated from cabinet with asbestos gasket and isolated from heat exchanger with asbestos rope, flame detector, automatic gas controls with 100% safety shut-off. Spark ignition, flame inspection door, fixed temperature - adjustable fan setting - fan and limit control; sulky belt drive blower, overload protected motor, resiliently mounted, 115/24-60-1 low voltage controls, filter and filter rack, 1 year warranty. Carrier, Lennox or equal.
- b - Provide all controls, thermostats, wiring, etc. for warm air furnaces.

4. AIR COOLED CONDENSING UNITS FOR GAS-FIRED FURNACES

- a - Air cooled condensing units shall be equal to Carrier with matching cooling coils or Lennox.
- b - Unit construction and components shall include: Baked-on outdoor enamel finished cabinet; compressor and control compartment; control box; hermetically sealed compressor; condenser fan; condenser coil; refrigerant line connections, electrical inlets and service valves; high and low pressure switch; hi-capacity dryer; refrigerant line kits; and 5-year non pro-rated parts compressor warranty.

5. TEMPORARY HEATING

- a - The Architectural Trades Contractor shall provide and maintain weather protection and heating as may be required to properly protect all parts of the structure from damage during construction prior to the time that the building is enclosed. This shall include protective coverings and enclosures, space heaters with vent pipes to outside of building, fuel and the necessary attendants. Heat shall be maintained around the clock (24 hours), seven (7) days a week, as necessary to fully meet contract requirements. The Architectural Trades Contractor shall pay for the fuel and temporary heating equipment and protective enclosures until such time as the building is enclosed and the Heating Contractor has connected heating units to give a temperature of at least 60 degrees. The Heating Contractor will not use the system for temporary heat until the building is fully enclosed and the Architect has given written permission for the use of the permanent heating system.

6. GAS FIRED UNIT HEATER

- a - Furnish and install where indicated on plans a gas fired unit having an AGA output capacity as indicated, and as manufactured by Trane, Janitrol, Reznor or approved equal.
- b - Motors shall be wired for constant speed, single phase, 60 cycle, 110 volt.
- c - Unit heater shall be complete with automatic pilot, automatic gas valve, gas pressure regulation, burner shut-off valve, stainless steel heat exchanger and centrifugal blower. Mount unit heater at maximum mounting height with vibration eliminators, and hangers for unit from structural supports as required.

VENTILATING  
DIVISION FIFTEEN D

1. GENERAL

- a - Applicable provisions of General Conditions, Supplementary General Conditions, Special Conditions, and instructions to Bidders govern work under this Section.
- b - The Contractor shall provide all items, articles, materials, operations or methods listed, mentioned or scheduled on drawings and/or herein, including all labor, materials, equipment and incidentals necessary and required for their completion.
- c - Major items of work and equipment included under this Section of the Specifications are as follows:

DUCTWORK

GRILLES, REGISTERS, DIFFUSERS

DAMPER INSTALLATION

EXHAUST FANS

FLUE

2. DUCTWORK

a - General

- 1. Provide all supply, return, relief, exhaust and outdoor air intake ducts and fittings, dampers, etc., as shown on Drawings and as hereinafter specified for a complete duct system.
- 2. Provide duct hangers on each side of duct on 8 ft. centers. Hangers shall be 1" x 1/8" galvanized steel for ducts up to 60" and 1-3/8 x 1/8" for larger ducts. Hangers shall extend down the side of the duct 12" and secured by duct with 2 bolts or sheet metal screws.
- 3. Extra bracing or reinforcing shall be provided where duct bowing or fluttering is evident while fan systems are operating.
- 4. After erection of ducts, clean all dirt, grease, rubbish, etc., from the interior and exterior of ducts.

5. Install ductwork in adherence to ceiling height schedule on Architectural Drawings. Establish necessary space requirements for each trade, so as to maintain required headroom.
6. Right is reserved to vary run and shape of ducts and to make offsets during progress of work, if required, to meet structural or other interferences.
7. All sheet metal shall be best grade, prime sheets, open hearth galvanized steel.
8. In general, ductwork shall have a neat workmanlike appearance and shall be installed straight and level as the location requires.

b - Duct Construction

1. All ductwork shall be constructed of gauges, joints and bracings as scheduled below. All ducts over 18" in either dimension shall be cross-braken.
2. Bracing of ducts 19 inches to 60 inches may be omitted if sections are 4'-0" long, instead of 7'-10" long.
3. Duct Construction Schedule:

<u>U.S. STD. GAUGE</u>	<u>DUCT DIMENSIONS IN INCHES</u>	<u>TRAVERSE JOINTS AND BRACING</u>
24	Up through 18	S Slip, drive slip, 1 in. pocket lock on 8 ft. centers.
24	19 through 30	S Slip, 1 in. pocket lock on 8 ft. centers with 1 x 1 x 1/8 angles 4 ft. from joint.
22	31 through 42	1 in. standing S cleat, bar slip, pocket lock on 8 ft. centers with 1 x 1 x 1/8 angles 4 ft. from joint.
22	43 through 54	1-1/2 in. standing S cleat, bar slip, pocket lock on 8 ft. centers with 1-1/2 x 1-1/2 x 1/8 angle 4 ft. from joint.
20	55 through 60	Same as for ducts 43 through 54.

c - Vanes and Deflectors:

1. All elbows and turns shall be made with a radius not less than 1-1/2 the duct diameter or width, where building construction does not permit a long-radius elbow or turn or if shown on the Drawings, turning vanes and deflectors shall be provided.



