

**CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM**

19990015
I. D. Number

Masonic Temple
Applicant
415 Congress St, Portland, ME
Applicant's Mailing Address
Michael Bowdler
Consultant/Agent
799-2360 **799-4519**
Applicant or Agent Daytime Telephone, Fax

2/9/99
Application Date
Learning Center
Project Name/Description

1903 Congress St
Address of Proposed Site
217-A-011
Assessor's Reference: Chart-Block-Lot

Proposed Development (check all that apply): New Building Building Addition Change Of Use Residential
 Office Retail Manufacturing Warehouse/Distribution Parking Lot Other (specify) **Leaning Center**
2785 Sq. Ft. **5.72 acres** **R6?**
Proposed Building square Feet or # of Units Acreage of Site Zoning

Check Review Required:

Site Plan (major/minor) Subdivision # of lots _____ PAD Review 14-403 Streets Review
 Flood Hazard Shoreland Historic Preservation DEP Local Certification
 Zoning Conditional Use (ZBA/PB) Zoning Variance Other _____

Fees Paid: Site Plan **\$500.00** Subdivision _____ Engineer Review **\$1,000.00** Date: **9/29/00**

DRC Approval Status:

Reviewer **Jim Wendel**

Approved Approved w/Conditions see attache Denied

Approval Date **10/12/99** Approval Expiration **10/12/00** Extension to _____ Additional Sheets Attached

Condition Compliance **Kandice Talbot** **10/2/00**
signature date

Performance Guarantee Required* Not Required

* No building permit may be issued until a performance guarantee has been submitted as indicated below

<input checked="" type="checkbox"/> Performance Guarantee Accepted	<u>9/29/00</u> date	<u>\$24,243.00</u> amount	<u>9/28/01</u> expiration date
<input checked="" type="checkbox"/> Inspection Fee Paid	<u>9/29/00</u> date	<u>\$412.00</u> amount	
<input type="checkbox"/> Building Permit	<u> </u> date		
<input type="checkbox"/> Performance Guarantee Reduced	<u> </u> date	<u> </u> remaining balance	<u> </u> signature
<input type="checkbox"/> Temporary Certificate Of Occupancy	<u> </u> date	<input type="checkbox"/> Conditions (See Attached)	
<input type="checkbox"/> Final Inspection	<u> </u> date	<u> </u> signature	
<input type="checkbox"/> Certificate Of Occupancy	<u> </u> date		
<input type="checkbox"/> Performance Guarantee Released	<u> </u> date	<u> </u> signature	
<input type="checkbox"/> Defect Guarantee Submitted	<u> </u> submitted date	<u> </u> amount	<u> </u> expiration date
<input type="checkbox"/> Defect Guarantee Released	<u> </u> date	<u> </u> signature	

1347 Westbrook Street
Portland, ME 04102

To: Alexander Jaegerman Fax: 756-8258

From: Walter Rumery Date: 3/11/2001

Re: Masonic Temple revisions Pages: 1

CC:

Urgent For Review Please Comment Please Reply Please Recycle

Dear Alexander Jaegerman,

I am writing you to express my opposition to removing the archway at the Scottish Rite Masonic Center Learning Center located at 1903 Congress Street. Presenting a plan to the Planning Board, especially for areas in or near historic districts, requires specifics for approval. We set a dangerous precedent when we allow changes to be made once specific approval has been received. This change of plans appears to be a means to have residents approve and then once construction has begun - oops, plans need to be changed! If the Masonic Temple wants to be a good neighbor, they should hold and be held to the standards and plans approved by the committee and the neighborhood. This appears to be another way to get around something they should have considered in the original presentation to the Planning Board. The Stroudwater neighborhood is under a lot of different pressures; this should not be one of them. A group such as the Masonic Temple folks should demand that their word means something and that they can be trusted. Right now, they are being watched closely, since their word apparently means little.

