

BLOCK 1068 LOT 15.01 ADDRESS (SITE) 105 Hendrickson Avenue
Brick, NJ 08724

PERMIT NO. 1522-93



CONSTRUCTION PERMIT APPLICATION

DIV. OF INSPECTION

Applicant completes Sections I, II, III (optional), IV, VI and VII

I. IDENTIFICATION

1. Proposed Work-site at: Veterans Memorial Middle School
2. Name of Owner in Fee: Brick School Board of Educ. Tel. (908) 477-2800
Address 101 Hendrickson Avenue, Brick 08724
street municipality zip code
3. Ownership in Fee: Public ☒ Private ☐
4. Principal Contractor: G & P Parlamas, Inc. Tel. (908) 776-8844
Address P.O. Box 189 Allenhurst NJ 07711
- License No. OR, if new home, Builder Reg. No. _____ Exp. Date _____
Federal Emp. No. 221-779-328 Social Security No. _____
5. Architect or Engineer Yezzi Associates Tel. (908) 240-3433
Address 1035 Hooper Avenue Toms River, NJ 08754
6. Responsible Person Mark Parlamas Tel. (908) 776-8844
In Charge of Work _____

V. FEE SUMMARY (for office use only)

		Update	Update
1. Building	\$ <u>1080</u>		
2. Electrical			
3. Plumbing	<u>100</u>		
4. Fire Protection	<u>191-</u>		
5. Other			
6. Subtotal	\$		
7. Less 20% for State Plan Review			
8. Subtotal	\$		
9. DCA Training Fee			
10. Subtotal	\$		
11. Cert. of Occupancy			
12. Other			
13. TOTAL	\$		

VI. BUILDING/SITE CHARACTERISTICS

	1	(office use only)
1. Number of Stories	<u>15</u>	
2. Height of Structure	<u>5,780</u> ft.	
3. Area—Largest Floor	<u>5,780</u> sq. ft.	
4. Building Area—All Floors	<u>86,700</u> sq. ft.	
5. Volume of Structure	<u>2C</u> cu. ft.	
6. Construction Classification		
7. Total Land Area Disturbed		
8. Flood Hazard Zone		
9. Base Flood Elevation		
10. Wetlands yes _____ sq. ft. no _____		
11. Fire Grading		
12. Max. Live Load		
13. Max. Occupancy Load		

II. PROPOSED WORK

- | | Est. Cost |
|--|----------------|
| 1. ☐ Minor Work (single trade) | |
| 2. ☐ Small Job (\$5,000 and no prior approvals) | |
| 3. ☐ New Building | |
| 4. ☐ Addition | |
| 5. ☒ Alteration | <u>144,000</u> |
| 6. ☒ Fire Protection | <u>2,000</u> |
| 7. ☐ Plumbing | |
| 8. ☒ Electrical | <u>20,000</u> |
| 9. ☒ Asbestos Abatement | <u>2,000</u> |
| 10. ☒ Demolition | <u>10,000</u> |
| TOTAL COSTS | <u>188,000</u> |

OPTIONAL (for office use only)

Plans Rec'd By	Date Rec'd	Rejection Date	Approval Date	Re-viewer	Resubmission Dates Approval	Rejection	Re-viewer
<u>9/7/293</u>			<u>7-19-93</u>				
			<u>7/9/93</u>				
<u>Sm</u>	<u>7/16/93</u>	<u>ENR</u>	<u>52.27</u>	<u>126</u>			

III. DO YOU WANT: (optional) 1. ☐ Partial Releases 2. ☐ Prototype Processing

IV. DOES OR WILL YOUR BUILDING CONTAIN ANY OF THE FOLLOWING?

- | | | |
|--|---|---|
| 1. ☒ Elevators/Escalators/Lifts/Dumbwaiters/Moving Walks | 3. ☐ Pressure Vessels | 5. ☐ Hazardous Uses/Places of Assembly |
| 2. ☐ High Pressure Boilers | 4. ☒ Refrigeration Systems | 7. ☒ Sprinklers |
| | 5. ☐ Cross-Connections/Backflow Preventers | 8. ☐ Smoke Control Systems in Open Wells |
| | | 9. ☐ Underground Storage Tanks |

VII. DESCRIPTION OF BUILDING USE

A. RESIDENTIAL

1. ☐ Hotels (R-1)
2. ☐ Multi-Family (R-2)
3. ☐ Two-Family (R-3) BOCA
4. ☐ Two-Family (R-4) CABO
5. ☐ One-Family (R-3) BOCA
6. ☐ One-Family (R-4) CABO
No of dwelling units: _____
Before Construction _____
After Construction _____
Net gain or loss _____

B. NON-RESIDENTIAL

1. State Specific Use: School
2. Use Group: E
3. Change in Use Group. Indicate Former: _____

LDS BR 10306839

ENA

CERTIFICATION IN LIEU OF OATH

I. OWNER SECTION (to be completed if the applicant is the owner in fee)

I hereby certify that I am the owner in fee of the property listed on Page 1.

Mark the following applicable boxes:

A. () I further certify that a new home (private residence) will be constructed on this property for my own use and occupancy. This dwelling is to be occupied by myself and is not to be used for any purpose other than single family residential use. I attest that all construction, plumbing, or electrical work will be done, in whole or in part, by me or by subcontractors under my supervision, in accordance with all applicable laws; and, I further acknowledge that said new home is not covered under the New Home Warranty and Builders Registration Act (N.J.S.A. 46:3B-1 et seq.) and that such fact shall be disclosed to any person purchasing this property within ten years of the date of issuance of a certificate of occupancy.

I UNDERSTAND THAT IN MARKING BOX A, I ACKNOWLEDGE THAT I AM ASSUMING RESPONSIBILITY FOR THE WORK DONE ON SAID PROPERTY, THE CONDITION OF THE PROPERTY PRIOR TO, DURING, AND AFTER ANY WORK PERFORMED, AND FOR THE PERFORMANCE OF THE SUBCONTRACTORS I HIRE, EMPLOY, OR OTHERWISE CONTRACT OR WITH WHOM I MAKE AGREEMENTS TO PERFORM WORK. I AM VOLUNTARILY AND KNOWINGLY ASSUMING THIS RESPONSIBILITY.

B. () I further certify the following as required by the New Jersey Uniform Construction Code, N.J.A.C. 5:23-2.15(e)1.vii:

I personally prepared the plans submitted for: 1) the new home referred to in A.; or, 2) an addition, alteration, renovation, or repair to an existing single family residence owned and occupied by myself and located on the property listed on Page 1; or, 3) a new structure that will be physically separate from, but that will be deemed part of, an existing single family residence that is owned and occupied by myself and located on the property listed on Page 1.

C. () I further certify that I will perform or supervise the following work:

C.1. () Building C.2. () Fire Protection

I further certify that I will perform the following work:

C.3. () Electrical C.4. () Plumbing

D. () I agree to advise all contractors on this project that they are required to be registered with the New Jersey Division of Taxation and to comply with all New Jersey tax laws.

I further certify the following as required by the Uniform Construction Code, N.J.A.C. 5:23-2.15(a)5: All required State, county, and local prior approvals have been given, including such certification as the construction official may require.

I understand that if any of the above statements are willfully false, I am subject to punishment.

Signature _____ Date _____

II. AGENT SECTION

(to be completed if the applicant is not the owner in fee)

I hereby certify the following as required by the New Jersey Uniform Construction Code, N.J.A.C. 5:32-2.15(d): the proposed work is authorized by the owner in fee; and I have been authorized by the owner in fee to make this application as his agent.

I further certify the following as required by the Uniform Construction Code, N.J.A.C. 5:23-2.15(a)5: All required State, county, and local prior approvals have been given, including such certification as the construction official may require.

I agree to advise all contractors on this project that they are required to be registered with the New Jersey Division of Taxation and to comply with all New Jersey tax laws.

I understand that if any of the above statements are willfully false, I am subject to punishment.

(X) Check if contractor.

Agent Name G & P Parlamas, Inc.

Address P.O. Box 189, Allenhurst, NJ 07711

Telephone (908) 776-8844

Signature Mark Parlamas Date July 2, 1993

OFFICE DATE RECEIVED: _____

VIII. PRIOR APPROVALS CHECKLIST (office use only)	LOCAL APPROVAL		COUNTY APPROVAL		REGIONAL APPROVAL		STATE APPROVAL		COMMENTS
	Prelimin. Initial	Final Date	Prelimin. Initial	Final Date	Prelimin. Initial	Final Date	Prelimin. Initial	Final Date	
☐ Planning Board									
☐ Zoning Board									
☐ Sewer Authority									
☐ Water Authority									
☐ Fire Department									
☐ Police Department									
☐ Health Department									
☐ Soil Conservation									
☐ N.J. Dept. of Community Affairs									
☐ N.J. Department of Transportation									
☐ N.J. Dept. of Environmental Protect.									
☐ Utility Dig No.									
☐ Other	728-92	OK	7/2/93						
☐									
☒ Sept. Tank	52:27	D-126D	7/8/93						

IX. SUBCODES AND SPECIAL REGULATIONS APPLICABLE (office use only—optional)

Name of Code & Edition

Name of Code & Edition

Other

Building _____
 Electrical _____
 Plumbing _____
 Fire Protection _____
 Mechanical _____

Energy _____
 Barrier Free _____
 Flood Hazard _____
 As Built Elevation Cert. _____
 Other _____

X. CERTIFICATES ISSUED (office use only)

DATE EXPIRED

- ☐ Temporary Certificate of Occupancy
- ☐ Temporary Certificate of Occupancy
- ☐ Continued Certificate of Occupancy
- ☐ Certificate of Occupancy
- ☐ Certificate of Approval

No. _____
 No. _____
 No. _____
 No. _____
 No. _____



CONSTRUCTION PERMIT

Date Issued

Control #

Permit #

7/9/93

1522-93

IDENTIFICATION Block

1068

Lot

15.01

Work Site Location

Veterans Memorial

Contractor

L. P. Par. Conn. Inc.

Owner in Fee

105 Hendrickson Drive

Address

Address

Tele. ()

Lic. No. or Bldrs. Reg. No.

Exp. Date

Federal Emp. No.

or Social Security No.

Is hereby granted permission to perform the following work:

☒ BUILDING☒ PLUMBING☐ OTHER☐ ELECTRICAL☐ FIRE PROTECTION

DESCRIPTION OF WORK:

Alteration

NOTE: If construction does not commence within one (1) year of date of issuance, or if construction ceases for a period of six (6) months, this permit is void.

Estimated Cost of Work \$

188,000 -

CONSTRUCTION OFFICIAL

U.C.C. Form F-170A

PAYMENTS (Office Use Only)

Building

Plumbing

Electrical

Fire Protection

Other

Other

DCA Training Fee

Cert. of Occ.

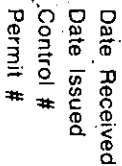
Other

Total

Check No.

Cash

Collected By:



7/9/93
1522-93

1068

15.01

Block	Lot	1501
Work		
Site Location	Veterans Memorial Middle School	
105 Woodstock Avenue	Dundee, NY 08724	

Owner in Fee
Brick Schools Board of Education

Brick, NJ 08724

Tele. (908) 477-2800

Contractor G & P Parlamas, Inc.

Address P.O. Box 189

Allenhurst, NJ 07711

Telex: 908) ; 776-8844

Lic. No. or Bids. Reg. No.

Federal Emp. No. 221-779-328 or Social Security No. _____

JOB SUMMARY (Office Use Only)

PLAN REVIEW		Date	Initial	INSPECTIONS		Dates (Month/Day)		
				Type:	Failure	Failure	Approval	Initial
☒ No Plans Req.				Footing				
☒ All		7-7-83	AK	Foundation				
☐ Footing				Slab				
☐ Foundation				Frame				
☐ Frame				Insulation				
☐ Other				Finishes:				
Joint Plan Review Required:				Energy				
☐ Elec.	☐ Plumb.	☐ Fire		Mechanical				
SUBCODE APPROVAL				TCO				
☐ CO	☐ CCO	☐ CA		Other:				
Date:				Final				
Approved By:								

B. BUILDING CHARACTERISTICS

Use Group	Present	Proposed
Constr. Class	2C	2C
No. of Stories	1	
Height of Structure	15	
Area—Largest Floor	5,780	
Total Bldg. Area/All Floors	5,780	
Volume of Structure	86,700	
Total Land Area Disturbed	0	
	Sq. Ft.	Sq. Ft.

Est. Cost of Bldg. Work:

- | | | |
|----------------|----|----------------|
| 1. New Bldg. | \$ | <u>188,000</u> |
| 2. Alteration | \$ | <u>188,000</u> |
| 3. Total (1+2) | \$ | <u>188,000</u> |

C. CERTIFICATION IN LIEU OF OATH

I hereby certify that I am the (agent of) owner of record and am authorized to make this application

Signature: 

D. TECHNICAL SITE DATA

DESCRIPTION OF WORK

Computer Classrooms Renovations
with new 8" CMU wall partitions.

TYPE OF WORK:

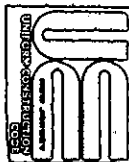
- | | | |
|-------------------------------------|--------------------|---------------|
| ☐ | New Building | |
| ☐ | Addition | |
| ☒ | Alteration | |
| ☐ | Roofing | |
| ☐ | Siding | |
| ☐ | Other _____ | |
| ☒ | Demolition | |
| ☐ | Miscellaneous | |
| ☐ | Fence _____ | Height _____ |
| ☐ | Sign _____ | Sq. Ft. _____ |
| ☐ | Pool _____ | |
| ☐ | Elevator _____ | |
| ☒ | Asbestos Abatement | |
| ☐ | Other _____ | |

(Office Use Only)

FEB

Administrative Surcharge \$ _____
 Paid [] Check # _____ Minimum Fee \$ _____
 Collected by: _____ TOTAL FEE \$ _____

TOWNSHIP OF LISCAWAT
Code Enforcement Department
566-6th Avenue
Piscataway, New Jersey 08854
Phone: 908-669-8925



FIRE PROTECTION SUBCODE TECHNICAL SECTION



Date Received
Date Issued
Control #
Permit #

7/9/93
1522-93

A. IDENTIFICATION-APPLICANT: COMPLETE ALL APPLICABLE INFORMATION. WHEN CHANG-
ING CONTRACTORS, NOTIFY THIS OFFICE. CALL UTILITY DIG NO: 1-800-272-1000.

Block 1068 Lot 15.01
Work Site Location Veterans Memorial Middle School
105 Hendrickson Ave., Brick, N.J. 08724

Owner in Fee Brick Schools Board of Education
Address 105 Hendrickson Ave., Brick, N.J. 08724

Tele. (908) 477-2800

Contractor Frank C. Gibson, Inc

Address 34 E. Main St
Freehold, N.J. 07728

Tele. (908) 462-0282

Lic. No. 6266

Federal Emp. No. 21 0726280 or Social Security No.

B. FIRE PROTECTION CHARACTERISTICS

Use Group Present E Proposed 2C
Constr. Class. Present E Proposed 2C

Heating Systems ☐ New ☒ Existing

Type: ☐ Gas ☐ Oil ☐ Electrical ☐ Solar

Location: ☐ Other

Total Est. Cost of Fire Prot. Work \$ 300. ☐ Other

JOB SUMMARY (Office Use Only)

PLAN REVIEW: INSPECTIONS: Dates (Month/Day)

☐ No Plans Required Type: Failure Failure Approval Initial

Joint Plan Review Required: ☐ Bldg. ☐ Plumb. ☐ Elec.

☒ Fire Plans Approved: ☐ Fire Alarm Test

Date: ☐ Smoke Test

Approved by: ☐ Mechanical

SUBCODE APPROVAL: TCO

☐ CO ☐ CCO ☐ CA

Date: ☐ Other

Approved by: ☐ Other

C. CERTIFICATION IN LIEU OF OATH

I hereby certify that I am the (agent of) owner of
record and am authorized to make this application.

SIGNATURE

D. TECHNICAL SITE DATA

all plans from

Water Supply Source

Method of Valve Supervision

Local Alarm Supervision

Central Supervision

Proprietary Supervision

Flammable Liquid Storage Tanks

Combustible Liquid Storage Tanks

L.P.G. Storage Tanks

L.N.G. Storage Tanks

Wet Sprinkler Heads

Dry Sprinkler Heads

TOTAL

Smoke Detectors

Heat Detectors

TOTAL

Stand Pipes

Kitchen Hood Exhaust Systems

Pre-Engineered Systems

CO₂ Suppression

Halon Suppression

Foam Suppression

Dry Chemical

Wet Chemical

Gas or Oil Fired Appliance

OTHER

Number

FEE (Office Use Only)

Administrative Surcharge

Minimum Fee

Collected by

TOTAL FEE

**52:27D-126c. Erection or alteration of public buildings;
prohibition of fees**

No county, municipality, or any agency or instrumentality thereof shall be required to pay any municipal fee or charge in order to secure a

construction permit for the erection or alteration of any public building or part thereof from the municipality wherein the building may be located. No erection or alteration of any public building or part thereof by a county, municipality, or any agency or instrumentality thereof shall be subject to any fee, including any surcharge or training fee, imposed by any department or agency of State government pursuant to any law, or rule or regulation, except that nothing contained in this section shall be interpreted as preventing the imposition of a fee upon a board of education by either the Department of Education for plan review or by a municipality for the review of plans submitted to it pursuant to the provisions of section 12 of P.L. 1975, c.217 (C. 52:27D-130).

P.L. 1985, c.409, §1, effective January 13, 1986. Amended by P.L. 1989, c.43, §2, effective March 9, 1989; P.L. 1990, c.23, §4, effective May 15, 1990.



YEZZI ASSOCIATES
ARCHITECTS PLANNERS

YEZZI SAPP PA
Architects Engineers Planners

1993 RENOVATIONS
BRICK BOARD OF EDUCATION

COMPUTER CLASSROOMS
VETERANS MEMORIAL MIDDLE SCHOOL

Massimo Francis Yezzi, Jr. R.A.P.P.
1035 Hooper Avenue, Suite 4
P.O. Box 1638, Toms River, NJ 08754

Tel (908) 240-3433
(908) 240-3438
Fax (908) 240-3463

Architecture

Planning

Interior Design

Index of Specifications

COMPUTER CLASSROOM RENOVATIONS - VETERANS MEMORIAL MIDDLE SCHOOL,
105 HENDRICKSON AVENUE, BRICK, NEW JERSEY 08723.

1.0	Preface	
1.1	Notice To Bidders Advertisement	
1.2	Bid Proposal Form	
1.3	Instructions to Bidders	
1.4	Supplementary Instructions to Bidders	
1.5	General Conditions of Contract for Construction	
1.6	Supplementary Conditions for All Contractors	
2.0	Section Number	Section Identification
	01000	General Requirements
	01300	Submittals and Substitutions
	01310	Construction Schedule
	01710	Cleaning
	02070	Selective Demolition
	03100	Concrete Work
	04400	Masonry
	06100	Rough Carpentry
	06200	Finish Carpentry
	08300	Hollow Metal Doors
	08700	Finishing Hardware
	09110	Metal Stud System
	09260	Gypsum Stud System
	09510	Acoustical Ceilings
	09650	Vinyl Tile and Vinyl Base
	09900	Painting
	10710	Miscellaneous Items
	15000	Heating, Ventilating & Air Conditioning
	16000	Electrical
3.0	Construction Documents:	Drawings

NOTICE TO BIDDERS ADVERTISEMENT

Public notice is hereby given that sealed bids for furnishing labor, materials, and services for COMPUTER CLASSROOM RENOVATIONS AT THE VETERANS MEMORIAL MIDDLE SCHOOL, 105 HENDRICKSON AVENUE, BRICK, NEW JERSEY 08724, will be received for the following work:

- A. General scope of work.
 - 1. Convert existing Metal Shops into Computer Classrooms.
 - 2. Miscellaneous Up-grades.
- B. A lump sum Bid for the Entire Project.

BIDS WILL BE RECEIVED:

Place: BRICK SCHOOLS BOARD OF EDUCATION
101 HENDRICKSON AVENUE
BRICK, NEW JERSEY 08724

TIME: 2:00 P.M.

DATE: JUNE 29, 1993

and then at said place publicly opened and read aloud.

Contractors are advised that the Owners will award a contract to the lowest qualified Bidder or Bidders in accordance with the Laws of 1971, Chapter 198 N.J.S.A. 40A:11-1 etseq.

Contract Documents are "available for review" in the office of the Architect, YEZZI ASSOCIATES, ARCHITECTS AND PLANNERS, 1035 HOOPER AVENUE, TOMS RIVER, NEW JERSEY 08753. Contractors may purchase copies of the Contract Documents in the office of the Architect for the sum of Fifty Dollars (\$50.00) per set, payable to the Architect, said deposit is non-refundable.

All proposals must be submitted on approved forms in sealed envelopes plainly endorsed and shall include the name and address of the Bidder and the contract being bid. Bids shall be submitted at the above time and place. Bids will not be received before or after the time set forth. Bids by mail will not be accepted.

Each Bidder must deposit with his Bid, security in the form of a Bid Bond, Treasurer's Check or Certified Check in an amount of not less than 10% of the total bid amount, including alternates, if any. The deposit shall not be more than \$15,000.00.

NOTICE TO BIDDERS ADVERTISEMENT - PAGE 2 OF 3

The successful Bidder will be required to furnish a Bond from a Surety Company authorized to do business in the State of New Jersey, satisfactory to the Owner, in the full amount of the contract price for the faithful performance of the work and to guarantee the payment of all claims as required by law and the consent of such Surety to enter into the Bond shall be attached to the Bid.

All Contractors please take notice of the following excerpt from Chapter 127, P.L. 1977:

"During the performance of this contract, the Contractor agrees as follows:

- a. The Contractor or Subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, national origin, ancestry, marital status, or sex. Such action shall include, but not be limited to the following: Employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause; in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, or sex.
- b. The Contractor or Subcontractor, where applicable, will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, or be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment."

A corporation submitting a Bid in response to this Advertisement shall accompany such Bid with a resolution authorizing its proper Officer to submit such a Bid and authorizing such Officers to execute a contract in the event its Bid is accepted.

Bidders are advised that the Owner will award the contract to the lowest qualified Bidder. The Owner reserves the right to reject any or all Bids, and to waive any informalities in any Bids, as may be deemed best for the interest of the Owner.

NOTICE TO BIDDERS ADVERTISEMENT - PAGE 3 OF 3

Attention is called to the fact that all laws of the State of New Jersey applicable to the aforesaid work shall govern. Prevailing Wage Rates as determined by the State of New Jersey, Department of Labor and Industry, Wage and Hour Bureau, must be paid on this project.

Bidders and their representatives are invited to be present when the proposals are received and opened.

Project to start on JULY 1, 1993, and be complete by AUGUST 31, 1993.

Project to have a Liquidating Damage Clause of \$300.00 per day.

Successful bidder will be allowed to work seven (7) days a week, twelve (12) hours a day. No additional compensation will be provided by the owner for any overtime required to finish the project on schedule.

There will be no scheduled prebid meeting. Each contractor shall visit the site as they deem necessary.

END OF SECTION

BID PROPOSAL PACKET - VETERANS MEMORIAL MIDDLE SCHOOL

RENOVATIONS - COMPUTER CLASSROOMS

CHECK LIST

The following to be completed and submitted with bid proposal:

1. Bid Proposal Form (page 1 to 3)
2. Bid Security
3. Bid Bond (page 4)
4. Affirmative Action Affidavit (page 5 to 7)
5. Subcontractors List (page 8 & 9)
6. Non-collusion Affidavit (page 10)
7. Disclosure Statement (page 11)
8. Consent of Surety (page 12)
9. Right to Know Letter (page 13)
10. Any Addendums shall be listed on Bid Proposal Form and dated.
11. State of New Jersey, Division of Building and Construction, Notice of Prequalification Form. (Sample Attached - page 15)
12. Certified Payroll Records. (page 14)

BID PROPOSAL FORM

FOR: INTERIOR ALTERATIONS: COMPUTER CLASSROOMS
VETERANS MEMORIAL MIDDLE SCHOOL
105 HENDRICKSON AVENUE
BRICK, NEW JERSEY 08724

TO: BRICK TOWNSHIP BOARD OF EDUCATION
101 HENDRICKSON AVENUE,
BRICK, NEW JERSEY 08724

DATE: JUNE 29, 1993

TIME: 2 P.M.

STATEMENT OF FACT: The undersigned hereby declares that they have carefully examined the Bidding Documents, Plans, and Specifications covering the INTERIOR RENOVATIONS TO COMPUTER CLASSROOMS AT VETERANS MEMORIAL MIDDLE SCHOOL, 105 HENDRICKSON AVENUE, BRICK, NEW JERSEY, prepared by YEZZI ASSOCIATES, ARCHITECTS & PLANNERS, 1035 HOOPER AVENUE, TOMS RIVER, NEW JERSEY 08753, as well as the Advertisement for Bids, and will contract to furnish and deliver and install all the material, labor, equipment, and appurtenances required for full and complete project as set forth in the Contract Documents for the following amount:

BASE BID _____ (Total all Trades)
DOLLARS (\$ _____)

COST BREAKDOWN: The Base Bid shall be broken down by the Contractor into the following categories for the Owner's edification:

1. General Construction.....\$ _____
2. HVAC.....\$ _____
3. Electrical.....\$ _____
4. ADA LIFT.....\$ _____

TOTAL BASE BID\$ _____

OWNERS ALTERNATES: Contractor is to include alternates in original bid. Each alternate is to be itemized individually for clarity. Owner has the right to select any individual alternate or number of alternates which meets the needs of the project.

ALTERNATE #1: State amount to be added to Base Bid if revised Classroom Layout #3 is accepted with all miscellaneous items (relocate exterior doors, new steel stair to mezzanine, new hung ceiling @ 9'8", and additional windows): Add:.....\$ _____

COMPUTER CLASSROOMS-VETERANS MEMORIAL MIDDLE SCHOOL
BID PROPOSAL FORM

PAGE 2 OF 15
JUNE 29, 1993

The undersigned agrees, if awarded the Contract, to execute and deliver the Contract Agreement to the Owner within ten (10) days after notice of award. The project is to be unconditionally guaranteed for a period of one year from final C.O.

STARTING DATE: _____

COMPLETION DATE: _____ (BY GC)

CONTRACTOR: _____

COST: The undersigned hereby affirms and states that the prices quoted herein constitute the total cost for all work involved in the respective items and that the cost also includes all insurance, transportation charges, use of all tools and equipment, superintendence, bonus, overhead expenses, all profits and all other work, services, conditions furnished in accordance with the requirement of the contract documents considered severally and collectively.

Bid Security in the amount of \$ _____ is enclosed.

Disclosure of Ownership Statement is enclosed.

See Check List Attached.

Other Provision: The undersigned hereby affirms and states that any modifications to the specifications are set forth on the following page forms a part of this bid.

The Owner reserves the right to reject any and all proposals and to waive any informalities in the bidding. The Bidder agrees that his proposal may not be withdrawn for a period of thirty (30) days from the opening thereof. Conditional proposals will not be accepted. Proposal Forms will not be accepted unless signed by the Owner or authorized Corporate Officer. The Owner reserves the right to accept or reject any and all of the alternates in any order he so desires.

COMPUTER CLASSROOMS-VETERANS MEMORIAL MIDDLE SCHOOL
BID PROPOSAL FORM

PAGE 3 OF 15
JUNE 29, 1993

NAME OF BIDDER: _____
(Typed or Printed)

SIGNED: _____
(Authorized Signature)

(Title of Person Signing)

ADDRESS: _____

ADDENDUMS: The Contractor shall list receipt of all Addendums on
their Bid Proposal Form:

Addendum No. _____	Date Received _____
Addendum No. _____	Date Received _____
Addendum No. _____	Date Received _____

THE AMERICAN INSTITUTE OF ARCHITECTS



AIA Document A310

Bid Bond

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

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

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

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

Dollars (\$),

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

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

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

Signed and sealed this

day of

19

	{	(Principal)	(Seal)
(Witness)		(Title)	
	{	(Surety)	(Seal)
(Witness)		(Title)	

PROVISIONS OF SECTION 4 of C. 127, PUBLIC LAW 1975

This is a paragraph from the New Jersey Administrative Code, Chapter 614 - 1.6, Employment/Contract Practices with which we must comply.

"No school district shall enter into any contract with a person, agency, or organization if it has any knowledge that such person, agency, or organization discriminates on the basis of race, color, creed, religion, sex, ancestry, national origin, or social or economic status, either in employment practices or in the provision of benefits or services to students or employees."

FURTHER DEFINED IN "INSTRUCTIONS TO BIDDERS", SECTION 36.

AFFIRMATIVE ACTION AFFIDAVIT

STATE OF NEW JERSEY

COUNTY OF

I, _____, of the (City, Town, Borough) of _____ in
the County of _____, State of _____ of full age, being duly
sworn according to law on my oath depose and say that:

1. I am (President, partner, owner) of the firm of _____
a bidder making a proposal upon the above-named project.

2. I am familiar with the affirmative action requirements of P L 1975, c. 127
and rules and regulations issued by the Treasurer, State of New Jersey, pursuant
thereto.

3. _____, has complied with all the affirmative action
requirements of the State of New Jersey, including those required by P L 1975, c.
127 and the rules and regulations issued by the Treasurer, State of New Jersey,
pursuant thereto.

4. I am aware that if, _____ does not comply with P L 1975, c.
127 and rules and regulations issued pursuant thereto, that no monies will be paid
by the State of New Jersey, County of OCEAN _____, (City, Town, Borough)
Brick Township
of Board of Education, until an affirmative action plan is approved. I am
also aware that the contract may be terminated and the
may be debarred from all public contracts, for a period of up to five (5) years.

5. The Affirmative Action Affidavit for vendors having less than fifty
employees is no longer acceptable.

Signature of Authorized Representative

(Seal, Notary Public of New Jersey)

Subscribed and sworn to
before me this _____ day
of _____, 19 _____

Name and Title

NOTICE TO CONTRACTORS

RE: AFFIRMATIVE ACTION REGULATIONS P.L. 1975, C 127

PROCUREMENT AND SERVICE CONTRACTORS

Contractors are required to comply with the requirements of P.L. 1975, C. 127

A. ALL CONTRACTORS

1. Within seven (7) days after receipt of the notification of intent to award the contract or receipt of the contract, whichever is sooner, a procurement contractor should present one of the following to the; Brick Township Board of Education, 101 Hendrickson Avenue, Brick, NJ 08724
 - (a) An existing federally approved or sanctioned affirmative action program.
 - (b) A Certificate of Employee Information Report Approval.
 - (c) If the contractor cannot present "a" or "b" the contractor is required to submit a completed Employees Information Report (Form AA302). This form will be made available to contractors by the Brick Township Board of Education.

The following questions must be answered by all prospective contractors

1. Do you have a federally approved or sanctioned Affirmative Action Program?

YES _____ NO _____

(a) If yes, please submit a photostatic copy of such approval.

2. Do you have A State Certificate of Employee Information Report approval?

YES _____ NO _____

(a) If yes, please submit a photostatic copy of such certificate.

SUBCONTRACTORS
REQUIRED INFORMATION

As per Local Public Contracts Law 40A:11-16:

There will be set forth in the bid the names or names of all subcontractors to whom the bidder will subcontract the furnishing of plumbing and gas fitting, and all kindred work, and of the steam and hot water heating and ventilating apparatus, steam power plants and kindred work, and electrical work, structural steel and ornamental iron work, each of which subcontractors shall be qualified in accordance with this act. The contracting unit shall require evidence of performance security to be submitted simultaneously with the list of subcontractors. Evidence of performance security may be supplied by the bidder on behalf of himself and any or all subcontractors, or by each respective subcontractor, or by any combination thereof which results in evidence of performance security equalling, but in no event exceeding, the total amount bid.

LIST OF SUBCONTRACTORS

Name

AddressType of Work[illegible]

NON-COLLUSION AFFIDAVIT

STATE OF NEW JERSEY :
COUNTY OF : SS.

I, _____ of the City of _____
in the County of _____ and the State
of New Jersey, of full age, being duly sworn according to law on my
oath depose and say that:

I am _____
of the firm of _____
the bidder making the Proposal for the above named project, and that I
executed the said Proposal with full authority so to do; that said
bidder has not, directly or indirectly, entered into an agreement,
participated in any collusion, or otherwise taken any action in re-
straint of free, competitive bidding in connection with the above
named project; and that all statements contained in said Proposal and
in this affidavit are true and correct, and made with full knowledge
that the Board of Education relies upon the truth of the statements con-
tained in said Proposal and in the statements contained in this affidavit
in awarding the contract for the said project.

Subscribed and sworn to
before me this _____ day
of _____, 19____

BY: _____

Notary Public State of _____
My commission expires _____, 19____

THE BIDDER IS SOLE PROPRIETORSHIP, CHECK HERE: _____ AND DO NOT COMPLETE THIS STATEMENT.)

THE UNDERSIGNED, as bidder, in accordance with P.L. 1977, Chapter 33, declare and submits this Statement of Ownership:

Bidder is a Corporation _____ Partnership _____ Joint Venture _____

Full Name of Individual
(Stockholder) (Partner)

Address of Individual
(Stockholder) (Partner)

Share (%)
Owned

Number of minority (less than 10%) owners not listed _____

TOTAL 100%

- Notes:
1. Attach additional sheets in this format if necessary.
 2. If a corporation or partnership is shown as a greater than 10% owner, attach similar breakdown of (their) (its) individual owners.

CONSENT OF SURETY

In consideration of the premises and of One Dollar (\$1.00), lawful money of the United States, it is in hand paid by the CONTRACTOR, the receipt whereof is hereby acknowledged, the undersigned surety consents and agrees that if the contract, for which the preceding estimate and proposal is made, be awarded the person or persons submitting the same as contracted, it will become bound as surety and guarantor for its faithful performance, in an amount equal to one hundred percent (100%) of the contract price, and will execute it as party of the third part thereto when required to do so by the OWNER, and if the said CONTRACTOR shall omit or refuse to execute such contract, if so awarded, it will pay without proof of notice and on demand to the OWNER any increase between the sum to which the said CONTRACTOR would have been entitled upon the completion of the said contract and the sum which the said OWNER may be obligated to pay to another contractor to whom the contract may be afterwards awarded, the amount in such case to be determined by the bids plus the cost; if any, of readvertising for bids for this work, less the amount of any certified check or bid bond payable and received.

In witness whereof, said surety has caused these presents to be signed and attested by a duly authorized officer and its corporate seal to be hereto affixed this

_____ day of _____ 19____

(A corporate acknowledgement and statement of authority to be here attached by the surety company).

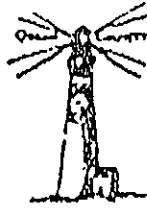
(Surety Company)

By _____

Surety Company
Attorney-in-Fact

Attest:

(Surety may substitute a similar statement subject to the Owner's approval.)



101 HENDRICKSON AVENUE
BRICK, N. J. 08724
DLAL (201) 477-2800

Brick Township Board of Education

Administrative Offices

Dear Sir:

The New Jersey Worker and Community Right to Know Act (N.J.S.A. 34:5A-1 et seq.), effective August 29, 1984, establishes a comprehensive system for the disclosure and dissemination of information about hazardous substances in the workplace and the environment.

Pursuant to the Act, the Department of Health has adopted a Workplace Hazardous Substance List (N.J.A.C. 8:59-9) which includes 2051 hazardous substances that pose a threat to the health and safety of employees. In the first year, the Act requires employers to label all containers with the names of all hazardous substances present in the container and to list them on a Workplace Survey. In the second year, I am required to label the top five ingredients plus any hazardous substances down to 0.1%.

In order to comply with the Worker and Community Right to Know Act, we are requiring that all vendors label their products in such a fashion that they meet the requirements set forth in the New Jersey Worker and Community Right to Know Act (N.J.S.A. 34:5A-1 et seq.). In addition, we are requiring that you provide us with the Material Safety Data Sheets (MSDS) or a complete list of all ingredients of the products shipped by you whether they be considered hazardous substances or not. Should you fail to comply with these requirements, all products shipped by you to the Brick Township School System will be returned at your expense.

At this time we also bring to your attention that in the event the MSDS does not accompany the shipment and we have to request it the following shall apply:

- A. No distribution of the product will be permitted in our school district.
- B. The shipment will be returned at your expense if we do not have the MSDS in our possession within 10 days after our contact with your company.

Full compliance with this requirement will be no later than July 1, 1986.

Should you have any questions regarding these requirements, please feel free to contact my office at 201-477-2800, extension 210.

Yours truly,

Robert K. Stutts
Business Administrator/
Board Secretary

RKS:lg

NOTICE TO ALL PUBLIC WORKS EMPLOYEESCERTIFIED PAYROLL RECORDS

PLEASE BE ADVISED that effective February 18, 1992 Regulation N.J.A.C. 12:60-2.1 and 6.1 of the New Jersey Prevailing Wage Act, N.J.S.A. 34:11-55.25 et seq. requires that all public works employers shall submit a certified payroll record to the public body or lessor which contracted for the public work project each payroll period within ten (10) days of the payment of wages. The public body shall receive, file and make available for inspection during normal business hours the certified payroll records.