2. Vanes and deflectors shall be of galvanized steel sheet, two gauges heavier than the thickness used in ductwork of corresponding size. All such vanes shall be securely anchored to ducts and shall have free standing edges with bracing. Mitered elbows shall contain double thickness turning vanes.

d - Sleeves

1. All ducts passing through walls, and floor openings, shall be fitted with galvanized metal sleeves flush with the surface. In cases of ducts passing through fire walls, the space between the duct and the wall shall be packed directly air-tight with suitable approved non-combustible materials.

e - Flexible Connections

1. At each point of connection of ductwork to a furnace or a fan, provide a flexible connection, not less than six inches in length and made of neoprene or asbestos cloth. Flexible connections shall be provided at exhaust fans.

3. GRILLES, REGISTERS & DIFFUSERS

- a - All grilles and registers shall be aluminum with brushed-satin finish, unless noted.
- b - Provide plaster frames for all grilles and registers mounted in walls and ceilings.
- c - Registers and grilles are to be securely fastened to wall, ceiling or floor with sponge-rubber gaskets between register face and frame face and the wall.
- d - Grilles and registers shall be as manufactured by Titus, Tuttle and Bailey and Cranes or approved equal, as called for on Drawings.
- e - Diffusers shall be steel construction with a factory applied baked-on enamel finish. Diffuser shall be complete with a ceiling gasket, adjustable opposed blade damper. Color as selected by Architect. In high humidity areas diffusers shall be aluminum construction with a factory applied baked-on enamel finish.

4. FIRE DAMPERS

- a - Furnish and install where shown on plans and as hereinafter described, a fusible link, U.L. Approved, fire damper. Provide an access panel adjacent to each fire damper for inspection of the service to the link, hinge and catch.
- b - Comply with the State Fire Marshal's Regulations; the Rules and Regulations of the National Fire Protection Association and the rules of any Local Authority having jurisdiction. Provide, without additional cost to the Owner, all the necessary labor and materials required by the above regulations.

- c - All fire dampers shall comply with the Requirements of the clarification of the Rules and Regulations governing the use of fire dampers as applied in the State of Michigan.
- d - Fire dampers shall be Air Balance, Ruskin, Sterling, or approved equal with blades 100% out of the air stream.

5. FURNACE FLUE

- a - Provide a metalbestos, duravent, transite pipe or equal U.L. listed "B" vent (gas) for furnaces. Provide drip leg at base of stack: counter flashing above roof and sleeve over flue instead of cap, as shown on drawing. Flue from heater to stack shall be the same type pipe as that for stack.

6. BATH EXHAUST FAN

- a - Furnish and install a centrifugal type ceiling exhaust fan where indicated on plans, having capacities as scheduled, 115 volt, single phase, 60 cycle.
- b - Fan shall be complete with self-lubricating impedance protected plug-in motor, built-in backdraft damper, silver anodized aluminum grille and wall exhaust cap. Fans to be U.L. listed.

7. CEILING EXHAUST FANS

- a - The ceiling fan shall be Greenheck Model SP, Penn, Acme, or approved equal. The fan housing shall be constructed of phosphatized steel with an oven baked enamel finish. The housing interior shall be acoustically lined with 1/2" thick insulation. The discharge outlet shall be adaptable to horizontal or vertical positions. The terminal box shall be internally mounted for motor hook-up. The motor shall be mounted on resilient elastic grommets. The fan shall have a forward curved centrifugal wheel. All fans shall bear the AMCA seal for air and sound performance. Provide with exhaust duct and roof cap.

8. INLINE EXHAUST FAN

- a - Exhaust fans shall be belt driven inline type. The square shaped fan housing shall be of heavy gauge formed steel. One of the sides shall be hinged and shall support the entire drive assembly and wheel allowing the assembly to swing out for cleaning, inspection, or service without dismantling the unit in any way. The motor shall be mounted on the hinged side exterior isolated from the airstream. The belt and pillow block ball bearings shall be protected from the airstream by an enclosure. The shaft shall be keyed to both the wheel and pulley.
- b - The fan inlet shall be a spun venturi throat overlapped by a backward curved centrifugal wheel with spun cone for maximum performance.
- c - Air and Sound shall be AMCA Certified.
- d - Unit shall be Greenheck, Acme or Penn.