Walter N. Rumery
1347 WESTBROOK ST.
STROUDWATER ASSOCIATION
TRUSTEE

**CITY OF PORTLAND, MAINE
ENGINEERING REVIEW FORM**

Address of Proposed Site 1903 Congress St. Date 9/29/00
Project Description Masonic Temple Job # 19990015
Applicant Scottish Rite
Applicant's Mailing Address _____

Site Review
(Planning Department)

Review Engineer: J. Wendel
Number of Estimated Hours: 15
Cost Per Hour: \$ 48.00
Total Amount: \$ 720.00

Right-of-Way Review
(Public Works Department)

Review Engineer: T. Lombardo
Number of Estimated Hours: 8
Cost Per Hour: \$ 35.00
Total Amount: \$ 280.00

An engineering fee has been assessed in the amount of \$1000.00 for the review of your project located at 1903 Congress Street

Please make check payable to the City of Portland. The check should be submitted along with this form to the Portland Planning Department, City of Portland, 4th Floor, 389 Congress Street, Portland, ME 04101. Attn: _____

Office Use Only

Invoice Date: 9/29/00 Received: 9/29/00
date
Planning Revenue Code: U4
Public Works Revenue Code: PV ck. 1023

- cc: Applicant - white
Planner - blue
Engineer - green
Public Works - yellow
Financial Officer - pink
Review/Inspection Fee File - golden

SCOTTISH RITE BODIES AASR
MASONIC LEARNING CENTER FOR CHILDREN
415 CONGRESS ST. PH. 207-772-7711
PORTLAND, ME 04101

52-7445/2112
7999001066

1023

DATE 9-29-00

PAY TO THE
ORDER OF

CITY OF PORTLAND

\$ 1412⁰⁰/₁₀₀

ONE THOUSAND FOUR HUNDRED TWELVE AND ⁰⁰/₁₀₀

DOLLARS  Security features included. Details on back.



MEMO ENCL. FEES

Robert A. Lilly

MP

⑆ 211274450⑆ 7999001066⑈ 1023

SAFETY PAPER

© 2000 PEOPLES BANK ACCOUNTANT BANK

September 28, 2000

Joseph E. Gray, Jr., Director
Planning and Urban Development
389 Congress Street
City of Portland
Portland, ME 04101

RE: Scottish Rite Bodies, Valley of Portland
1903 Congress Street, Portland, Maine
Letter of Credit No. 65440-843

Dear Mr. Gray:

Peoples Heritage Bank, N.A. hereby issues its Irrevocable Letter of Credit for the account of Scottish Rite Bodies, Valley of Portland as developer, hereinafter referred to as the Developer, in the name of City of Portland in the aggregate amount of \$24,243.00.

The City, through its Director of Planning and Urban Development, may draw on this Letter of Credit by presentation of a sight draft and the original Letter of Credit and all amendments thereto, at Peoples Heritage Bank, N.A. office located at One Portland Square, ATTN: Small Business Dept., P O Box 9540, Portland, Maine, stating that:

- (1) the Developer has failed to complete by 60 days prior to this letter's expiration date or by the expiration date of any temporary certificate of occupancy issued, whichever date comes first, at the Developer's expense, the work on the roads and other public improvements as set forth in a certain Schedule of Costs of Public Improvements dated from fax machine, July 11, 2000; or
- (2) the Developer has failed to post the ten percent (10.0%) Defect Bond or Guarantee required by the Portland City Code sections 14-501 and 14-525; or
- (3) the Developer has failed to notify the City for inspections.

In the event of Peoples Heritage Bank, N.A. dishonor of the City of Portland's sight draft Peoples Heritage Bank, N.A. shall inform the City of Portland in writing of the reason or reasons therefor within three (3) working days of the dishonor.

After all underground work in the public right of way has been completed and inspected to the satisfaction of the Department of Public Works, including but not limited to sanitary sewers, storm drains, catch basins, manholes, electrical conduits, and other required improvements constructed chiefly below grade, the City of Portland Director of Planning and Urban Development or the City of Portland Director of Finance as provided in section 14-501 of the Portland City Code may authorize Peoples Heritage Bank, N.A., by written certification, to reduce the available amount of this letter of credit by a specified amount.