A copy of the certified payroll form may be obtained by contacting the New Jersey Department of Labor, Division of Workplace Standards, Public Contracts Section, CN 389, Trenton, N.J. 08625-0389, telephone (609) 292-2259.

I have read the above statement and am aware of my responsibilities:

Contractor:

Date:

Payroll on this project will be on a:

basis.

Weekly

Bi-Weekly

Monthly

NOTICE OF CLASSIFICATION

TO:

NOTICE TYPE

AGGREGATE AMOUNT	TRADE(S)	EFFECTIVE DATE	EXPIRATION DATE
	<u>S A M P L E</u>		
ELECTRICAL LICENSE NO.	PLUMBING LICENSE NO.	OTHER LICENSE NO.	

VALID ELECTRICAL LICENSE ON FILE DBC
 VALID PLUMBING LICENSE ON FILE DBC
 FIRM QUALIFIED FOR WIRING WITH A POTENTIAL OF 30 VOLTS OR LESS, NO LICENSE ON FILE
 ELECTRICAL LICENSE NUMBER MUST BE VERIFIED AS VALID BEFORE AWARD OF CONTRACT
 PLUMBING LICENSE NUMBER MUST BE VERIFIED AS VALID BEFORE AWARD OF CONTRACT.

IN accordance with N.J.S.A. 18A:18A-27 *et seq* (Department of Education) and N.J.S.A. 52:35-1 (Department of the Treasury) and any rules and regulations issued pursuant hereto, you are hereby notified of your classification to do State work in the Department(s) as noted above.



AIA Document A701

Instructions to Bidders

1987 EDITION

TABLE OF ARTICLES

- | | |
|-----------------------------|--|
| 1. DEFINITIONS | 6. POST-BID INFORMATION |
| 2. BIDDER'S REPRESENTATIONS | 7. PERFORMANCE BOND AND
PAYMENT BOND |
| 3. BIDDING DOCUMENTS | 8. FORM OF AGREEMENT BETWEEN OWNER
AND CONTRACTOR |
| 4. BIDDING PROCEDURES | |
| 5. CONSIDERATION OF BIDS | |

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INSTRUCTIONS TO BIDDERS

ARTICLE 1 DEFINITIONS

1.1 Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement or Invitation to Bid, Instructions to Bidders, Supplementary Instructions to Bidders, the bid form, and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications and all Addenda issued prior to execution of the Contract.

1.2 Definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201, or in other Contract Documents are applicable to the Bidding Documents.

1.3 Addenda are written or graphic instruments issued by the Architect prior to the execution of the Contract which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections.

1.4 A Bid is a complete and properly signed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids.

1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment or services or a portion of the Work as described in the Bidding Documents.

1.8 A Bidder is a person or entity who submits a Bid.

1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment or labor for a portion of the Work.

ARTICLE 2 BIDDER'S REPRESENTATIONS

2.1 The Bidder by making a Bid represents that:

2.1.1 The Bidder has read and understands the Bidding Documents and the Bid is made in accordance therewith.

2.1.2 The Bidder has read and understands the Bidding Documents or contract documents, to the extent that such documentation relates to the Work for which the Bid is submitted, for other portions of the Project, if any, being bid concurrently or presently under construction.

2.1.3 The Bidder has visited the site, become familiar with local conditions under which the Work is to be performed and

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

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

ARTICLE 3 BIDDING DOCUMENTS

3.1 COPIES

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

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

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

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

3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

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

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

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

3.3 SUBSTITUTIONS

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

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

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

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

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

3.4 ADDENDA

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

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

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

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

ARTICLE 4

BIDDING PROCEDURES

4.1 FORM AND STYLE OF BIDS

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

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

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

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

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

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

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

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

4.2 BID SECURITY

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

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

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

4.3 SUBMISSION OF BIDS

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

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

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

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

4.4 MODIFICATION OR WITHDRAWAL OF BID

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

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

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

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

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

ARTICLE 5

CONSIDERATION OF BIDS

5.1 OPENING OF BIDS

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

5.2 REJECTION OF BIDS

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

5.3 ACCEPTANCE OF BID (AWARD)

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

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

ARTICLE 6

POST-BID INFORMATION

6.1 CONTRACTOR'S QUALIFICATION STATEMENT

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

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

6.2 OWNER'S FINANCIAL CAPABILITY

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

6.3 SUBMITTALS

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

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

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

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

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

ARTICLE 7

PERFORMANCE BOND AND PAYMENT BOND

7.1 BOND REQUIREMENTS

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

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

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

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

7.2 TIME OF DELIVERY AND FORM OF BONDS

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

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

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

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

ARTICLE 8

FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

8.1 FORM TO BE USED

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

ARTICLE 10

SUPPLEMENTARY INSTRUCTIONS TO BIDDER

1. This proposal covers the renovation work at the **VETERANS MEMORIAL MIDDLE SCHOOL - COMPUTER CLASSROOM RENOVATION.**
2. Each bid shall be upon the form bound with the specifications, shall be signed by the Bidder with his business address and shall be delivered together with the specifications to the place mentioned above, within the time specified. Each bid shall be submitted in an envelope addressed to the Brick Schools Board of Education, 101 Hendrickson Avenue, Brick, New Jersey 08724, showing the bidders name and clearly marked: **"VETERANS MEMORIAL COMPUTER CLASSROOMS"**.
3. All bids shall be submitted on the Bid Forms attached to these specifications. The Bid Form shall be completely filled out. Bids that are incomplete, conditional, or obscure, or which contain any additions or alterations not called for, may be rejected.
4. The Bid must bear the written signature of the Bidder. If the Bidder is a partnership, the Bid must be signed by the partners. If the Bidder is a corporation, the Bid must be signed by a duly authorized officer or agent of such corporation. A sole owner must sign as such. An individual trading as a company must sign and indicate, trading as said company.
5. Bidders shall submit prices as indicated on the Bid Form. In lieu of statements to the contrary, it will be clearly understood that all prices shall be for items specified. Bidders will clearly state in a separate letter, any exception to the specifications as issued. The Owner reserves the right to rule on the equality of items bid on to those listed.
6. **RECEIVING BIDS:** Bids received prior to the time established for the receipt of Bids will be securely kept unopened. No responsibility will be attached to the awarding authority for premature opening of a Bid not properly addressed and identified. No Bid received by the Owner after the time established herein for the opening of Bids will be considered, regardless of the cause of delay in the receipt of any such Bid.
7. **WITHDRAWAL OF BIDS:** Any bid may be withdrawn on written request dispatched by the Bidder on time for delivery in the normal course of business prior to the hour fixed for the opening of Bids. During the 45 day period following the opening of bids, no Bidder may withdraw any proposal submitted by him.

8. No interpretation of the reading of the specifications or other contract documents will be made by the Architect orally. Every request for such interpretation shall be in writing, addressed to the Architect and, to be given consideration, must be received five (5) working days prior to bid due date. Any and all such interpretations and any supplemental instructions will be in the form of written Addenda to the specifications which, if issued, will be mailed to all prospective bidders. Failure of any bidder to receive such addendum or interpretation shall not relieve any Bidder from any obligation under his bid submitted. All Addenda shall become a part of the General Contract.
9. Each bid shall be accompanied by certified check, cashiers' check, or bid bond issued by a responsible bank or trust company, payable to the BRICK BOARD OF EDUCATION in the amount of 10% of the total bid amount, as a bid deposit. The bid deposit shall be forfeited as damages, if the Bidder fails to execute the contract and furnish bonds as specified below (#10) within ten (10) working days after notification of award of contract to him.
10. The Owner requires the successful Bidder furnish and pay for a Performance Bond in the value of 100% of the contract amount and within ten (10) working days after the award, as a condition of the execution of the agreement.
11. The Specifications, Instructions to Bidders, Designated Inspections, Manufacturer's Representative Responsibilities, Invitations to Bid, the Bid Form, and any addenda provisions together with the purchase order shall constitute the contract document.
12. The Brick Schools Board of Education, known as the Owner and Awarding Authority, reserves the right to reject any or all bids if deemed to be in the public interest to do so and to award the bid to their best advantage.
13. BIDS MUST INCLUDE A STATEMENT ON THE BID FORM TO THE EFFECT THAT THE BIDDER WILL COMPLETE ALL WORK CALLED FOR UNDER THIS CONTRACT NO LATER THAN AUGUST 28, 1993. WORK SHALL COMMENCE WITHIN FIVE (5) CALENDAR DAYS OF AWARD OF CONTRACT.
14. The Contractor shall take all required precautions to protect his equipment against damage, theft, deterioration on the site, and shall be responsible for his work and equipment until final acceptance by the Awarding Authority.
15. The Owner may order changes in the material or work in writing, the contract sum being adjusted accordingly. All charges for additional materials or work must be submitted in advance to the Architect for approval.

16. The Contractor agrees that the rate per hour and wages paid to employees used in the performance of this project shall not be less than the minimum prevailing rates of wages, as per Wage Law #N.J.S.A. 34:11-56, 25 et. seq.
17. No subletting of the award, nor assignment of monies due, or to become due shall be made without written consent of the Owner.
18. If an award of the Contract is made, it will be made within thirty (30) days after opening of the bids. If the Bidder selected as the contractor fails to perform his agreement to execute his contract in accordance with the terms of the bids, and if required, fails to furnish a Performance Bond within ten (10) working days after the award, an award shall be made to the next lowest Bidder who is eligible and responsible.
19. Examination of Conditions. All contractors may visit the site for the purpose of inspecting the job site and proper specification interpretation.
20. Whenever a particular make of material is shown or specified herein, such make of material shall be regarded as a standard. Any other make or material will be accepted which is equal to that specified in quality, performance, physical features, economy in operation, and suitability for the purpose intended.
21. A Bidder intending to furnish an alternate in place of the items(s) specified, must submit a sample of the material that he intends to furnish with his Bid, and the name of the alternate must be written on the Bid Form.
22. A Bidder offering "or equal" materials will be responsible for furnishing complete and acceptable data to the Owner as to performance under the laboratory tests in the attached bid forms, showing the direct test comparison between the two materials. The date or dates of the testing must also be shown.
23. If the above comparative test data is not available, the United States Testing Company, Inc. shall perform all tests and qualitative and quantitative analysis at the bidder's expense. Such data shall prove the equality or superiority of the alternate material, or shall be rejected.

24. If the results of the required test data as described above are not available at the time of awarding the contract, the contract will be awarded in good faith by the Owner, on the assumption that the alternate materials are equal to those specified. When the results of the testing are made available to the Owner, if they are not equal to those specified, the Owner reserves the following rights:
- A. Reduce the total bid amount by fifty (50) percent assuming full completion and satisfaction of all other specifications.
 - B. If the job is less than one-half completed, it must be completed with the materials specified, and the total bid shall be reduced by thirty (30) percent.
 - C. If the job is more than one-half completed, it shall be completed with the unequal materials, and the total bid reduced by fifty (50) percent.
25. During the installation of the materials, the contractor shall have the manufacturer's representative on the job site for the purpose of job site instruction.
26. The Contractor shall carry liability insurance covering the operation of trucks and automobiles and shall take out and maintain Public Liability and Property Damage Liability Insurance in not less than the following amounts.

BODILY INJURY

PROPERTY DAMAGE

Each Person	Each Occurrence	Each Accident	Each Occurrence
\$500,000	\$500,000	\$500,000	\$500,000

Evidence of the above insurance in the form of certificates shall be issued to the Owner prior to starting work. Certificates of insurance shall state that the owner will be notified in writing ten (10) days prior to cancellation of any insurance coverage.

27. All work shall be in accordance with the specifications. Non-compliance shall result in rejection of the bid or the stopping of the work.
28. The bidders shall include in their proposals all labor, materials, equipment, and services necessary or incidental to the completion of the work, and other pertinent work as herein described.
29. The Contractor shall be responsible for the condition of the buildings and shall at all times make adequate provision to protect adjacent work and materials. He shall replace or put in good condition anything damaged in carrying on the work, and keep the premises free of all unauthorized or objectionable persons. At the completion of the work, all surplus materials, equipment, and debris shall be removed from the premises.

30. The Contractor agrees to hold the Owner harmless in any and all liability of every nature and description which may be suffered through bodily injuries, including death of any persons, by reasons of negligence of the Contractor, his agents, employees, or his sub-contractors.
31. The contractor shall maintain, for the duration of the contract and for the protection of all employees engaged thereunder, Workmen's Compensation as required by the Labor Laws of the States, and all Municipal and Federal Liability Laws. Evidence of this protection shall be filed with the owner prior to starting work.
32. Contractor shall comply with all safety requirements, provide all protection and equipment as required by the Construction Safety Code of the State Department of Labor and Industry pursuant to law.
33. Contractor shall determine, with the Architect, prior to ordering materials, that location which will be suitable for delivery and storage of materials and equipment. This is dependent upon availability of space. All materials and equipment shall be kept in a secure area or removed from the job site when work is not actually in progress.
34. Upon job completion, a final inspection will be made by the Architect, the contractor, and a designated representative of the owner. No payment will be authorized for work done until such inspection has been made, and all work is found to have been performed in accordance with the specifications and to the satisfaction of the owner.
35. The periods covered by the guarantee shall commence with the date of making and acceptance of the final payment. The Contractor shall furnish material manufacturer's full warranties to the owner upon completion of all work.
36. Affirmative Action: The parties to this contract agree to incorporate into this contract the mandatory language of sub-section 3.4 (a) of the regulations promulgated by the Treasurer pursuant to PL 1975, Chapter 127 as amended and supplemented from time to time, and the contractor or sub-contractor agrees to comply fully with the terms, provisions and obligations of said sub-section 3.4 (a) provided that said subsection shall be applied subject to the terms of sub-section 3.4 (d) of said regulations.

The parties to this contract agree to incorporate into this contract the mandatory language of subsection 7.4 (a) and (b) of the regulations promulgated by the Treasurer pursuant to PL 1975, Chapter 127 as amended and supplemented from time to time, and the contractor or sub-contractor agrees to comply fully with the terms, provisions and obligations of subsections 7.4 (a) and (b).

37. Disclosure of Ownership: Pursuant to the requirements of Chapter 33, PL 1977, effective March 8, 1977,

"No corporation or partnership shall be awarded any contract nor shall any agreement be entered into for the performance of any work or the furnishing of any materials or supplies, the cost of which is to be paid with or out of any public funds, by the State, or any county, municipality or school district or any subsidiary or agency of the State, or any county, municipality or school district or by any authority, board, or commission which exercised governmental functions, unless prior to the receipt of the bid or accompanying the bid, of said corporation or said partnership, there is submitted a statement setting forth the names and addresses of all stockholders in the corporation or partnership who own 10% or more of its stock, of any class or of all individual partners in the partnership who own a 10% or greater interest therein, as the case may be.

If one or more such stockholder or partner is itself a corporation or partnership, the stockholders holding 10% or more of that corporation's stock, or the individual partners owning 10% or greater interest in that partnership, as the case may be, shall also be listed. The disclosure shall be continued until names and addresses of every noncorporate stockholder, and individual partner, exceeding the 10% ownership criteria established in this act, has been listed."

Bidder shall submit with his bid a statement or list complying with the above law.

38. PREQUALIFICATION: Pursuant to the Requirements of Chapter 114, PL 1977, effective June 2, 1977,

18A:18A-26.

Every board of education shall require that all persons proposing to bid on any contract requiring public advertisement for bids with the board for public work, the entire cost whereof will exceed \$20,000.00, shall first be classified in accordance with article 6 of this chapter as to the character and amount of public work on which they shall be qualified to submit bids. So long as such requirement is in effect, the board of education shall accept such bids only from persons qualified in accordance with such classification.

18A:18A-32.

No person shall be qualified to bid on any public work contract with the board of education, the entire cost whereof will exceed \$20,000.00, who shall not have submitted a statement as required by N.J.S. 18A:18A-28 within a period of 6 months preceding the date of opening of bids for such contract. Every bidder shall submit with his bid an affidavit that subsequent to the latest such statement submitted by him there has been no material adverse change in his qualification information except as set forth in said affidavit.

Each bidder, if his bid exceeds \$20,000.00, shall submit with his bid an affidavit showing prequalification in accordance with the standards and by the New Jersey Department of Treasury, Division of Building and Construction, or the New Jersey Department of Transportation. The prequalification standards are accepted by the Department of Education as meeting the minimum requirements of prequalification for bidders on public school contracts. Each bidder shall therefore attach to his bid the affidavit form of prequalification certification of either of the above two referenced State Agencies which is active on the date of the acceptance of these bids.

39. MANUFACTURER'S REPRESENTATIVE'S RESPONSIBILITIES:

- A. Keeping the Architect informed on a periodic basis as to the progress and quality of work.
- B. Calling to the attention of the contractor those matters which he considers to be in violation of the contract requirements.
- C. Reporting to the Architect any failure or refusal of the contractor to correct unacceptable practices.
- D. Conducting preliminary and subsequent job site meetings with the contractor's official job representative.
- E. Rendering any other inspection services, which the Architect may designate.
- F. Inspecting after completion of work, the extent to which the contractor has complied with these specifications.

The presence and activities of the Architect shall in no way relieve the contractor of his contractual responsibilities.

END OF SECTION



AIA Document A201

General Conditions of the Contract for Construction

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

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Written Consent	1.3.1, 3.12.8, 3.14.2, 4.1.2, 4.3.4, 4.5.5, 9.3.2, 9.8.2, 9.9.1, 9.10.2, 9.10.3, 10.1.2, 10.1.3, 11.3.1, 11.3.1.4, 11.3.11, 13.2, 13.4.2
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GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

ARTICLE 1

GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

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

1.1.2 THE CONTRACT

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

1.1.3 THE WORK

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

1.1.4 THE PROJECT

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

1.1.5 THE DRAWINGS

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

1.1.6 THE SPECIFICATIONS

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

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

1.1.7 THE PROJECT MANUAL

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

1.2 EXECUTION, CORRELATION AND INTENT

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

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

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

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

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

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

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

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

1.4 CAPITALIZATION

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

1.5 INTERPRETATION

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

ARTICLE 2

OWNER

2.1 DEFINITION

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

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

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

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

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

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

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

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

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

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

2.3 OWNER'S RIGHT TO STOP THE WORK

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

2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

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

ARTICLE 3

CONTRACTOR

3.1 DEFINITION

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

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

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

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

3.2.3 The Contractor shall perform the Work in accordance with the Contract Documents and submittals approved pursuant to Paragraph 5.12.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

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

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

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

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

3.4 LABOR AND MATERIALS

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

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

3.5 WARRANTY

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

3.6 TAXES

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

3.7 PERMITS, FEES AND NOTICES

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

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

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

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

3.8 ALLOWANCES

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

3.8.2 Unless otherwise provided in the Contract Documents:

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

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

3.9 SUPERINTENDENT

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

3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

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

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

3.10.3 The Contractor shall conform to the most recent schedules.

3.11 DOCUMENTS AND SAMPLES AT THE SITE

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

3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

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

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

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

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

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

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

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

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

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

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

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

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

3.13 USE OF SITE

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

3.14 CUTTING AND PATCHING

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

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

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

3.15 CLEANING UP

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

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

3.16 ACCESS TO WORK

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

3.17 ROYALTIES AND PATENTS

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

3.18 INDEMNIFICATION

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

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

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

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

ARTICLE 4

ADMINISTRATION OF THE CONTRACT

4.1 ARCHITECT

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

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

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

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

4.2 ARCHITECT'S ADMINISTRATION OF THE CONTRACT

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

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

4.2.3 The Architect will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility as provided in Paragraph 3.5. The Architect will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Con-

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

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

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

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

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

4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Paragraph 7.1.

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

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

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

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

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

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

4.3 CLAIMS AND DISPUTES

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

4.3.2 Decision of Architect. Claims, including those alleging an error or omission by the Architect, shall be referred initially to the Architect for action as provided in Paragraph 4.1. A decision by the Architect, as provided in Subparagraph 4.4.4, shall be required as a condition precedent to arbitration or litigation of a Claim between the Contractor and Owner as to all such matters arising prior to the date final payment is due, regardless of (1) whether such matters relate to execution and progress of the Work or (2) the extent to which the Work has been completed. The decision by the Architect in response to a Claim shall not be a condition precedent to arbitration or litigation in the event (1) the position of Architect is vacant, (2) the Architect has not received evidence or has failed to render a decision within agreed time limits, (3) the Architect has failed to take action required under Subparagraph 4.4.4 within 30 days after the Claim is made, (4) 45 days have passed after the Claim has been referred to the Architect or (5) the Claim relates to a mechanic's lien.

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

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

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

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

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

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

4.3.8 Claims for Additional Time

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

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

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

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

4.4 RESOLUTION OF CLAIMS AND DISPUTES

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

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

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

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

4.5 ARBITRATION

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

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

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

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

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

4.5.4.2 A demand for arbitration shall be made within the time limits specified in Subparagraphs 4.5.1 and 4.5.4 and Clause 4.5.4.1 as applicable, and in other cases within a reasonable time after the Claim has arisen, and in no event shall it be made after the date when institution of legal or equitable proceedings based on such Claim would be barred by the applicable statute of limitations as determined pursuant to Paragraph 1.3.7.

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

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

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

ARTICLE 5

SUBCONTRACTORS

5.1 DEFINITIONS

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

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

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

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

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

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

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

5.3 SUBCONTRACTUAL RELATIONS

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

5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

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

- 1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Paragraph 10.2 and only for those subcontract agreements which the Owner accepts by notifying the Subcontractor in writing; and
- 2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

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

ARTICLE 6

CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

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

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

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

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

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

6.2 MUTUAL RESPONSIBILITY

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

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

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

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

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

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

6.3 OWNER'S RIGHT TO CLEAN UP

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

ARTICLE 7

CHANGES IN THE WORK

7.1 CHANGES

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

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

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

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

7.2 CHANGE ORDERS

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

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

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

7.3 CONSTRUCTION CHANGE DIRECTIVES

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

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

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

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

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

- 4 as provided in Subparagraph 7.3.6.

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

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

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

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

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

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

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

7.4 MINOR CHANGES IN THE WORK

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

ARTICLE 8

TIME

8.1 DEFINITIONS

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

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

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

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

8.2 PROGRESS AND COMPLETION

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

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

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

8.3 DELAYS AND EXTENSIONS OF TIME

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

8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Paragraph 15.3.

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

ARTICLE 9

PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

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

9.2 SCHEDULE OF VALUES

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

9.3 APPLICATIONS FOR PAYMENT

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

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

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

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

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

9.4 CERTIFICATES FOR PAYMENT

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

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

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

9.5 DECISIONS TO WITHHOLD CERTIFICATION

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

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

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

9.6 PROGRESS PAYMENTS

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

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

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

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

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

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

9.7 FAILURE OF PAYMENT

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

9.8 SUBSTANTIAL COMPLETION

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

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

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

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

9.9 PARTIAL OCCUPANCY OR USE

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

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

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

9.10 FINAL COMPLETION AND FINAL PAYMENT

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

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

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

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

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

ARTICLE 10

PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

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

10.1.2 In the event the Contractor encounters on the site material reasonably believed to be asbestos or polychlorinated biphenyl (PCB) which has not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the Owner and Architect in writing. The Work in the affected area shall not thereafter be resumed except by written agreement of the Owner and Contractor if in fact the material is asbestos or polychlorinated biphenyl (PCB) and has not been rendered harmless. The Work in the affected area shall be resumed in the absence of asbestos or polychlorinated biphenyl (PCB), or when it has been rendered harmless, by written agreement of the Owner and Contractor, or in accordance with final determination by the Architect on which arbitration has not been demanded, or by arbitration under Article 1.

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

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

10.2 SAFETY OF PERSONS AND PROPERTY

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

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

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

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

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

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

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

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

10.3 EMERGENCIES

10.3.1 In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Paragraph 4.5 and Article 7.

ARTICLE 11

INSURANCE AND BONDS

11.1 CONTRACTOR'S LIABILITY INSURANCE

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

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

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

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

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

11.2 OWNER'S LIABILITY INSURANCE

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

11.3 PROPERTY INSURANCE

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

11.4 PERFORMANCE BOND AND PAYMENT BOND

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

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

ARTICLE 12

UNCOVERING AND CORRECTION OF WORK

12.1 UNCOVERING OF WORK

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

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

12.2 CORRECTION OF WORK

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

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

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

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

12.2.4 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Paragraph 2.1. If the Contractor does not proceed with correction of such nonconforming Work within a reasonable time fixed by written notice from the Architect, the Owner may remove it and store the salvable materials or equipment at the Contractor's expense. If the Contractor does not pay costs of such removal and storage within ten days after written notice, the Owner may upon ten additional days' written notice sell such materials and equipment at auction or at private sale and shall account for the proceeds thereof, after deducting costs and damages that should have been borne by the Contractor, including compensation for the Architect's services and expenses made necessary thereby. If such proceeds of sale do not cover costs which the Contractor should have borne, the Contract Sum shall be reduced by the deficiency. If payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

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

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

12.3 ACCEPTANCE OF NONCONFORMING WORK

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

ARTICLE 13

MISCELLANEOUS PROVISIONS

13.1 GOVERNING LAW

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

13.2 SUCCESSORS AND ASSIGNS

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

13.3 WRITTEN NOTICE

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

13.4 RIGHTS AND REMEDIES

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

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

13.5 TESTS AND INSPECTIONS

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

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

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

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

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

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

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

13.6 INTEREST

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

13.7 COMMENCEMENT OF STATUTORY LIMITATION PERIOD

13.7.1 As between the Owner and Contractor:

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

ARTICLE 14

TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR

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

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

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

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

14.2 TERMINATION BY THE OWNER FOR CAUSE

14.2.1 The Owner may terminate the Contract if the Contractor:

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

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

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

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

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

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

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

14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

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

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

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

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

SUPPLEMENTARY CONDITIONS FOR ALL CONTRACTORS

Note: The following supplements modify, change, delete from or add to the "General Conditions of the Contract for Construction", AIA Document A201, 1987 edition. Where any Article of the General Conditions is modified or any Paragraph, Subparagraph or Clause thereof is modified or deleted by these Supplementary Conditions, the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect.

ARTICLE 1; CONTRACT DOCUMENTS

Paragraph 1.2 - Execution, Correlation, Intent and Interpretations -
Add the following subparagraphs:

1.2.6 Where the words "shown" or "shown on drawings" are used in the specifications, they shall be construed to mean "noted", "indicated", "scheduled", "detailed", or any other diagrammatic or written reference made on the drawings.

1.2.8 The use of the words "provide" or "provided" is intended to mean "furnish(ed)" and/or "connect(ed)", unless specifically indicated otherwise in the specifications.

1.2.9 Where the words "equal" or "equivalent" are used, each shall be construed to mean being same in value, measure, force, affect or significance and corresponding in position and function subject to the approval of the architect.

1.2.10 The terms "approved" or "approval" mean written approval of the architect.

1.2.11 The terms "specification" or "specifications" shall mean all matter contained in the bound volume so entitled and related documents thereto.

1.2.12 The terms "directed", "required", "permitted", "ordered", "designated", "prescribed", and words of like import shall imply the direction, requirement, permission, order, designation or prescription of the architect and "approved", "acceptable", "satisfactory", and words of like import shall mean approved by or acceptable or satisfactory to the architect and "necessary", "reasonable", "proper", "correct", and words of like import shall mean necessary, reasonable, proper, or correct, in the judgement of the architect.

1.2.13 The term "work" as used herein refers to work normally done at the location of the project or to that done in shops remote from the site and includes all plant, labor, materials, supplies, equipment and other facilities and things necessary or proper for or incidental to the carrying out and completion of the terms of this contract.

1.1.1 THE CONTRACT DOCUMENTS

The following list of AIA Documents are part of the contract and should be provided by Contractor:

- A-101 Owner Contract Agreement Form
- A-201 General Conditions of the Contract for Construction (Provided in Specifications)
- A-305 Contractor's Qualification Statement
- A-310 Bid Bond
- A-311 Performance Bond and Labor and Material Payment Bond
- A-701 Instructions to Bidders
- G-702 Application and Certificate for Payment
- G-702 Continuation Sheet
- G-704 Certificate of Substantial Completion
- G-705 Certificate of Insurance
- G-706 Contractor's Affidavit of payment of Debts and Claims
- G-706A Contractor's Affidavit of release of Liens
- G-707 Consent of Surety Company to Final Payment
- G-805 List of Subcontractors

The above AIA forms are on file at the Architect's office.

1.1.3 PROJECT MANUAL

The Project Manual is the volume which includes the bidding requirements, sample forms and certain of the Contract Documents such as the Conditions of the Contract and the Specifications.

The Contractors will purchase copies of the contract drawings and copies of the specifications for the execution of work from the Architect's office at a cost of \$50.00 per set (1 set of drawings and 1 set of specifications). Contractors shall allow in their bids a sufficient sum to cover the cost of the documents which they will require.

ARTICLE 2 - OWNER

The owner as defined shall be the BRICK TOWNSHIP BOARD OF EDUCATION.

2.1 The Contractor will be furnished, free of charge four copies of drawings and project manuals. Additional sets will be furnished at the cost of reproduction, postage, and handling.

ARTICLE 3 - CONTRACTOR

1. Labor and Materials

2. The contractor shall also furnish, erect and remove when no longer necessary or when directed to do so, necessary scaffolding including ladders, protection, hoists and other temporary structures or equipment for construction of work and shall furnish, erect and remove necessary shoring and be responsible for the safety and strength of same.

3. All materials shall be of AMERICAN MANUFACTURE. Materials and workmanship shall, in every respect, be in accordance with the best modern practice and whenever the Contract drawings, specifications or directions of the Architect admit of a doubt as to what is permissible or fail to note the quality of any work, the interpretations which calls for the best quality work is to be followed. Materials installed as part of the permanent construction shall be new materials, except as may be otherwise herein specified/required.

4. Where several brands, makes or manufacturers are listed as "approved" each shall be regarded as the equivalent of each other. Where only one is specified with "or Equal" or "or equivalent", it shall be regarded merely as a standard. If the words "or equal" or "or equivalent" do not follow the specified products, it is intended that the product or products so specified are a criteria which serve the best interests of the Owner. If the Contractor desires to substitute a material not listed, he shall apply to the Architect, in writing, for approval and state credit or extra involved. He shall accompany his request with technical data and samples for the Architect's consideration. Where no brand name is specified, and material is referred to as "approved", it signified that the Architect must be consulted as to source from which the material will be secured and its quality. The Architect reserves the right to test and inspect any and all substitute materials to determine the quality, workmanship, operation and general suitability for the purpose intended. The costs of all tests and inspections shall be borne by the Contractor.

5. Not later than 5 days from the Contract Date, the Contractor shall provide a list showing the name of the manufacturer proposed to be used for each of the products identified in the General Requirements of the Specifications (Division 1) and, where applicable, the name of the installing Subcontractor.

6. The Architect will promptly reply in writing to the Contractor stating whether the Owner or the Architect, after due investigation, has reasonable objection to any such proposal. If adequate data on any proposed manufacturer or installer is not available, the Architect may state that action will be deferred until the Contractor provides further data. Failure of the owner or architect to reply promptly shall constitute notice of no reasonable objection. Failure to object to a manufacturer shall not constitute a waiver of any of the requirements of the Contract Documents, and all products furnished by the listed manufacturer must conform to such requirements.

7. After the Contract has been executed, the Owner and the Architect will consider a formal request for the substitution of products in place of those specified only under the conditions set forth in the General Requirements of the Specifications (Division 1).

7.1 By making requests for substitutions based on the above, the Contractor:

- a. represents that he has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified;
- b. represents that he will provide the same warranty for the substitution that he would for that specified;
- c. certifies that the cost data presented is complete and includes all related costs under this Contract but excludes costs under separate contracts, and excludes the Architect's redesign costs, and waives all claims for additional costs related to the substitution which subsequently become apparent; and
- d. will coordinate the installation of the accepted substitute, making such changes as may be required for the work to be complete in all respects.

7.2 Material - all material shall be of American manufacture.

8.0 Progress Schedule

The Contractor shall submit to the Architect within 10 days of award of the Contract a complete and realistic time schedule of all trades to complete the project.

ARTICLE 4 - NO CHANGE

ARTICLE 5 - NO CHANGE

ARTICLE 6 - NO CHANGE

ARTICLE 7 - NO CHANGE

ARTICLE 8 - NO CHANGES

ARTICLE 9 - PAYMENTS

1.0 New Jersey Prevailing Wage Act Shall Govern

2.0 Progress Payments - Add the following subparagraphs:

2.1 Monthly payments are to be made on contract in an amount equal to 95% of the contract value as work is completed and material delivered and stored at the site. The remaining 5% will be paid after full completion and final acceptance of the work, upon submission by the Contractors of releases of lien by all Subcontractors, vendors and others involved. All punch list items must be fully completed before the final acceptance is made. Applications for payment shall be submitted on the 20th of each month covering work up to that date. Architect will check and submit applications for payment to the Owner before the 30th of the month submission is made. Payments will be made upon approval of vouchers submitted by the Contractor in accordance with the AIA Document G702 Application for Payment.

2.2 Neither the foregoing nor any provisions of the Contract Documents, nor any special guaranty time limit shall be held to limit the Contractor's liability for defects and/or omissions to less than the legal limit of liability in accordance with the law of the place of building or area of jurisdiction.

3.0 ACCIDENTS, INJURIES, DAMAGES

If it becomes necessary for the Contractor, either as principal or by agent or employee, to enter upon the premises or property of the Owner in order to construct, erect, inspect, make delivery or remove property hereunder, the Contractor hereby covenants and agrees to take, use, provide and make all proper, necessary and sufficient precautions, safeguards and protections against the occurrence of happenings of any accidents, injuries, damages or hurt to any person or property during the progress of the work herein covered, and to be responsible for, and to indemnify and save harmless the Owner from the payment of all sums of money by reason of all, or any, such accidents, injuries, damages or hurt that may happen or occur upon or about such work and all fines, penalties and loss incurred for or by reason of the violation of any governmental ordinance, regulation, or the laws of the State, or the United States, while said work is in progress.

Contractor will carry insurance to indemnify the Owner against any claim for loss, damage or injury to property or persons arising out of the performance of the Contractor or his employees and agents of the services covered by the contract and the use, misuse or failure of any equipment used by the Contractor or his employees or agents, and shall provide certificates of such insurance to the Owner.

4.0 PROTECTION OF WORK AND PROPERTY

The Contractor shall continuously maintain adequate protection for all his work from damage and he shall protect the owner's property from injury, damage or loss arising in connection with this contract. He shall make good any such injury, damage or loss.

5.0 The occupancy or use of any portion of the project shall not constitute any acceptance of work performed in accordance with the contract documents or relieve the Contractor of liability to perform any work required by the contract but not completed at the time of said occupancy.

6.0 The Contractor shall be relieved of all maintenance costs on the portion of the project occupied under this section.

7.0 AFFIRMATIVE ACTION REQUIREMENTS

As required by the State of New Jersey

8.0 SUBSTITUTION OF MATERIAL

8.1 Whenever a particular make of material or manufacturer is shown or specified, such make of material or manufacturer shall be regarded as a standard. Any other make of material or manufacturer will be accepted which is comparable to that specified in cost, quality, workmanship, economy in operation and suitability for the purpose intended. If two or more makes of materials or manufacturers are specified, then each should be regarded as equal to the other and either one of them may be installed.

8.2 The Architect shall decide the question of equality whenever materials, equipment or manufacturers are referred to as in the specifications as "or equal". The Contractor shall submit for approval the name of the manufacturer and his product he contemplates installing together with pertinent information. If necessary, special guarantees shall be furnished upon request.

9.0 PROJECT COMPLETION

9.1 After the final punch list is sent to the Contractor, he shall complete all work within thirty (30) calendar days from the date of the list. This shall include all unfinished work, testing, adjusting, balancing and regulating all systems; providing all test reports instructions to Owner; maintenance manuals; certificates of approval and completion of all required forms.

9.2 If the contractor, through neglect, inability or incapacity to coordinate his subcontractors, manufacturers, or other under his control fails to complete this work satisfactorily in (30) days, he shall be given notice and the work shall be completed by others and the cost deducted from this Contractor's payment. Neither the Architect nor any of his Engineers or Consultants shall be responsible for completing the Contractor's work. Any additional time spent by the Architect, the Engineers or other consultants, or their duly authorized representative, in field trips, testing, measuring or calculating for corrections, changes or adjustments necessary for satisfactory system performance shall be charged seventy-five dollars (\$75.00) per hour including travel time.

ARTICLE 11 - INSURANCE

Contractor's Liability Insurance - add the following subparagraphs:

11.2 The Contractor's Liability Insurance and Contractor's Contingent Liability Insurance shall be in amounts of not less than the following or greater if required by law:

The Contractor and all Subcontractors, at their own expense, shall provide and maintain insurance as follows in companies acceptable to the Owner:

1. Workman's Compension as required by all applicable Federal, State, Maritime or other laws including Employer's Liability with a limit of at least: \$100,000.00

2. Comprehensive General Liability including Contractors Liability, Completed Operations and Products Liability all on the occurrence basis with Personal Injury Coverage and broad form Property Damage. Remove the XCU exclusion relating to Explosion, Collapse and Underground Property Damage. Completed Operations Liability shall be kept in force for at least two years after the date of final completion.