9. ROOF EXHAUST FAN

- a - Furnish and install centrifugal roof exhauster with low contour, weather proof, aluminum hood, bird screen, capacitor start, ball bearing motor with low temperature grease packing and vibration elimination type mounting, a factory installed UL listed disconnect switch mounted within housing, fan wheel shall be non-overloading, statically and dynamically balanced, direct driven. Performance shall be tested and rated per appropriate AMCA Test Codes and U.L. listed and tagged. Capacity and location shall be as shown on drawing. Installation shall be complete with backdraft damper, factory built curb with sponge rubber gasket to isolate fan base from curb and as manufactured by Penn, Acme or Greenheck.

10. KITCHEN EXHAUST FANS

- a - All kitchen roof exhaust fans shall incorporate items for "Roof Fan" above, and in addition:
  - Upblast discharge design.
  - Motor and drive removed from air stream.
  - A heat shield between motor drive and the air stream.
  - An accessible grease trough.
  - A hinged curb or other access method for cleaning of wheel and damper.
  - High temperature shaft seal.

- b - Kitchen roof fans shall be as manufactured by Greenheck, Acme or Penn.

11. KITCHEN EXHAUST HOODS

Furnish and install stainless steel exhaust hoods with grease filters complying with SMACNA Standards complete with an automatic dry chemical fire suppression system in hood; Kidde or equal.

INSULATION  
DIVISION FIFTEEN E

1. GENERAL

- a - Applicable provisions of General Conditions, Supplementary General Conditions, Special Conditions and Instructions to Bidders govern work under this Section.
- b - The Contractor shall provide all items, articles, materials, operations or methods listed, mentioned or scheduled on drawings and/or herein, including all labor, materials, equipment and incidentals necessary and required for their completion.
- c - This work shall include the following:

PIPE COVERING INSULATION

2. INSULATION

a - General

- 1. Insulation shall be applied by experienced pipe coverers as per best trade practice, guided by manufacturer's printed installation directions.
- 2. Insulation shall be applied to pipe and ducts only after they have been tested, inspected and all surfaces thoroughly cleaned of all foreign materials, grease and rust.
- 3. Insulation shall be continuous through walls, floors, partitions, sleeves, etc., except where otherwise indicated or specified.
- 4. Where space will not permit application of sectional insulation on pipes in wall chases, pack the chase full of mineral wool or loose glass fiber insulation.
- 5. All insulation covering which is to be painted shall have a satisfactory surface condition in order to receive the paint.
- 6. Pipe jackets shall overlap a minimum of 3" and shall be pasted down.
- 7. If uninsulated metal is adjacent to the insulation, the canvas shall be stopped to a few inches short of the end of the insulation and the exposed length of insulation shall be finished with asbestos cement.

b - Domestic Water Piping and Horizontal Storm Piping

1. All domestic hot and cold water piping, and horizontal storm piping, shall be insulated with J.M. Microlok, Gustin-Bacon, "Snap-On", or Fiberglass "One-Piece", sectional pipe insulation with factory-applied flame-retardant, vapor-barrier jacket on cold water.
2. Fitting and valves for domestic hot water supply and recirculating piping shall be insulated.
3. Insulation Thickness:

Pipe Size - - - - - 1/2" to 1-1/4"  
Thickness - - - - - 1/2"

4. Application:

All pipe insulation shall be applied over clean, dry surface, butting adjoining section firmly together. Insulation in the boiler room shall have factory-applied 8 oz. canvas jacket pasted in place.

All fittings shall be insulated with fabricated mitered segments or compressed glass-fiber blanket. Fittings on pipe size of 3" and smaller may be insulated with insulating cement or equal thickness. Blanket insulation shall be secured to fitting and finished with insulating cement.

5. Duct Insulation:

All supply air ductwork shall be insulated with 1" thick fiberglass insulation with a vapor barrier.

6. Alternate:

Above ceiling a 1" fiberglass duct board system may be used in lieu of insulated sheet metal ductwork.

TEMPERATURE CONTROL SPECIFICATIONS  
DIVISION FIFTEEN F

1. GENERAL

- a - All pertinent requirements of the mechanical and electrical trades requirements of the specifications shall apply to this work.
- b - Provide as hereinafter specified a complete system of electric temperature controls.

2. FURNACES

- a - Low voltage thermostat, fan and limit controls furnished with the furnaces shall be wired and installed by the *Electrical* Contractor, except that thermostat shall equal Honeywell Chronotherm T882 A heating cooling unit, Q-611 Sub-Gase, with adjustable heat and non-adjustable cooling anticipator.

3. UNIT HEATERS

- a - A low voltage thermostat shall operate fan and burners, see U.H. Specifications.

ELECTRICAL REQUIREMENTS  
DIVISION SIXTEEN A

1. GENERAL

- a - Applicable provisions of Division 1, General Requirements, govern work under this Division.
- b - Division 16 is divided into two sections:  
Section 16A - Electrical Requirements  
Section 16B - Electrical
- c - Provide all items, articles, materials, operations or methods listed, mentioned or scheduled on drawings and/or herein, including all labor, materials, equipment and incidentals necessary and required for their completion.