It is a condition of this Letter of Credit that it is deemed to be automatically extended without amendment for period(s) of one year each from the current expiration date hereof, or any future expiration date, unless at least sixty (60) days prior to any expiration date, Peoples Heritage Bank, N.A. notifies the Director of Planning and Urban Development by registered mail at the above listed address that Peoples Heritage Bank, N.A. elects not to consider this Letter of Credit renewed for any such additional period.

In the event of such notice, the City may draw hereunder by presentation of a sight draft drawn on the Bank, accompanied by the original Letter of Credit and all amendments thereto, and a statement purportedly signed by the Director of Planning and Urban Development reading as follows:

This drawing results from notification that Peoples Heritage Bank, N.A. has elected not to renew its Letter of Credit No. 65440-843; or

This drawing results from the Developer's failure to timely complete to the satisfaction of the City the public improvements set forth in a certain Schedule of Costs of Public Improvements dated by fax, July 11, 2000; or

This drawing results from the Developer's failure to post a ten percent (10.0%) Defect Guarantee or Bond as provided in 14-501 of the Portland City Code; or

This drawing results from the Developer's failure to notify the City for inspections.

This Letter of Credit will automatically expire upon the earlier of:

1. Peoples Heritage Bank, N.A. receipt of a written notification from the City of Portland that said work as outlined in a certain Schedule of Costs of Public Improvements dated by fax, July 11, 2000 between the Developer and the City of Portland has been completed in accordance with the City of Portland specifications and Peoples Heritage Bank, N.A. Letter of Credit No. 65440-843 may be canceled; or
2. The expiration date of SEPTEMBER 28, 2001 or any automatically extended date as specified herein.

Partial drawings are permitted.

We engage with you that drafts drawn under and in compliance with the terms of this credit will be duly honored if presented at our office located at One Portland Square, ATTN: Small Business Dept., P O Box 9540, Portland, ME 04112 on or before September 26, 2001 or any automatically extended date as specified herein.

Very truly yours,

Peoples Heritage Bank, N.A.

By: Deborah J. Cobb
Deborah Cobb, Its Vice President

The City of Portland has accepted the providing of alternative security for the Developer's obligations to be performed pursuant to Section 14-501 and/or Section 14-525 of the Portland City Code.

Dated: 10/2/2000

By: Joseph E. Gray, Jr.
Joseph E. Gray, Jr.
Its Duly Authorized Director of
Planning and Urban Development

Seen and Agreed to: Scottish Rite Bodies, Valley of Portland

By: Robert W. Kelly

Date: September 28, 2000

Reviewed pursuant to Section 14-501 and/or Section 14-525, Portland City Code

By: _____
Director of Finance

Dated: _____

By: Tracy Hittell
Corporation Counsel

Dated: 9-29-00

Bob Libby
879-4533

Department of Planning and Urban Development
SUBDIVISION/SITE DEVELOPMENT

COST ESTIMATE OF IMPROVEMENTS TO BE COVERED BY PERFORMANCE GUARANTEE

Date _____

Name of Project 32nd Degree Scottish Rite Learning Center for Children

Address/Location 1903 Congress Street, Portland, Maine

Developer _____

Form of Performance Guarantee _____

Type of Development: _____ Subdivision Site Plan (Major/Minor)

TO BE FILLED OUT BY APPLICANT:

Item	PUBLIC			PRIVATE <input checked="" type="checkbox"/>		
	Quantity	Unit Cost	Subtotal	Quantity	Unit Cost	Subtotal
STREET SIDEWALK						
Read				EXISTING		
Granite Curbing				60 Lft	25	1,500.00
Sidewalks				184.46 ²	4	736.00
Esplanades				600 ft ²	1	600.00
Monuments						
Street Lighting - existing						
Other						
SANITARY SEWER						
Manholes				1	1,450	1,450.00
Piping				50 Lft	15	750.00
Connections				10112	8	450.00
Other						
STORM DRAINAGE						
Manholes				1	1,450.00	1,450.00
Catchbasins				3	1,075	3,225.00
Piping				250 Lft	3	1,050.00
Detention Basin						
Other				Check Dam	200	400.00
SITE LIGHTING						
				6	535	3,210.00
EROSION CONTROL						
				2,304 ft ²	.15	326.00
				concrete stairs	1	750.00
RECREATION AND OPEN SPACE AMENITIES						
SUB TOTAL						\$ 15,947.00