PERSONAL INJURY

Each Person	\$500,000.00
Each Occurrence	\$500,000.00

PROPERTY DAMAGE

Each Accident	\$500,000.00
Aggregate	\$500,000.00

3. Comprehensive Automobile Liability including non-ownership and hired car coverage as well as owned vehicles:

CONDITIONS FOR CONTRACTORS

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BODILY INJURY

Each Person	\$500,000.00
Each Occurrence	\$500,000.00

PROPERTY DAMAGE

Each Occurrence	\$500,000.00
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4. Bonds or Other Insurance which we require the Contractor to provide are:

Performance Bond, AIA Document A311 - 100% of contract amount
Labor and Material Payment Bond, AIA Document A311 - 100% of contract amount.

The Contractor shall furnish the owner with satisfactory evidence of the required insurance and bonds with a provision that at least fifteen days prior written notice will be given to the Owner in the event of cancellation or material change.

Owner's Liability Insurance - The Owner shall provide the following insurance coverage:

1. Owner's Contingent Liability

PERSONAL INJURY

Each Person	\$500,000.00
Each Occurrence	\$500,000.00

PROPERTY DAMAGE

Each Occurrence	\$500,000.00
Aggregate	\$500,000.00

2. Builder's Risk - Fire, Extended Coverage and Vandalism insurance on the completed value form for the full insurable value of the work in the names of the Owner, the Contractor and all Subcontractors as their interests may appear - 100% of the contract assumed value.

3. Steam Boiler and Machinery - Not Required.

12.0 PAYMENTS FOR ADDITIONAL SERVICES

12.1 The allowance for additional services, overhead and profit included in the total cost to the Owner, shall be based on the following schedule:

12.2 For the Contractor, for any Work performed by the Contractor's own forces, 10% of the cost.

12.3 For the Contractor, for work performed by his subcontractor, 5% of the amount due the Subcontractor.

12.4 For each Subcontractor or Sub-subcontractor involved, for any Work performed by that Contractor's own forces, 10% of the cost.

12.5 For each Subcontractor, for Work performed by his Sub-subcontractors, 10% of the amount due the Sub-subcontractor.

12.6 In order to facilitate checking of quotations for extras or credits, all proposals, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs including labor, materials and Subcontracts. Labor and materials shall be itemized in the manner prescribed above. Where major cost items are Subcontracts, they shall be itemized also. In no case will a change involving over \$100 be approved without itemization.

13.0 LAYOUT OF WORK

13.1 Each contractor shall take his own measurements at the site verifying same with the drawings and with the construction in progress, and will be held responsible for the proper fit of completed work in position.

14.0 TEMPORARY FACILITIES

14.1 TOOLS AND SCAFFOLDING - All manner of scaffolding and tools required for the proper execution of work shall be provided by each contractor, who shall maintain all in good working order and be responsible for the safety, use, maintenance, and care of same.

14.2 STORAGE SHEDS - All contractors shall provide sufficient storage sheds for materials requiring shelter from the weather and locate same to make the best use of the space available on the property. Upon completion of the contract work all temporary field structures shall be taken down and the site restored to the satisfaction of the architect.

15.0 STORAGE AREAS - All construction sheds and material storage shall be confined within fenced areas. The Architect shall determine areas to be used for materials and shed. General Contractor shall provide and erect a 4'0" high snow fence around perimeter of material storage shed areas as directed by the Architect and maintain its repair during entire construction contract.

16.0 TEMPORARY TOILET - The contractor shall provide and maintain sanitary temporary toilet at the site, located as directed, for use by those engaged in the work. Enclose and waterproof this temporary toilet; keep in constant sanitary approved condition. Remove from site and clean up when directed by owner or architect. No interior toilet facilities in building shall be used during any point of construction.

17.0 TEMPORARY WATER - The contractor shall make all necessary provision for water required for construction for all trades as outlined in the specifications. All contractors bidding on this project shall fully acquaint themselves with the requirements listed therein. The General Contractor shall pay for all water used.

18.0 COOPERATION AND MUTUAL RESPONSIBILITY OF CONTRACTORS

18.1 Contractors are required to cooperate fully with each other in the manufacturing, assembling and erection of the work in order to avoid delay and to insure first class workmanship. Where the work of one contractor requires the installation of work by another, ample advance notice shall be given to such other contractor and sufficient time allowed for the installation of his work. No closing in or covering up will be permitted until all work has been completed and inspected.

18.2 If, through acts of neglect on the part of one contractor, any other contractor or subcontractor shall suffer loss or damage of the work, the contractor causing the loss or damage agrees to settle with such other contractor or subcontractor by agreement or arbitration if such other contractor or subcontractor will so settle. If such other contractor or subcontractor shall assert any claim against the owner on account of any damage alleged to have been sustained, the owner shall notify the contractor, who shall indemnify and save harmless the owner against any such claim.

19.0 GUARANTEE - Neither the final certificate of payment nor any provision in the contract documents, nor partial or entire use of the premises by the owner, shall constitute an acceptance of work not done in accordance with the contract documents. The contractor shall remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of one (1) year from the date of final acceptance. Should additional bonds or guarantees to be required under any division of the specifications, such bonds and guarantees shall be in addition to the guarantee stated herein.

20.0 MAINTENANCE BOND - After final inspection and acceptance of the work by the owner and architect and prior to acceptance by the owner, the contractor shall furnish a one year maintenance guarantee in the amount of 5% of the final total contract cost, in the form of a certified check upon a national or state bank located in New Jersey or a maintenance bond for the same amount guaranteeing faithful compliance with the guarantee noted above.

21.0 SUPERINTENDENCE BY CONTRACTORS - At the site of the work, the contractor shall employ construction superintendent or foreman who shall have full authority to act for the contractor. It is understood that such representative shall be acceptable to the architect and shall be one who can be continued in that capacity for the duration of the job unless he ceases to be on the contractor's payroll.

22.0 REMOVAL OF RUBBISH - The contractor shall clean up and remove from the premises at frequent intervals and when directed by architect all rubbish and refuse material of whatever nature resulting from his own contract and other trades employed by him. If contractor fails to comply with this requirement, the architect shall authorize the cleaning to be performed by others and backcharge the contractor accordingly for cost of such cleaning.

22.1 The contractor shall generally clean the premises of his debris, on the last work day of each week. None shall be left to be blown around the site. All shall be taken from the site and disposed legally.

23.0 RECORD DRAWINGS - During construction, the Contractor shall keep an accurate record of all deviations, between work as shown on drawings and that which is actually installed.

24.0 DIMENSIONS AND DETAIL DRAWINGS - Figured dimensions shall invariably take precedence over scale measurements and large scale details over small scale drawings. Contractor shall check and verify all measurements on project, shall be responsible for their corrections and fit, and make his work in conformity with same. Scaling of drawings is not permitted under any circumstance and the Contractor is totally responsible for said action.

25.0 TEMPORARY OCCUPANCY

25.1 The Owner at its election, may occupy any portion of the project as the work in connection therewith is completed to such a degree as will, in the opinion of the Owner, permit its use.

25.2 Such partial occupancy shall not constitute a waiver of Owner's right under the contract documents or shall partial occupancy relieve the contractor of his obligation or duties except as specifically set forth in this section.

25.3 The Owner will, prior to such partial occupancy, give notice to the Contractor thereof, and such occupancy shall be based upon the following terms.

25.4 The one year guarantee period called for in the General Conditions shall not begin to run until the date of the Architect's final certificate.

END OF SECTION

1.0 DESCRIPTION

Work included in this project shall be as follows:

COMPUTER CLASSROOM RENOVATIONS - VETERANS MEMORIAL MIDDLE SCHOOL.

2.0 LOCATION: Brick, New Jersey.

2.1 CONTRACTOR'S RESPONSIBILITY:

1. Verify all measurements and conditions in the field.
2. Before starting work, examine all adjoining work on which the work of these specifications depend. Perform corrective work to all existing conditions necessary to make these specifications perform in all respects.

2.2 APPLICABLE DOCUMENTS

Publications, specifications and standards listed in this Specification form a part of this Specification to the extent indicated by the reference thereto. Unless otherwise indicated, the issue of effect on the date of issuing the Invitation for bids shall apply.

2.3 PROGRESS CHART

Within ten (10) days of the receipt of Notice to Proceed and prior to commencement of work, the Contractor shall submit and receive approval for a Progress Chart indicating the planned starting and completion dates for all work items.

2.4 PRICE SCHEDULE

Along with the Progress Chart, the Contractor shall submit a price schedule for each work item, indicating his breakdown for labor, material and equipment. Definitions applying are as follows:

1. **LABOR COST:** Direct labor wages and benefits, labor insurance, supervisory labor, small hand tools chargeable to labor, prorated cost of job expenses such as field office and telephone, prorated percentage of general (main office) overhead and percentage of profit.
2. **MATERIAL COST:** Direct material costs delivered to the site, prorated percentage of job expenses, general overhead and profit.

3. EQUIPMENT COST: Plant and equipment charges, prorated percentage of job expenses, general overhead and profit.

2.5 INTENT OF DRAWINGS AND SPECIFICATIONS

The intent of the drawings and specifications is to provide for the completion of the work in every detail that is described therein. The Contractor shall furnish all labor, materials, equipment, tools, transportation and necessary supplies such as may be reasonably required to complete the work in accordance with the drawing.

2.6 COORDINATION OF CONTRACT WORK WITH BRICK TOWNSHIP BOARD OF EDUCATION, BRICK, NJ.

The building will be open to the public during work. Submit start and completion schedule to the Owner for approval.

2.7 REPAIR OF EXISTING WORK

The work shall be carefully laid out in advance. Where cutting or patching surfaces is necessary for proper installation, the work shall be carefully done by skilled mechanics. Any damage to the building or equipment caused by the Contractor shall be repaired by skilled mechanics of the trades involved, at no additional costs to the owner. The contractor shall patch and refinish all damaged surfaces caused by this work so as to match adjacent surfaces in material, texture and color to the satisfaction of the architect.

2.8 MATERIALS APPROVED

Catalog cuts and other information shall be submitted by the Contractor as required herein and as necessary to secure approval of the material and methods to be incorporated into the work.

Four (4) copies of catalogs and other printed information shall be submitted. One (1) copy of printed matter will be returned to the Contractor for his use.

All submittals shall be made using the "Shop Drawing/Material Approval Request" form. Submittals shall be numbered sequentially and shall include the information required.

Within ten (10) days after receipt on Notice to Proceed, the Contractor shall submit a submittals status log indicating all required submittals and dates to be submitted.

3.0 METHODS OF MATERIAL QUALIFICATION

Each material and product can be incorporated into the work and shall conform to the specifications. The Contractor may use any of the following methods to demonstrate compliance with the specifications except as otherwise required.

Certificates of Compliance with specification requirements signed by an authorized officer of the manufacturer, processor or approved trade association involved. Such certificates shall show the name and address of the Contractor and the name and location of the project.

All material shall be installed as per manufacturers guide specifications.

Labeling by the manufacturer on unbroken and unopened containers.

Official marking or labeling by recognized grading organization or national code association indicating compliance.

3.1 DELIVERY STORAGE AND HANDLINGS

Deliver materials to the job site in the manufacturer's sealed and undamaged containers or wrappings.

Each product delivered shall be identified with the manufacturer's name, date of manufacture, lot name and trade name.

Store materials up off the ground under cover, protected from weather and construction activities.

The Contractor shall store all material on the job site at his own risk. The Owner will not be responsible for any lost material.

3.2 PRECONSTRUCTION MEETING - SEE NOTICE TO BIDDERS ADVERTISEMENT - PAGE 3.

4.0 INSPECTION

The Contractor shall keep the Architect fully informed of contract operations and plans so that he may arrange to be present at various times when work is being performed.

5.0 HOURS OF WORK

All construction operations shall be performed between the hours of 7:30 a.m. and 4:30 p.m. local time, Monday through Friday inclusive. If the Contractor desires to carry on work outside of these hours or on Saturday, Sunday, or Holidays, he shall submit application to the Owner for approval at least seventy-two (72) hours in advance. No such work outside the regular hours established above shall be undertaken without approval of the Owner.

6.0 UTILITIES

Electricity and water, as available, will be furnished by the Owner for construction purposes at no cost provided that these utilities are not overloaded.

7.0 TOILET FACILITIES

Shall be provided by and maintained by the Contractor.

8.0 REMOVAL

All material and debris removed shall become the property of the Contractor and shall be removed from the site during and after the work. Debris and waste material shall not be discharged into surrounding area. None of the materials being removed may be reused, except as noted on the drawings. All debris removed shall be properly disposed of in approved sites.

9.0 SPECIAL HOURS OF WORK:

The contractor will be allowed to work seven (7) days a week, twelve (12) hours a day, as approved.

END OF SECTION

1.0 GENERAL DESCRIPTION

Work Included:

1. Wherever possible throughout the Contract Documents, the minimum acceptable quality of workmanship and materials has been defined by manufacturer's name and catalog number, reference to recognized industry and State Standards, or description of required attributes and performance.
2. To ensure that the specified products are furnished and installed in accordance with design intent, procedures have been established for advance submittal of design data and for their review by the Architect.
3. Make all submittals required by the Contract Documents, and revise and resubmit as necessary to establish compliance with the specified requirements.

Related work described elsewhere: Individual requirements for submittals are described in pertinent other sections of these specifications.

1.1 QUALITY ASSURANCE

Coordination of submittals: Prior to each submittal, carefully review and coordinate all aspects of each item being submitted and verify that each item and the submittal for it conforms in all respects with the requirements of the Contract Documents. By affixing the Contractor's signature to each submittal, certify that this coordination has been performed.

Certificates of compliance:

1. Certify that all materials used in the work comply with all specified provisions thereof. Certifications shall not be construed as relieving the Contractor from furnishing satisfactory materials if, after tests are performed on selected samples, the material is found to not meet specified requirements.
2. Show on each certification the name and location of the work, name and address of Contractor, quantity and date or dates of shipment or delivery to which the certificate applies, and name of the manufacturing or fabricating company. Certification shall be in the form of letter or company standard forms containing all required data. Certificates shall be signed by an officer of the manufacturing or fabricating company.
3. In addition to the above information, all laboratory test reports submitted with Certificates of Compliance shall show the date or dates of testing, the specified requirements for which testing was performed, and results of the test or tests.

1.2 SUBMITTALS

Submittal schedule: Within 20 days after award of contract, and before any items are submitted for approval, submit to the Owner two copies of the schedule described in Article 2.1 of this section.

Certificates of Compliance: Upon completion of the work and as a condition of its acceptance, submit to the Owner all Certificates of Compliance.

Procedures: Make submittals in strict accordance with the provisions of this section.

2.0 SUBMITTAL SCHEDULE

- 2.1 **General:** Compile a complete and comprehensive schedule of all submittals anticipated to be made during progress of the work. Include a list of each type of item for which Contractor's drawings, shop drawings, Certificates of Compliance, material samples, guarantees, or other types of submittals are required. Upon approval by the Owner, this schedule will become part of the contract and the Contractor will be required to adhere to the schedule except when specifically otherwise permitted.

Coordination: Coordinate the schedule with all necessary subcontractors and materials suppliers to ensure their understanding of the importance of adhering to the approved schedule and their ability to so adhere. Coordinate as required to ensure the grouping of submittals as described in Paragraph 3 below.

Revisions: Revise and update the schedule on a monthly basis as necessary to reflect conditions and sequences. Promptly submit revised schedules to the Architect for review and comment.

2.2 SHOP DRAWING AND COORDINATION DRAWINGS

1. **Scale and measurements:** make all shop drawings accurately to a scale sufficiently large to show all pertinent aspects of the item and its method of connection to the work.
2. **Type of prints required:** submit all shop drawings in the form of one sepia transparency to each sheet plus one blue line or black line print of each sheet. Blueprints will not be acceptable.

3. Reproduction of review shop drawings: Printing and distribution of review shop drawings for the Architects's use will be by the Contractor. All review comments of the Architect will be shown on the sepia transparency when it is returned to the Contractor. The Contractor shall make and distribute all copies required for his purposes.

2.3 MANUFACTURER'S LITERATURE

1. General: Where contents of submitted literature from manufacturers include data not pertinent to the submittal, clearly indicate which portion of the contents is being submitted for review.
2. Number of copies required: Submit the number of copies which are required to be returned plus two copies which will be retained by the Architect.

2.4 SAMPLES

1. Accuracy of samples: Samples shall be of the precise article proposed to be furnished.
2. Number of samples required: Unless otherwise specified, submit all samples in the quantity which is required plus one which will be retained by the Architect.
3. Reuse of samples: In situations specifically so approved by the Architect, the Architect's retained sample may be used in the construction as one of the installed items.

2.5 COLORS AND PATTERN

Unless the precise color and pattern is specifically described in the Contract Documents, and whenever a choice of color or pattern is available in a specified product, submit accurate color and pattern charts to the Architect for review and selection.

2.6 SUBSTITUTIONS

Approval required:

1. The contract is based on the standards of quality established in the Contract Documents.
2. All products proposed for use, including those specified by required attributes and performance, shall require approval by the State before being incorporated into the work.
3. Do not substitute materials, equipment, or methods unless such substitution has been specifically approved for this work by the Architect.

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"Or Equal"

1. Where the phrase "or equal" or "or equal as approved by the Architect" occurs in the Contract Documents, do not assume that materials, equipment, or methods will be approved as equal unless the item has been specifically approved for this work by the Architect.
2. The decision of the Architect shall be final.

3.0 EXECUTION

3.1 IDENTIFICATION OF SUBMITTALS

General: Consecutively number all submittals. Accompany each submittal with a letter of transmittal containing all pertinent information required for identification and checking of submittals.

Internal identification: On at least the first page of each copy of each submittal, and elsewhere as required for positive identification, clearly indicate the submittal number in which the item was included.

Resubmittals: When material is resubmitted for any reason, transmit under a new letter of transmittal and with a new submittal number.

Submittal log: Maintain an accurate submittal log for the duration of the contract, showing current status of all submittals at all times. Make the submittal log available for the Owner's review upon request.

3.2 COORDINATION OF SUBMITTALS

General: Prior to submittal for approval, use all means necessary to fully coordinate all material including, but not necessarily limited to:

1. Determine and verify all interface conditions, catalog numbers, and similar data.
2. Coordinate with other trades as required.
3. Clearly indicate all deviations from requirements of the Contract Documents.

Grouping of submittals: Unless otherwise specified, make all submittals in groups containing all associated items to ensure that information is available for checking each item when it is received. Partial submittals may be rejected as not complying with the provisions of the Contract Documents and the Contractor shall be strictly liable for all delays so occasioned.

3.3 TIMING OF SUBMITTALS

General: Make all submittals far enough in advance of schedule dates for installation to provide all time required for reviews, for securing necessary approvals, for possible revisions and resubmittals, and for placing orders and securing deliveries.

Architects review time: In scheduling, allow at least ten (10) calendar days for review by the Architect following receipt of the submittal.

Delays: Delays caused by tardiness in receipt of submittals will not be an acceptable basis for extension of the contract completion dates.

3.4 ARCHITECT'S REVIEW

General: Review by the Architect shall not be construed as a complete check, but only that the general method of construction and detailing is satisfactory. Review shall not relieve the Contractor from responsibility for errors which may exist.

Authority to proceed: The notations "Reviewed, no exceptions noted", or "Reviewed, exceptions noted", authorize the Contractor to proceed with fabrication, purchase, or both, of the items so noted, subject to the revisions, if any, required by the Architect's review comments.

Revisions: Make all revisions required by the Architect. If the Contractor considers any required revision to be a change, he shall notify the Architect as provided for under "Changes" in the General Conditions. Show each drawing revision by number, date, and subject in a revision block on the drawing. Make only those revisions directed or approved by the Owner.

Revisions after approval: When a submittal has been reviewed by the Architect, resubmittal for substitution of materials or equipment will not be considered unless accompanied by an acceptable explanation as to why the substitution is necessary.

END OF SECTION

1.0 GENERAL

1.1 DESCRIPTION

Work Included: To assure adequate planning and execution of the work so that the work is completed within the number of calendar days allowed in the contract, and to assist the Owner in appraising the reasonableness of the proposed schedule and in evaluating progress of the work, prepare and maintain the schedules and reports described in this section.

Definitions:

1. "Day" used throughout the contract, unless otherwise stated, means "Calendar Day".

1.2 QUALITY ASSURANCE

Qualifications of Scheduling Personnel: Employ a scheduler who is thoroughly trained and experienced in compiling construction schedule data, in analyzing by use of Critical Path Method or PERT, and in preparation and issue of periodic reports as required below.

Reference Standards: Perform all data preparation, analysis, charting, and updating in accordance with all recommendations contained in the current edition of "CPM in Construction" Manual of Associate General Contractors, or in accordance with other standards approved by the State.

Reliance Upon Approved Schedule:

1. The construction schedule as approved by the Owner will be an integral part of the Contract, and will establish interim Contract Completion dates for the various activities.
2. Should any activity not be completed within 15 days after the stated scheduled date, the Owner shall have the right to order the Contractor to expedite completion of the activity by whatever means the Owner deems appropriate and necessary, without additional compensation to the contractor.
3. Should any activity be 30 or more days behind schedule, the Owner shall have the right to perform the activity or have activity performed by whatever method the Owner deems appropriate.
4. Costs incurred by the Owner in connection with expediting construction activity under this Article shall be reimbursed to the Owner by the Contractor.
5. It is expressly understood and agreed that failure by the Owner to exercise the option to either order the Contractor to expedite an activity or to expedite the activity by other means shall not be considered precedent setting for any other activities.

1.3 SUBMITTALS

General: Comply with the provisions of Section 01300.

Preliminary Analysis: Within ten days after receipt of Notice to Proceed, submit one reproducible copy and four prints of a preliminary construction schedule, plus four prints of proposed format or Materials Status Reports, prepared in accordance with Part Three of this Section.

Construction Schedule: Within 30 days after receipt of Notice to Proceed, submit one reproducible and four prints of construction schedule prepared in accordance with Part Three of this Section.

Periodic Reports:

1. On the first working day of each month following submittal described in Paragraph 1.3 above, submit four prints of the construction schedule updated as described in Part Three of this Section.
2. Accompanying each periodic submittal of construction schedule submit four prints of the Materials Status Reports updated as described in Part Three of this Section.

2.0 PRODUCTS

2.1 CONSTRUCTION ANALYSIS

Diagram:

1. Graphically show the order and interdependence of all activities necessary to complete the work, and the sequence in which each activity is to be accomplished, as planned by the Contractor and his project field superintendent in coordination with all sub-contractors whose work is shown on the diagram. Activities shown on the diagram shall include, but are not necessarily limited to:
 - a. Project mobilization;
 - b. Submittals and approvals of Shop Drawings and Samples;
 - c. Procurement of equipment and critical materials;
 - d. Fabrication of special material and equipment, and their installation and testing;
 - e. Final cleanup;
 - f. Final inspection and testing;
 - g. All activities by the State that affect progress, required dates for completion, or both, for all and for each part of the work.
2. The detail of information shall be such that duration times of activities shall normally range from one to 15 days. The selection and number of activities shall be subject to the State's approval.

3. Show on the diagram, as a minimum for each activity, preceding and following event numbers, description of each activity, cost, and activity duration in calendar days. Submit diagram on a sheet 75 cm (30") high by the width required.

Mathematical Analysis:

1. Furnish a mathematical analysis of the diagram by manual or computer-aided means, including a tabulation of each activity. Show the following information as a minimum for each activity:
 - a. Preceding and following event numbers;
 - b. Activity descriptions;
 - c. Earliest start date (by calendar date);
 - d. Latest start date (by calendar date);
 - e. Earliest finish date (by calendar date);
 - f. Latest finish date (by calendar date);
 - g. Slack or float (by calendar days);
 - h. Monetary value of the activity;
 - i. Percentage of activity completed;
 - j. Contractor's earnings based on portion of activity completed.
2. The means used in making the mathematical analysis shall be capable of compiling the total value of completed and partially completed activities, and be capable of accepting modifications approved for time and logic adjustment.

Periodic Reports:

1. If computer-aided means are used, list the activities in computer printout sorts as follows:
 - a. By the preceding event number from lowest to highest, and then in order of the following event number;
 - b. By the amount of float, then in order of preceding event numbers, and then in order of succeeding event numbers.
 - c. In order of preceding event numbers, and then in order of succeeding event numbers (show the dollar amount and dollars spent to date for each activity);
 - d. Other sorts requested by the Owner, for which the Contractor will be reimbursed in accordance with the General Conditions provisions for "Changes".
2. If computer-aids are not used, provide equivalent information to the approval of the state.

2.2 MATERIAL STATUS REPORTS

Format: The Contractor's standard materials status report form will be acceptable if, in Architect's judgement, it provides sufficient pertinent data to determine that materials procurement flow is adequate for all needs of the work.

Content: Show at least the following information:

1. Item Description, listed in accordance with Specifications Section Number in which the item is called for;
2. Purchase Order No. and Date of Issue;
3. Vendor Name;
4. Date Shipped, and Shipping Means Utilized;
5. Estimated Date of Arrival at Job Site.
6. Actual Date of Arrival at Job Site, and Receiving Report Number.

Data Processing: Process the data by manual or computer-aided methods, but to a degree of promptness and accuracy assuring complete display of all pertinent current information at date of each periodic report.

3.0 EXECUTION

3.1 PRELIMINARY ANALYSIS

Contents:

1. Show all activities of the Contractor under this work for the period between receipt of Notice to Proceed and Submittal of Construction Schedule required under Paragraph 1.3 above.
2. Show the Contractor's general approach to remainder of the work.
3. Show cost of all activities scheduled for performance before submittal and approval of the construction schedule.

Submittal shall be in accordance with Paragraph 1.3 above.

3.2 CONSTRUCTION SCHEDULE

As soon as practicable after receipt of Notice to Proceed, complete the Construction Analysis described in articles 2.1 and 2.2 above, in preliminary form. Meet with the Architect, review contents of proposed construction schedule, and make all revisions agreed upon. Submit in accordance with Paragraph 1.3 above.

3.3 MATERIAL STATUS REPORTS

As soon as practicable after receipt of Notice to Proceed, meet with the State, review contents of proposed Materials Status Reports, and make all revisions to format agreed upon.

3.4 PERIODIC REPORTS

Construction Schedule:

1. Contents:

- a. Report actual progress by updating the mathematical analysis.
 - b. Note on the summary report, or clearly show on a revised issue of affected portions of the detailed diagram, all revisions causing changes in the detailed program.
 - c. Revise the summary report as necessary for clarity.
 - d. Show activities or portions of activities completed during the reporting period, and their actual value.
 - e. State the percentage of work actually completed and schedule as the report date, and the progress along the critical path in terms of days ahead of or behind the allowable dates.
 - f. If the work is behind schedule, also report progress along other paths with negative slack.
 - g. Include a narrative report which shows, but is not necessarily limited to:
 - (1) A description of the problem areas, current and anticipated;
 - (2) Delaying factors, and their impact;
 - (3) An explanation of corrective actions taken or proposed.
2. Show the date of latest revision. Submit in accordance with the provisions of 1.3 above.

Materials Status Reports:

1. On the letter of transmittal accompanying periodic reports, on an accompanying summary sheet, or by other means acceptable to the Architect, clearly indicate those items the delivery of which are critically overdue or otherwise hazardous to maintenance of the approved schedule.
2. Submit in accordance with the provisions of 1.3 above.

3.5 REVISIONS

Make only those revisions to approved Construction Schedule and approved Materials Status Reports as are approved in advance by the Architect.

END OF SECTION

1.0 GENERAL

1.1 DESCRIPTION

Work Included: Throughout the construction period, maintain the buildings and site in a standard of cleanliness as described in this section.

Related Work Described Elsewhere: In addition to standards described in this section, comply with all requirements for cleaning up as described in various other sections of these specifications.

1.2 QUALITY ASSURANCE

Inspection: Conduct daily inspection, and more often if necessary, to verify that requirements of cleanliness are being met.

Codes and Standards: In addition to the standards described in this section, comply with all pertinent requirements of governmental agencies having jurisdiction.

2.0 PRODUCTS

2.1 CLEANING MATERIALS AND EQUIPMENT

Provide all required personnel, equipment, and materials needed to maintain the specified standard of cleanliness.

2.2 COMPATIBILITY

Use only the cleaning materials and equipment which are compatible with the surface being cleaned, as recommended by the manufacturer of the material or as approved by the Architect.

3.0 EXECUTION

3.1 PROGRESS CLEANING

General:

1. Retain all stored items in an orderly arrangement allowing maximum access, not impeding drainage or traffic, and providing the required protection of material.
2. Do not allow the accumulation of scrap, debris, waste material, and other items not required for construction of this work.
3. At least twice each month, and more often if necessary, completely remove all scrap, debris, and waste material from the job site.

4. Provide adequate storage for all items awaiting removal from the job site, observing all requirements for fire protection and protection of the ecology.

Site:

1. Daily, and more often if necessary, inspect the site and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.
2. Weekly, and more often if necessary, inspect all arrangements of materials stored on the site; restack, tidy, or otherwise service all arrangements to meet these requirements.
3. Maintain the site in a neat and orderly condition at all times.

Structures:

1. Weekly, and more often if necessary, inspect the structures and pick up all scrap, debris, and waste material. Remove all such items to the place designed for their storage.
2. Weekly, and more often if necessary, sweep all interior spaces clean. "Clean", for the purpose of this item, shall be interpreted as meaning free from dust and other material capable of being removed by use of reasonable effort and handheld broom.
3. As required preparatory to installation of succeeding materials, clean the structures or pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding material, using all equipment and materials required to achieve the required cleanliness.
4. Following the installation of finish floor materials, clean the finish floor daily (and more often if necessary) at all times while work is being performed in the space in which finish materials have been installed. "Clean", for the purpose of this item, shall be interpreted as meaning free from all foreign material which, in the opinion of the Architect, may be injurious to the finish floor material.

3.2 FINAL CLEANING

Definition: Except as otherwise specifically provided, "clean", for the purpose of this article, shall be interpreted as meaning the level of cleanliness generally provided by skilled cleaners using commercial quality building maintenance equipment and materials.

General: Prior to completion of the work, remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste. Conduct final progress cleaning as described in Article 3.1 above.

Site: Unless otherwise specifically directed by Owner, broom clean all paved areas on the site and all public paved areas directly adjacent to the site. Completely remove all resultant debris.

Structures:

1. Exterior: Visually inspect all exterior surfaces and remove all traces of soil, waste material, smudges, and other foreign matter. Remove all traces of splashed materials from adjacent surfaces. If necessary to achieve a uniform degree of exterior cleanliness, hose down the exterior of the structure. In the event of stubborn stains not removable with water, the Architect may require light sandblasting or other cleaning at no additional cost to the Owner.
2. Interior: Visually inspect all interior surfaces and remove all traces of soil, waste material, smudges, and other foreign matter. Remove all traces of splashed materials from adjacent surfaces. Remove all paint droppings, spots, stains, and dirt from finished surfaces. Use only the specified cleaning materials and equipment.
3. Glass: Clean all glass inside and outside.
4. Polished Surfaces: To all surfaces requiring a routine application of buffed polish, apply the polish recommended by the manufacturer of the material being polished.

Timing: Schedule final cleaning as approved by the Architect to enable the Owner to accept a completely clean project.

3.3 CLEANING DURING OWNER'S OCCUPANCY

Should the owner occupy the work or any portion thereof prior to its completion by the Contractor and acceptance by the Owner, responsibilities for interim and final cleaning of the occupied spaces shall be as determined by the Architect in accordance with the General Conditions of the contract.

END OF SECTION

1.0 GENERAL

1.1 DESCRIPTION

Work included: Carefully demolish and remove from the site those items scheduled to be so demolished and removed.

Related Work: Documents affecting work of this Section include, but are not necessarily limited to: General Conditions, Supplementary Conditions, and Sections in Division 1 of these specifications.

1.2 QUALITY ASSURANCE

Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

1.3 PRODUCT HANDLING

Comply with pertinent provisions of Section 01640

2.0 PRODUCTS

(No products are required in this Section)

3.0 EXECUTION

3.1 SURFACE CONDITIONS

Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.2 DEMOLITION

By careful study of the Contract Documents, determine the location and extent of selective demolition to be performed.

In company with the Architect, visit the site and verify the extent and location of selective demolition required.

1. Carefully identify limits of selective demolition.
2. Mark interface surfaces as required to enable workmen also to identify items to be removed and items to be left in place intact.

Prepare and follow an organized plan for demolition and removal of items.

1. Shut off, cap, and otherwise protect existing public utility lines in accordance with the requirements of the public agency or utility having jurisdiction.
2. Completely remove items scheduled to be so demolished and removed, leaving surfaces clean, solid, and ready to receive new materials specified elsewhere.
3. In all activities, comply with pertinent regulations of governmental agencies having jurisdiction.

Demolished material shall be considered to be property of the Contractor and shall be completely removed from the job site daily.

Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.

3.3 REPLACEMENTS

In the event of demolition of items not so scheduled to be demolished, promptly replace such items to the approval of the Architect and at no additional cost to the Owner.

END OF SECTION

1.0 SCOPE OF WORK

- 1.1 Extent: The work required under this section consists of all concrete and related items necessary to complete the work indicated on drawings and described in specifications.
- 1.2 List of Items Included: Without restricting the volume or generality of the above "Extent", the work to be performed under this section shall include, but is not limited to the following:
1. Footings and floor slabs.
 2. Exterior walk, curbs, platforms, aprons, etc.
 3. Mechanical equipment platforms.
- 1.3 Work not included:
1. Masonry
 2. Steel
 3. Precast concrete
- 1.4 The General Conditions, Special Conditions, and all other applicable requirements shall govern the work of this section.

2.0 SHOP DRAWINGS

- 2.1 General: Submit five (5) copies of shop drawings for reinforcing steel to architect for approval. Obtain approval of drawings prior to fabricating any material or proceeding with the work.
- 2.2 Reinforcing Steel Drawings: Shop drawings for reinforcing steel shall indicate bending diagrams; assembly diagrams; splicing and laps of rods; shapes, dimension and details of bar reinforcing, and accessories. Drawings shall be prepared in accordance with the "Manual of Standard Practice for Detailing Reinforced Concrete Structures," ACI 315. Scaled dimensions from structural drawings shall not be used in determining the lengths of reinforcing rods.

3.0 MATERIALS AND ACCESSORIES

- 3.1 Portland Cement: ASTM C150-60, Air-Entraining Portland Cement C175-60; use type III where high early strength concrete is designated. Portland Blast-Furnace Slag Cement ASTM C205-61T, or Portland-Pozzolan Cement ASTM C340-58T.
- 3.2 Sand: Clean hard natural sand, or manufactured sand, or a combination of both and conforming to ASTM C33-59.

- 3.3 Coarse Aggregate: Except as otherwise specified, aggregate shall be hard, durable, uncoated crushed stone, or gravel conforming to ASTM C33-61T.
1. Maximum size aggregate allowed is 1/5 of narrowest dimension between forms of the concrete member or 3/4 of minimum clear spacing between reinforcing bars, or as recommended in ACI Standard No. 613-54.
 2. For concrete having an exterior surface exposed, 95 to 100% shall pass a 1 1/2 inch sieve, 35 to 70% shall pass a 3/4 inch sieve; 10 to 30% shall pass a 3/8 inch sieve and not over 5% shall pass a No. 4 sieve. Percentages are by weight.
 3. For applied cement finish, except exposed aggregate finish, use 1/8 inch minimum and 3/8 inch maximum size aggregate, except as specified otherwise. Colored aggregate for exposed aggregate finish shall be as hereinafter specified.
- 3.4 Mixing Water: Clean and free from oil, acid, and injurious amounts of vegetable matter, alkalies, and other impurities.
- 3.5 Metal Reinforcement: Reinforcing steel shall meet the following specifications:
1. Reinforcing Bars: Bars shall be deformed in accordance with ASTM A 305-56T and formed of either intermediate or hard grades of billet steel ASTM A 615-40. Reinforcement shall be clean and free from loose rust, scale, or other coatings that will reduce bond.
 2. Welded Wire Fabric Reinforcing: ASTM A 185-61T steel wire spotwelded at intersections and of size indicated. Where size is not noted, it shall be 10 by 6 inch mesh, No. 10 gauge.
- 3.6 Metal Accessories: Include all spacers, chairs, bolsters, ties, and other devices necessary for properly placing, spacing, supporting, and fastening reinforcement in place. Metal accessories shall be galvanized where legs will be exposed in finished concrete surfaces. Accessories shall conform to requirements of The Concrete Reinforcing Steel Institute (CRSI) "Manual of Standard Practice for Reinforced Concrete Construction". Chairs and other accessories fabricated from concrete, ceramic, or plastic, may be used in place of metal accessories when approved by the architect.