2. DRAWINGS

- a - The electrical drawings indicate the general design and extent of the electrical systems. Follow the drawings as closely as actual construction of the building and the work of other trades will permit.
- b - Examine architectural, mechanical and other trades drawings and specifications. Notify the Architect/Engineer should any discrepancies occur between them and the electrical work.
- c - Drawings are not intended to be scaled for rough-in or to serve as shop drawings. Take all field measurements required for fitting the installation to the building.

3. EXAMINATION OF PREMISES

- a - Before submitting proposals, each bidder shall examine the premises and satisfy himself as to existing conditions under which he will perform his part of the work. No extras will be allowed because of his failure to make this examination or to include all materials and labor required to complete the work.
- b - Before submitting proposals, each bidder shall examine other trades drawings and specifications and no extras will be allowed because of his failure to make this examination or to include all materials and labor required to complete the work.

4. CODES AND ORDINANCES

- a - All work shall be done in accordance with applicable Federal, State and local ordinances and regulations, the Rules and Regulations of the National Board of Fire Underwriters, the National Electric Code and the latest accepted practices of IEEE and NEMA.

- b - Should any changes in drawings or specifications be required to conform to above codes, rules or regulations, the Contractor shall notify the Architect/Engineer before submitting his proposal. After entering into contract, the Contractor shall make all changes required to conform to above ordinances, rules and regulations without additional expense to the Owner.

5. LICENSES, FEES AND PERMITS

- a - Obtain all permits, licenses, inspections and tests required. Upon completion of the work, obtain and send certificates of inspection and approval to the Architect.
- b - Pay all fees and expenses for permits, licenses, tests and inspections.

6. RULES OF LOCAL UTILITY COMPANIES

Work shall be done in accordance with the rules of local utility companies. Before submitting his bid, this Contractor shall check with each utility supplying service to this project and shall determine from them all equipment and charges which they will require and shall include the cost in his bid.

7. MATERIALS AND EQUIPMENT

- a - All materials and equipment shall be new and shall be listed by the Underwriters' Laboratories, Inc. and shall show their label wherever standards have been established.
- b - All equipment of the same or similar systems shall be of the same manufacturer.
- c - Receive, handle and move to required locations all materials and equipment for the electrical work. Before and after installation, protect materials and equipment against theft and damage. Protect all electrical work until it has been tested and accepted.

8. SHOP DRAWINGS

- a - Submit for approval six (6) copies of shop drawings. Drawings shall indicate the name of the project and names of the Architect/Engineer and Contractor.
- b - Submit shop drawings for all items of equipment including:
  - Lighting Fixtures
  - Main Distribution Panel
  - Panelboards
  - Motor Control & Disconnect Switches
- c - Catalog cuts of equipment may be used for shop drawings if the cuts are modified to show the equipment as it applies to this project. Check all shop drawings for conformance to the drawings and specifications.
- d - No shop drawings shall be used on the project unless approved by the



Architect/Engineer. Checking and approving of shop drawings shall be construed as assisting the Contractor and their action does not relieve this Contractor from responsibility for errors or omissions which may exist thereon.

9. AS INSTALLED DRAWINGS

- a - The Electrical Contractor shall keep a complete set of sepia's of all electrical drawings in his job site office for purpose of showing "as installed" installation of the electrical systems and equipment. This set of drawings shall be used for no other purpose. Where any material, equipment or system components are installed different from that shown on the Architect's/Engineer's drawings, such differences shall be clearly and neatly shown. This set of drawings shall be transmitted to the Architect as directed, and after the Architect has examined the drawings, the set will be returned to the Contractor for further use. At the completion of the project, the "as installed" set of sepia's shall be turned over to the Architect and shall become his property before request for final payment.
- b - Maintain one set of electrical design drawings and specifications, Contractor's drawings and approved shop drawings at the project.

10. SLEEVES AND INSERTS

Furnish and install all sleeves and inserts for the electrical work.

11. EXCAVATING, TRENCHING AND BACKFILLING

- a - Provide all excavating, trenching and backfilling required in connection with the work. All earth and other material taken from trenches and not required for backfilling shall be deposited on or off premises as directed by the Architect.
- b - Grade ground adjacent to excavations to prevent water from running in. Remove by pumping or other approved means any water accumulating in trenches. Provide all bracing and shoring necessary to protect excavations or trenches.
- c - Excavated material suitable for backfill shall consist of earth, loam, sand, clay or sand and gravel free from clogs of clay, or stones and shall be approved by the Architect. In no case shall any frozen materials be used for backfilling, nor shall any backfilling be placed on or against frozen earth. Backfill under future building, drives and parking lots shall be compacted to 95% with sand or gravel to the underside of slab or asphalt paving.

12. CUTTING AND PATCHING

- a - Provide all necessary cutting and patching under the direction and to the satisfaction of the Architect.