JUL-11-00 12:34 PM PLANNING DEPARTMENT

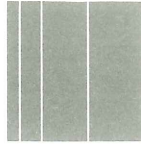
7560256

P. 04

	PUBLIC			PRIVATE		
	Quantity	Unit Cost	Subtotal	Quantity	Unit Cost	Subtotal
LANDSCAPING (attach breakdown of plants, materials, quantities, and unit costs)	21,500	ft	0.185			\$ 3,977.50
	8		431.50			348.00
	21		51.00			1,071.00
	2		250.00			520.00
	6		38.00			228.00
	11		46.00			506.00
	1		90.00			90.00
	4		265.00			1,060.00
	11		45.00			495.00
						\$ 8,296.50

INSPECTION FEE (to be filled out by City)

	PUBLIC	PRIVATE	GRAND TOTAL
1.7% of totals		\$ 412.13	\$ 24,243.13
OR			
Alternative Assessment:			
assessed by:	(name)	(name)	



Sebago Technics

Engineering & Planning for the Future

January 24, 2000
99143

Kandi Talbot, Planner
City of Portland
389 Congress Street
Portland, ME 04101

Masonic Learning Center, 1903 Congress Street – Condition Compliance Submittal

Dear Kandi:

On behalf of the 32 Degree Masonic Temple, Scottish Rite, we are submitting eight sets of the enclosed revised plans. The plans reflect changes made in compliance with the Portland Planning Board's Conditional Use approval granted on October 12, 1999. In the November 1, 1999 letter to the applicant from John Carroll, Planning Board Chair, six conditions of approval were listed with regard to site design. Our office has reviewed this letter and also the Design Review Coordinator's (Jim Wendel's) memo dated August 4, 1999.

In addition, our survey staff has conducted a limited topographic survey of the Congress Street frontage and portions of the work area. This topographic information has been included on the enclosed plans. The proposed site grading has been adjusted to reflect this updated information. The overall site layout and general grading design have not been altered as a result of this adjustment. Total impervious areas have not changed and general flow paths were not altered. As a result, no modifications have been made to the Stormwater Management Evaluation previously submitted for this project.

The plan revisions made reflect staff comments and conditions of approval as follows:

- The condenser unit has been relocated to the northerly side of the building and is screened by eleven Hicks Yews.
- Notes have been added to the plan regarding the limits of curb and sidewalk areas subject to disturbance as part of this project.
- Mr. Wendel's August 4, 1999 memo has been addressed by the addition of plan notes and City standard details for storm drains, trenching, curb and sidewalks. A stair detail has also been added. In order to accommodate detail revisions and the addition of new details, a new sheet (Sheet C3) has been added to the plan set.

- Light fixture types (“shoebox” and bollard) and pole heights have been added to the plan.
- Additional landscaping consisting of eight White Fir (5’-6’ height, 15’ o.c.) has been added to the plans.

With the submittal of the enclosed revised plans, we respectfully request City staff review of this package for condition compliance with the Planning Board’s October 12, 1999 approval. The applicant is anticipating moving forth to the construction phase of the project shortly.

If you or other City staff have any further comments on the enclosed plans, please contact this office. We look forward to hearing from you soon. Thank you for your assistance.

Sincerely,

SEBAGO TECHNICS, INC.



Nancy J. Gilbert, P.E.
Sr. Project Manager

NJG:jc
Enc.

cc: Bob Libby, Masonic Learning Center

Motions for the Board to Consider - Revised August 24, 1999

On the basis of plans and materials submitted by the applicant and on the basis of information provided in Planning Report #16-99 and memos dated June 8, 1999, August 10, 1999 and August 24, 1999 relevant to standards for site plan and conditional use review, the Board finds:

- i. That the plan is/is not in conformance with the Conditional Use Standards of the Land Use Code.
- ii. That the plan is/is not in conformance with the Site Plan Standards of the Land Use Code.