- 3.7 Metal Anchor Slots: Provide anchor slots in concrete for securing masonry facing and masonry partitions to concrete. Form slots of 24 - 26 gauge galvanized iron shaped to give double anchorage into concrete, with shoulder and dove-tailed sides. Punch slots 12 inches on center for securing to forms; furnish staples and end caps. Seal face of slot with tape or pack with felt strips to prevent entrance of cement or grout. The anchors for inserting in slots are included under other sections. Set anchor slots straight at proper location and securely fasten to forms to prevent displacement while concrete is being poured. Place slots where concrete walls are faced with masonry veneer, place slots vertically and space 24 inches apart.
- 3.8 Expansion Joint Fillers: Asphalt impregnated fiber-board conforming to ASTM D 1751-60T for interior work and self expanding cork board conforming to ASTM D 1752-60T for exterior work. Joint fillers shall extend full depth of slab or joint and be of thickness and lengths indicated on drawings.
- 3.9 Metal Flashing Reglets: Reglets set in concrete forms to receive metal flashing shall be formed to size and shape shown of 26 gauge galvanized metal.
- 3.10 Non-Shrinking Cement Grout: Cement grout for bedding plates to receive heavy equipment, column bases, and for other locations noted on the drawings, shall be Embeco Grout non-shrinking grout as manufactured by Master Builders. The mix and setting characteristics shall be as recommended by the manufacturer for the purpose intended. Mix and place in strict accordance with the manufacturer's instructions.
- 4.0 STORAGE OF MATERIALS
- 4.1 Store bagged cement on platforms off ground; protect stored cement against the elements. Handle and store fine and coarse aggregate separately in manner to prevent intrusion of foreign material. Protect all reinforcement until used. Do not use any frozen materials or any hardened cement.
- 4.2 Rubbed Finish: Apply rubbed finish on all exposed concrete. Fine and other projections shall be carefully removed, offsets levelled, and damaged places repaired. Surfaces shall then be rubbed with cement or abrasive bricks and water. Do not use mortar or grout in the rubbing process. Remove form marks and similar blemishes and leave the surface finish uniformly smooth and clean. Preliminary approval of sample panels at least 48 inches square will be required at project site.

5.0 CONSTRUCTION FORMS

1. Construct forms to slopes, lines, and dimensions shown, plumb and straight and sufficiently tight to prevent leakage; securely brace and shore forms to prevent placement and to safely support construction loads. Provide access openings for cleaning and inspecting forms and reinforcing prior to depositing concrete. Do not coat forms with material that will stain or cause injury to exposed concrete surfaces or to plaster applied direct to concrete. Keep wood forms wet as necessary to prevent shrinkage. Forms for exposed concrete shall provide for a 1 inch radius on external corners.
2. Where soil conditions will permit excavation to accurate sizes without bracing, side forms for footings may be omitted and the sides of excavation lined with waterproof paper, or .006 inch thick polyethylene film.

6.0 FORM TIES

1. Form ties used for exposed concrete surfaces shall be of type approved by architect. They shall have a minimum working strength when full assembled of at least 3000 pounds. They shall be so adjustable in length as to permit complete tightening of forms and of such type as to leave no metal closer than 1 1/2 inches to the surfaces. They shall not be fitted with any lugs, cones, washers, or other device to act as a spreader within the forms, or for any other purpose which will leave a hole or depression larger than 7/8 inch in diameter or a depression back of the exposed surface of the concrete. Wire ties will not be permitted.
2. Ties that are to be pulled from the walls shall be coated with cup grease or other approved material to facilitate removal.
3. Tie rods that are to be entirely removed from the walls shall be loosened 24 hours after the concrete is poured. All but a sufficient number of ties to hold the forms in place may be removed at that time.

7.0 WETTING AND OILING FORMS

The inside surface of wood board forms shall be soaked with clean water prior to placing concrete. Plywood or pressed wood forms (except as otherwise specified herein) shall be treated with an approved form oil or lacquer. If oil is used, all excess oil shall be wiped off with rags to leave the surface of the forms just oily to the touch. Concrete shall not be placed in any form until inspected by the architect and permission is given to start placing. Where plaster bond finish is required, forms shall not be oiled. Forms for concrete surfaces that are to receive plaster applied direct thereto shall not be oiled.

8.0 PLACING REINFORCEMENT

Place reinforcement accurately in position shown, securely fasten and support to prevent displacement before or during pouring. Cleaning, bending, placing, and splicing of reinforcement shall be done in accordance with requirements of the ACI Building Code and approved shop drawings. Mesh reinforcement in slabs shall have sides and ends lapped not less than one mesh.

9.0 INSERTS AND FASTENING DEVICES FOR OTHER WORK

1. Provide for installation of inserts, conduit, pipe sleeves, drains, hangers, metal ties, shelf angle supports, anchor slots, metal reglets, mailing strips, blocking, grounds, and other fastening device required for attachment of other work. Properly locate in cooperation with other trades and secure in position before concrete is poured. Where openings are left in concrete for the passage of ducts, the openings shall be made slightly larger than the duct size as directed by architect.
2. Forming of openings, location of recesses and pockets, sleeves, inserts, etc., shall be as detailed on the drawings.
3. Sufficient time between erection of forms and placing of concrete shall be given to the various trades to permit the proper installation of their work. See drawings and other sections of the specifications for extent, location, and details of items to be embedded or placed in concrete.
4. All sleeves, chases, inserts, hangers, etc., which are provided and placed in the forms by the various trades shall be maintained in position and protected until the concreting is completed.

10.0 STRENGTH PROPORTIONS AND CONSISTENCY OF CONCRETE

- 10.1 Strength: Except as otherwise specified, concrete shall have the compressive strength at 28 days as noted or scheduled on structural design drawings for the various locations. Concrete shown, but not indicated or scheduled for compressive strength, shall be 3500 PSI concrete.
- 10.2 Proportions: For all concrete the proportions of cement, aggregate, and water to attain required plasticity and compressive strength shall be in accordance with The American Concrete Institute Building Code, ACI 318-56, and the Recommended Practice for Selecting Proportions for Concrete, ACI 613-54. Do not make changes in proportions without written approval of the architect.
- 10.3 Concrete exposed to the weather shall be made with not more than 6 gallons of water per bag of cement including, the free moisture in the aggregate. In addition, exposed concrete for curbs, walks, platforms, aprons, and islands, shall contain six (6) percent, plus or minus 1 entrained air through the use of air-entraining cement, or an air-entraining admixture conforming to ASTM C260-60T and using a normal Portland cement.
- 10.4 The method for determining the correct amount of water and aggregates for each batch shall be of type that will permit the proportion of water to cement to be closely controlled and easily checked at any time.

11.0 MIXING CONCRETE

- 11.1 General: Except as otherwise specified, concrete shall be ready-mixed in accordance with requirements of The American Concrete Institute Building Code 318-56, Chapter 4.
- 11.2 Ready-Mixed Concrete: Ready-mixed concrete shall be mixed and delivered to the project in accordance with ASTM Specification C94-61, using alternate No. 1 or No. 2, as applicable to the responsibility specified for the mix design. In addition, the ready-mixed concrete producer shall furnish duplicate delivery tickets with each load of concrete delivered to the project.

The delivery tickets shall indicate the delivery date and time dispatched; name and location of project; name of contractor; name of ready mixed concrete producer; truck number; number of cu. yds. of cement in load; class of concrete; the cement content in bags per cu. yd. of concrete; type and brand name of cement; admixtures and concrete, if any; maximum size of aggregate and the amount of water added at job, if any.

12.0 CONTROL TESTS FOR CONCRETE

12.1 Testing Laboratory: The owner will retain the services of a testing laboratory and pay all costs to take samples, make tests to the architect. Any testing required because of failure of concrete to meet specification requirements, shall be paid for by the contractor and shall not be included in the allowance.

12.2 Enforcement of Strength Requirements: When the ultimate compressive strength of any cylinder falls below the specified strength for the class of concrete specified, the design mix and water content shall be adjusted to produce the specified strength for concrete that is subsequently placed. In addition, the architect may order additional curing for that portion of the structure where the questionable concrete has been placed.

In the event that such additional curing does not give the strength required, as determined by load tests made in accordance with ACE 318-56, or cored cylinder tests, and if such tests indicate the necessity, the defective parts shall be removed and replaced, or shall be reinforced as directed by the architect, at the contractor's expense, including the expense of the tests. If such tests indicate that the structure adequately meets the requirements of the specifications and the local Building Code, the test result of the defective cylinders will be waived and the cost of these tests will be paid by the owner.

13.0 DEPOSITING CONCRETE

13.1 Preparing: Before placing concrete, all debris, water, and ice shall be removed from the places to be occupied by the concrete. Wood forms shall be thoroughly wetted (except in freezing weather) or oiled, and the reinforcement, pipes, sleeves, conduit, hangers, anchors, and other inserts shall be inspected and approved by the architect and the local Building Department before any concrete is deposited.

13.2 Placing: The placing or depositing of all concrete shall be done in accordance with requirements of the American Concrete Institute Building Code 318-56, the local Building Code, and as modified herein. Concrete shall be rapidly handled from mixer to forms and deposited as nearly as possible in its final position to avoid segregation due to rehandling or flowing. Concrete shall be spaded and worked by hand and vibrated to assure close contact with all surfaces of forms and reinforcement and leveled off at proper grade to receive finish. No concrete that has partially hardened or been contaminated by foreign material shall be deposited in the work, nor shall retamped concrete be used.

13.2 (continued)

All concrete shall be placed upon clean, well-thawed, damp surfaces, free from water, and never upon soft mud or dry porous earth. Concrete in bearing walls and columns shall be placed and allowed to settle two hours before placing concrete superimposed thereon.

- 13.3 Vibration: Concrete shall be placed with the aid of mechanical vibrating equipment. Vibration shall be applied directly to the concrete unless otherwise approved by the architect. The intensity of vibration shall be sufficient to cause flow or settlement of the concrete into place.

Vibration shall be applied at the point of deposit and in the area of freshly placed concrete. It shall be of sufficient duration to accomplish thorough compaction and complete embedment of reinforcement and fixtures, but shall not be long enough to cause segregation of the mix. To secure even and dense surfaces, free from aggregate pockets or honeycomb, vibration shall be supplemented by hand spading in the corners and angles of forms and along form surfaces while the concrete is plastic under the vibratory action. Caution must be exercised when using vibrators and hand spades to prevent any injury to the inside face of the forms or any movement of the reinforcement.

14.0 CONSTRUCTION JOINTS

- 14.1 Construction joints shall be formed as indicated on the drawings, or as approved or directed by the architect. Dowels and keys shall be used where indicated or required.
- 14.2 The rate and method of placing concrete and the arrangement of construction joint bulkheads shall be such that the concrete between construction joints shall be placed in a continuous operation.
- 14.3 Construction joints in walls, columns, or piers shall be at the bottom of connecting beam or girder. Whenever it is necessary to stop a day's work, or for any reason, such stops shall be located at center of slabs and of beams or as directed by the architect. Construction and other joints in concrete walls below grade shall have a continuous water stop as hereinbefore specified placed full lengths in each joint. Seal laps and joints of water stops tight.
- 14.4 A temporary wood bulkhead shall be erected so that the jointing will follow a vertical plane at right angles with the direction of the main reinforcement. To this bulkhead fasten a wood strip 2 inches thick and of width equal to one-third the depth of the concrete slab to form a tongue and grooved joint.

- 14.5 Before concreting is resumed, the surfaces of previously placed concrete shall be roughened, cleaned, wetted, and slushed with grout immediately before additional concrete is placed. Grout shall be 1 part Portland cement and 2 parts sand.

15.0 WEATHER CONDITIONS

- 15.1 Concrete, when deposited, shall have a temperature not below 50 degrees F. and not above 85 degrees F. In freezing weather suitable means shall be provided for maintaining the concrete at a temperature not lower than 70 degrees F., for 3 days, or 50 degrees F., for 5 days after placing. Cooling of the concrete to outside temperature shall not be at a rate faster than 1 degree each hour for the first day and 2 degrees each hour thereafter until the outside temperature is reached. The methods of heating the materials and protecting the concrete shall be approved by the architect. The maximum temperature of concrete produced with heated aggregates, heated water, or both, shall not exceed 90 degrees F., at any time during its production or transportation.
- 15.2 The methods and recommended practice as described in ACI Standard 604-56, shall be followed for winter concreting and ACI Standard 605-59, shall be followed for hot weather concreting.
- 15.3 The use of salt, chemicals, or other foreign materials shall not be mixed with the concrete for the purpose of preventing freezing.
- 15.4 Admixtures intended to accelerate the hardening of the concrete or to produce higher than normal strength at early periods will not be permitted unless specified or prior approval is obtained from the architect.
- 15.5 Records shall be kept by the contractor to show the date of placements, the mix used, and the air temperature at time of concreting for the various portions of the work. These records shall be available to architect when requested.

16.0 PROTECTION AND CURING

Protect concrete against frost and rapid drying and keep moist for at least six days after placing; during this period, concrete shall be maintained above 70 degrees F., for at least three days or above 50 degrees F., for at least five days. Concrete from which forms are removed within six days after concreting, and cement finishes shall be sprayed during the curing period as frequently as drying conditions may require. Cover cement finishes with mats, water-proof paper, or other approved membrane within 24 hours after finishing and maintain in good

16.0 (continued)

condition until the installation of permanent floor covering or until directed. Covering shall be of a type that will not stain or discolor finished concrete surfaces. At contractor's option, floors may be coated with a sealing and curing compound; the compound used must meet architect's approval.

The methods and recommended practice as described in ACI Standard 604-56 shall be followed for protecting and curing concrete in cold weather and in hot weather. Refer to ACI 604-56 for winter concreting and ACI 605-59 for hot weather concreting

17.0 REMOVAL OF FORMS

17.1 Forms shall be removed in accordance with requirements of the ACI Building Code Requirements for Reinforced Concrete No. 318-56, Chapter 5, without damage to concrete and in a manner to insure complete safety of the structure. Leave shoring in place until concrete member will safely support its own weight plus any live loads that may be placed upon it.

17.2 Upon removal of forms, the architect shall be notified by the contractor in order that an inspection of the newly stripped surfaces may be made prior to patching.

17.3 Freshly stripped surfaces shall not be pointed up or touched in any manner before having been inspected by the architect.

18.0 PATCHING FORMED SURFACES OF EXPOSED CONCRETE

18.1 After the forms have been removed, all concrete surfaces shall be inspected and any pour joints, voids, stone pockets, or other defective areas permitted by the architect to be patched, and all tie holes shall be patched before the concrete is thoroughly dry. Defective areas shall be chipped away to a depth of not less than one inch with the edges perpendicular to the surface. The area to be patched and a space at least six inches wide entirely surrounding it shall be wetted to prevent absorption of water from the patching mortar. Do not fill or patch construction joints or surfaces to receive metallic water-proofing, unless specifically authorized by architect. Do not patch any concrete in freezing weather.

18.2 A grout of equal parts of Portland cement and sand with sufficient water to produce a brushing consistency shall then be well brushed into the surface, followed immediately by the patching mortar. The patch shall be made of the same material and of the same proportions as used for the concrete except that the coarse aggregate shall be omitted. The amount of mixing water shall be as little as consistent with the requirements of

18.2 (continued)

handling and placing. The mortar shall be retempered without the addition of water by allowing it to stand for a period of one hour during which time it shall be mixed with a trowel to prevent setting.

18.3 The mortar shall be thoroughly compacted into place and screened off so as to leave the patch slightly higher than the surrounding surface. It shall then be left undisturbed for a period of one to two hours to permit initial shrinkage before being finally finished. The patch shall be finished in such a manner as to match the adjoining surface. Tie holes left by withdrawal of rods or the holes left by removal of ends of ties shall be filled solid with mortar after first being thoroughly wetted. For holes passing entirely through the wall, a plunger-type grease gun or other device shall be used to force the mortar through the wall.

18.4 Unexposed formed surfaces of concrete shall be patched as directed by the architect.

18.5 At the option of the contractor, the bonding of the patching mortar to the acceptable concrete after necessary cutting and removal of porous or otherwise unacceptable concrete is completed, may be done by the use of an approved bonding agent applied in accordance with the printed instructions of the manufacturer. Filling and finishing of the patch shall be completed as hereinbefore specified.

19.0 FLOOR SLABS ON EARTH

19.1 Concrete floor slabs on earth shall be placed over a well compacted subgrade. Over subgrade, place a porous fill consisting of clean washed gravel graded from 3/4" to 1 1/2" size; thickness of porous fill shall be 4" unless otherwise shown. Roll or tamp fill until thoroughly compacted. Over porous fill lay .006 thick polyethylene film or reinforced waterproof kraft paper; lap joints six inches and seal with tape or mastic. Paper or film shall be factory fabricated into large sheets as directed. Turn paper or film up on walls approximately four inches. Stretch and weigh edges and laps to maintain their positions until concrete is placed. Provide wood runways for wheeled equipment for transporting concrete. Do not displace the film off at proper levels to receive finishes specified.

19.2 Except where otherwise specified or indicated, set continuous expansion joint strips where edge of slab abuts vertical surface; seal joint tightly around strips and spaces around pipes penetrating floors. Use coal-tar pitch for sealing joints. Where floors are waterproofed, omit expansion joint strip and place slab tight against wall.

19.3 Integral Monolithic Finish: Integral monolithic cement finish shall be provided for all floor slabs. Apply an integral monolithic finish or mix and workmanship as specified herein to the base slab after it has dried firm, but not yet set.

19.4 A standard integral finish shall be provided for cement floors to receive resilient floor covering, and for all other concrete floors, platforms, and steps having an integral cement finish. Produce standard integral finish by striking surfaces of structural slabs at proper level. Roll or tamp the concrete to force aggregate away from surface and then screed. After screeding and while the concrete is still plastic, float the surface with wood, cork, or metal floats, or with a power finishing machine. During this operation, the surface shall be brought to a true grade by curbing down high spots and filling low spots. Care shall be taken not to overwork the plastic concrete. When the concrete has hardened so that water and fine material will not be worked to the surface, finish with a steel trowel to a smooth and even surface within the tolerances specified and suitable to receive the floor covering specified. Exterior steps and platforms shall be given a float or brushed finish as directed. Do not sprinkle dry cement or a mixture of dry cement and sand directly on the surface to absorb moisture or to stiffen the mix.

19.5 The finished surface for integral finished floors shall be sufficiently even to contact a 10 foot long straight edge with a tolerance of 1/4" to tile. Provide treated wood nailer strips embedded in top of cement or metal clips as required for anchoring equipment to base.

20.0 LIQUID FLOOR HARDENER

20.1 Extent: Apply hardener on all finished concrete floors that will be left exposed.

20.2 Materials and Application: Material shall be Master Seal as manufactured by Master Builders. Apply hardener in accordance with Manufacturer's directions and using the maximum quantity recommended. Surface to be treated must be clean and dry, with all work above completed before the hardener is applied. Upon completion concrete surfaces shall be clean, without discoloration, or traces of excess hardener left on the surface.

21.0 CONCRETE FOUNDATIONS FOR EQUIPMENT

The concrete pads, keys, recesses, pits, etc., required under plumbing and other items of mechanical and electrical equipment shall be included under this section of the specifications. See mechanical and electrical sections of the specifications,

21.0 (continued)

mechanical and electrical drawings for size, design, and location of equipment requiring concrete pads and foundations. Concrete shall be of same type as specified for floor slabs and shall have a smooth integral finish. Set bolts, anchors, piping, etc., in concrete as required by manufacturer of equipment used. Templates or setting diagrams as necessary will be furnished by the various trades and equipment manufacturers. Provide steel reinforcing in foundations as indicated.

END OF SECTION

1.0 SCOPE OF WORK

- 1.1 Extent: The work required under this section consists of all masonry work and related items necessary to complete the work indicated on drawings and described in specifications, including in general, but not limited to the following:
1. Block work.
 2. Ties and reinforcing required for masonry work.
 3. Parging on walls.
- 1.2 Bidding Documents: The General Conditions, Special Conditions, and all other applicable requirements of the Specifications and Drawings shall govern the work of this section.

2.0 SUBSTITUTIONS

The materials or products specified herein and indicated on drawings by trade names, manufacturer's name or catalog number shall be provided as specified. Substitutions will not be permitted, except as described in the Instructions to Bidders of these specifications.

3.0 COMPLIANCE WITH STANDARD AND INDUSTRY SPECIFICATIONS

Any material or operation specified by reference to the published specifications of a manufacturer, The American Society for Testing and Materials (ASTM), the Structural Clay Products Institute (ACPT), National Concrete Masonry Association (NCMA), or other published current specification or standard listed. In the case of a conflict between the referenced specification and the project specification, the project specifications shall govern. In case of conflicts between the referenced specifications or standards, the one having the more stringent requirements shall govern.

4.0 SAMPLE MATERIALS AND PANELS TO MATCH EXISTING

- 4.1 Sample of Materials: Prior to installation, submit to the Architect for approval, five individual samples showing the following extreme variations in each color and texture. In addition, samples of other materials to be used shall be provided if requested. Additional samples for visual examination for testing shall be furnished as directed.

- 4.2 Sample Wall Panels: Before the installation of any masonry materials, erect at the job site a sample wall panel, 4' long by 3' high. The panel shall show back up block and field stone indicating full color range, texture, bond, mortar joint, and workmanship of masonry materials. No masonry work shall be done until the Architect has approved the sample panel of the work involved. The approved panels shall become the standards of comparison for all masonry work built of the materials that the approved panel include. The panels shall not be altered, moved, or destroyed until the work is complete.

5.0 MASONRY MATERIALS

- 5.1 Concrete Masonry Units: Units shall conform to the applicable ASTM Specifications with additional requirements as specified; C129-59 for hollow non-load bearing, C145-59 for solid load-bearing units and C90-59 for hollow load-bearing units. Use non-load bearing type units for interior non-bearing partitions and furring, where so indicated to be constructed of concrete masonry units. Use solid load-bearing units at locations indicated on drawings, and hollow load-bearing type units for load-bearing partitions, walls, and all other locations where concrete masonry units are indicated on drawings. Grade A units shall be used where they will be exposed to frost action, or in contact with earth; use Grade A or Grade B units for other locations.
- 5.2 Exposed units shall be in modular sizes and match existing. Corner units shall have bullnose corners, rounded to a one (1) inch radius. The texture of units shall match the approved samples for the type of construction and locations designated. Units shall not contain iron spots or other substances that will plaster or paint.
- 5.3 Masonry reinforcing shall be Dur-O-Wall standard galvanized steel reinforcing as manufactured by Dur-O-Wall Products, Syracuse, New York, or approved equal. For 16" cavity walls continuous rectangular tab tie with drip. For 8" block use No. 8 truss type. For 12" block work No. 12 truss type. For 16" block work No. 16 truss type.

6.0 MORTAR MATERIALS

- 6.1 Portland Cement: Cement shall conform to ASTM Specification C-150-61, Type 1.
- 6.2 Masonry Cement: Cement shall conform to ASTM Specification C-91-60, Type II. Cement shall be gray except where white is specified hereinafter.

- 6.3 Lime: Hydrated lime shall be Type S or Type N, conforming to ASTM Specification C207-49. Quicklime shall conform to ASTM Specification C5-59; it shall be slaked in accordance with the manufacturer's directions.
- 6.4 Sand: Sand shall conform to ASTM Specification C144-52T except that sand for mortar in 1/4" wide joints shall pass a No. 16 sieve.
- 6.5 Mixing Water: Water shall be clean and potable.
- 6.6 Non-shrink grout shall be "Embelo Grout" as manufactured by Master Builders.

7.0 STORAGE OF MATERIALS

Store materials under cover in a dry place and in a manner to prevent damage or intrusion of foreign matter. During freezing weather, protect all masonry units with tarpaulins or other suitable material. Store concrete masonry units and gypsum tile units under covers that will permit circulation of air and prevent excessive moisture absorption. Store cement, lime, and air-setting mortars in watertight sheds with elevated floors. Protect reinforcement from the elements; immediately before placing, reinforcement shall be free from loose rust, ice, or other foreign coatings that will destroy or reduce the bond. Concrete masonry units shall be protected against wetting prior to use.

8.0 MORTAR

- 8.1 Masonry below grade - one (1) part Portland Cement, 1/6 part Hydrated Lime, and 2 1/2 to 3 parts Sand. Match existing as per mortar type and type of joint.
- 8.2 Mortar for all unit masonry not specified otherwise: Mortar shall be mixed in the proportions of one (1) part Portland Cement or Portland Blast Furnace Slag Cement, 1/2 to 1 1/4 parts hydrated lime or lime putty, and 4 to 6 parts of sand by volume. With approval of the Architect, option of the Contractor, mortar may be mixed in the proportions of part masonry cement and 2 1/4 to 3 parts of sand by volume.

9.0 MIXING MORTAR

Mix all cementitious materials and sand in a mechanical batch mixer for a minimum of five (5) minutes. Adjust the consistency of the mortar to the satisfaction of the mason, but add only as much water as is compatible with convenience in using the mortar. If the mortar begins to stiffen from evaporation or from absorption of a part of the mixing water, retemper the mortar immediately by adding water, and remix the mortar. All mortar shall be used within 2 1/2 hours of the initial mixing. It shall not be used after it has begun to set.

10.0 PRECAUTIONS AND GENERAL REQUIREMENTS

- 10.1 Do not lay masonry when the temperature of the outside air is below 40 degrees F. unless suitable means approved by the Architect are provided to heat materials, protect work from cold and frost, and insure that mortar will harden without freezing. No anti-freeze ingredient shall be used in the mortar.
- 10.2 Protect facing material against staining, and keep tops of walls covered with non-staining waterproof covering when work is not in progress. When work is resumed, top surface of work shall be cleaned of all loose mortar, and in drying weather thoroughly wet, except for concrete masonry units.
- 10.3 Before closing up any pipe, duct, or similar inaccessible spaces, or shafts with masonry, remove all rubbish and sweep out the area to be enclosed.
- 10.4 Where fresh masonry joins masonry that is partially set or totally set, clean the exposed surface of the set masonry and wet it lightly so as to obtain the best possible bond with the new work. Remove all loose mortar. If it is necessary to "stop off" a horizontal run of masonry, this shall be done by racking back one-half length in each course. Toothing will not be permitted.
- 10.5 Consult other trades and make provisions that will permit the installation of their work in a manner to avoid cutting and patching. Build in work specified under other section, as necessary, and as the work progresses.
- 10.6 Set steel lintels in beds of mortar. Fill spaces around jams and heads of metal door bucks and frames solidly with mortar.

- 10.7 Where spandrel or other flashing or waterproofing turns out and terminates in horizontal mortar joints and over top of steel lintels or shelf angles, provide weep holes in the mortar joint to permit water to drain from the wall. Space weep holes approximately 24" apart horizontally. When mortar has set, pull the cords from wall.
- 10.8 Build in flashing, flashing block, access panels, and other work at locations indicated on drawings and/or as required.
- 11.0 LAYING CONCRETE MASONRY
- 11.1 Requirements: Set plumb true to line. All units shall be layed with level horizontal joints. Except where specified or shown, otherwise, units shall be laid in stacked bond where exposed with V joints and running bond in all other areas.
- 11.2 Masonry furring on exterior walls and all interior masonry partitions shall terminate against beam soffits or structural ceilings, except as noted on the plans.
- 11.3 Where electric conduit, outlet and switch boxes occur, grind and cut units before building-in services. Coordinate work with Electrical Sub-contractor. Cutting of all units exposed in finished work shall be done with an approved type of power saw.
- 11.4 Place reinforcing continuously at every second course of block. Lap reinforcing at splices and corners to assure continuity. Place additional strips at first block course, above and below openings, extending full width of opening, plus 18" each side.
- 11.5 Where 2" thick units are used as furring against columns or walls, provide continuous wire mesh ties in every other horizontal mortar joint and provide additional ties as necessary to secure units to concrete or masonry backing.
- 11.6 Joints of interior concrete masonry units that will be exposed or painted shall be cut flush and tooled when thumbprint hard to form a vee joint.
- 11.7 Lay hollow concrete masonry units with full mortar coverage on horizontal and vertical face shells (except that webs also shall be bedded in all courses of piers, columns, pilasters, in starting course on foundation walls and around cells that are to be reinforced or filled with grout). Lay solid units with full head and bed joints. Make joints uniform, approximately 3/8" thick unless otherwise indicated.

12.0 POINTING AND CLEANING MASONRY

- 12.1 Point all holes in exposed masonry. Cut out defective joints and repoint them with mortar.
- 12.2 All exposed masonry shall be cleaned thoroughly. Before applying any cleaning agent to the entire wall, it shall be applied to a sample wall area of approximately 20 SF in a location approved by the Architect. No further cleaning work shall proceed until the sample area has been approved by the Architect, after which time the same cleaning materials and method shall be used on the remaining wall area.
- 12.3 Concrete masonry units shall have all loose mortar cleaned off and all stains removed.

13.0 PAINTING

New exposed block walls to be painted one (1) coat primer and two (2) coats finish paint, as manufactured by Pratt and Lambert or approved equal.

14.0 COORDINATION WITH OTHER WORK

Grout, ventilators, and miscellaneous equipment installed by others. Work shall be done in strict accordance with the equipment manufacturer's or Architect's direction.

END OF SECTION

1.0 GENERAL

1.1 DESCRIPTION

- A. Work Included: Provide wood, nails, bolts, screws, framing anchors, and other rough hardware, and other items needed, and perform rough carpentry for the construction shown on the drawings, as specified herein, and as needed for a complete and proper installation.
- B. Related Work: Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and other Sections of these specifications.

1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.
- B. Codes and Standards:
 - 1. In addition to complying the pertinent codes and regulations of governmental agencies having jurisdiction, unless otherwise specifically directed or permitted by the Architect comply with:
 - a. "Produce Use Manual" of the Western Wood Products Association for selection and use of products included in that manual;
 - b. "Plywood Specification and Grade Guide" of the American Plywood Association;
 - c. "Standard Specifications for Grades of California Redwood Lumber" of the Redwood Inspection Bureau for Redwood, when used.

1.3 PRODUCT HANDLING

- A. Protection:
 - 1. Deliver the materials to the job site and store, in a safe area, out of the way of traffic, and stored up off the ground surface.
 - 2. Identify framing lumber as to grades, and store each grade separately from other grades.
 - 3. Protect metals with adequate waterproof out wrapping.
 - 4. Use extreme care in off loading of lumber to prevent damage, splitting, and breaking of materials.

2.0 PRODUCTS

2.1 GRADE STAMPS:

- A. Identify framing lumber by the grade stamp of the West Coast Lumber Inspection Bureau, or such other grade stamp as is approved in advance by Architect.
- B. Identify plywood as to species, grade, and glue type by the stamp of the American Plywood Association.
- C. Identify other materials of this section by the appropriate stamp of the agency approved in advance by the Architect.

2.2 MATERIALS

- A. Provide materials in the quantities needed for the work shown on the drawings, and meeting or exceeding the following standards of quality:
 - 1. Horizontal Framing Members: Douglas Fir-Hemlock, Table 1, Construction Grade.
 - 2. Vertical Framing Members: Douglas Fir-Hemlock, Table 1, Standard Grade.
 - 3. Plywood:
 - a. Sheathing: Structural II, C-C, Exterior; or Standard Sheathing with Exterior Glue.
 - b. Siding: 303 Siding Grade, Exterior Rough-Sawn, 3/8" thick, Douglas Fir.
 - c. Telephone Backboard: 3/4" Thick, A-D, Group 1, Interior.
 - 4. Building Paper: Kraft Paper complying with Fed. Spec. UU-B-790a.
 - 5. Wood Preservative: Ammoniacal Copper Arsenite, or 5% Solution of Pentachlorophenol.
 - 6. Rough Hardware:
 - a. Steel Items:
 - (1) Comply with ASTM A7 or ASTM A36.
 - (2) Use galvanized at exterior locations.
 - b. Machine Bolts: Comply with ASTM A307.
 - c. Lag Bolts: Comply with Fed. Spec. FF-B-561.
 - d. Nails:
 - (1) Use common except as otherwise noted.
 - (2) Comply with Fed. Spec. FF-N-1.
 - (3) Use galvanized at exterior locations.
 - e. Joist Hangers: Simpson, Teco, or equal as approved by the Architect.

- 2.3 OTHER MATERIALS: Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

3.0 EXECUTION.

3.1 SURFACE CONDITIONS: Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.2 DELIVERIES

- A. Stockpile materials sufficiently in advance of need to assure their availability in a timely manner for this work.
- B. Make as many trips to the job site as are needed to deliver materials of this section in a timely manner to ensure orderly progress of the work.

3.3 COMPLIANCE

- A. Do not permit materials not complying with the provisions of this section to be brought onto or to be stored at the job site.
- B. Promptly remove non-complying materials from the job site and replace with materials meeting the requirements of this section.

3.4 WORKMANSHIP

- A. Produce joints which are tight, true, and well nailed, with members assembled in accordance with the drawings and with pertinent codes and regulations.
- B. Selection of lumber pieces:
 - 1. Carefully select the members.
 - 2. Select individual pieces so that knots and obvious defects will not interfere with placing bolts or proper nailing, and will allow making of proper connections.
 - 3. Cut out and discard defects which render a piece unable to serve its intended function.
 - 4. Lumber may be rejected by the Architect, whether or not it has been installed, for excessive warp, twist, bow, crook, mildew, fungus, or mold, as well as for improper cutting and fitting.
- C. Do not shim any framing component.

3.5 GENERAL FRAMING

A. General:

- 1. In addition to framing operations normal to the fabrication and erection indicated on the drawings, install wood blocking and backing required for the work of other trades.
- 2. Set horizontal and sloped members with crown up.
- 3. Do not notch, cut, or bore members for pipes, ducts, or conduits, or for other reasons, except as shown on the drawings or as specifically approved in advance by the Architect.

B. Bearings:

1. Make bearings full unless otherwise indicated on the drawings.
2. Finish bearing surfaces on which structural members are to rest so as to give sure and even support.
3. Where framing members slope, cut or notch the ends as required to give uniform bearing surface.

3.6 BLOCKING: Install blocking as required to support items of finish and to cut off concealed draft openings, both vertical and horizontal, between ceiling and floor areas.

3.7 ALIGNMENT: On framing members to receive a finished surface, align the finish subsurface to vary not more than 1/8" from the plane of surfaces of adjacent furring and framing members.

3.8 FASTENING

A. Nailing:

1. Use only common wire nails or spikes of the dimension shown on the Nailing Schedule, except where otherwise specifically noted on the drawing.
2. For conditions not covered in the Nailing Schedule, provide penetration into the piece receiving the point of not less than 1/2 the length of the nail or spike, provided, however, that 16d nails may be used to connect two pieces of 2" (nominal) thickness.
3. Nail without splitting wood.
4. Prebore as required.
5. Remove split members and replace with members complying with the specified requirements.

B. Bolting:

1. Drill holes 1/16" larger in diameter than the bolts being used.
2. Drill straight and true from one side only.
3. Do not bear bolt threads on wood, but use washers under head and nut where both bear on wood, and use washers under all nuts.

C. Screws:

1. For lag screws and wood screws, prebore holes same diameter as root of threads, enlarging holes to shank diameter for length of shank.

END OF SECTION

1.0 GENERAL

1.1 DESCRIPTION

- A. Work included: Install wood, nails, screws, and other items as needed, and perform finish carpentry for the construction shown on the drawings, as specified herein, and as needed for a complete and proper installation.
- B. Related Work: Documents affecting work of this Section include, but are not necessarily limited to General Conditions, Supplementary Conditions, and other sections of these specifications. /

1.2 QUALITY ASSURANCE: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

2.0 PRODUCTS

2.1 GRADE STAMPS:

- A. Identify lumber by the grade stamp of the West Coast Lumber Inspection Bureau, or such grade stamp as is approved in advance by the Architect.
- B. Identify plywood as to species, grade, and glue type by the stamp of the American Plywood Association.

2.2 MATERIALS: Provide materials in the quantities needed for the work as shown on the drawings, and as described in this section.

2.3 OTHER MATERIALS: Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

3.0 EXECUTION

3.1 SURFACE CONDITIONS: Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.2 WORKMANSHIP:

- A. Produce joints which are true, tight, and well nailed with all members assembled in accordance with the drawings.
- B. Jointing:
 - 1. Make joints to conceal shrinkage, miter exterior joints, cope interior joints, miter or scarf end-to-end joints.
 - 2. Install trim in pieces as long as possible, jointing only where solid support is obtained.

C. Fastening:

1. Install items straight, true, level, plumb, and firmly anchored in place.
2. Where blocking or backing is required, coordinate as necessary with other trades to ensure placement of required backing and blocking in a timely manner.

3.3 INSTALLATION OF OTHER ITEMS: Install items in strict accordance with the drawings and the recommended methods of the manufacturer as approved by the Architect, anchoring firmly into position at the prescribed locations, straight, plumb, and level.

3.4 FINISHING:

- A. Sandpaper finished wood surfaces thoroughly as required to produce a uniformly smooth surface, always sanding in the direction of the grain; except do not sand wood which is designed to be left rough.
- B. No coarse grained sandpaper mark, hammer mark, or other imperfection will be accepted.