- b - Patch openings in building caused by removal of conduit and equipment. No cutting of structural members or drilling of holes through beams shall be done without the specific approval of the Architect.

13. DAMAGE TO OTHER WORK

The Electrical Contractor will be held responsible for all damage to other work caused by the work or through the neglect of his workmen and shall repair or replace the work damaged to its original conditions.

14. CLEAN UP

Keep premises free from accumulations of waste material and rubbish. At completion of work, remove all rubbish from and about the building and leave the electrical systems clean and ready for use.

15. TESTS

- a - Test all circuits for continuity and grounds before equipment and fixtures are connected.
- b - When requested, demonstrate by resistance test the insulation resistance of any circuit or group of circuits. Where such insulation resistance test shall indicate faulty insulation, locate fault and replace conductor. Provide calibrated instruments and accessories for performing the tests.

16. GUARANTEE

The Electrical Contractor shall furnish a written guarantee to the Owner that he will make good at his own expense any imperfections in material and workmanship which may develop under ordinary use within one year from final acceptance of the work.

17. NAMEPLATES

- a - Provide nameplates for all items of electrical equipment including panelboards, disconnect switches, motor starters, junction boxes and auxiliary systems.
- b - Nameplates shall be engraved bakelite with 1/4" high white letters on black background.
- c - Nameplates are to identify system or function and shall match identification used on drawings. Submit list of nameplates and sample for approval.

18. PAINTING

Painting will not be included in the electrical work except to clean and touch up all factory finished equipment.

19. BASIS OF PROPOSALS

- a - Proposals shall be based on the materials, equipment and methods shown on the drawings or described in the specification.
- b - If the bidder wishes to bid on alternate materials or equipment, he shall submit a separate proposal stating the deductions or additions to be made to the base bid.

20. CONTRACT BREAKDOWN

After award of contract, the Electrical Contractor shall submit to the Architects and Engineers copies of a contract amount breakdown. Breakdown shall be submitted on a form similar to the form available at the Architect's office. All requests for payment shall be based on the breakdown. Contract breakdown shall be submitted within two (2) weeks after award of contract.

21. MATERIALS LIST

Submit a complete list of all materials and equipment and their manufacturers for approval within two (2) weeks after award of contracts and prior to submitting any shop drawings for approval.

ELECTRICAL TRADES  
DIVISION SIXTEEN B

1. GENERAL

- a - Refer to Section 16A for Electrical Requirements
- b - Provide all materials, equipment, labor and services to construct and install the complete electrical systems as shown on the accompanying drawings and as specified herein.
- c - Place equipment and accessories into proper adjustment and operating condition so that the component parts function together as a workable system.

2. ELECTRICAL CHARACTERISTICS

- a - The electric utility serving this building is the Detroit Edison Company.
- b - General distribution voltage is 120/208 volts, three phase, four wire wye.

3. ELECTRIC SERVICE

- a - Furnish and install a complete underground electric service as shown on the drawings.
- b - The Electrical Contractor shall make arrangements with the Utility for the electric service. Electrical Contractor shall pay all charges by the Detroit Edison Company for the electric service.
- c - The complete service installation shall be in accordance with the requirements of the Detroit Edison Company.

4. MAIN DISTRIBUTION PANELBOARD - MDP

- a - Furnish and install a main distribution panelboard of the size shown on the drawings. Panelboard shall be constructed according to NEMA standards, factory assembled, of the combination switch and fuse type with dead front safety construction. Panelboard shall be listed by Underwriters Laboratories and bear the UL label. The panelboard shall be labeled "Approved for Service Entrance." Panel bus shall be silver plated aluminum.
- b - All fusible branch switches shall be quick-make, quick-break, with fusible blades and dual horsepower ratings and of sizes as shown on the drawings. Switch handles shall physically indicate ON and OFF positions. Covers shall be interlocked with the switch handles to prevent opening in the ON position. A cardholder providing circuit identification shall be mounted on each branch switch.

- c Panelboards shall be Square D, Type QMB Saflex, or equal by Cuttler Hammer, Federal Pacific or ITE.