3.5 CLEANING UP:

- A. Keep the premises in a neat, safe, and orderly condition at all times during execution of this portion of the work, free from accumulation of sawdust, cut-ends, and debris.
- B. Sweeping:
 1. At the end of each working day, and more often if necessary, thoroughly sweep surfaces where refuse from this portion of the work has settled.
 2. Remove the refuse to the area of the job site set aside for its storage.
 3. Upon completion of this portion of the work, thoroughly broom clean all surfaces.

END OF SECTION

- 1.0 SCOPE: Provide all labor and materials required to install all hollow metal work required by these specifications and as shown on the drawings. Consult drawings and door schedule for details.
- 2.0 MATERIALS: Frames shall be made from fourteen (14) gauge cold rolled furniture steel with all angles, molds, returns, and miters neatly welded and ground smooth. Doors shall be of sixteen (16) gauge of the design shown on the drawings.
- 3.0 HARDWARE AND REINFORCEMENTS: For hinge, lock, latch, and all other hardware locations, reinforcing plates shall be spot welded to the inner surface of jambs. Provide plaster guards over hardware reinforcing plates. Holes for hardware shall be drilled and tapped from templates received from the hardware contractor.
- 4.0 ANCHORS: Anchors shall be loose "T" Type, a minimum of three (3) anchors per jamb.
- 5.0 PAINTING:
 - 5.1 All frames shall be cleaned from scale or rough spots and shall receive one (1) shop coat of rust inhibitive paint before assembly.
 - 5.2 After assembly, all surfaces shall be given a filler coat, rubbed down smooth and a priming coat of approved light color baked on.
- 6.0 SHOP DRAWINGS: Submit shop drawings of frames for approval before fabrication is commenced.
- 7.0 APPROVED MANUFACTURER: All hollow metal doors and frames shall be as manufactured by Republic Co., or approved equal.
- 8.0 EXTERIOR DOORS AND FRAMES: All exterior doors and frames shall be as follows:
 - A. Doors 16 gauge hollow metal.
 - B. Door frames 14 gauge hollow metal.
- 9.0 Glass Glazing: All doors to have glass shall have 1/2" safety or 1/4" wire glass minimum.

END OF SECTION

1.0 SCOPE OF WORK

1.1 Extent: The work required under this section consists of all finishing hardware and related items necessary to complete the work indicated on the drawings and described in the specifications.

1.2 Allowance:

- A. An allowance of \$7,500.00 shall be included by the Contractor in his Base Bid to cover the cost of the purchase and delivery of Finish Hardware.
- B. Should the cost exceed the above sum allowed, the Contract price will be adjusted to include the difference, which the Owner will pay.
- C. Should the cost be less than the above sum allowed, the Contractor shall credit the difference to the Owner.

1.3 Work Not Included In The Allowance: This allowance does not cover the cost of receiving, checking, and installation. Such cost shall be included in the Base Bid Price

2.0 SELECTION

2.1 The Owner and Architect will select the type and finish of hardware required for each door or group of doors and the required key cabinet, in ample time to facilitate delivery and installation. The Architect will subsequently authorize and direct the Contractor to place his written order for such hardware from the selected source.

2.2 The Contractor shall be responsible for the hardware when delivered and for the checking and protection of same and he shall pay all invoices covering the cost of hardware, when and as delivered.

3.0 APPROVED MANUFACTURERS: All hardware shall be as manufactured by Rusin, Sargent, Schlage, or approved equal.

4.0 TYPES OF HARDWARE: In general, hardware requirements will be as follows:

4.1 1 3/4" thick doors will have 1 1/2 pr. butts.

4.2 All exit doors shall have panic hardware. All other doors shall have latch sets.

4.3 Selected doors will have closures.

4.4 All door hardware to conform to Barrier Free Code.

SECTION 08700: FINISHING HARDWARE
PAGE 2 OF 2

- 5.0 SCHEDULE AND TEMPLATES: The hardware distributor will, upon receipt of the written order from the contractor, furnish the necessary copies of the Hardware Schedule to all parties concerned. He will also furnish all required templates and such other detailed information for installation purposes.
- 6.0 PROTECTION: Following installation, all knobs, handles, pulls, etc., shall be protected with cloth or cotton covered paper. Maintain such protection until completion of work.
- 7.0 MASTER KEY: New locks shall be Master Keyed into owners existing system.

... END OF SECTION . .

1.0 GENERAL

1.1 DESCRIPTION:

- A. Work included: Provide metal studs and accessories as indicated on the drawings, as specified herein, and as needed for complete and proper installation.
- B. Related work: Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these specifications.

1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.
- B. In addition to complying the pertinent codes and regulations of governmental agencies having jurisdiction, comply with pertinent recommendations contained in "Specifications for Metal Lathing and Furring" published by the Metal Lath/Steel Framing Association.

1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 01300.
- B. Product Data: Within 45 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
 - 1. Materials list of items proposed to be provided under this section.
 - 2. Manufacturers' specifications and other data needed to prove compliance with the specified requirements.
 - 3. Manufacturers' recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the work.

2.0 PRODUCTS

2.1 METAL STUDS AND ACCESSORIES

- A. Meet or exceed minimum requirements of Fed. Spec. QQ-S-698 and Fed. Spec. QQ-S-775d, class D, for the item and use intended.
- B. Metal Studs:
 - 1. At interior metal stud partitions, unless otherwise shown on the drawings, provide standard punched steel studs of the gages shown on drawings, either hot-dip galvanized or factory pre-painted.

2. Use only one type throughout the work, unless otherwise shown on the drawings or specifically approved in advance by the Architect.
 3. At exterior metal stud walls, unless otherwise shown on the drawings, provide 14 gage standard punched steel "C" studs, either hot-dip galvanized or factory pre-painted.
- C. Accessories: Provide all accessories including, but not necessarily limited to, tracks, clips, anchors, fastening devices, sound attenuation pencil rods and resilient clips, and other accessories required for a complete and proper installation, and as recommended by the manufacturer of the steel studs used.
- 2.2" GROUT: Provide a good grade of commercial grout for leveling the floor runner member of steel stud partitions as required.
- 3.0 EXECUTION
- 3.1 SURFACE CONDITIONS: Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.
- 3.2 INSTALLATION:
- A. Accurately layout partition and wall lines from the dimensions shown on the drawings.
 - B. Install metal studs and accessories in strict accordance with the manufacturer's recommendations as approved by the Architect, anchoring all components firmly into position.
 - C. Align partition and wall assemblies to a tolerance of one in 200 horizontally and one in 500 vertically.
 - D. Coordination:
 1. Space the studs as required for compliance with pertinent regulations, to give proper support for the covering material, and as indicated on the drawings.
 2. Coordinate and provide required backing and other support for items to be mounted on the finished covering.
 3. Coordinate requirements for pipes and other items designed to be housed within the partition and wall system.
- 3.3 LEVELING:
- A. By use of the specified grout, or by other means approved by the Architect, provide continuous solid bearing under floor runner members of steel stud partitions and walls.
 - B. Level in a manner to provide uniform interface with ceilings and other overhead construction.

- 3.4 SOUND ATTENUATING PARTITIONS: At sound attenuating partitions, set floor runners in two 1/4" diameter continuous beads of sealant complying with provisions of Section 07920 of these specifications.
- 3.5 SHEATHING: Apply to studs 5/8" "Dens Glass" Gypsum sheathing installed as per manufacturer's guide specification at exterior.

END OF SECTION

SECTION 09260: GYPSUM WALLBOARD SYSTEM
PAGE 1 OF 6

1.0 GENERAL

1.1 DESCRIPTION

1.1.1 Work Included: Provide gypsum drywall and accessories where shown on the drawings, as specified herein, and as needed for a complete and proper installation.

1.1.2 Related Work:

1. Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these specifications.
2. Section 09110: Metal Stud System

1.2 QUALITY ASSURANCE

1.2.1 Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

1.3 SUBMITTALS

1.3.1 Comply with pertinent provisions of Section 01340.

1.3.2 Product Data: Within after the Contractor has received the Owner's Notice to Proceed, submit:

1. Materials list of items proposed to be provided under this section;
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
3. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the work.

1.3.3 Mock-ups:

1. At an area on the site where approved by the Architect, provide a mock-up gypsum wallboard panel.
 - a. Make the panel approximately 4'-0" square.
 - b. Provide one mock-up panel for each gypsum wallboard finish used on the work.
 - c. The mock-ups may be used as part of the work, and may be included in the finished work, when so approved by the Architect.
 - d. Revise as necessary to secure the Architect's approval.
2. The mock-up panels, when approved by the Architect, will be used as datum points for comparison with the remainder of the work of this section for the purpose of acceptance or rejection.
3. If the mock-up panels are not permitted to be part of the finished work, completely demolish and remove them from the job site upon completion and acceptance of the work of this section.

SECTION 09260: GYPSUM WALLBOARD SYSTEM
PAGE 2 OF 6

1.4 PRODUCT HANDLING

1.4.1 Comply with pertinent provisions of Section 01640.

2.0 PRODUCTS

2.1 GYPSUM WALLBOARD

2.1.1 General:

1. Provide gypsum wallboard complying with Fed Spec SS-L-30D, in 48" widths and in such lengths as will result in a minimum of joints.
2. Regular Wallboard: Provide type III, grade R, class 1, 5/8" thick except as may be shown otherwise on the drawings.
3. Fire-retardant Wallboard: Provide type III, grade X, class 1, 5/8" thick.
4. Water-resistant Wallboard: Provide type VII, grade W or X as required, class 2, 5/8" thick except as may be shown otherwise on the drawings.
5. Foil-backed Wallboard: Provide as shown on the drawings.

2.1.2 Shaft Walls: Where so indicated on the drawings, provide gypsum wallboard system specifically designed for encasing shafts of the required fire-resistivity, and complying with Fed Spec SS-L-30D, type IV, grade R or X, class 1, in the dimensions shown or otherwise required.

2.1.3 Sheathing: Where gypsum wallboard sheathing is indicated on the drawings, provide gypsum wallboard complying with Fed Spec SS-L-30D, type II, grade W, class 2.

2.2 METAL TRIM

2.2.1 Form from zinc-coated steel not lighter than 26 gauge, complying with Fed Spec QQ-S-775, type I, class D or E.

2.2.2 Casing Beads:

1. Provide channel-shapes with an exposed wing, and with a concealed wing not less than 7/8" wide.
2. The exposed wing may be covered with paper cemented to the metal, but shall be suitable for joint treatment.

2.2.3 Corner Beads: Provide angle shapes with wings not less than 7/8" wide and perforated for nailing and joint treatment, or with combination metal and paper wings bonded together, not less than 1-1/4" wide and suitable for joint treatment.

2.2.3 Edge beads for use at perimeter of ceilings:

1. Provide angle shapes with wings not less than 3/4" wide.
2. Provide concealed wing perforated for nailing, and exposed wing edge folded flat.
3. Exposed wing may be factory finished in white color.

2.3 JOINTING SYSTEM

SECTION 09260: GYPSUM WALLBOARD SYSTEM
PAGE 3 OF 6

- 2.3.1 Provide a jointing system, including reinforcing tape and compound, designed as a system to be used together and as recommended for this use by the manufacturer of the gypsum wallboard approved for use on this work.
- 2.3.2 Jointing compound may be used for finishing if so recommended by its manufacturer.
- 2.4. FASTENING DEVICES
 - 2.4.1 For fastening gypsum wallboard in place on metal studs and metal channels, use flat-head screws, shouldered, specially designed for use with power-driven tools, not less than 1" long, with self-tapping threads and self-drilling points.
 - 2.4.2 For fastening gypsum wallboard in place on wood, use 1-1/4" type W bugle-head screws, or use annular ring type nails complying with ASTM C514 and of the length required by governmental agencies having jurisdiction.
- 2.5. ACCESS DOORS
 - 2.5.1 In partitions and ceilings installed under this section, provide doors where required for access to mechanical installations and electrical installations.
 - 2.5.2 Types:
 - 1. Unless otherwise required, provide 24" X 24" metal access doors with concealed hinges to metal frame, and with Allen key lock.
 - 2. For piercing fire-rated surfaces, provide access doors having the same fire rating as the surface being pierced.
 - 3. For tile surfaces and toilet rooms, provide stainless steel access doors and frames, with satin finish.
 - 4. For other installations, provide prime-coated steel access doors and frame finish painting to be performed at the job site under Section 09900 of these specifications.
- 2.6. OTHER MATERIALS
 - 2.6.1 Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.
- 3.0. EXECUTION
 - 3.1. SURFACE CONDITIONS
 - 3.1.1. Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.
 - 3.2. INSTALLATION

SECTION 09260: GYPSUM WALLBOARD SYSTEM
PAGE 4 OF 6

3.2.1 General:

1. Install the gypsum wallboard in accordance with the drawings and with the separate boards in moderate contact but not forced into place.
2. At internal and external corners, conceal the cut edges of the boards by the overlapping covered edges of the abutting boards.
3. Stagger the boards so that corners of any four boards will not meet at a common point except in vertical corners.

3.2.2 Ceilings:

1. Install the gypsum wallboard to ceilings with the long dimension of the wallboard at right angles to the supporting members.
2. Wallboard may be installed with the long dimension parallel to supporting members that are spaced 16" on centers when attachment members are provided at end joints.

3.2.3 Walls:

1. Install the gypsum wallboard to studs at right angles to the furring or framing members.
2. Make end joints, where required, over framing or furring members.

3.2.4 Attaching:

1. Drive the specified screws with clutch-controlled power screwdrivers, spacing the screws 12" on centers at ceilings and 16" on centers at walls.
2. Where framing members are spaced 24" apart on walls, space screws 12" on centers.
3. Attach double layers in accordance with the pertinent codes and the manufacturer's recommendations as approved by the Architect.
4. Attach to wood as required by governmental agencies having jurisdiction.

3.2.5 Access Doors:

1. By careful coordination with the drawings and with the trades involved, install the specified access doors where required.
2. Anchor firmly into position, and align properly to achieve an installation flush with the finished surface.

3.3 JOINT TREATMENT

3.3.1 General:

1. Inspect areas to be joint treated, verifying that the gypsum wallboard fits snugly against supporting framework.
2. In areas where joint treatment and compound finishing will be performed, maintain a temperature of not less than 55 degrees for 24 hours prior to commencing the treatment, and until joint and finishing compounds have dried.
3. Apply the joint treatment and finishing compound by machine or hand tool.

SECTION 09260: GYPSUM WALLBOARD SYSTEM
PAGE 5 OF 6

4. Provide a minimum drying time of 24 hours between coats, with additional drying time in poorly ventilated areas.
- 3.3.2 Embedding Compounds:
1. Apply to gypsum wallboard joints and fastener heads in a thin uniform layer.
 2. Spread the compound not less than 3" wide at joints, center the reinforcing tape in the joint, and embed the tape in the compound. Then spread a thin layer of compound over the tape.
 3. After this treatment has dried, apply a second coat of embedding compound to joints and fastener heads, spreading in a thin uniform coat to not less than 6" wide at joints, and feather edged.
 4. Sandpaper between coats as required.
 5. When thoroughly dry, sandpaper to eliminate ridges and high points.
- 3.3.3 Finishing Compounds:
1. After embedding compound is thoroughly dry and has been completely sanded, apply a coat of finishing compound to joints and fastener heads.
 2. Feather the finishing compound to not less than 12" wide.
 3. When thoroughly dry, sandpaper to obtain a uniformly smooth surface, taking care to not scuff the paper surface of the wallboard.
- 3.4 CORNER TREATMENT
- 3.4.1 Internal Corners: Treat as specified for joints, except fold the reinforcing tape lengthwise through the middle and fit neatly into the corner.
- 3.4.2 External Corners:
1. Install the specified corner bead, fitting neatly over the corner and securing with the same type fasteners used for installing the wallboard.
 2. Space the fasteners approximately 6" on centers, and drive through the wallboard into the framing or furring member.
 3. After the corner bead has been secured into position, treat the corner with joint compound and reinforcing tape as specified for joints, feathering the joint compound out from 8" to 10" on each side of the corner.
- 3.5 OTHER METAL TRIM
- 3.5.1 General:
1. The drawings do not purport to show all locations and requirements for metal trim.
 2. Carefully study the drawings and the installation, and provide all metal trim normally recommended by the manufacturer of the gypsum wallboard approved for use in this work.
- 3.6 CLEANING UP

SECTION 09260: GYPSUM WALLBOARD SYSTEM
PAGE 6 OF 6

- 3.6.1 In addition to other requirements for cleaning, use necessary care to prevent scattering gypsum wallboard scraps and dust, and to prevent tracking gypsum and joint finishing compound onto floor surfaces.
- 3.6.2 At completion of each segment of installation in a room or space, promptly pick up and remove from the working area all scrap, debris, and surplus material of this section

END OF SECTION

SECTION 09510: ACOUSTICAL CEILINGS
PAGE 1 OF 3

1.0 GENERAL

1.1 DESCRIPTION

1.1.1 Work Included: Provide acoustical ceilings where shown on the drawings, as specified herein, and as needed for a complete and proper installation.

1.1.2 Related Work: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

1.2.1 Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.3 SUBMITTALS

1.3.1 Comply with pertinent provisions of Section 01340.

1.3.2 Product Data: Within 45 calendar days after the Contractor has received the Owner's Notice to Proceed, submit: (1) Materials List of items proposed to be provided under this section; (2) Manufacturer's specifications and other data needed to prove compliance with the specified requirements; (3) Shop Drawings in sufficient detail to show suspension, layout, lateral restraint, installation, anchorage, and interface of the work of this Section with the work of adjacent trades; (4) Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the work.

1.4 PRODUCT HANDLING

1.4.1 Comply with pertinent provisions of Section 01640.

2.0 PRODUCTS

2.1 Acoustical Tile--For exact location of each type of acoustical tile ceiling specified, see Reflected Ceiling Plan.

2.1.1 All ceiling tile and grids shall be as manufactured by Armstrong, size and type as indicated on the drawings. (or an approved equal)

2.2 GRID SYSTEMS

- 2.2.1 Concealed Grid System and Exposed "T" System (white) shall be as manufactured by Donn Corporation.
- 2.2.2 Grid Systems, Mains, Cross Sections, Support Runners and Hangers shall be size, type and location as outlined on Manufacturer's Guide Specification. All grids to be fire rated Class "A".
- 2.2.3 EXTRA STOCK: Deliver to the Owner for his use in future modifications, an extra stock of approximately 10% of each type of acoustical material installed, packaging each type of material separately, distinctly marked, and adequately protected against deterioration.

2.3 OTHER MATERIALS

- 2.3.1 Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

3.0 EXECUTION

3.1 SURFACE CONDITIONS

- 3.1.1 Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION, GENERAL

- 3.2.1 Except as modified by requirements of governmental agencies having jurisdiction, recommendations of the manufacturer as approved by the Architect, or specific directions of the Architect, install in accordance with ASTM C636 and the pertinent UL design requirements.
- 3.2.2 Lateral Bracing: (1) Provide lateral bracing as required by pertinent codes and regulations. (2) Secure lateral bracing to structural members. Secure at right angles to the direction of the partition and four ways in large ceiling areas.
- 3.2.3 Provide hold-down clips for ceiling boards only when so required by governmental agencies having jurisdiction.
- 3.2.4 Make all grid level within a tolerance of one in 1000 and straight within a tolerance of one in 1000.

SECTION 09510: ACOUSTICAL CEILINGS
PAGE 3 OF 3

3.3 INSTALLATION OF ACOUSTICAL MATERIALS

3.3.1 "T" Grid System: Install acoustical ceiling boards so linearity of facing is as directed by the Architect.

3.4 CLEANING UP

3.4.1 In addition to other stipulated requirements for cleaning, completely remove finger prints and traces of soil from the surfaces of grid and acoustical materials, using only those cleaning materials recommended for the purpose by the manufacturer of the material being cleaned.

END OF SECTION

SECTION 09650: VINYL TILE AND VINYL BASE
PAGE 1 OF 2

1.0 SCOPE OF WORK

- 1.1 Extent: The work required under this section includes all labor and materials required for the complete installation of Vinyl Tile and Vinyl Base as required by the drawings. Schedule of Interior Finishes, this project manual and/or as required by conditions at the site.

2.0 MATERIALS

- 2.1 Tile: Fed. Spec. SS-T-312 Type IV, 12" X 12", 1/8" thick, Excelon Series, colors as selected by the Architect, Tile to be by Armstrong or approved equal, laid by flooring contractor, or approved by manufacturer.
- 2.2 Adhesive for Tile: Best grade proper adhesive as recommended by tile manufacturer, delivered in labeled containers with seals unbroken.
- 2.3 Vinyl Tile Cove Base: Standard manufacturer molded, one piece external and internal corners with not less than 2-1/2" returns. Color to be selected by the Architect.
- 2.4 Adhesive for Base: As recommended by the manufacturer of the base.

3.0 SAMPLES

- 3.1 Submit samples of materials in accord with requirements of General Conditions.

4.0 INSTALLATION

- 4.1 Concrete base shall be dry, free from debris, dirt and coatings, that would impair the bond between the floor surfacing and concrete and shall be free from other defects that would be detrimental to the quality, durability or finish of the flooring. Any surface roughness or irregularities shall be smoothed over with an underlayment cement approved by the tile manufacturer before starting the tile laying.
- 4.2 Laying: Floor tile to be laid in "square" pattern symmetrically about the center lines of room with not less than half tile width adjacent to walls. All joints shall be tight and as inconspicuous as possible and in true alignment. Tile shall be cut to fit snug and accurately at pipes and other fixed vertical surfaces, all joints at pipes sealed with adhesive. Spots or smears of adhesive and stains shall be removed immediately. Finished surfaces of floors shall be smooth, straight, free from buckles, waves or projecting tile edges upon completion. At doors where vinyl tile of different colors meet, the joinings shall be directly under center of doors.
- 4.3 Temperature of rooms in which floor tile is being laid shall not be less than 60 degrees F., and shall be maintained for a period of not

SECTION 09650: VINYL TILE AND VINYL BASE
PAGE 2 OF 2

less than 24 hours before starting to lay the materials and so continued during the laying of materials for not less than 48 hours after completion. Tile shall be maintained at a temperature of not less than 60 degrees F., for 24 hours just prior to laying.

- 4.4 Floor tile and vinyl base shall be given a wax finish at the factory. After the tile has been laid, it shall be thoroughly cleaned, and additional application of paste wax and then machine buffed.
- 4.5 Spaces being surfaced shall be closed to traffic and other work during the laying of vinyl tile.
- 4.6 Pattern: The Architect shall design floor tile patterns, in various areas, where more than one (1) color of tile shall be installed. Patterns selected will be submitted to this contractor, by the Architect and colors shall be noted on the Color Selection Schedule.

END OF SECTION

1.0 GENERAL

1.1 DESCRIPTION

- 1.1.1 Work Included: Paint and finish the exterior and interior exposed surfaces listed on the Painting Schedule in Part 3.0 of this Section, as specified herein, and as needed for a complete and proper installation.
- 1.1.2 Related Work: (1) Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications. (2) Priming or priming and finishing of certain surfaces may be specified to be factory-performed or installer-performed under pertinent other Sections.
- 1.1.3 Work Not Included: (1) Unless otherwise indicated, painting is not required on surfaces in concealed areas and inaccessible areas such as furred spaces, foundations spaces, utility tunnels, pipe spaces, and duct shafts. (2) Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze, and similar finished materials will not require painting under this Section except as may be so specified. (3) Do not paint moving parts of operating units; mechanical or electrical parts such as valve operators; linkages; sensing devices; and motor shafts, unless otherwise indicated. (4) Do not paint over required labels or equipment identification, performance rating, name, or nomenclature plates. (5) Do not paint concrete which has been sandblasted.
- 1.1.4 Definitions: "Paint"--as used herein, means coating systems materials including primers, emulsions, epoxy, enamels, sealers, fillers, and other applied materials whether used as prime, intermediate, or finish coats.

1.2 QUALITY ASSURANCE

- 1.2.1 Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- 1.2.2 Paint Coordination: (1) Provide finish coats which are compatible with the prime coats actually used. (2) Review other Sections of these Specifications as required, verifying the prime coats to be used and assuring compatibility of the total coating system for the various substrata. (3) Upon request, furnish information on the characteristics of the specific finish materials to assure that compatible prime coats are used. (4) Provide barrier coats over noncompatible primers, or remove the primer and reprime as required. (5) Notify the Architect in writing of anticipated problems in using the specified coating systems over prime-coatings supplied under other Sections.

1.3 SUBMITTALS

- 1.3.1 Comply with pertinent provision of Section 01340.

SECTION 09900: PAINTING
PAGE 2 OF 7

- 1.3.2 Product Data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit: (1) Materials list of items proposed to be provided under this Section; (2) Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
- 1.3.3 Samples: (1) Following the selection of colors and glosses by the Architect, as described under "Color Schedules" in Part 2 of this Section, submit samples for the Architect's review.
- a. Provide three (3) samples of each color and each gloss for each material on which the finish is specified to be applied.
 - b. Except as otherwise directed by the Architect, make samples approximately 8" X 10" in size.
 - c. If so directed by the Architect, submit samples during progress of the work in the form of actual application of the approved materials on actual surfaces to be painted.
- 1.3.4 Revise and resubmit each sample as requested until the required gloss, color, and texture is achieved. Such samples, when approved, will become standards of color and finish for accepting or rejecting the work of this section.
- 1.3.5 Do not commence finish painting until approved samples are on file at the job site.
- 1.4 PRODUCT HANDLING
- 1.4.1 Comply with pertinent provisions of Section 01640.
- 1.5 JOB CONDITIONS
- 1.5.1 Do not apply solvent-thinned paints when the temperature of surfaces to be painted and the surrounding air temperatures are below 45 degrees F, unless otherwise permitted by the manufacturer's printed instructions as approved by the Architect.
- 1.5.2 Weather Conditions: (1) Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 95%; or to damp or wet surfaces, otherwise permitted by the manufacturer's printed instructions as approved by the Architect. (2) Applications may be continued during inclement weather only within the temperature limits specified by the paint manufacturer as being suitable for use during application and drying periods.
- 1.6 EXTRA STOCK
- 1.6.1 Upon completion of the work of this section, deliver to the Owner an extra stock equaling 10% of each color, type, and gloss of paint used in the work, tightly sealing each container, and clearly labeling with contents and location where used.

2.0 PRODUCTS

2.1 PAINT MATERIALS

2.1.1 Acceptable Materials: (1) The Painting Schedule in Part 3 of this section is based, in general, on products of the Pratt & Lambert Paint Company. (2) Where products are proposed other than those specified by name and number in the Painting Schedule, provide under the product data submittal required by Article 1.3 of this section a new painting schedule compiled in the same format used for the Painting Schedule included in this section.

2.1.2 Undercoats and Thinners: (1) Provide undercoat paint produced by the same manufacturer at the finish coat. (2) Use only the thinners recommended by the paint manufacturer, and use only to the recommended limits. (3) Insofar as practicable, use undercoat, finish coat, and thinner material as parts of a unified system of paint finish.

2.2 COLOR SCHEDULES

2.2.1 The Architect will prepare a color schedule with samples for guidance in painting.

2.2.2 The Architect may select, allocate, and vary colors on different surfaces throughout the work, subject to the following: (1) Exterior Work: A maximum of five different colors will be used, with variations for trim, miscellaneous work, and metal work. (2) Interior Work: A maximum of fifteen different pigmented colors will be used, with variations for trim and wall surfaces and wainscots. (3) Dark Tones: A maximum of ten dark tones will be used as accent colors for interior.

2.3 APPLICATION EQUIPMENT

2.3.1 For application of the approved paint, use only such equipment as is recommended for application of the particular paint by the manufacturer of the particular paint, and as approved by the Architect.

2.3.2 Prior to use of application equipment, verify that the proposed equipment is actually compatible with the material to be applied, and that integrity of the finish will not be jeopardized by use of the proposed equipment.

2.4 OTHER MATERIALS

2.4.1 Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

3.0 EXECUTION

3.1 SURFACE CONDITIONS

- 3.1.1 Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.2 MATERIALS PREPARATION

- 3.2.1 General: (1) Mix and prepare paint materials in strict accordance with the manufacturer's recommendations as approved by the Architect. (2) When materials are not in use, store in tightly covered containers. (3) Maintain containers used in storage, mixing, and application of paint in a clean condition, free from foreign materials and residue.

- 3.2.2 Stirring: (1) Stir materials before application, producing a mixture of uniform density. (2) Do not stir into the material any film which may form on the surface, but remove the film and, if necessary, strain the material before using.

3.3 SURFACE PREPARATION

- 3.3.1 General: (1) Perform preparation and cleaning procedures in strict accordance with the paint manufacturer's recommendations as approved by the Architect. (2) Remove removable items which are in place and are not scheduled to receive paint finish; or provide surface-applied protection prior to surface preparation and painting operations. (3) Following completion of painting in each space or area, reinstall the removed items by using workmen who are skilled in the necessary trades. (4) Clean each surface to be painted prior to applying paint of surface treatment. (5) Remove oil and grease with clean cloths and cleaning solvent of low toxicity and flash point in excess of 200 degrees F, prior to start of mechanical cleaning. (6) Schedule the cleaning and painting so that dust and other contaminants from the cleaning process will not fall onto wet newly painted surfaces.

- 3.3.2 Preparation of Wood Surfaces: (1) Clean wood surfaces until free from dirt, oil, and other foreign substance. (2) Smooth finished wood surfaces exposed to view, using the proper sandpaper. Where so required, use varying degrees of coarseness in sandpaper to produce a uniformly smooth and unmarred wood surface. (3) Unless specifically approved by the Architect, do not proceed with painting of wood surfaces until the moisture content of the wood is 12% or less as measured by a moisture meter approved by the Architect.

- 3.3.3 Preparation of metal surfaces: (1) Thoroughly clean surfaces until free from dirt, oil, and grease. (2) On galvanized surfaces, use solvent-for the initial cleaning, and then treat the surface thoroughly with phosphoric acid etch. Remove etching solution completely before proceeding. (3) Allow to dry thoroughly before application of paint.

3.4 PAINT APPLICATION

- 3.4.1 General: (1) Touchup shop-applied prime coats which have been damaged, and touchup bare areas prior to start of finish coats application. (2) Slightly vary the color of succeeding coats; (a) Do not apply additional coats until the completed coat has been inspected and approved. (b) Only the inspected and approved coats of paint will be considered in determining the number of coats applied. (3) Sand and dust between coats to remove defects visible to the unaided eye from a distance of five feet. (4) On removable panels and hinged panels, paint the back sides to match the exposed sides.
- 3.4.2 Drying: (1) Allow sufficient drying time between coats, modifying the period as recommended by the material manufacturer to suit adverse weather conditions. (2) Consider oil-base and oleo-resinous solvent-type paint as dry for recoating when the paint feels firm, does not deform or feel sticky under moderate pressure of the thumb, and when the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.
- 3.4.3 Brush Applications: (1) Brush out and work the brush coats onto the surface in an even film. (2) Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, and other surface imperfections will not be acceptable.
- 3.4.4 Spray Application: (1) Except as specifically otherwise approved by the Architect, confine spray application to metal framework and similar surfaces where hand brush work would be inferior. (2) Where spray application is used, apply each coat to provide the hiding equivalent of brush coats. (3) Do not double back with spray equipment to build up film thickness of two coats in one pass.
- 3.4.5 For completed work, match the approved samples as to texture, color, and coverage. Remove, refinish, or repaint work not in compliance with the specified requirements.
- 3.4.6 Miscellaneous Surfaces and Procedures: (1) Exposed mechanical items: (a) Finish electric panels, access doors, conduits, pipes, ducts, grilles, registers, vents, and items of similar nature to match the adjacent wall and ceiling surfaces, or as directed. (b) Paint visible duct surfaces behind vents, registers, and grilles flat black. (c) Wash metal with solvent, prime and apply two coats of alkyl enamel. (2) Hardware: Paint prime coated hardware to match adjacent surfaces. (3) Interior: Use "stipple" finish where enamel is specified. (4) Exposed Vents: Apply two coats of heat-resistant paint approved by the Architect.

3.5 PAINTING SCHEDULE

- 3.5.1 Provide the following paint finishes.

PAINING SCHEDULE (Based on Pratt & Lambert, except as noted)

<u>Surface</u>	<u>Surface Preparation and Pretreatment</u>	<u>1st Coat</u>	<u>2nd Coat</u>	<u>3rd Coat</u>
Structural steel and exterior ferrous surfaces, unless otherwise specified.	As previously specified	P & L Palgard epoxy primer	P & L Palgard epoxy coating	P & L Palgard epoxy coating
Exterior galvanized surfaces.	As previously submitted	P & L Noxide galvanized metal primer	P & L Permalize house & trim finish	P & L Permalize house & trim finish
Exterior wood surfaces (other than natural surfaces)	As previously submitted	P & L Permalize exterior primer	P & L Permalize House & trim finish	P & L Permalize House & trim finish
Interior gypsum board and/or plaster, unless otherwise specified.	As previously submitted	P & L Pro-hide latex flat	P & L Pro-hide latex flat	None
Interior exposed ferrous surfaces, unless otherwise specified.	As previously submitted	P & L Pro-hide primer	P & L Pro-hide latex satin	P & L Pro-hide latex satin
Exterior masonry surfaces.	See Section on Masonry Care, Wire Brush Clean	Modac Mo-Fil	Stucco Finish Modac Mo-Plex	Modac Mo-Plex

PAINING SCHEDULE (Based on Pratt & Lambert, except as noted)

<u>Surface</u>	<u>Surface Preparation and Pretreatment</u>	<u>1st Coat</u>	<u>2nd Coat</u>	<u>3rd Coat</u>
Interior concrete floors, where noted on schedule.	Allow to age 60 days minimum.	P & L Vapex floor paint	P & L Vapex floor paint	None
Ferrous surfaces of mechanical and electrical equipment that has been factory primed, including access doors and panel fronts.	Solvent clean as specified.	P & L Pro-hide primer	P & L Pro-hide latex satin	P & L Pro-hide latex satin
Ferrous surfaces of mechanical & electrical equipment that has been factory finished.	Clean as required.	None	None	None
Hood & Metal interior trim, except natural finished wood surfaces, including H.M. frames.	As previously specified for each type of surface.	P & L Pro-hide primer	P & L Pro-hide latex satin	P & L Pro-hide latex satin
Interior galvanized surfaces, unless otherwise specified, including galvanized pipe railings.	As previously submitted.	Same as for adjacent surfaces.		

END OF SECTION

1.0 GENERAL

1.1 DESCRIPTION

1.1.1 Work Included: Provide items listed below and accessories as indicated on the drawings, as specified herein, and as needed for complete and proper installation.

1.1.2 Related Work: Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

1.2.1 Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

1.2.2 All items indicated in the Miscellaneous Section of the specification shall be installed in accordance with the manufacturers guide specifications for said item.

1.3 SUBMITTALS

1.3.1 Comply with pertinent provisions of Section 01340.

1.3.2 Product Data: Within 45 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:

1. Materials list of items proposed to be provided under this section.
2. Manufacturers' specifications and other data needed to prove compliance with the specified requirements.
3. Manufacturers' recommended installation procedures which, when approved by the Architect, will become the basis for accepting/rejecting actual installation procedures used on the work.

1.4 PRODUCT HANDLING

1.4.1 Comply with pertinent provisions of Section 01640.

2.0 PRODUCTS:

2.1 Handrail: Shall be Blum & Co., Connectorial system. Aluminum pipe handrails and related items.

2.2 Glass and Glazing: All Glass and glazing shall be Pittsburgh Plate Glass Company or approved equal. All items installed as per manufacturer's guide specification. See drawings for exact sizes and locations.

- 2.3 Chaulk Board/Tack Boards: Provide and install combination Chaulk Board/Tack Boards as indicated on the drawings. Vitracite by Claridge Co. or approved equal. Sheet face 24ga. vitracite face. Core material 1/2" dura core, panel backing. .015 aluminum sheet and side and top cortex. Colors as selected. All with snap on aluminum trim.

Submit full shop drawings for review and approval.

- 2.4 Aluminum Windows: Provide and install TR-3600, top hung, in swing unit by TRACO or approved equal. Unit clear anodized unit, with 1" insulated clear safety glass fixed section and vent section as indicated on drawings. Provide screen for vent section and security locks. See drawings for details. Submit full Shop Drawings for review and approval.

- 2.5 Wheel Chair Lift: Provide and install wheelchair lift model BC-42, with upper full door. 115V, single phase, 3/4 HP, 12 AMPS. Tie to main panel. Unit color - gray. Unit to be provided with all options. Unit as manufactured by Wheel-O-Vaton, Inc., or approved equal. Submit full Shop Drawings for review and approval. See drawings for further detail.

- 2.6 Asbestos Removal and/or Encapsulation: Some pipe work and panels in renovated areas are insulated with an asbestos containing material. All material which contains asbestos must be removed and disposed of in accordance with state, local, and federal regulatory requirements. General Contractor to verify in field with architect before removal of said material.

END OF SECTION

SECTION 15000

1. INTRODUCTION

This "Scope of Work" document defines the technical requirements, and describes the mechanical installation needed to provide an efficient HVAC System for three new classrooms.

2. SCOPE

2.1. Each new classroom shall receive a vertical HVAC Unit and Condensing Unit. The Contractor shall provide control equipment and wiring to each in accordance with the drawings and manufacturer's specifications. The Contractor shall work closely with the other trades to achieve an efficient installation.

2.2. The Contractor shall extend the piping presently feeding the existing hot water heating for each classroom to feed each new unit. Piping shall be concealed wherever practicable.

2.3. Ductwork shall be installed above the hung ceiling to provide adequate, balanced distribution of heating and cooling within each classroom.

3. GENERAL NOTES

3.1. The mechanical installation shall comply with the current requirements of the National Fire Protection Association, NSPC, OSHA, SMACNA, ASHRAE, the New Jersey Uniform Construction Code, and any local codes. In the event of conflict in code requirements, the more stringent shall apply.

3.2. The H.C. shall examine drawings for both items specifically indicated and also intent of installation desired.

3.3. It shall be the total responsibility of the H.C. to include in his bid all material and labor necessary to:

3.4. Achieve the intent of these drawings

SECTION 15000

3.5. Adhere to all applicable codes

3.6. Satisfy utility company requirements

3.7. Produce operational systems installed according to normal accepted construction methods, utilizing the best workmanship practices that are fully acceptable to Owner/Architect.

3.8. No additional monies shall be allowed during construction for any items which are included above.

3.9. It shall be the sole responsibility to install a system capable of maintaining 70 degrees inside temperature with an outside temperature of 0 degrees and 15 mph wind in the winter and 70 degrees inside temperature with an outside temperature of 95 degrees in the summer with a relative humidity of 50 percent in all rooms.

3.10. The scope of responsibility for the H.C. shall include but not be limited to the following:

3.10.1. Ordinances, permits and fees.

3.10.2. Administration.

3.10.3. Coordination with other trades and building structure to avoid interferences.

3.10.4. Furnish and install all equipment as necessary for a fully operational HVAC System according to these drawings and specifications as interpreted by Architect/Owner.

3.11. Furnish material and installation schematics of all equipment to installed by others, i.e. electrical disconnects, safety switches, piping schematics for gas fuel equipment, etc..

3.12. H.C. to be responsible for all flues, exhaust ducts as required for exhaust fans, range hood, dryer vents.

3.13. Supply and return ductwork.

SECTION 15000

3.14. All accessories-diffusers, grilles, equipment curbs, fire dampers, volume dampers, relays, thermostats, louvers, brick vents, etc. as required by code or by normal practice to achieve optimum system operating condition to satisfy these drawings and specifications.

3.15. Cleaning, testing and balancing.

3.16. Insulation.

3.17. Hangers and supports.

3.18. Cutting, patching, sleeves, and flashing.

3.19. Written guarantees and operation/maintenance manuals for all equipment furnished.

3.20. All exposed ductwork or ductwork in unconditioned areas shall have 1" foil backed insulation.

3.21. Ductwork material to be galvanized sheet metal or fiberglass duct board or flexiduct at discretion of H.C. in accordance with all applicable codes and SMACNA, ASHRAE and all applicable construction codes and/or guides.

3.22. It shall be the total liability and responsibility of H.C. that clearance or passage holes or shafts through joists, framing, etc. does not destroy or diminish structural strength of members involved.

4. MAJOR EQUIPMENT

4.1. The following equipment is to be provided and installed by the Contractor in accordance with the drawings.

4.2. Substitutions (equal or better in form, fit, and function) may be permitted subject to the Engineer's approval. This listing is not all-inclusive, and the Contractor shall furnish and install all materials and equipment necessary to produce a fully operational HVAC System as indicated by the Drawings and Specifications as interpreted by the Architect/Owner.

SECTION 15000

DESCRIPTION	MANUFACTURER / CATALOG #
VERTICAL CLASSROOM UNIT VENTILATOR, 208V, 1Ø	TEMSPEC # XUV1250
CONDENSING UNIT, 208V, 3Ø	TEMSPEC # ISC36

5. ATTACHMENTS

Manufacturer's information



AMBIENT
Technologies

LORETTA DALY-MYERS, PRESIDENT

7 EAST 54TH STREET • BRANT BEACH, NJ 08008

PHONE (609) 494-2011 • FAX (609) 494-2170

a climate for learning

classroom
unit ventilators



Phone 416-661-0535

Fax 416-661-0538

585 CANARCTIC DRIVE, DOWNSVIEW, ONTARIO, CANADA M3J 2P9

A Climate for Learning:

Whether the structure is temporary, permanent or portable, the need is the same, an environment which allows teacher and pupil to stay alert, comfortable and healthy.

We may sometimes complain about the quality of the outside air that we breathe, however it is without doubt, preferable to air that has been polluted by gases given off by modern fabrics, plastics, carpets, paint and furniture finishes, not to mention the carbon dioxide that we exhale. As a result of these factors, the American Society of Heating, Refrigeration and Air-Conditioning Engineers issued a revised standard for classroom ventilation of 15 CFM per occupant. (ASHRAE 62-1989)

The Temspec unit ventilator will significantly reduce the harmful effects of pollutant gases by diluting or replacing them by the controlled introduction of outside air. The electronic controls will balance the mixture of outdoor and recirculated air and maintain the space temperature by step or modulating control of the electric, hot water or steam heating coils. To maximize energy savings, the outside air dampers have a minimum set point when the unit is in the heating mode.

For much of the time that a classroom is occupied, the internal gain, (heat generated by people, lights, appliances, solar), will exceed the heat loss through the structure, and there is a need for cooling. By proportioning the amount of cold outside air with the recirculated room air, the unit ventilator can provide free cooling without the aid, expense or noise of mechanical refrigeration equipment.

As outside air is brought in and the space becomes pressurized, it will of course be necessary to exhaust the stale air to allow the unit ventilator to complete its ventilation function. For some applications it may be necessary to use an exhaust fan but for most applications, relief dampers will allow the air to exhaust to atmosphere.

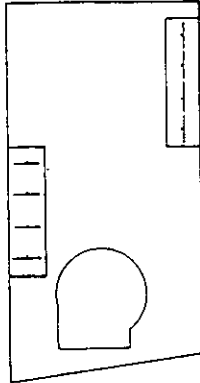
Except in areas where there are sustained high outdoor temperatures, or where there are special needs, the Temspec unit ventilator requires only a heat source and nature's outdoors to provide a climate for learning.

Temspec staff engineers frequently customize unit ventilator designs to specific applications such as classroom corner installation, horizontal mounting in ceiling space and below-grade classrooms with non-standard outside air intake arrangements.

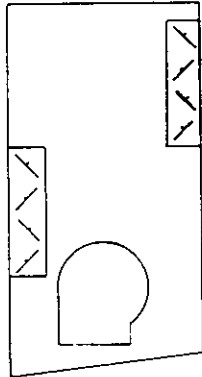


Day Cycle

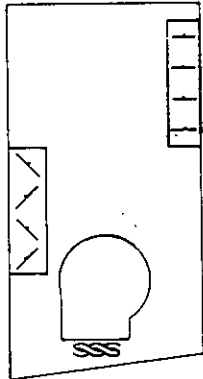
Outside air dampers open 100% for maximum free cooling.



Outside air and re-circulated air dampers modulate to maintain space temperature.

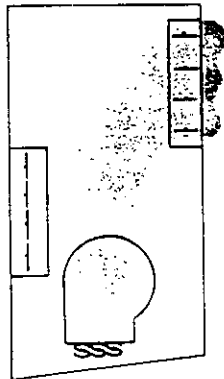


Outside air dampers open to preset minimum, re-circulated air dampers fully open when heating is required.



Night Cycle

Outside air dampers stay-closed, re-circulated air dampers fully open. Coil & fan cycle on call from thermostat.



Electronic Control Sequence

During the normal DAY CYCLE the outside air and recirculated air dampers will modulate to maintain the room temperature. (The outside air dampers will never close beyond the pre-set minimum open position.)

When the space temperature drops below the thermostat heating set point, the outside air dampers will close to the pre-set minimum open position and the heating coil will become operative.

A discharge air sensor limits the degree of discharge temperature fluctuation by controlling the system cycling rate.

When the space temperature rises above the 2°F differential between the Heating and Economizer set points, the Economizer mode is activated. The heating coil is by-passed (hot water), the heating valve is closed (steam) or the coil is de-energized (electric) and the outside and return air dampers again modulate to maintain the thermostat set point. At the limit of the economizer (free cooling) cycle, the outside air dampers are fully open and the recirculated air dampers completely closed.

An outdoor air temperature controller ensures that the outside air dampers will return to the minimum open position, if the outdoor air temperature is above the controller set point.

When the unit ventilator is switched to NIGHT CYCLE the outside air dampers are completely closed and the fan cycles only when the room temperature drops below the thermostat set point. The heating coil will be operated to maintain the lower night set-back temperature set point.

Model Types

VUV – Has staged electric heating, an economizer and unoccupied mode set-back cycle but no refrigerant cooling. This model can be converted to refrigerant cooling by retrofitting a 'V' type DX coil, with remote condensing unit.

HUV – Has a hot water or steam heating coil, fully modulating face and by-pass dampers or modulating valve, an economizer and unoccupied mode set-back cycle but no refrigerant cooling.

RUV – Has staged electric heating, an economizer cycle, unoccupied mode cycle and refrigerant cooling including unit mounted direct expansion coil and remote mounted condensing unit.

XUV – Has a hot water or steam heating coil, fully modulating face and by-pass dampers or modulating valve, an economizer and unoccupied mode set-back cycle and refrigerant cooling including unit-mounted direct expansion coil and remote-mounted condensing unit.

All models are certified by the Canadian Standards Association (CSA)

Unit Ventilator Specification

Casing: The unit casing is formed from 18 ga Satin-coat steel, braced and re-inforced for rigidity. Removable panels provide easy access to the heating coil, fan/motor assembly, electronic controls, filters and dampers. Casings and panels are insulated with ½" thick Linacoustic insulation. The exterior is finished with a baked enamel paint.

Heating coil: The heating coil (hot water, steam or electric) is located behind the removable bottom front panel for easy access and removal. In the electric coil configuration; both automatic and manual reset limit controls are incorporated and the four heating stages are controlled by quiet operating magnetic contactors.

Dampers: The frames and blades of the outside air and recirculated air dampers as well as the face and bypass dampers for the hydronic unit are 12 ga aluminum extrusions which are grooved to accommodate vinyl seals. Hexagonal pivot rods interlock into the blade section and are connected by non-corrosive linkage. The blades rotate on Celcon inner bearings and poly-carbonate outer bearings. Blade seals overlap and are designed for minimum leakage.

Wall intake louvers: Aluminum stormproof blades are mounted at a 45° angle in heavy gauge extruded aluminum frames. The blade profile is designed to prevent water penetration. A ½" mesh birdscreen is attached to the louver frame.

Fan/Motor: A single direct driven centrifugal fan is mounted on rubber isolators to a re-inforced insulated bulkhead. The motor is a high efficiency, permanent split-capacitor type, directly connected to the fan on resilient mounts.

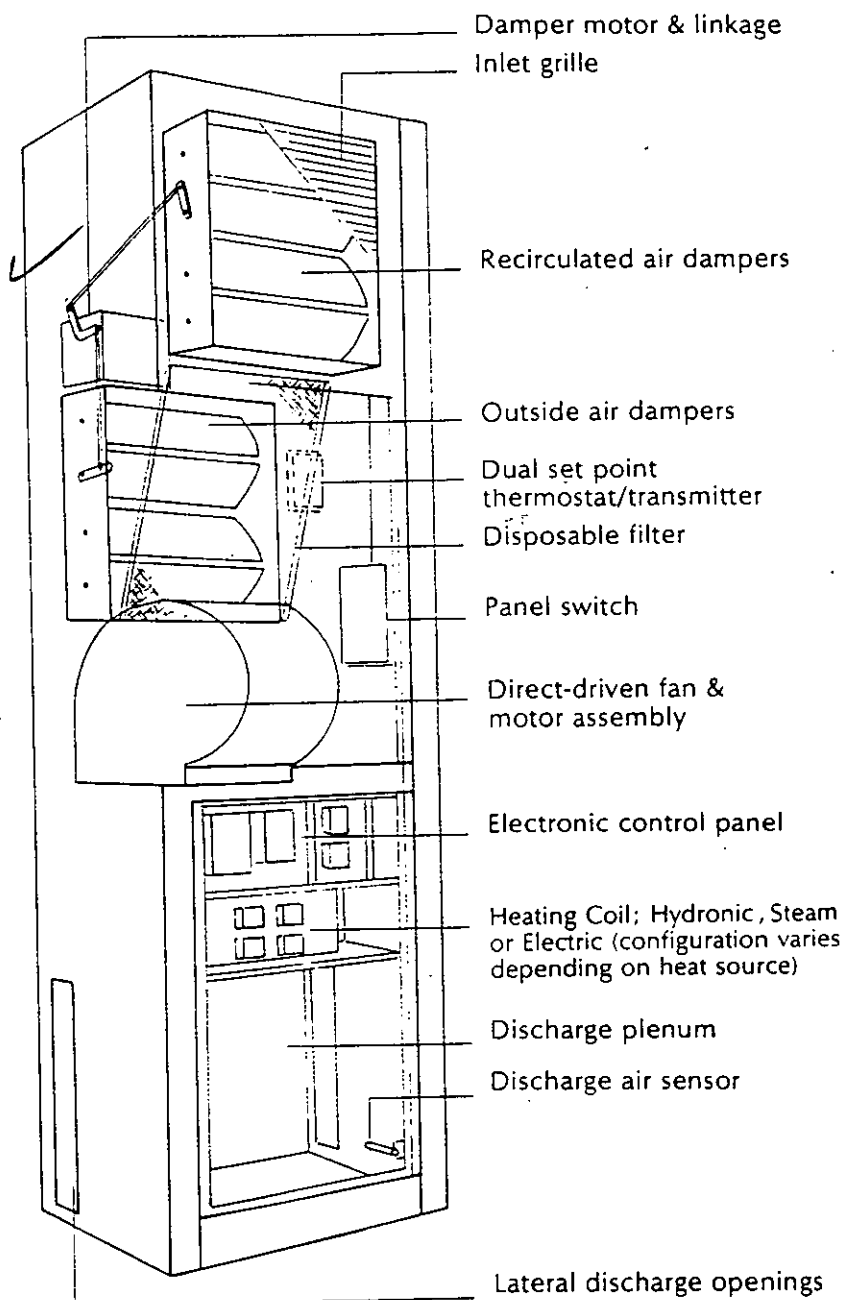
Controls: Room temperature can be controlled by a seven day programmable, or a dual set point thermostat.

The seven day programmable thermostat allows day and night temperatures for each room to be set individually.

Dual set point thermostats are normally used with hydronic models and will interface with a central energy management system or individual time clocks to select the day or night operating mode.

Signals from the room thermostat, inlet and discharge air sensors are transmitted to the control logic modules, which control ambient temperature and the fully modulating outside and return air dampers.

The outside air dampers will close in the event of a power failure.



Sizes

Model No.

VUV-1000 and RUV-1000

VUV-1250

1000 CFM 9 – 15 KW*

1250 CFM 10 – 18 KW*

*Available in 1ph. 208/240 v 3ph. 208/240 v elec. supply

HUV-1000 and XUV-1000

HUV-1250 and XUV-1250

45 – 75 MBH

55 – 85 MBH

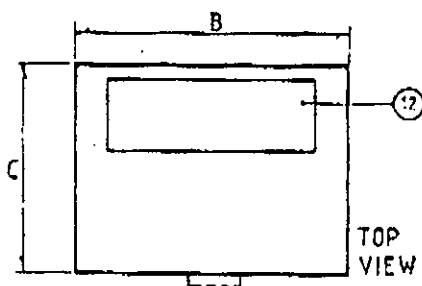
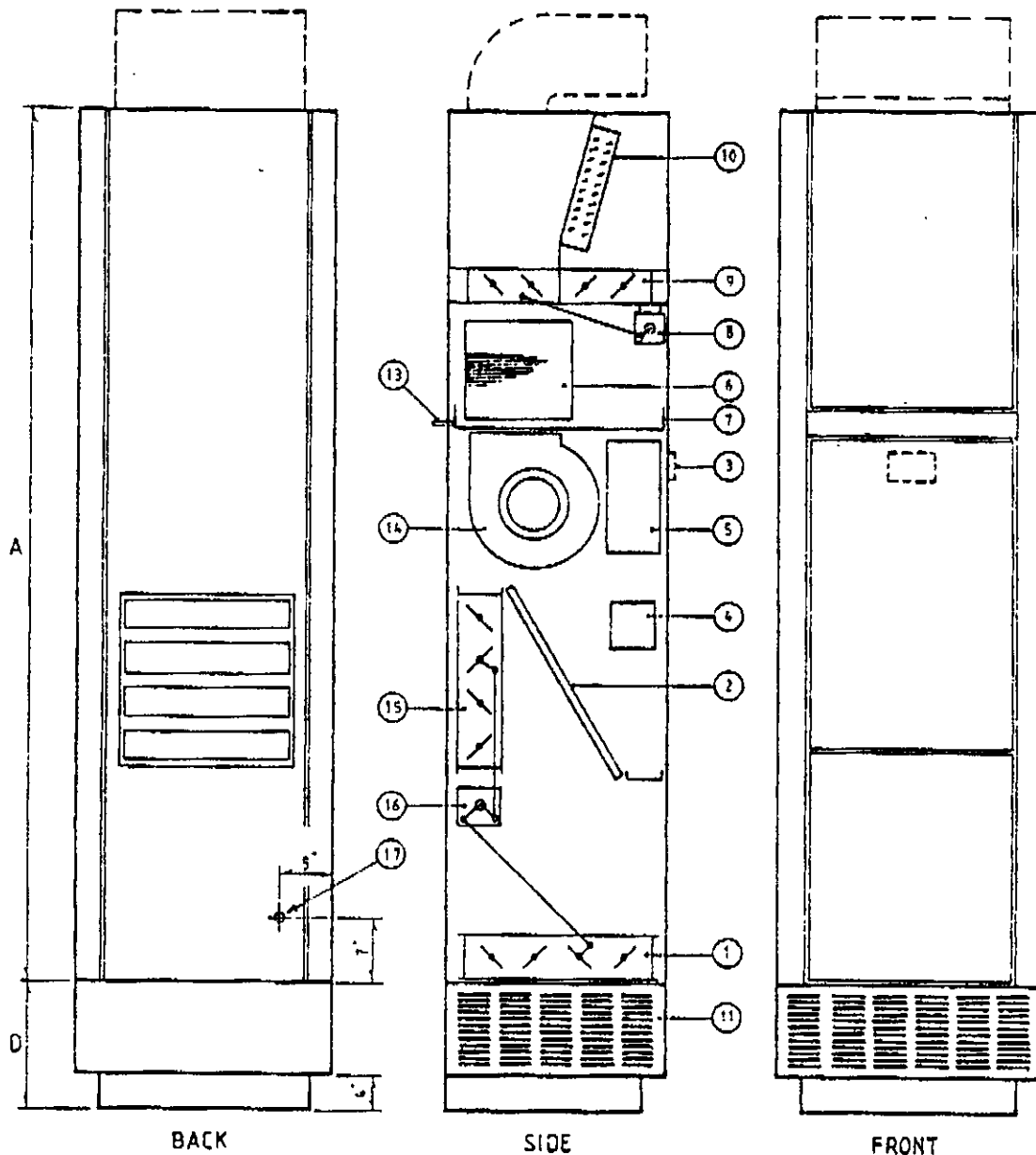
- The unit shown in the sketch has a bottom discharge plenum. Most models of Temspec unit ventilators are available in an inverted configuration with discharge from the top.

MODEL XUV UNIT VENTILATOR

SHOWN WITH RETURN AIR INLET POSITION 'B' (BOTTOM)

Hot water or Steam heating, ventilation,
economizer, DX or Chilled water cooling.

UPFLOW
CONFIGURATION



1. Return air dampers
2. Filters
3. Thermostat (can also be remote mounted)
4. Junction box
5. Control panel
6. DX or chilled water coil
7. Drain pan
8. Face & by-pass damper motor
9. Face & by-pass dampers
10. Hot water or steam coil
11. Return air plenum
12. Discharge opening
13. Condensate connection
14. Fan and motor assembly
15. Outdoor air dampers
16. Damper motor
17. Electrical connection

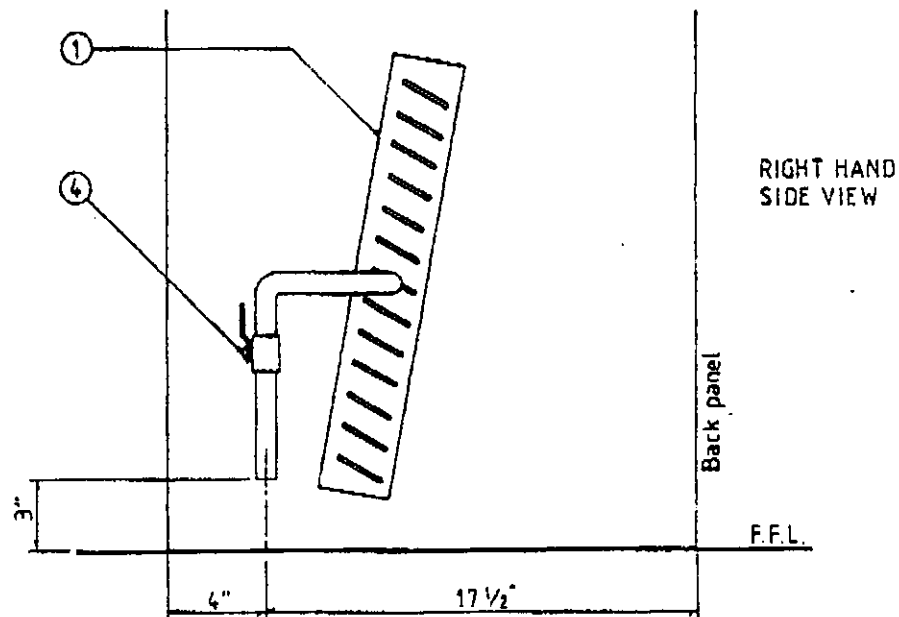
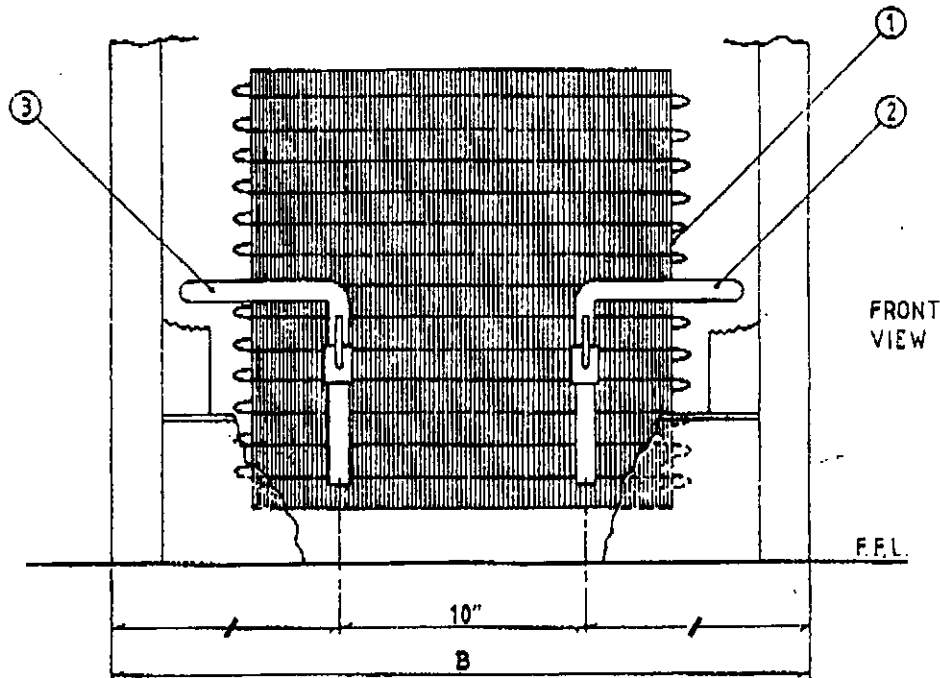
MODEL	CFM	A	B	C
XUV1000	1000	93"	26½"	21½"
XUV1250	1250	93"	26½"	21½"

D = Plenum height to suit site conditions.
Minimum height is 10"

LOCATION OF WATER COIL CONNECTIONS FOR UNIT VENTILATOR MODELS 'HUV' AND 'XUV'

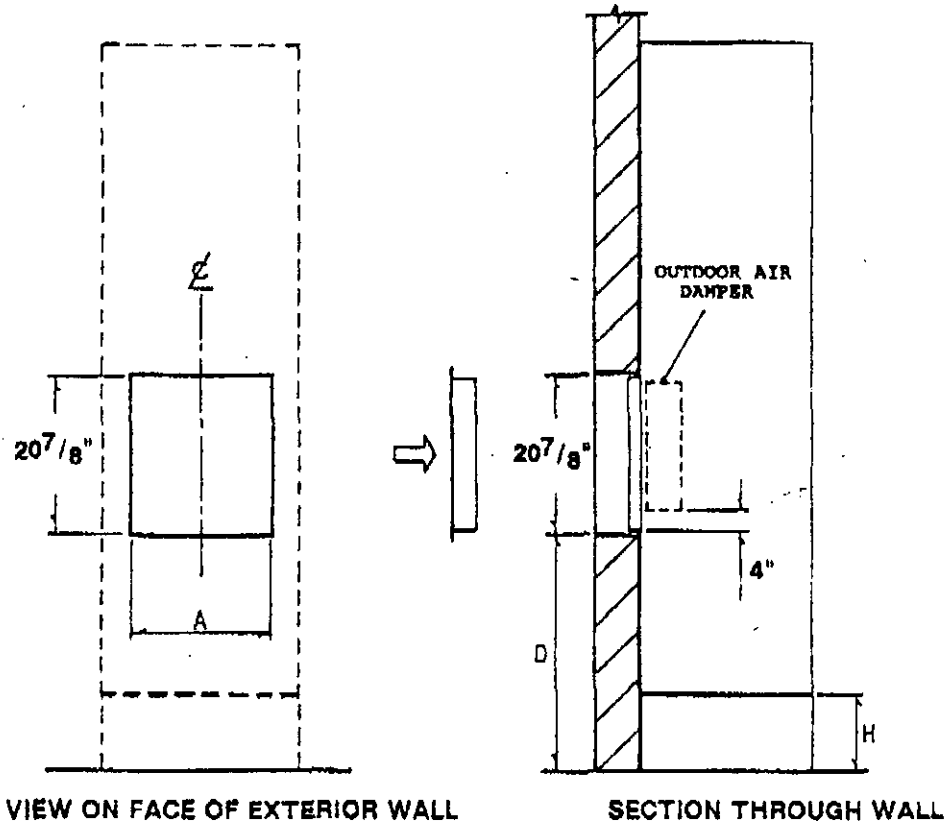
TEMSPEC.

DIMENSIONS SHOWN ARE FOR UNITS WITH RETURN AIR POSITIONS 'F' (Front) AND 'T' (Top)

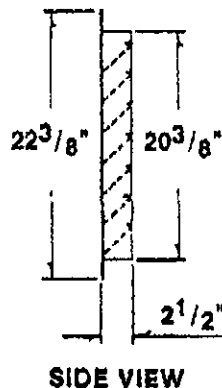
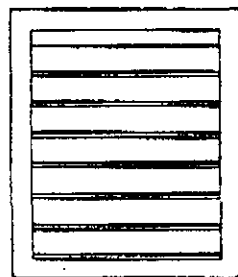
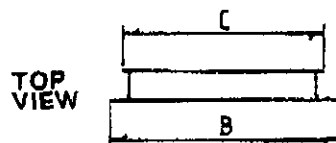


ITEM	DESCRIPTION
1	WATER COIL
2	OUTLET - $\frac{3}{4}$ " NOM. DIA. COPPER PIPE
3	INLET - $\frac{3}{4}$ " NOM. DIA. COPPER PIPE
4	BALL VALVE (2)

MODEL	DIMN. B
HUV 1000	26 $\frac{1}{2}$ "
HUV 1250	28 $\frac{1}{2}$ "
XUV 1000	26 $\frac{1}{2}$ "
XUV 1250	28 $\frac{1}{2}$ "

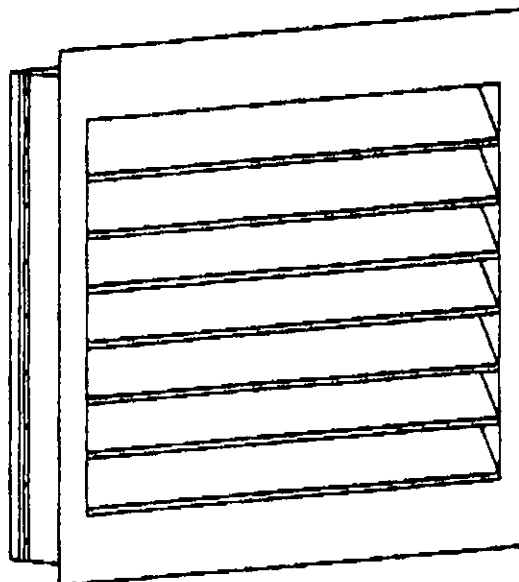


UNIT VENTILATOR MODEL	WIDTH OF WALL OPENING A	WIDTH OF EXTERNAL FLANGE B	WIDTH OF INTERNAL COLLAR C	HEIGHT OF WALL OPENING D
VUV1000, RUV1000	17 1/2"	19"	17"	H + 16 1/2"
VUV1250, RUV1250	19 1/2"	21"	19"	H + 16 1/2"
HUV1000, HUV1250	19 1/2"	21"	19"	H + 16 1/2"
XUV1000, XUV1250	19 1/2"	21"	19"	H + 16 1/2"



1. Dimension 'H' is the height of the separate return air plenum.
2. Dimensions given include 1/4" recommended minimum clearance around the intake louver.
3. The intake louver is attached to the face of the wall using screws through the flange. Apply caulk for weatherproofing.

INSTALLATION OF THE SP2 OUTDOOR AIR INTAKE LOUVRE

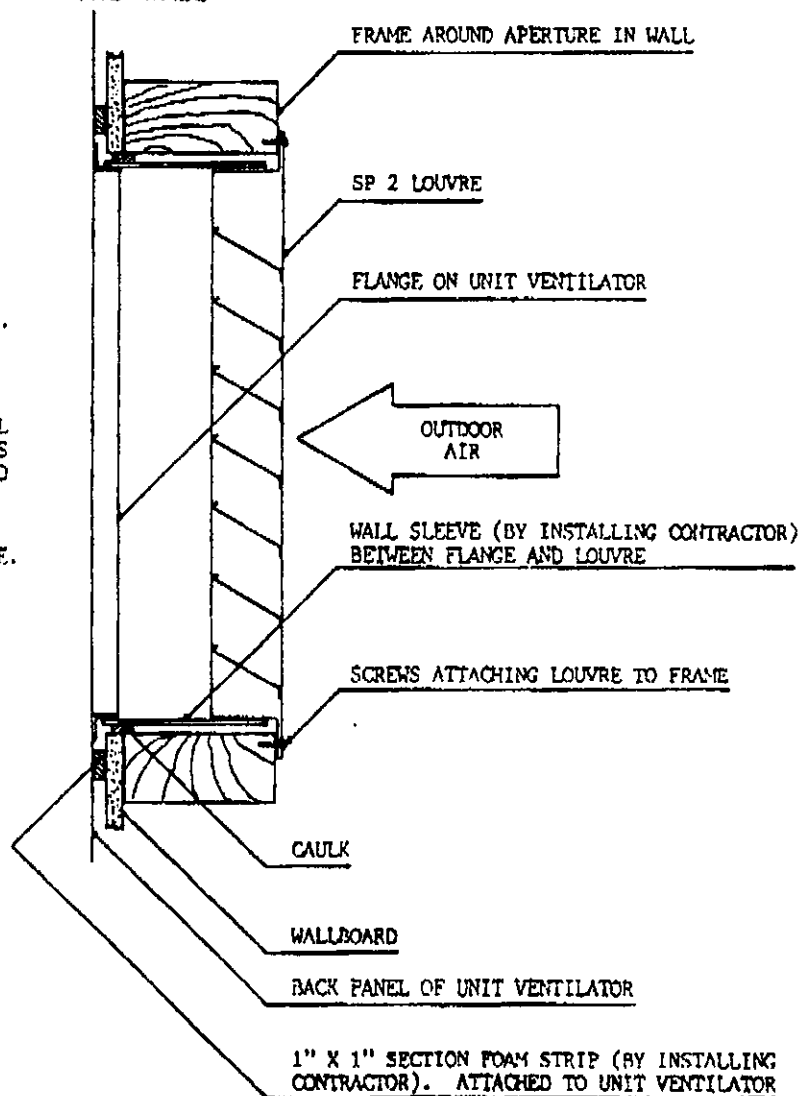


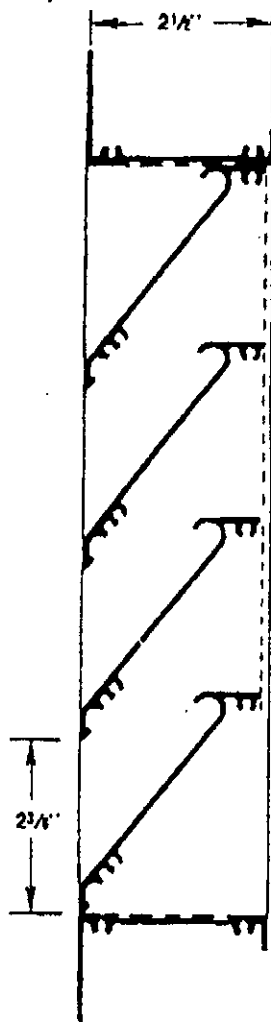
EXTERNAL VIEW OF
THE SP2 LOUVRE

INSTALLATION SEQUENCE

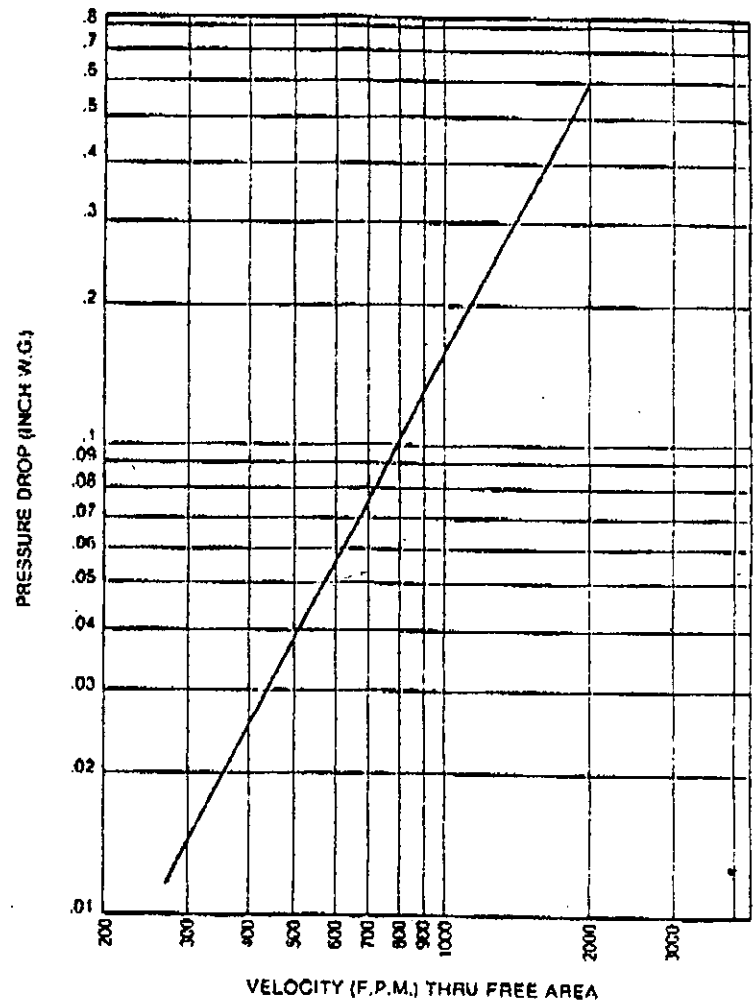
1. ATTACH FOAM STRIP AROUND OUTSIDE OF FLANGE. ATTACH STRIP TO UNIT VENTILATOR BACK PANEL USING ADHESIVE. THE STRIP MUST BE FITTED ON ALL FOUR SIDES OF THE INTAKE APERTURE IN THE UNIT.
2. MOVE UNIT VENTILATOR INTO POSITION AND ALIGN THE UNIT VERTICALLY USING A PLUMB-LINE. SHIM THE BASE IF NECESSARY.
3. PUSH THE UNIT SO THAT THE FLANGE PROTRUDES INTO THE WALL APERTURE AND THE FOAM STRIP IS COMPRESSED AGAINST THE WALL TO FORM A SEAL.
4. CAULK BETWEEN FLANGE AND FRAME.
5. SLIP THE WALL SLEEVE OVER THE FLANGE AND SECURE THE SCREWS IF NECESSARY.
6. INSERT THE SP 2 LOUVRE INTO THE WALL SLEEVE.
7. DRILL THE OUTSIDE FLANGE OF LOUVRE AND SCREW THE LOUVRE TO THE WALL FRAME.