#### 5. LIGHTING PANELBOARD

- a - Furnish and install factory assembled circuit breaker lighting panelboards as shown on the drawings. Panelboards shall be dead-front safety type, equipped with thermal-magnetic molded case circuit breakers with ratings as shown on the drawings. Panelboards shall be listed by Underwriters' Laboratories and bear the UL label.
- b - Circuit breakers shall be quick-make, quick-break thermal-magnetic trip indicating, and have common trip on all multipole breakers. Circuit breakers shall be rated 10,000 A/C symmetrical at 240V AC. Connections to the bus shall be bolt-on bus type. Bus bar connections to the branch circuit breakers shall be the 'distributed phase' or 'phase sequence' type.
- c - The panelboard bus assembly shall be enclosed in a steel cabinet 20" wide x 5-3/4" deep. The size of the wiring gutters and gauge of steel shall be in accordance with NEMA Standards Publication No. PB1-1957 and UL Standards No. 67 for panelboards. Fronts shall include doors and have flush, brushed stainless steel, cylinder-type locks with catches and spring-loaded door pulls. All panelboard locks shall be keyed alike. Fronts shall be of code gauge, full finished steel with rust-inhibiting phosphatized coating and baked enamel finish with concealed trim clamps and concealed hinges. Each panel shall have a typed directory showing all circuits.
- d - Mount panelboards not over 6'-6" from floor to top of trim. Provide two spare 1" conduits to ceiling space from each panelboard that is flush mounted in finished areas.
- e - Panelboards shall be Square D, Type NQOB, or equal by Cuttler Hammer, Federal Pacific or ITE.

#### 6. DISCONNECT SWITCHES

- a - Two and three pole
  - 1. Shall be for 240 volt general duty service and have ampere rating as indicated on the drawings.
  - 2. Indoor switches shall be NEMA 1.
  - 3. Weatherproof switches shall be NEMA 3R.
- b - Single pole
  - 1. 120 and 277 volt disconnect switches shall be AC flush toggle type rated at 20A, 277V.
  - 2. Weatherproof switches shall be mounted in cast box with weather-tight hinged cover.

2. Provide cycle cranking and cranking limiter.
3. Remote annunciator panel with start-stop control.
4. The generator set shall be mounted on a welded heavy steel base which shall provide suitable mounting on any level surface. The base shall be mounted on shock antivibration mounts.

f - AUTOMATIC LINE TRANSFER CONTROL SWITCH AND CONTROL PANEL

1. The generator instrument panel shall be wired, tested, and shock mounted to the electric plant by the manufacturer of the Alternator. It shall contain manual reset overload protection; AC voltmeter with phase selector switch, voltage adjusting rheostat; AC ammeter with phase selector switch running time meter, and frequency meter.
2. An automatic load transfer switch shall be provided and connected as shown on the drawings. The automatic transfer switch shall perform the following functions. When the voltage of any phase falls below 70% of normal, power failure relays shall actuate contacts that cause the automatic engine starting controls to start the engine. An adjustable momentary outage time delay relay shall be provided, adjustable 2 to 12 seconds. The switch shall transfer the load to the standby generator after the generator stabilizes at rated voltage and frequency. The load shall be restored to the normal power source when all phase voltages of this source are 90% or more rated voltage. An adjustable time delay relay shall be provided to delay retransfer to normal adjustable 0-30 minutes. The transfer switch shall be inherently interlocked, both mechanically and electrically in either normal or emergency position with no "off" possible. A battery charger shall be provided in the transfer package and shall be connected to the starting batteries.

g - Fuel Storage Tanks - Fuel tank shall be provided by mechanical trades as part of the truck fueling system.

h - Manufacturers

1. Onan
2. Kohler
3. Caterpillar

7. EMERGENCY POWER SYSTEM

- a - Furnish and install a complete emergency power system including an electric plant rated as shown on the drawings for continuous standby service at 0.8 power factor, 120/208 volt, three phase, 4 wire, 60 hertz. This system shall be a package of new and current equipment consisting of:
  - 1. A diesel engine driven, electric plant to provide emergency electric power.
  - 2. Engine mounted start-stop controls system.
  - 3. An automatic load transfer control to provide automatic starting and stopping of the plant and switching of the load.
  - 4. Accessories as specified.
- b - This system shall be built, tested and shipped by the manufacturer so there is one source of supply and responsibility. The performance of the electric plant shall be certified by an independent testing laboratory as to the plant's full power rating, stability, and voltage and frequency regulation.
- c - Engine: The engine shall be diesel fueled, four cycle, water cooled with radiator pusher fan and pump. Lubrication shall be full pressure supplied by a gear type oil pump. The engine shall have an oil filter with replaceable element, solenoids, and all other accessories for operation. Engine speed shall be governed by a centrifugal governor to maintain generator speed within 3 cycles from no load to full load. Engine shall be complete with battery; battery charger with automatic rate of charge regulator; 12 volt electric starting motor; high water temperature, low oil pressure, and overspeed shutdown with alarm indicating lights and nameplates to identify each condition; fuel pump; flexible exhaust and fuel connections, and day tank.
- d - Engine Instruments: The engine instrument panel shall contain an oil pressure gauge, water temperature gauge, battery and run-stop-remote switch for manual local or remote operation of the plant.
- e - Accessories: The following names accessories or auxiliary equipment shall be factory mounted or furnished for field installation as required.
  - 1. Muffler shall be extra quiet (critical) Maxim, complete with supports, exhaust piping and flexible connection at engine.