SECTION THROUGH THE WALL





PRESSURE DROP



SPECIFICATIONS

- Extruded Aluminum 6063-T52 Alloy .062
- 2 1/2" Deep Frame.
- 1 1/2" Flange on Flanged Louver.
- 1/2" Flange on Standard Channel Louver.
- Stormproof Blade designed for minimum water penetration.
- 1/4" Birdscreen when indicated.
- Louvers will be fabricated 1/8" smaller unless otherwise specified.

FREE AREA (SQ. FT.)

HEIGHT	WIDTH							
	18"	24"	30"	36"	42"	48"	54"	60"
18"	.82	.83	1.04	1.25	1.46	1.67	1.88	2.08
24"	.88	1.17	1.48	1.75	2.04	2.33	2.62	2.92
36"	1.62	2.17	2.71	3.25	3.79	4.33	4.88	5.42
48"	2.25	3.00	3.75	4.50	5.25	6.00	6.75	7.50
60"	2.88	3.83	4.79	5.75	6.71	7.67	8.62	9.58
72"	3.50	4.67	5.83	7.00	8.17	9.33	10.5	11.6
84"	4.12	5.50	6.88	8.25	9.62	11.0	12.3	13.7
96"	4.75	6.33	7.92	9.50	11.0	12.6	14.2	15.8



LOUVER SP-2

Electrical Data

UNIT VENTILATOR MODEL	ELECTRIC HEATER kW	60 Hz 1 ph 208 v		60 Hz 1 ph 240 v		60 Hz 3 ph 208 v		60 Hz 3 ph 240 v	
		MAX. LINE CURRENT AMPS.	MAX. CIRC. BREAKER	MAX. LINE CURRENT AMPS.	MAX. CIRC. BREAKER	MAX. LINE CURRENT AMPS.	MAX. CIRC. BREAKER	MAX. LINE CURRENT AMPS.	MAX. CIRC. BREAKER
VUV 1000	10	50.2	70 A	44.0	60 A	29.7	40 A	26.3	40 A
	12	59.9	100 A	52.4	70 A	35.2	50 A	31.0	40 A
	15	74.2	100 A	64.9	100 A	43.5	60 A	38.2	50 A
VUV 1250	12	60.1	100 A	52.7	70 A	35.5	50 A	31.3	40 A
	15	74.5	100 A	65.2	100 A	43.8	60 A	38.5	50 A
	18	88.9	125 A	77.7	100 A	52.0	70 A	45.7	60 A
RUV 1000	10	50.2	70 A	44.0	60 A	29.7	40 A	26.3	40 A
	12	59.9	100 A	52.4	70 A	35.2	50 A	31.0	40 A
	15	74.2	100 A	64.9	100 A	43.5	60 A	38.2	50 A

NOTES: 1. ALL ELECTRIC HEATERS ARE FOUR-STAGE

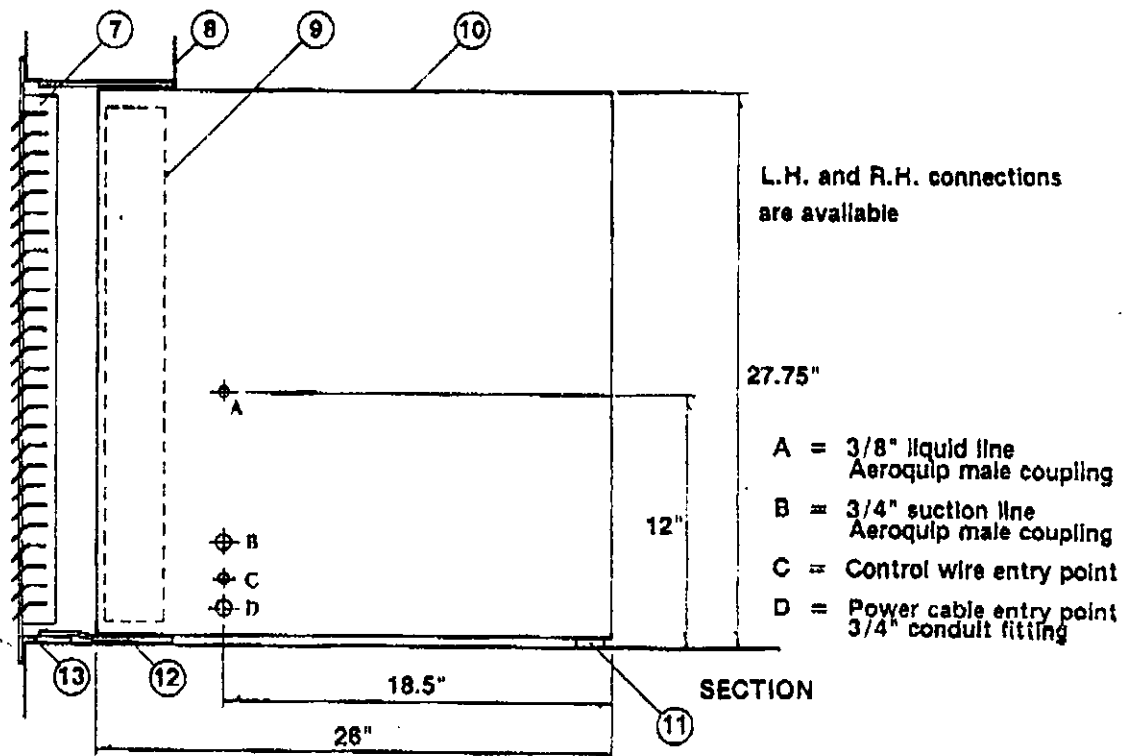
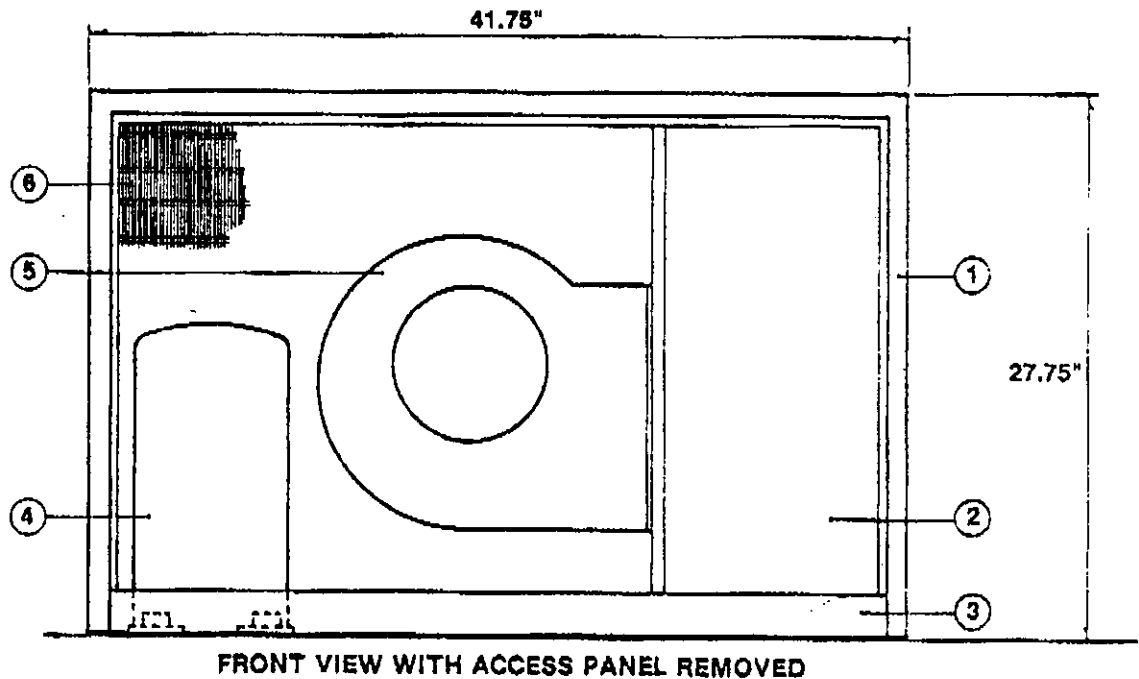
2. DATA FOR MODEL RUV 1000 EXCLUDES THE CONDENSING UNIT

UNIT VENTILATOR MODEL	ELECTRIC HEATER kW	60 Hz 1 ph 115 v	
		MAX. LINE CURRENT AMPS.	MAX. CIRC. BREAKER
HUV 1000	0	3.0	15 A
HUV 1250	0	4.4	15 A

UNIT VENTILATOR MODEL	ELECTRIC HEATER kW	60 Hz 1 ph 115 v	
		MAX. LINE CURRENT AMPS.	MAX. CIRC. BREAKER
XUV 1000	0	3.0	15 A
XUV 1250	0	4.4	15 A

may be
208 v

TEMSPEC MODEL ISC CONDENSING UNIT.
CLASSROOM INTERIOR INSTALLATION.



- | | |
|--|---|
| 1. Soundproofed, insulated cabinet | 7. Heavy duty exterior louver/security grille |
| 2. Electrical section at front, condensing fan discharge behind. | 8. Exterior wall |
| 3. Galvanized drip pan | 9. Condensing coil location |
| 4. Compressor, with anti-vibration mounts | 10. Condensing unit cabinet |
| 5. Condensing fan and motor | 11. Shim |
| 6. Condensing coil at rear | 12. Wall sleeve |
| | 13. Sill plate |

ELECTRICAL DATA FOR CONDENSING UNITS



CONDENSING UNIT MODEL NUMBER	VOLTAGE V/ph/Hz	COMPRESSOR		CONDENSING FAN MOTOR Amps	MAXIMUM CIRCUIT BREAKER Amps
		Rated Load Amps	Locked Rotor Amps		
ISC 24	208/1/60	11.5	66	3.4	30
	230/1/60	10.4	60	3.1	30
ISC 30	208/1/60	15.0	100	5.3	30
	230/1/60	13.6	90	4.8	30
ISC 36	208/1/60	17.5	97	5.3	30
	230/1/60	15.8	88	4.8	30
KSSD 24	208/1/60	12.2	65	1.7	30
	230/1/60	11.0	59	1.5	30
KSSD 32	208/1/60	17.3	84	1.7	30
	230/1/60	15.6	76	1.5	30
KSSD 36	208/1/60	20.0	93	1.7	30
	230/1/60	18.0	84	1.5	30

ISC 24	208/3/60	7.3	55	3.4 *	30
	230/3/60	6.6	50	3.1 *	30
ISC 30	208/3/60	9.5	79	5.3 *	30
	230/3/60	8.6	71	4.8 *	30
ISC 36	208/3/60	10.8	72	5.3 *	30
	230/3/60	9.7	65	4.8 *	30

* FAN MOTOR IS SINGLE PHASE

10.8
5.3
16.1

TYPICAL INSTALLATION OF THE TEMSPEC INTERNAL CONDENSING UNIT
THE METHOD APPLIES TO MODELS ISC 24, ISC 30 AND ISC 36

- 1) Frame an opening in the exterior wall at floor level with inside dimensions of 42" wide x 28" high.
- 2) Fit and secure a galvanized steel wall sleeve to both sides and the top of the wall opening.
- 3) Attach the Sill Plate to the floor of the wall opening and caulk all edges of the Sill Plate and the wall sleeve.
- 4) From the inside of the room, slide the ISC Internal Condensing Unit into the wall opening, so that it penetrates the opening to a maximum of 6 1/2" or to within 2 1/2" of the outside face, whichever occurs first. On very thick walls it may be necessary to install a wider sill plate in order to ensure proper drainage from the unit over the sill plate and through the underside of the wall louver. The quick connect fittings and electrical cable entry points on the cabinet exterior must not be obstructed by millwork, bookshelves etc.
- 5) The unit is designed to have a 1/4" slope toward the wall to ensure drainage of any moisture which penetrates the wall louver. This slope should be checked and the unit shimmed if necessary. Shimming, if required, should be placed under the three rubber grommets located under the front face of the unit.
- 6) Once the ISC is correctly located and sloped, remove the front access panel and insert three #10 screws through the centre of each of the three rubber grommets into the floor. The purpose of these screws is to maintain lateral position only, do not tighten them against the rubber grommet or they will transmit vibration to the floor.
- 7) Remove the shipping restraint bar between the top of the compressor and the left-front of the unit.
- 8) In order to protect the paint finish on the ISC, use the cardboard packing material to cover it until final clean-up.
- 9) On right hand models fish the power cable through the 3/4" conduit and connect to the terminal block inside the unit. On left hand models, conduit is not necessary and the power cable is fed through the left side of the unit and across the bottom of the unit to the terminal block inside the electrical compartment. Ensure that the supply voltage is the same as that stated on the label on the control panel cover and that the circuit breaker is correctly sized (30 Amp).

- 10) Fish the control cable through the 1/2" conduit and connect to the terminal block inside the unit.
- 11) Caulk around the interface of the unit with the wall and the floor.
- 12) Install the wall louver in the outside opening. The wall louver is designed to fit between the short vertical sides on the sill plate and 1/2" in front of the ISC. If greater than 1" of space is left between the unit and the wall louver a vertical divider should be fitted on the outside face of the unit to separate the intake and exhaust air streams.
- 13) Caulk the perimeter of the wall louver.
- 14) On units supplied uncharged, with sweat fittings only, it may be advisable to install a dryer.
- 15) For units which are precharged and have quick-connect fittings, a pre-charged lineset should be used to connect the ISC condensing unit to the evaporator coil in the unit ventilator. A refrigeration mechanic should make the refrigerant line connections and check the refrigerant charge.
- 16) Check the refrigerant charge as follows:
 - 16.1 Measure the outdoor air temperature (°F) and add to this the temperature shown in Table "B" of the Temspec R-22 Temperature-Pressure Chart.
 - 16.2 Read the required R-22 pressure from Table "A" on the chart.
 - 16.3 Fit a gauge manifold to the service ports on the lineset.
 - 16.4 With the compressor running check the refrigerant discharge pressure. If the pressure is lower than the value derived from the chart (Table "A"), add Freon by opening the low side hand valve. Close the valve as the required pressure is attained. If the pressure is higher than required, release Freon from the system using an approved reclaim device.

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1. INTRODUCTION

This "Scope of Work" document defines the technical requirements, and describes the electrical installation needed to power HVAC equipment, computer terminals and general classroom lighting and receptacles for three new classrooms and peripheral areas.

2. SCOPE

Each new classroom will receive a vertical HVAC Unit and Condensing Unit. The Contractor shall provide power wiring to each in accordance with the drawings and manufacturer's specifications. The Contractor shall work closely with the other trades to achieve an efficient installation.

The fluorescent lighting and general use receptacles shall be installed per drawings. All classroom areas shall have dimming circuits installed. Where shown, corridor areas shall have key-operated switching.

The computer classrooms shall have power poles and surface mounted multi-outlet strips installed, both with surge suppression and isolated grounding features.

A new isolation transformer shall be installed with shielding, filtering, surge suppression, and non-linear load capabilities. This transformer shall feed a main distribution panelboard and, in turn, a panelboard at each classroom. All new panelboards shall be suitable for non-linear loads and isolated grounding.

An existing panelboard shall power new HVAC equipment and where indicative, shop equipment and lighting.

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3. GENERAL NOTES

3.1. GENERAL REQUIREMENTS

3.1.1. The electrical installation shall comply with the current requirements of the local Electrical Inspection Authority, the National Fire Protection Association, all local and State regulatory agencies, and any utility company providing service. In the event of conflict in code requirements, the more stringent shall apply. All required permits and certifications shall be obtained and paid for by the Electrical Contractor.

3.1.2. All material, equipment and practices shall conform to the current standards of organizations such as, but not limited to the following:

3.1.2.1. National Electrical Manufacturer's Association (NEMA)

3.1.2.2. Insulated Cable Engineers Association (ICEA)

3.1.2.3. Underwriter's Laboratories (U.L.)

3.1.2.4. American National Standards Institute (ANSI)

3.1.2.5. Institute of Electrical & Electronics Engineers (IEEE)

3.1.2.6. American Society for Testing Materials (ASTM)

3.1.2.7. Federal Specifications (U.S. Dept. of Commerce)

3.1.2.8. Illuminating Engineering Society (IES)

3.1.2.9. Occupational Safety & Health Administration (OSHA)

3.1.2.10. National Electric Safety Code (NESC)

3.1.2.11. Instrument Society of America (ISA)

3.1.2.12. Factory Mutual (FM)

3.1.2.13. Joint Industry Council (JIC)

3.1.3. All equipment shall be identified with aluminum tags or embossed plastic labels. Receptacles supplying computer terminals shall be labeled "Computer Use Only".

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3.1.4. Contractor shall furnish all material and equipment required for the installation. Said material and equipment shall be new, of domestic manufacture and shall be subject to acceptance by Owner.

3.1.5. Contractor shall completely assemble, connect, install, adjust and test for proper operation, all material and equipment required for the installation in accordance with the manufacturer's and Owner's instructions.

3.1.6. Contractor shall be responsible for performing all work required to provide a complete, functional and safe installation.

3.1.7. Contractor shall supply "as-built" drawings to Owner upon project completion.

3.2. WIRE AND CABLE

3.2.1. For general use in power, control, and lighting circuits rated 600 volts or less, the wire shall be single-conductor copper, type THHN-THWN. The jacket thickness shall conform to ICEA Standards.

3.2.2. All conductors shall be of size and insulation which comply with the current carrying capacities established by the National Electric Code. Feeders and sub feeders shall have a current carrying capacity at least 1 and 1/2 times the initial connected load.

3.2.3. Minimum size wire shall be No.12 AWG except that wire for fixtures and control wiring, and as noted, may be No.14 AWG. Instrument wiring excepted.

3.2.4. Wire No.14 AWG and larger shall be stranded.

3.2.5. A full capacity green ground conductor shall be installed in each conduit for equipment grounding and bonding. Where indicated on the drawings, isolated grounding conductors shall be installed and connected to ground only at the source of the separately derived system(i.e. the shield of the isolation transformer). Such conductors shall be green with a yellow stripe.

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3.3. CONDUIT AND FITTINGS

3.3.1. All conduits for feeders, sub feeders, branch circuits, and instrument wiring should preferably be installed overhead. In cases where underground conduits are necessary, except instrument wiring, they shall be installed at least 18 inches below grade and be encased in concrete having at least 3 inches of cover. Encasing concrete shall be colored with a red pigment and shall be located at least 3 inches distant from any adjacent concrete except where the conduit and its encasing concrete pierce area paving or building floors.

3.3.2. Overhead conduit above hung ceiling shall be rigid metal conduit, IMC or EMT. Underground conduit shall be PVC with matching cemented couplings. All conduit joints shall be tight.

3.3.3. Rigid steel conduit shall be employed where routing requires exposure below hung ceiling unless otherwise noted on drawings for branch circuit wiring(i.e. surface raceway,etc.). Branch circuits may be run in type "MC" cable where so indicated. Flexible connections shall utilize "MC" cable or flexible metal conduit with fittings listed for grounding.

3.3.4. In locations where excessive corrosion is expected, corrosion-resistant conduit material(red brass, aluminum or steel coated with polyethylene or PVC) may be used. Conduit system must be suitable for area classification.

3.3.5. Conduits shall clear piping and other objects having a temperature in excess of 150°F by at least 12 inches. Where practical, conduit shall not be located beneath piping running parallel to the conduit.

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3.3.6. Unless otherwise noted on drawings, the minimum size conduit shall be 3/4 inch except for connections to devices having only 1/2 inch cast conduit openings.

3.3.7. The conduit system, including junction boxes and splice boxes, shall be furnished with drain and breather fittings. The conduit system shall be designed to slope towards the drain fittings to prevent the accumulation of condensate.

3.3.8. Sealing fittings shall be installed and poured in the conduit system entering enclosure housing devices with arcing contacts, where required, by the area classification or for the prevention of moisture accumulation.

3.3.9. Conduit ends shall be cut square and properly threaded and reamed. Running threads are not permitted. Parallel conduits shall be run straight and true with offsets uniform and symmetrical.

3.4. SUPPORTS

3.4.1. Conduit and cable shall be supported at intervals not exceeding that specified by the National Electrical Code.

3.4.2. Cast galvanized Korn-type clamps, one-hole straps, beam clamps and, where applicable, strut-type straps are required devices for supporting conduit. Hanger rod shall be galvanized.

3.4.3. Conduit shall be supported independent of lock nuts and bushings.

3.4.4. Galvanized strut systems are acceptable.

3.4.5. Mounting hardware(i.e. bolts, nuts, washers, etc.) shall be stainless steel sized to match the equipment secured.

3.4.6. All wall and roof penetrations, fire-stops, etc., shall be made and sealed with durable materials compatible with the type of penetration.

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3.4.7. Contractor shall be responsible for structural steel, concrete, fabrication and installation of required supports for conduits and equipment necessary for the installation.

3.4.8. All structural steel shall be hot-dipped galvanized.

3.4.9. Conduit shall not be used to support other installations.

3.4.10. Unless indicated in the plans, conduit shall not be supported from piping.

3.5. INSPECTION AND TESTING

3.5.1. All equipment and wire must be physically inspected for obvious defects or damage during the construction phase of the work.

3.5.2. All equipment shall be tested per manufacturer's operation and test procedures prior to being placed in operation.

3.5.3. All wiring and cables shall be tested in accordance with applicable ICEA and NEMA Standards after installation.

3.5.4. Owner shall be notified, in writing, a minimum of three days prior to testing, and reserves the right to witness all tests.

3.5.5. Contractor shall provide all instruments and personnel required for testing and shall maintain a log of all measurements. A copy of the log shall be submitted to the Owner for approval prior to energizing and circuits or equipment.

3.5.6. If Equipment must be dried to meet required insulation resistance values, Owner must approve drying procedure before proceeding with the drying operation.

4. MAJOR EQUIPMENT

The following equipment/devices are to be provided and installed by the Contractor in accordance with the drawings. Substitutions, which are equal or better in

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form, fit and function, may be permitted subject to the Engineer's approval. This listing is not all-inclusive, and the Contractor shall furnish and install all material and equipment necessary to produce a fully operational electrical distribution system as indicated by the drawings and specifications as interpreted by the Architect and Owner.

ITEM	DESCRIPTION	MANUFACTURER / CATALOG #
1	2-40W ,120V , RECESSED FLUORESCENT LIGHTING FIXTURE, WITH DIMMING BALLAST AND ENERGY SAVING LAMPS, (2X2')	CRESCENT # 22VGP240A12DIM120
2	2-40W, 120V, RECESSED FLUORESCENT LIGHTING FIXTURE, WITH ENERGY SAVING LAMPS, (2X2')	CRESCENT # 22VGP240A12ESB120
3	4-40W ,120V , RECESSED FLUORESCENT LIGHTING FIXTURE, WITH DIMMING BALLAST AND ENERGY SAVING LAMPS, (2X4')	CRESCENT # 24GP440A12DIM120
4	3-WAY SWITCH AND DIMMER FOR FLUORESCENT LIGHTING (120V)	MOMENTUM # MP2000F
5	3-WAY REMOTE SWITCH FOR FLUORESCENT LIGHTING (120V)	MOMENTUM # MPR-3
6	20A, 120V, 1 POLE TOGGLE SWITCH	LEVITON # 1121-2
7	20A, 120V, 3-WAY LOCKING SWITCH	LEVITON # 1123-2L
8	15A, 125V, NEMA 5-15R DUPLEX RECEPTACLE	HUBBELL #5252
9	POWER POLE WITH SURGE SUPPRESSION AND ISOLATED GROUND, 20A, 125V	HUBBELL PAS-1
10	6 FT PLUGTRACK WITH SURGE SUPPRESSION AND ISOLATED GROUND, 20A, 125V	HUBBELL/KELLEMS # PT6112S
11	WALLTRAK SURFACE RACEWAY	HUBBELL/KELLEMS # WT1BC5
12	70A, 3 POLE, 480V CIRCUIT BREAKER (NEMA 4)	SQUARE D #FAL34070/FA100DS
13	175A, 3 POLE, 480V CIRCUIT BREAKER (NEMA 4)	SQUARE D KAL36175/KA225DS

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14	45 KVA ISOLATION TRANSFORMER, 480/120-208V, WITH SURGE SUPPRESSION , SHIELDED, FILTERED FOR NON-LINEAR LOADS	SQUARE D # 45T3HISFILNL
15	208/120V, 3Ø, 4WIRE, 42 CIRCUIT PANEL, WITH 175A MAIN BREAKER. SUITABLE FOR NON-LINEAR LOADS, ISOLATED GROUND, SURFACE MOUNTING AND LOCKABLE COVER	SQUARE D # NQOD442L225NL
16	208/120V, 3Ø, 4 WIRE, 30 CIRCUIT PANEL WITH 60A MAIN BREAKER. SUITABLE FOR NON-LINEAR LOAD, ISOLATED GROUND, LOCKABLE COVER, FLUSH MOUNT	SQUARE D #NQOD430M100NL

5. ATTACHMENTS

Manufacturer's Information

Ordering Data

crescent
 LIGHTING

 a GENLITE company
 Baskington, New Jersey 08007
 609-546-5500

Flush White Steel	Regressed White Extruded Aluminum	Regressed Black Extruded Aluminum	Nominal Size	Lamps Watts
14GR240A12	14GRW240A12	14GRB240A12	1 x 4	2/40
22UGP240A12	22UGRW240A12	22UGRB240A12	2 x 2	2/40U
22GP240A12	22GRW240A12	22GRB240A12	2 x 2	4/20
24GP240A12	24GRW240A12	24GRB240A12	2 x 4	2/40
24GP340A12	24GRW340A12	24GRB340A12	2 x 4	3/40
24GP440A12	24GRW440A12	24GRB440A12	2 x 4	4/40

*Standard shielding is acrylic bottom 1/2"

Lighting Calculation Guide

Crescent Fixture	Approximate Area of Room (Square Feet):									Maximum spacing-to- mtg. height ratio
	120	200	300	400	600	800	1000	2000	over 2000 per 1000	
	Number of fixtures required for 100 footcandles*									
14GP240A12	7	10	14	18	25	32	39	73	35	1.2
22UGP240A12	7	10	13	17	23	30	36	87	32	1.3
24GP240A12	6	8	12	16	20	30	36	72	32	1.2
24GP340A12	4	5	8	11	14	20	24	48	22	1.3
24GP440A12	3	4	6	8	10	15	18	36	16	1.3

*If lower or higher footcandle levels are desired, add or subtract fixtures proportionately.

Three-Lamp 2x4 Photometric Data

Coefficients of Utilization
Floor Cavity Reflectance 0.20

RC	80%			50%			10%		
	50	30	10	50	30	10	50	30	10
1	78	75	73	73	71	69	68	66	65
2	69	65	62	66	62	60	61	59	57
3	62	57	53	59	55	52	56	53	50
4	56	51	46	53	49	45	50	47	44
5	50	44	40	48	43	39	45	42	39
6	46	40	35	44	39	35	41	37	34
7	41	35	31	39	34	31	38	33	30
8	37	31	27	36	30	27	34	30	26
9	33	27	23	32	27	23	30	26	23
10	30	25	21	29	24	21	28	24	20

Four-Lamp 2x4 Photometric Data

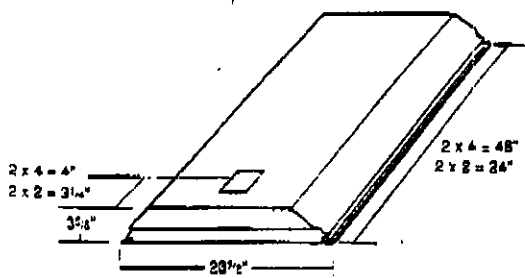
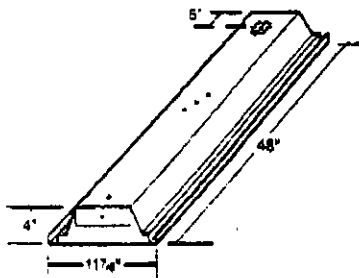
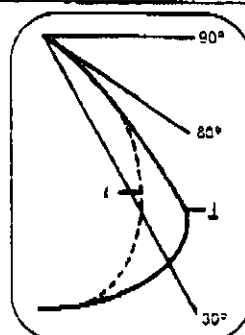
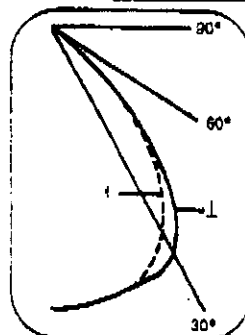
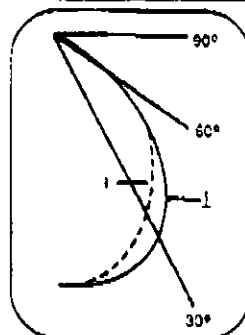
Coefficients of Utilization
Floor Cavity Reflectance 0.20

RC	80%			50%			10%		
	50	30	10	50	30	10	50	30	10
1	78	75	73	73	71	70	68	67	66
2	70	66	62	66	63	60	62	59	57
3	63	58	54	60	56	52	58	53	51
4	57	51	47	54	49	46	51	47	45
5	51	45	41	49	44	40	46	42	39
6	46	40	36	44	39	35	42	38	35
7	42	36	31	40	35	31	38	34	31
8	37	32	27	36	31	27	34	30	27
9	34	28	24	32	27	24	31	27	23
10	31	25	21	29	24	21	28	24	21

Two-Lamp 2x4 Photometric Data

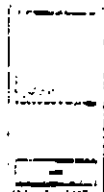
Coefficients of Utilization
Floor Cavity Reflectance 0.20

RC	80%			50%			10%		
	50	30	10	50	30	10	50	30	10
1	81	78	76	76	74	72	71	69	68
2	73	68	65	69	65	63	64	62	60
3	65	60	56	62	58	55	58	55	53
4	58	53	49	56	51	48	53	49	47
5	53	47	42	50	45	42	48	44	41
6	48	42	37	46	41	37	43	39	36
7	43	37	33	41	36	32	39	35	32
8	39	33	28	37	32	28	35	31	28
9	35	29	25	33	28	24	32	27	24
10	32	26	22	30	25	22	29	25	21

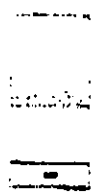

 All KQs are 7/8" dia.
 Unless otherwise specified


Neptune Momentum

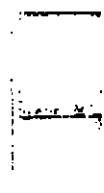
Thin-Profile, High Wattage Slide Dimmers 600W - 1000W - 1500W - 2000W



Neptune Momentum
Preset
600, 1000W
525QE



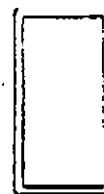
Neptune Momentum Preset
1500, 2000W
625QE



Neptune Momentum
Slide
600, 1000W



Neptune Momentum Slide
1500, 2000W



Neptune Momentum
Preset Remote,
Neptune Momentum
Matching Switch



Wallbox Labelling
System

NEPTUNE MOMENTUM PRESET SLIDES

Designer style 600 - 2000W preset slide wallbox dimmers with on/off pushbutton.

Sleek, thin-profile design.

Red LED on preset button glows in the dark for easy location.

Integral knob has extended travel for full range dimming control.

"Soft Start" gently turns lights on to preserve lamp life.

Product Series	Item Number
----------------	-------------

Neptune Momentum Preset Slides

MP600-
MP1000-
MP1500-
MP2000-

MP600VA-
MP1000VA-
MP1500VA-
MP2000VA-

MP525QE-
MP625QE-

MP600F-
MP1000F-
MP1500F-
MP2000F-

Momentum Preset Remotes

MPR-3-

Momentum Slides

M600
M1000
M1500
M2000

M600LV
M1000LV
M1500LV
M2000LV

Momentum Matching Switches

MP-1P-
MP-3P-
MP-4P-

COLOR KEY:

To specify, add Color Suffix to item number: W = White; I = Ivory; BR = Brown.

NOTES:

1. INDUCTIVE (VA) load dimmers are UL Listed to control Incandescent, Low Voltage Incandescent, Neon/Cold Cathode and General Inductive Loads. A neutral connection is required.

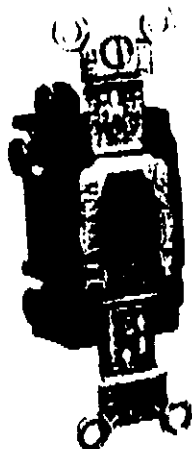
2. QUIET ELECTRONIC (QE) load dimmers are UL Listed to control Low Voltage fixtures with ELECTRONIC SOLID STATE TRANSFORMERS and Incandescent loads. Not for use with Magnetic Low Voltage fixtures. A neutral connection is required.

3. FLUORESCENT (F) load dimmers are UL listed to control Fluorescent fixtures equipped with approved Dimming Ballasts. See Dimmable Ballast chart on page 24. A neutral connection is required.

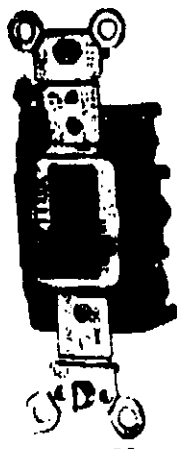
AC QUIET WALL SWITCHES (continued)

LEVITON C.

"D-400"



1222-2L



1221-7PG

20 AMP 120/277V AC
1 HP at 120V, 2 HP at 240V

BACK AND SIDE WIRED

Brown	Ivory	White	Gray	Red	Black	Description
1221-2	1221-2I	1221-2W	1221-2GY	1221-2R	1221-2E	Single Pole Toggle
1221-2L	1221-2IL	—	—	—	—	Single Pole Locking
1222-2	1222-2I	1222-2W	1222-2GY	1222-2R	1222-2E	Double Pole Toggle
1222-2L	1222-2IL	—	—	—	—	Double Pole Locking
1223-2	1223-2I	1223-2W	1223-2GY	1223-2R	1223-2E	3-Way Toggle
1223-2L	1223-2IL	—	—	—	—	3-Way Locking
1224-2	1224-2I	1224-2W	1224-2GY	1224-2R	1224-2E	4-Way Toggle
1224-2L	1224-2IL	—	—	—	—	4-Way Locking

PILOT LIGHT SWITCHES

Clear	Red	Green	Description
1221-PLC	1221-PLR	1221-PLG	Single Pole, 120V
1221-7PC	1221-7PR	1221-7PG	Single Pole, 277V
1222-PLC	1222-PLR	1222-PLG	Double Pole, 120V
1222-7PC	1222-7PR	1222-7PG	Double Pole, 277V
1223-PLC	1223-PLR	1223-PLG	3-Way, 120V

LIGHTED HANDLE SWITCHES

Ivory	Clear	Description
1221-LHI	1221-LHC	Single Pole, 120V
1221-7LI	1221-7LC	Single Pole, 277V
1223-LHI	1223-LHC	3-Way, 120V
1223-7LI	1223-7LC	3-Way, 277V

SIDE WIRED

Brown	Ivory	White	Gray	Red	Description
1121-2	1121-2I	1121-2W	1121-2GY	1121-2R	Single Pole Toggle
1121-2L	—	—	—	—	Single Pole Locking
1122-2	1122-2I	1122-2W	1122-2GY	1122-2R	Double Pole Toggle
1122-2L	—	—	—	—	Double Pole Locking
1123-2	1123-2I	1123-2W	1123-2GY	1123-2R	3-Way Toggle
1123-2L	—	—	—	—	3-Way Locking
1124-2	1124-2I	1124-2W	1124-2GY	1124-2R	4-Way Toggle
1124-2L	—	—	—	—	4-Way Locking

55500

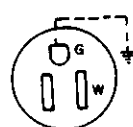
Key for Locking Switch

15 and 20 Ampere, 125 Volts

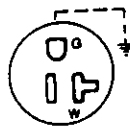
Straight Blade

Single & Duplex Receptacles

■ Compact Heavy Duty Design Duplex Receptacles



NEMA 5-15R
15A 125V



NEMA 5-20R
20A 125V

Description	Catalog Numbers	
Standard duplex, brown, side and back wired	5252	5352
Standard duplex, ivory, side and back wired	5252-I	5352-I
Standard duplex, gray, side and back wired	5252-GRY	5352-GRY
On 4" round cover	5253	•
Standard duplex, brown, side wired only	5242	5342
Standard duplex, ivory, side wired only	5242-I	5342-I
Standard duplex, gray, side wired only	5242-GRY	5342-GRY
Standard duplex, white, side wired only	5242-WHI	5342-WHI

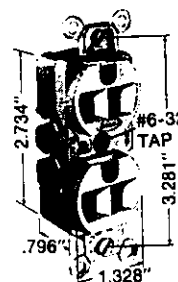
■ Single Receptacles

Standard single, brown, side wired only	5251	5351
Standard single, ivory, side wired only	5251-I	5351-I
Standard single, gray, side wired only	5251-GRY	•
Isolated ground, orange, side wired only	IG-5251Δ	•
On 4" round cover, side wired only	5254	•
Panel mounting on 1 3/4" centers, brown, side wired only	5258	5358
Panel mounting on 1 3/4" centers, ivory, side wired only	5258-I	•

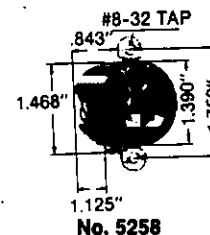
■ Special Combination Duplex Receptacles - Having different configurations in each half

15A 125V		Brown phenolic, 1 feed, 1 return, back/side wired	4792
		Brown phenolic, 2 feeds, 1 return, side wired	4795
15A 125V		Brown phenolic, 2 feeds, 2 returns, side wired	4794
15A 125V		Brown phenolic, 2 circuit, back and side wired	5292
		Same as above except ivory urea	5292-I
15A 250V		Brown phenolic, 2 circuit, side wired	5290
		Same as above except ivory urea	5290-I
20A 125V		Brown phenolic, 2 circuit, back and side wired	5492
		Same as above except ivory urea	5492-I
20A 250V		Brown phenolic, 2 circuit, side wired	5490
		Same as above except ivory urea	5490-I
10A 250V, 15A 125V		Brown phenolic, 2 feeds, 1 return, common ground	7371
		Brown phenolic, 2 feeds, 2 returns, common ground	7372
15A 125V		Note: These devices not listed by Underwriters Lab.	
20A 125V		Brown phenolic, side and back wired	5392
20A 125V		Orange urea, isolated ground	IG-5392Δ

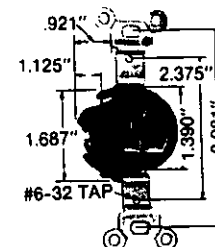
Δ Caution: When receptacle is installed in the box, it is not grounded until a connection is made from the grounding screw to a separate ground path not associated with the electrical system in the building.



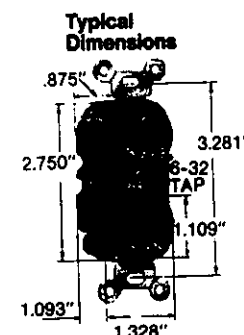
No. 5252/5242



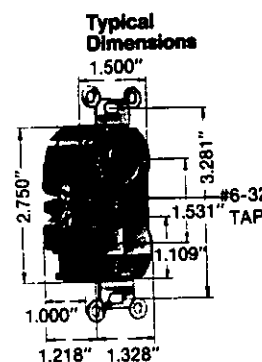
No. 5258



No. 5251



No. 5292,
5490 Series



No. 4792,
7371 Series

Note: These devices will only accept 20A grounding plugs, U.L. and C.S.A. listed

Hubbell Specification Grade Power Pole

Increased Versatility—Wider Range of Applications

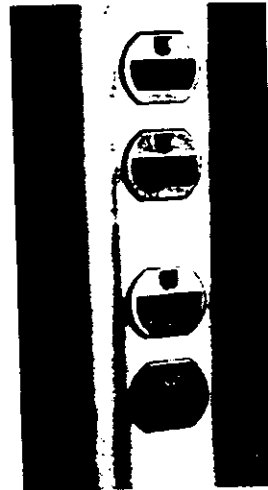
All Hubbell Power Poles contain a divider, allowing a single pole to accommodate power, data, and communication. This feature minimizes the number of poles to be purchased and installed!

■ Isolated Ground

The following power poles contain one Hubbell 5352 and one IG5362, 20 amp duplex receptacles (wired on separate circuits).

Description	Catalog Numbers
*Satin anodized aluminum with isolated ground	PAX-5
*Putty painted aluminum with isolated ground	PPX-5

*Isolated ground versions not available with Hubbell Flexible Wiring interface.



■ Surge Suppression

Through the use of surge suppression receptacles, these poles protect sensitive electronic equipment from transient voltage surges commonly caused by internal switching (turning on/off of air conditioners, heaters, motors) and atmospheric disturbances. Such overvoltages can cause scrambling of data, loss of memory, or even equipment damage.

Description	Finish	Receptacles Included	Catalog Numbers
Surge protection with isolated ground	Satin anodized aluminum	1-20A 125V single I.G./Surge (IG-5361-SP) 2-20A 125V duplex I.G. (IG-5362)	PAS-1*
Surge protection with isolated ground	Putty painted aluminum	1-20A 125V single I.G./Surge (IG-5361-SP) 2-20A 125V duplex I.G. (IG-5362)	PPS-1**

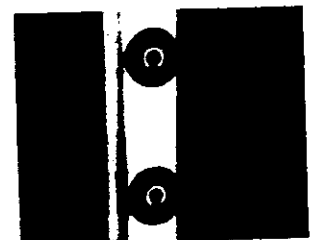


Surge

■ Twist-Lock®

These poles provide needed services to work areas that contain such equipment as copiers and computers. Twist-lock receptacles protect against inadvertent unplugging of equipment.

20A Twist-Lock® with isolated ground	Satin anodized aluminum	2-20A 125V I.G. Twist-Lock (IG-2310A) 1-20A 125V duplex (5352-GRY)	PAX-2L**
30A Twist-Lock with isolated ground	Satin anodized aluminum	2-30A 125V I.G. Twist-Lock (IG-2610A) 1-20A 125V duplex (5352-GRY)	PAX-3L**
20A Twist-Lock with isolated ground	Putty painted aluminum	2-20A 125V I.G. Twist-Lock (IG-2310A) 1-20A 125V duplex (5352-I)	PPX-2L**
30A Twist-Lock with isolated ground	Putty painted aluminum	2-30A 125V I.G. Twist-Lock (IG-2610A) 1-20A 125V duplex (5352-I)	PPX-3L**



Twist-Lock®

■ Blank Poles

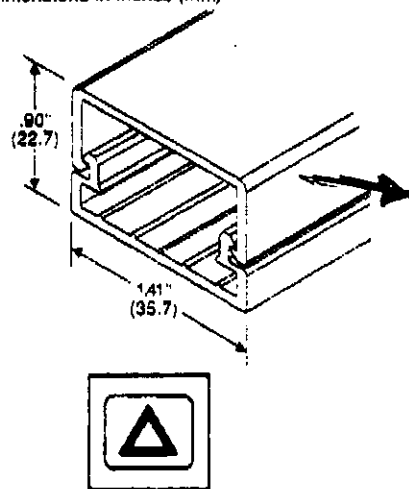
This two-channel pole allows the end user to design his own pole to meet his specific needs. Receptacles and wiring not included.

Blank	Satin anodized aluminum	None	PAX-0
Blank	Putty painted aluminum	None	PPX-0

*All receptacles are wired on a single circuit, therefore allowing surge protection at each outlet.
**Each outlet has its own circuit.

Prewired Raceway PlugTrak Specifications

Dimensions in inches (mm)



Isolated Ground:

All PlugTrak has inherent isolated ground (IG) capability due to its nonmetallic construction. Orange triangle stickers (the IG symbol) are included with all PlugTrak units and may be applied to the receptacle face when wired per instructions.

Base & Cover with prewired duplex receptacles. (All PlugTrak raceway has isolated ground capability.)

Description	Catalog Number	
	20 Amp (NEMA 5-20R)	15 Amp (NEMA 5-15R)
Surge PlugTrak - 5 Foot and 6 Foot Base & Cover		
5 foot 1 surge module and 4 duplexes on 12" centers	PT5112S	PT5112CS
6 foot 1 surge module and 5 duplexes on 12" centers	PT5112S	—
Standard PlugTrak - 5 Foot Base & Cover		
5 foot base & cover: 3-wire single circuit; 5 receptacles on 12" centers	PT5112	PT5112C
5 foot base & cover: 3-wire single circuit; 4 receptacles on 15" centers	PT5115	PT5115C
5 foot base & cover: 3-wire single circuit; 2 receptacles on 30" centers	PT5130	PT5130C
5 foot base & cover: 4-wire two circuit; 5 receptacles on 12" centers	PT5212	PT5212C
5 foot base & cover: 4-wire two circuit; 4 receptacles on 15" centers	PT5215	—
Standard PlugTrak - 6 Foot Base & Cover		
6 foot base & cover: 3-wire single circuit; 6 receptacles on 12" centers	PT6112	PT6112C
6 foot base & cover: 3-wire single circuit; 4 receptacles on 18" centers	PT6118	PT6118C
6 foot base & cover: 3-wire single circuit; 3 receptacles on 24" centers	PT6124	PT6124C
6 foot base & cover: 3-wire single circuit; 2 receptacles on 36" centers	PT6136	—
6 foot base & cover: 4-wire two circuit; 6 receptacles on 12" centers	PT6212	PT6212C
6 foot base & cover: 4-wire two circuit; 4 receptacles on 18" centers	PT6218	—
6 foot base & cover: 4-wire two circuit; 3 receptacles on 24" centers	PT6224	—
60 foot Prewired Receptacle Harness and Raceway (6 ft. bases and covers). Specify: amperage, circuitry, receptacle spacing.	Made to order - Consult factory	

PlugTrak Specifications

Material: U.V. Stabilized PVC

Dimensions: 5'(l) x .90"(w) x 1.41"(h)
6'(l) x .90"(w) x 1.41"(h)

Receptacle Rating: 15 Amp or 20 Amp 125 VAC, surge protection also available

Receptacle Face: Thermoplastic

Flammability: UL 94V0

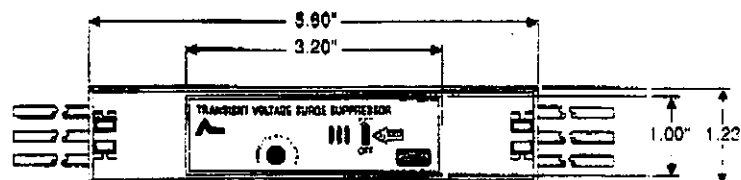
Listings: UL Listed E118395 and E118180; CSA Certified LR87514

NEC Article: 353 and 352B

Duplex Receptacles: NEMA 5-20R and NEMA 5-15R

Wire: #12 AWG copper

Two Circuit Wiring: Every other receptacle



Surge PlugTrak Operation

- LED indicates power on and surge protection functioning.
- Red light blinks on and off if surge not functioning.
- Light goes out if power to device is interrupted.
- Audible alarm "beeps" if surge protection is not functioning. Receptacles will continue to function without surge protection.
- Built-in slide switch deactivates audible alarm.

Surge PlugTrak Specifications

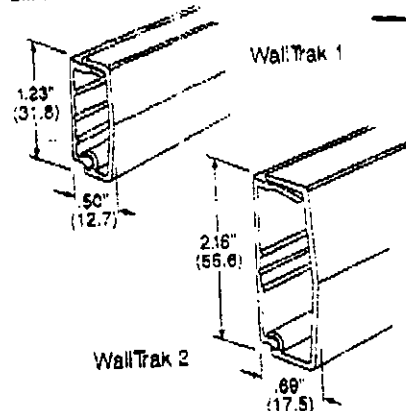
UL Standards	Standard No. 1449 and 498		
CSA Standards	Standard No. C22.2, No. 42 and Electrical Bulletin No. 516		
Input Voltage	125 VAC (60Hz)		
Current maximum branch circuit	20 Amp maximum		
Protection Mode (line, neutral, ground)	Line-to-neutral (normal); line-to-ground (common)		
Metal Oxide Varistors (MOV)	Four 20.0MM		
Transient Suppression			
Peak energy (10 x 1000µ sec)	140 Joules per Mode		
Peak current (8 x 20µ sec)	13,000 Amps		
UL Suppressed Voltage Rating		Line-to-neutral	Line-to-ground
(8 x 20µ 3000 Amps;	Observed	653V	475V
1.2 x 50µ sec. 6000 Volts)	UL	800V	500V
Response time (depends upon the inductive effect of the circuit leads)	Approximately 5 nanoseconds		



PolyTrak Raceway Systems

Single Channel Raceway WallTrak Specifications and Capacities

Dimensions in inches (mm).



Catalog Number	Description
WT1BC5	WallTrak 1 Base and Cover, 5 ft. length
WT1ABC5	WallTrak 1 Adhesive Base and Cover, 5 ft. length
WT2BC5	WallTrak 2 Base and Cover, 5 ft. length
WT2ABC5	WallTrak 2 Adhesive Base and Cover, 5 ft. length

Specifications

Material: U.V. Stabilized PVC

Voltage Rating: 300 VAC Maximum

Flammability: UL 94V0

Listings: UL Listed E118895 (300 lbs. crush resistance and 5 ft./lbs. impact resistance) and #E119190; CSA Certified LR87514

National Electrical Code: Article 352 B

Adhesive: Modified Acrylic Base

WallTrak Capacities (40% Fill)

	Power (THHN/T90 Nylon)			Signal	Voice/Data		RQ69U
	#14 (.105" O.D.)	#12 (.122" O.D.)	#10 (.153" O.D.)	#22 (.035" O.D.)	#22 3-U.T. Pair (.215" O.D.)	#24 4-U.T. Pair (.180" O.D.)	25-Pair (.39" O.D.)
WT1BC5	14	10	6	131	3	5	0
WT2BC5	47	35	22	429	11	16	3

$$\text{Number of conductors} = \frac{\text{raceway cross sectional area}}{\text{cross sectional area of (1) conductor}} \times .40$$

WallTrak Division 16

Specification

Nonmetallic Surface Raceway

The nonmetallic surface raceway system specified herein for branch circuit wiring or data, voice, signal wiring shall be Hubbell WallTrak manufactured by Kellems Division of Hubbell Incorporated or approved equal.

Work shall include furnishing all raceway, and appropriate fittings and boxes to install a nonmetallic surface raceway system as indicated on the electrical drawings and described in this section. Installer shall comply fully with the manufacturer's instructions, and with electrical and safety codes.

The raceway shall be a two-piece design with a base and a snap-on cover. The cover shall be assembled to the base with a locking ninge which creates a V-shaped trough to hold wires in place during installation and to provide access to conductors.

Raceway shall have a .06" wall and be provided in 5 ft. lengths. It shall be approximately 1.23" wide and .50" deep for series WallTrak (WT1) and 2.16" wide and .69" deep for series WallTrak 2 (WT2).

Both base and cover are to be manufactured of rigid PVC compound. The base shall have a smooth texture, office white in color; the cover, a light pebble texture, office white in color.

Raceway base and cover shall be designed as either WT1BC5 (WallTrak 1) or WT2BC5 (WallTrak 2).

A full complement of nonmetallic fittings must be available, including but not limited to 90° elbows, tees, conduit adapters, splice covers, end caps, and profile transition adapters. They shall be made of office white rigid PVC material to match color of raceway. Hubbell "WT1" series (WallTrak 1) or "WT2" series (WallTrak 2).

Device boxes shall include one gang low profile (1.13" deep), one gang standard (1.63" deep), one gang deep (1.91" deep), two gang deep (1.91" deep), and a 5.31" round light fixture box (1.05" deep). Each box shall have the capability of accepting either WallTrak 1 or WallTrak 2 raceway profiles. Hubbell "WT12" series.

Face plates shall be nonmetallic Hubbell "KP" series to match color of raceway and fit flush to device boxes.

The raceway and all system components must be UL Listed and exhibit nonflammable self-extinguishing characteristics tested to comparable specifications of UL 94V0.

Harmonics & Non-Linear Loads

Edin Harmonic
Third Harmonic
Fundamental Harmonic
Third Harmonic
Additive Currents on Neutral

Third Harmonic

Third Harmonic
Fundamental Harmonic
Edin Harmonic

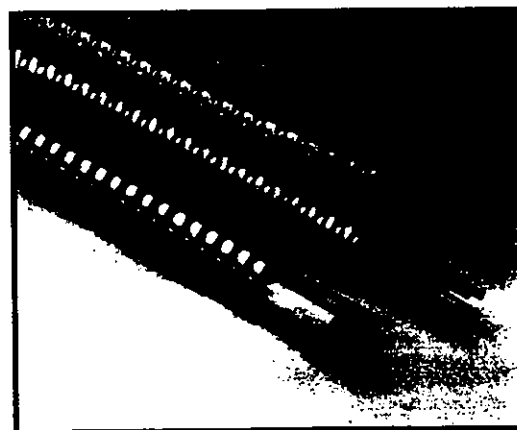
Non-linear loads can produce additive, third order harmonic currents which may create overloaded neutral conductors.

- Neutrals for harmonic currents
 - Separate neutral per phase or
 - Single, oversized neutral
- Reduces costly labor and errors of multi-neutral raceway makeups
- Cables for non-linear switching loads - computers and other electronic equipment
- Designed for additive currents on neutral
- Great for new construction and rewiring
- U.L. listed and labeled per Std. 1569-Type MC Cable
- Complies with NEC Articles 334 and 645
- Two-hour fire rated per UL Fire Wall Penetration Test, UL 1479
- Available from stock in sizes 12 and 10*

*Other cable designs with any combination of phase conductors, neutral conductors, and ground conductors to meet specific design requirements are available upon request.

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Super Neutral Cable®



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CIRCLE 109 ON READER SERVICE CARD

NOOD 240Vas Max.**Main Lug Interiors — Accepts Plug-On and Bolt-On Breakers**

Main Lug Interiors — Accepts Plug-On and Bolt-On Breakers														
Max. No. of One Pole COB Breakers	Main Rating	Total Price Interior Front and Enclosure		Main Lugs & Interior Only (Order Branch Circuit Breakers Separately)		Type 1 Enclosure				Type 3R, 3S, 5, 12 Enclosure†				Height (in.)
						Box 20"W x 5 1/4"D		MONO-FLAT Front*		Enclosure 20"W x 6 1/4"D		Interior Trim Kit		
		Type	Type 3R, 3S, 5, 12	Catalog No.®	Price	Catalog No.	Price	Catalog No.	Price	Catalog No.	Price	Catalog No.	Price	
20" Wide Cabinet — 3 Phase 4 Wire														
30 30	100	\$1081. 1138.	\$1846. 1903.	NOOD430L100NL NOOD430L100CUNL	\$ 803. 860.	MH26 MH26	\$ 68. 68.	MHC26 () MHC26 ()	\$223. 223.	MH26WP MH26WP	\$ 967. 967.	MH26TK MH26TK	\$ 78. 78.	28 28
42 42	225	1332. 1399.	2083. 2150.	NOOD442L225NL NOOD442L225CUNL	1052. 1069.	MH38 MH38	56. 56.	MHC35 () MHC35 ()	344. 244.	MH35WP MH35WP	967. 967.	MH35TK MH35TK	84. 84.	35 35
42 42	400	1842. 1916.	2769. 2769.	NOOD442L400NL NOOD442L400CUNL	1488. 1542.	MH53 MH53	56. 56.	MHC53V () MHC53V ()	316. 316.	Use Cu MH53WP	1147. 1147.	Use Cu MH53TK	100. 100.	53 53

Main Circuit Breaker Interiors

Main Circuit Breaker Interiors										Type 1 Enclosure				Type 3R, 3S, 5, 12 Enclosure†				Height (in.)
Max. No. of One Pole COB Breakers	Main Rating	Total Price Interior, Front, Box and Adapter Kit		Main Breakers Adapter Kit		Main Lugs & Interior Only (Order Branch Circuit Breakers Separately)		Box 20"W x 5 1/4" D.		MONO-FLAT Front*		Enclosure 20"W x 6 1/4"D		Interior Trim Kit				
		Type 1	Type 3R, 3S, 5, 12	Catalog No.	Price	Catalog No.®	Price	Catalog No.	Price	Catalog No.	Price	Catalog No.	Price					
20" Wide Cabinet — 3 Phase 4 Wire																		
30 30	100	\$1478. 1534.	\$2234. 2292.	Factory Installed COB Main Breaker	NOOD430M100NL NOOD430M100CUNL	\$1190. 1248.	MH29 MH29	\$ 58. 58.	MHC29 () MHC29 ()	\$230. 230.	MH29WP MH29WP	\$ 967. 967.	MH29TK MH29TK	\$ 77. 77.	29 29			
42 42	225	2024. 3091.	3806. 3973.	NOOD3225KAMB 51632.	NOOD442L225NL NOOD442L225CUNL	1032. 1099.	MH50 MH50	56. 56.	MHC50 () MHC50 ()	304. 304.	MH50WP MH50WP	1147. 1147.	MH50TK MH50TK	95. 95.	50 50			
42 42	400	5857. 6031.	8670. 8670.	NOOD3400LAMB 54858.	NOOD442L400NL NOOD442L400CUNL	1488. 1542.	MH68 MH68	56. 56.	MHC68V () MHC68V ()	366. 366.	Use Cu MH68WP	1147. 1147.	Use Cu MH68TK	113. 113.	68 68			

* "Cu" suffix indicates copper bus.

▲ Neutral conductors must be of size and quantity per table on page 5-10.

▲ Add "F" for flush, "S" for surface.

† Remove drain screws for Type 3R rating.

† NOOD 225A main circuit breaker panelboards must use K-frame main circuit breaker. Q2 circuit breakers are not acceptable.

NEHB 480Y/277Vas Max.**Accepts Plug-On and Bolt-On Breakers Use I-LINE Panelboards on 480V, 3Ø3W Delta Applications****Main Lugs Interiors**

Main Lugs Interiors												Type 1 Enclosure				Type 3R, 3S, 5, 12 Enclosure			
Max. No. of EH or EHB 1-Pole Breakers	Main Lugs Rating	Total Price Interior, Front and Enclosure		Main Lugs & Interior Only (Order branch breakers separately)		Box Ht.	Box 20"W x 5 1/4"D		MONO-FLAT Front*		Enclosure 20"W x 6 1/4"D		Interior Trim Kit						
							Catalog No.	Price	Catalog No.	Price	Catalog No.	Price	Catalog No.	Price					
		Type	Type 3R, 3S, 5, 12	Catalog No.®	Price										Catalog No.	Price	Catalog No.	Price	
20" Wide Cabinet — 3 Phase 4 Wire																			
30	125	\$1479.	\$2304.	NEHB30436-1NL	\$1844.	35	MH35	\$56.	NH35T	\$178.	MH35WP	\$967.	NH35MK	\$ 93.					
30		1692.	2517.	NEHB30436-1CUNL	1457.		MH35	56.	NH35T	178.	MH35WP	967.	NH35MK	93.					
42	225	1926.	2724.	NEHB42441-2NL	1680.	41	MH41	56.	NH41T	210.	MH41WP	967.	NH41MK	97.					
42		2170.	2966.	NEHB42441-2CUNL	1904.		MH41	56.	NH41T	210.	MH41WP	967.	NH41MK	97.					
42	400	3248.	...	NEHB42453-4NL	1906.	53	MH53	56.	NH53AT	287.	...	...	...	...					
42		2808.	...	NEHB42453-4CUNL	2169.		MH53	56.	NH53AT	287.	...	...	...	...					

Main Breaker Interiors

Main Breaker Interiors										Type 1 Enclosures				Type 3R, 3S, 5, 12 Enclosures†			
Max. No. of EH or EHB 1-Pole Breakers	Main Breaker Rating	Total Price Interior, Main Breaker Kit Front and Box		Add-on Main Breaker Kit Only (Breaker Included)		Main Lugs & Interior Only required (Order branch breakers separately)		Box Ht.	Box 20"W x 5 1/4"D		MONO-FLAT Front*		Enclosure 20"W x 6 1/4"D		Interior Trim Kit		
		Type	Type 3R, 3S, 5, 12	Catalog No.	Price	Catalog No.®	Price		Catalog No.	Price	Catalog No.	Price	Catalog No.	Price			
20" Wide Cabinet — 3 Phase 4 Wire																	
30 30	100	\$2332. 2645.	\$3303. 3816.	NEHB1MW	\$811.	NEHB30435-1NL NEHB30435-1CUNL	\$1244. 1487.	44 44	MH44 MH44	\$56. 56.	NH44T () NH44T ()	\$221. 221.	MH44WP MH44WP	\$1147. 1147.	NH44MK NH44MK	\$101. 101.	
42 42	225	3595. 3839.	4845. 4789.	NEHB2MW	1917.	NEHB42441-2NL NEHB42441-2CUNL	1880. 1904.	53 53	MH53 MH53	56. 56.	NH53T () NH53T ()	282. 282.	MH53WP MH53WP	1147. 1147.	NH53MK NH53MK	121. 121.	
42 42	400	4931. 5190.	...	NEHB4MW	2590.	NEHB42453-4NL NEHB42453-4CUNL	1906. 2165.	68 68	MH68 MH68	56. 56.	NH68AT () NH68AT ()	379. 379.	...	...	...	...	

* Add "F" for flush or "S" for surface.

▲ Neutral conductors must be of size and quantity per table on page 5-10.

▲ For I-LIMITER M/B, substitute NEHB1MIFCL kit number, price \$2030.

▲ For I-LIMITER M/B, substitute NEHB2MIFCL kit number, price \$2985.

* "Cu" suffix indicates copper bus.

† Remove drain screws for Type 3R rating.

TRANSFORMERS

DRY TYPE TRANSFORMERS

600 VOLTS AND BELOW

CLASS 7432, 7450

FILTERED SHIELDED ISOLATION TRANSFORMERS-THREE PHASE

Additional attenuation of transverse (across-the-line) surges and transients is available with the addition of primary surge suppression and secondary filters. For details, see Product Data Bulletin S-3. Surge suppression and filtering are indicated by the letters FIL at the end of the catalog number.

480 VOLTS DELTA PRIMARY 208Y/120 VOLTS SECONDARY 60 HERTZ WITH ELECTROSTATIC SHIELD, SURGE SUPPRESSORS AND FILTER

KVA	Price PE2	Full Capacity Taps	Deg. C. Temp. Rise	Dimensions (Inches) ♦			Weight Pounds	Mounting	Enclosure ■ See Page 10-2	Wiring See Page 10-18
				Height	Width	Depth				
30	\$3864.	6-2.5%2 + 4-	150	30	30	20	350	Floor	10(D)	10
45	4886.	6-2.5%2 + 4-	150	30	30	20	420	Floor	10(D)	10
75	5914.	6-2.5%2 + 2-	150	37	30	24	650	Floor	10(D)	10
112.5	7346.	6-2.5%2 + 2-	150	42	36	24	800	Floor	10(D)	10
150	8658.	6-2.5%2 + 2-	150	42	36	24	1100	Floor	10(D)	10
225	10922.	6-2.5%2 + 2-	150	42	36	24	1350	Floor	10(D)	10

208 VOLTS DELTA PRIMARY 208Y/120 VOLTS SECONDARY 60 HERTZ WITH ELECTROSTATIC SHIELD, SURGE SUPPRESSORS AND FILTER

KVA	Price PE2	Full Capacity Taps	Deg. C. Temp. Rise	Dimensions (Inches) ♦			Weight Pounds	Mounting	Enclosure ■ See Page 10-2	Wiring See Page 10-18
				Height	Width	Depth				
30	\$3864.	2-5% FCBN	150	30	30	20	350	Floor	10(D)	16
45	4886.	2-5% FCBN	150	30	30	20	420	Floor	10(D)	16
75	5914.	2-5% FCBN	150	37	30	24	650	Floor	10(D)	16
112.5	7346.	2-5% FCBN	150	42	36	24	800	Floor	10(D)	16
150	8658.	2-5% FCBN	150	42	36	24	1100	Floor	10(D)	16
225	10922.	2-5% FCBN	150	42	36	24	1350	Floor	10(D)	16

- Units can be converted to outdoor service with use of weathershields shown on Page 10-2
- Enclosure Code: I-Indoor, O-Outdoor. Letters in parentheses indicate illustration on Page 10-2
- In electrostatically shielded transformers, the shield is connected to an isolated terminal marked "SHIELD" which is to be solidly grounded by the installer.
- LUGS: FURNISHED BY CUSTOMER.
- DO NOT USE FOR CONSTRUCTION: CONTACT FACTORY FOR CERTIFIED PRINTS.

OVER 600 VOLTS — SINGLE PHASE — INDOOR

All transformers are built with 220°C. insulation and 150°C. temp. rise. For 115°C. rise add 10% to price and F to catalog number. For 80°C. rise add 20% to price and B to catalog number, and check with factory for dimensional changes.

Standard high voltage taps: 4-2 1/2%, 2AN & 2BN. For 4-2 1/2% FCBN, add BN to catalog number.

KVA	Part Number	Price PE6A	Dimensions (Inches) ♦			Weight Pounds	Mounting	Enclosure ■ See Page 10-2
			Height	Width	Depth			
2.4 KV VOLTAGE CLASS 60 HERTZ 150°C RISE								
167	16731 JH	\$10593.	66	40	36	1600	Floor	I-(D)
250	25091 JH	13812.	68	56	36	2200	Floor	I-(D)
333	33331 JH	16966.	68	56	36	3000	Floor	I-(D)
5 KV VOLTAGE CLASS 60 HERTZ 150°C RISE								
167	16771 JH	\$11370.	66	40	36	1600	Floor	I-(D)
250	25091 JH	14758.	68	56	36	2200	Floor	I-(D)
333	33331 JH	18060.	68	56	36	3200	Floor	I-(D)
8.66 KV VOLTAGE CLASS 60 HERTZ 150°C RISE								
167	16791 JH	\$11948.	66	40	36	2200	Floor	I-(D)
250	25091 JH	16126.	68	56	36	3200	Floor	I-(D)
333	33331 JH	19193.	68	56	36	3400	Floor	I-(D)
15 KV VOLTAGE CLASS 60 HERTZ 150°C RISE								
167	16791 JH	\$13462.	91.5	56	36	2400	Floor	I-(D)
250	25091 JH	17435.	91.5	56	36	3400	Floor	I-(D)
333	33331 JH	20824.	91.5	56	36	5000	Floor	I-(D)

- Enclosures for indoor use only. Transformers suitable for outdoor use available on special order. Consult the factory.
- LUGS: FURNISHED BY CUSTOMER.
- DO NOT USE FOR CONSTRUCTION: CONTACT FACTORY FOR CERTIFIED PRINTS.

Special Notes

- Two distribution class, metal-oxide, lighting arresters installed as standard equipment on 5 Kv. and above.
- For 8.66 Kv. and 15 Kv. transformers requiring bottom entrance, a separate compartment is required for adequate termination space and clearance. Contact factory for special requirements.
- If transformer requires a 91.5" high enclosure for switchgear line-up, or if special enclosure is required, contact factory.
- For 95 Kv. B.I.L. consult factory.

KV Class	Code	Primary	Secondary	Wiring Diagram See Page 10-18
2.4	15	2400	120/240	21
	25	2400	277	22
5	13	2400/4160Y	120/240	21
	15	4800	120/240	21
	16	4160	120/240	21
	24	2400/4160Y	277	22
	25	4800	277	22
8.66	17	4160/7200Y	120/240	21
	18	7200	120/240	21
	25	4160/7200Y	277	22
	26	7200	277	22
15	27	7200/12470Y	120/240	21
	28	7620/13200Y	120/240	21
	29	12470	120/240	21
	30	13200	120/240	21
	31	13800	120/240	21
	32	7200/12470Y	277	22
	33	7620/13200Y	277	22
	34	12470	277	22
	35	13200	277	22
	36	13800	277	22

TO COMPLETE CATALOG NUMBER

To complete the catalog numbers on this page, select the voltage you require from the chart above. Insert the voltage code number in place of the () in the catalog number. Ex.: the correct catalog number for a 167 Kv. 2400/4160Y-120/240, 1 phase 60 Hz unit is 167S13H. The unit would be supplied with 2-2 1/2% above and 2-2 1/2% full capacity below normal taps on the primary.

CIRCUIT BREAKERS ENCLOSURES

CLASS 610

Circuit breaker enclosures are UL Listed and are suitable for use as service entrance equipment, except as indicated below. The short circuit current rating of an enclosed circuit breaker is equal to the interrupting rating, at the supply voltage marked on the circuit breaker installed, except as noted below. Enclosures listed below are for use with 80% Ampere rated unit circuit breakers listed on Pages 5-8, 9, 10, 11. Breakers are ordered and shipped separately for field installation. Enclosed molded case switches and enclosed PA, PH, PC, PX, PE and SE breakers should be ordered as assembled devices from Page 5-30. For accessories and dimensions, refer to Page 5-28.

UL (NEMA) Type 1 — Indoor — General Purpose
UL (NEMA) Type 3R — Outdoor — Rainproof and Sleet (Ice) Resistant

Circuit Breaker			Type 1 Flush	Type 1 Surface	Type 3RA
Catalog Number Prefix	Ampere Rating	Number of Poles	Price	Price	Price
EH, EHB	15-90 15-100	1, 2, 3 1, 2, 3	\$102.00	\$102.00	\$234.00
FAL, FHL, FCL	15-100	1, 2, 3	78.00	78.00	209.00
Q2L, Q2L-H, Q2LH	100-200 100-225	2 2, 3	93.00	93.00	179.00
KAL, KHL FCL, FAL, FHL	70-225	2, 3	100.00	100.00	307.00
LAL, LHL, Q4L KAL, KHL	125-400	2, 3	136.00	136.00	694.00
MAL, MHL, MXL, LAL, LHL	125-1000	2, 3	243.00	243.00	905.00

- ▲ Enclosures with NRB or RB suffix have provisions for 3/4" through 2 1/2" bolt-on hubs in top endwall. Enclosures with R suffix have blank endwalls and require field cut opening. For details and hub catalog numbers see Page 3-8.
- △ EHB enclosures will not accept 3-Pole EH, EHB circuit breaker with factory installed accessories.
- † Factory installed groundable neutral assembly.
- MHL, MXL short circuit rating is 50,000 AIC at 480Vac maximum.

UL (NEMA) Type 4 — Indoor and Outdoor — Watertight and Dusttight
UL (NEMA) Type 4X — Indoor and Outdoor — Watertight, Dusttight and Corrosion-Resistant
(NEMA) Type 5 — Indoor — Dusttight
UL (NEMA) Type 12 — Indoor — Dusttight and Driptight, without Knockouts
UL (NEMA) Type 12K — Indoor — Dusttight and Driptight, with Knockouts

Circuit Breaker			Type 4, 4X, 5 Stainless Steel (Hubs — See Page 3-8)	Type 12/3R, 12K (Hubs — See Page 3-8)
Catalog Number Prefix	Ampere Rating	Number of Poles	Price	Price
FAL, FHL, FCL	15-100	1, 2, 3	\$ 601.	\$135.
KAL, KHL, IFL	20-225	2, 3	1236.	227.
IKL, KCL	110-250	2, 3	2199.	368.
LAL, LHL, Q4L	125-400	2, 3	2380.	379.
MAL, MHL, MXL, ILL	125-1000	2, 3	4249.	694.
NAL, NCL, NXL	600-1200	2, 3		1101.

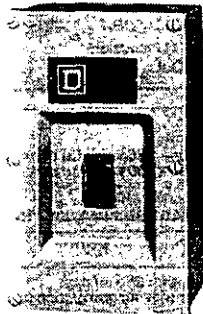
- ★ Suitable for rainproof applications
- ▲ Wire bending space provided for 250 MCM (Al/Cu) 75°C conductors maximum.
- Short circuit rating is 100,000 AIC at 480Vac maximum.
- MHL, MXL short circuit rating is 50,000 AIC at 480Vac maximum.
- † Short Circuit Ratings: NAL, 240Vac — 100,000, 480Vac — 50,000, 600Vac — 25,000
NCL, 240Vac — 125,000, 480Vac — 100,000, 600Vac — 65,000
NXL, 240Vac — 65,000, 480Vac — 50,000, 600Vac — 42,000

(NEMA) Type 7 — Indoor Hazardous Locations — Class I, Groups C and/or D, Divisions 1 or 2
(NEMA) Type 9 — Indoor Hazardous Locations — Class II, Groups E and/or G, Class III, Divisions 1 or 2

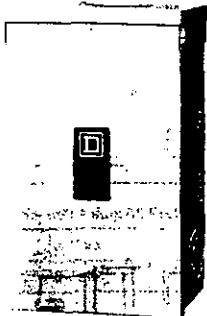
Circuit Breaker			Type 7 Cast Aluminum	Type 9 Cast Aluminum
Catalog Number Prefix	Ampere Rating	Number of Poles	Price	Price
FAL, FHL	15-60	1, 2, 3	\$ 680.	\$ 515.
	15-100	1, 2, 3	841.	583.
KAL, KHL	70-225	2, 3	1713.	1189.

- △ Suitable for rainproof applications—includes necessary breather and drain kit
- ‡ CSA certified.
- ▲ Use 75°C Cu conductors only.
- ◇ Not UL listed due to wire bending space requirements.

Accessories: Page 5-28
Dimensions: Page 5-28



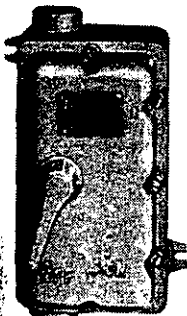
FA100S



FA100RB



KA225DS



FA100X



FA100Y