8. CONDUIT AND FITTINGS

- a - All wiring except as hereinafter specified shall be installed in hot-dipped galvanized or sheradized conduits provided with bushings.
- b - Conduits under ground floor slab or buried underground shall be rigid galvanized conduit or an approved schedule 40 plastic conduit.
- c - All other conduit unless otherwise specified shall be Electrical Metallic Tubing, hot dipped galvanized and provided with bushings.
- d - Supports for electrical equipment installed on masonry construction shall be attached with 1/4"-20" A & J expansion type screw anchors. Wooden or fibre plugs will not be allowed.
- e - Outlet boxes installed in concealed conduit runs shall be of the pressed steel type.
- f - All conduits shall be installed concealed in the building construction except that exposed conduits may be used in Penthouse, Mechanical Equipment Rooms, and Electrical Rooms. All receptacle and lighting branch circuits shall be installed concealed.
- g - Exposed circuit where permitted by this specification shall be installed in neat symmetrical lines parallel with the center lines of the building construction and adjacent to the beams, walls, etc., and not across open bays.
- h - The fittings for conduit runs exposed to the weather shall be equipped with gasket covers.
- i - Exposed circuits installed below surface mounted distribution equipment shall enter the floor at rigid angles, with all portions of the bending radius concealed in the floor slab.
- j - Use standard factory bends for all conduits 1-1/4" or larger.
- k - Feeder conduits shall be supported by suitable pipe hangers. All conduits and metal cabinets, etc., shall be grounded in an approved manner.
- l - All joints shall be made water tight and all raceways shall be perfectly dry when wires are pulled. Pockets or water collection points in the installation shall be avoided.
- m - All wall outlets shall be accurately located as to height and finish. Cover plates must be absolutely plumb.
- n - Pull boxes shall be installed in all continuous runs greater than 100'-0" in length and at locations shown.
- o - Where conduits are to pass through floor slabs or bearing walls, pipe sleeves of correct size shall be installed and securely fastened in the



concrete forms to avoid damage or movement of the sleeve at any time. After conduits are installed through these sleeves, the open space around the conduit shall be closed and made tight with oakum and an approved mastic.

- p - Deliver conduit in standard ten foot (10') lengths. Each length shall be labeled with an Underwriter's Laboratories, Inc. label showing the manufacturer's name and trademark. This label shall also designate the primary protective coating.
- q - The same grade of conduit material as specified above shall be used to make bends and elbows.
- r - Minimum conduit size shall be 1/2".
- s - Flexible conduit (Greenfield) shall be used for connection of motors, controls, and other units subject to vibration and for connection of recessed light fixtures. Flexible conduit shall be fabricated from a continuous spirally wound steel strip to provide an unbroken ground.
- t - In boiler rooms, outdoors, or other areas subject to high humidity, flexible conduit shall be Appleton type ST "Sealtite."

#### 9. BOXES AND FITTINGS

- a - All outlet boxes shall be standard galvanized steel type, at least 1-1/2" deep, single or gang style type of size to accommodate devices shown. Boxes shall be equipped with plaster ring or cover as required. Outlet boxes for concealed telephone and signalling systems shall be the 4-11/16" square type with plaster cover and brushed-opening cover plate.
- b - EMT fittings shall be compression type, similar to Appleton Series 96T075 or 95&075.
- c - Boxes and fittings shall be Appleton, National Electric, or Steel City.

#### 10. CONDUCTORS

- a - Furnish and install all feeders and branch circuit wiring for lighting, power and auxiliary systems as shown on the drawings and specified herein, complete with lugs, connectors, splice boxes and make all connections.
- b - All wire and cable shall conform to the latest requirements of the current edition of the National Electric Code and shall meet all ASTM specifications. Wire and cable shall be new; shall have size, grade of insulation, voltage and manufacturer's name permanently marked on outer covering at regular intervals, and shall be delivered in complete coils on reels with identifying size. Wire and cable shall be suitably protected from weather and damage during storage and handling and shall be in first class condition when installed.

- c - Sizes shall be as indicated on the drawings. Conductors shall be soft-drawn copper and insulation and outer covering as noted. Conductor sizes shall be standard American Wire Gauge sizes. Conductors #10 and larger shall be stranded. Wire and cable shall be factory color-coded, with a separate color for each phase and neutral used consistently through the system. Green shall be used for conductors intended solely for grounding.
- d - Conductors for secondary feeders shall be 600 volts, type THHN or THWN. Branch circuit conductors installed in metallic raceways shall be 600 volts, type THHN or THWN shall be used for installation in raceways exposed to moisture or in concrete slabs or below grade.

#### 11. CONDUCTOR INSTALLATION

- a - No conductors or cables shall be installed in conduits or raceways until the raceway system has been completed. When installing conductors, the Electrical Contractor shall exercise due care to prevent damage to conductor or insulation.
- b - All feeders shall be continuous from origin to panel or equipment termination without running splices in intermediate pull or splice boxes. Where tape and splices are necessary and approved, they shall be made in approved splice boxes with suitable connectors.
- c - Each feeder conduit raceway shall contain the conductors for only one feeder circuit.
- d - Branch circuit loads shall be balanced on each panelboard.
- f - All cable terminals taps and splices shall be made secure with solderless pressure type connectors, unless otherwise specified.
- g - Connectors shall be Scotchlox.

#### 12. BRANCH POWER

- a - Furnish and install all branch power and control wiring including disconnect switches, junction boxes, conduit, wire and connections for all building utility equipment unless specifically stated otherwise. Motors and bases are specified in Mechanical Section. Motor control wiring as shown on the drawings shall be provided under this section. All other wiring is included in the Mechanical Section.

#### 13. WIRING DEVICES

- a - Furnish and install all wiring devices including connections. This Contractor shall install devices so that devices and plates are parallel with building lines. Plates shall cover holes completely and fit tight against the wall.

##### b - Switches

- 1. Rated at 20 amperes, 277V, specification grade, unless otherwise

noted.

2. Hubbell 1221 Series. Pilot light switches shall be Hubbell 1221-PL.
3. Approved equals by Bryant, Circle F, Sierra or Slater will be accepted.

c - Dimmers

1. Incandescent dimmers shall be recessed wall mounted, 120V, 600 watt.
2. Manufacturer shall be Hunt or Lutron.

d - Receptacles

1. General use receptacles shall be 20 ampere, 120 volt grounding type, Hubbell Cat. No. 5362, Circle F 1630, or approved equal by Bryant, Sierra or Slater.
2. Range outlets shall be 50 ampere, 3 wire, flush mounted Hubbell No. 7962 or Circle F 3656 with stainless steel plate.
3. Weatherproof receptacles shall be Hubbell Cat. 5362 with Cat. No. 5206 cover.
4. Floor outlets shall be Hubbell F3933 box with 5362 receptacles, twin flap cover and carpet flange.

e - Plates

1. Provide a device plate for each switch receptacle, telephone signal etc.
2. Plate shall suit type of device installed.
3. Plates shall be satin finish type No. 302 stainless steel.
4. No plates shall be installed to leave a sharp exposed edge.
5. All plates shall be .040" minimum thickness provided with beveled edges.

14. LIGHTING EQUIPMENT

- a - Furnish and install all lighting fixtures and equipment shown on the drawings, listed in the "Lighting Fixture Schedule" and specified herein, including lighting panels, lighting fixtures, lamps, conduit, wire, and connections for a complete lighting system.
- b - All fixtures shall be securely supported. This Contractor shall furnish and install all supports. Where recessed fixtures are specified verify the ceiling suspension system and provide required fixture ceiling trim and accessories.

- c - Ballasts shall be Class "P", CBM, ETL Tested and Approved high power factor type.
- d - Furnish and install lamps as shown on the lighting fixture schedule. Lamps shall be General Electric or Sylvania.

15. LIGHTING TIME CLOCKS

- a - Furnish and install outside lighting control time clocks where indicated.
- b - Time clocks shall be rated 30 amperes, 120 volts, three or four pole and shall have an astronomical clock mechanism.
- c - Time clocks shall be manufactured by Tork, Zenith, or AMF Paragon.

16. TELEPHONE CONDUIT SYSTEM

- a - Furnish and install a complete telephone conduit system as shown on the drawings including all conduit, outlet boxes, terminal cabinets, junction boxes and service entrance conduit. The system shall be installed according to the requirements of the Michigan Bell Telephone Company.
- b - All outlet boxes having three or more conduits entering the box shall be three gang boxes with a three gang cover and a three gang plate. All other outlet boxes shall be 4-11/16" or 4" square. All conduits one inch and larger shall have standard factory bends. Terminate all conduit with bushings. All plates shall be stainless steel with a 3/8" bushed hole. Plates shall match receptacle plates.

17. SOUND SYSTEM

a - Furnish all labor and material necessary for the installation of a complete local sounds system as indicated on the drawings and as specified herein.

b - Sound system shall provide music transmission, paging and two way communication between the control desk master station and the following selected zones:

- |                |             |
|----------------|-------------|
| 1. Bunk Room   | 5. Dining   |
| 2. Locker Room | 6. Appartus |
| 3. Bunk Room   | 7. Office   |
| 4. Lounge Room | 8. Driveway |

c - The master station shall include an AM/FM Tuner, zone selector switches, call-up annunciator, press to talk control, and amplifier. The zone selector switches shall have four positions: off, music, page, and remote.

d - Lounge, dining and office zones shall have call up origination.

e - Amplifier shall be solid state with adequate output to drive the speakers in all zones without distortion. Tuner shall be solid state with an integral AM antenna. A Bogen # RM300A Tuner/Amplifier may be used to meet this requirement.

f - Loudspeakers shall be Bogen #1-112 in Bogen #60-8 baffler with # P 418 matching line transformer.

g - Microphone jacks shall be Soundolier # S601-13 mounted in a single gang box.

h - Paging microphone shall be Bogen # 450.

i - The contractor shall furnish and install a # FMT antenna above the roof for FM reception.