Potential Conditions of Approval

- that the applicant screen the condenser unit with either landscaping or stockade fencing and revise the plan accordingly for review and approval by staff
- that the applicant revise the plans to show the actual limit of impact on curb and sidewalk that will be affected by the proposed utility connections along with details for review and approval by Public Works
- that the applicant revise the plans in accordance with the Development Review Coordinator's memo dated August 4, 1999 in regards to sidewalk, storm drain infrastructure, and sidewalk stairs details.
- that the applicant submit a revised photometrics plan for Planning staff review and approval which meets the city standards in regards to level of footcandles and that the site plan be revised with five (5) lightpoles, as shown on the photometrics plan

CITY OF PORTLAND, MAINE
MEMORANDUM

2785 sq ft bldg
approx. 5.72 acres
Zoned R-2

TO: Chair Carroll and Members of the Portland Planning Board
FROM: Kandice Talbot, Planner
DATE: August 24, 1999
SUBJECT: The 32 Degree Masonic Learning Center For Children, 1903 Congress Street

prev. 3 bldgs - floor
Slabs removed
25 pkg spaces
24 ft wide driveway
utilities

At a previous meeting, the Planning Board voted to reconsider the 32 Degree Masonic Learning Center for Children Conditional Use Plan. The Planning Board denied the project previously based on the removal of two residential units.

Attached are the memos and reports previously submitted to the Planning Board. Below is a summary of the outstanding issues.

Residential Uses

Records show that in 1988 when the Masonic Trustees received conditional use and site plan approval for a 62,000 sq. ft. Masonic lodge, there were two single family homes located on the site. At that time it was the intention of the applicant to move the existing homes to other lots in the area. At the request of the Planning Board, the applicant had agreed to keep one home on site and retain it as a residential use.

The applicant recently submitted a bank funds ledger account for the learning center from 1990 showing deposits between March, 1990 and May, 1990 which the applicant believes indicates the moving of the first residential unit. Also submitted was a permit from the City of Portland Public Works to move a building from 1905 Congress Street on June 5, 1990. The applicant believes this is the permit for the removal of the second home. This information is included as Attachment 1.

Utilities

Previously, Public Works had reviewed the plan and is recommending that the applicant specify the repairs necessary with the City's Congress Street right of way which will be affected by the proposed utility connections. The applicant added a note to the plan stating that all work within right of way will meet the standards of the City of Portland. Public Works has reviewed this note and is requesting that the applicant show the actual limit of impact on curb and sidewalk that will be affected by the proposed utility connections on the plans along with details. Public Works' memo is included as Attachment 6.

Drainage

The applicant is proposing that the front portion of the site, which includes the building and the access drive will drain toward Congress Street and will be collected in catch basins and tie into the city storm drain system. The parking area will sheetflow in a northerly course to a stone check dam, then through the undeveloped portion of the site and will eventually reach the tributary along the northerly property line.

The Development Review Coordinator previously reviewed the plans and recommended that the plans needed to be revised to show additional details regarding building, road and parking layout dimensions, walkway stairs detail, on-site and city standard sidewalk details, and curb details. The DRC also recommended that the new manhole be located opposite catch basin 2 and that the stormwater analysis be revised.

The applicant recently submitted revised engineered plans. The DRC has reviewed the revised plans and is recommending that the applicant provide details for sidewalks, both on-site and within the right-of-way, and for the stairs in the sidewalk. The detail for the installation for the storm drain infrastructure at the drive entrance must conform to City standards. These recommendations are all detail related and the DRC is satisfied with the stormwater plan at this time.

Lighting

The Planning Board had a concern regarding the amount of lighting on the site. Proposed are five lights poles, 14 ft. high with 100 watt metal halide lights. The applicant has submitted a lighting plan, which is included as Attachment 5. After review of the plan, staff has asked that the applicant submit a revised plan showing the entire site and no spillover onto abutting property. It should be noted that based on the size of the site, it does not appear that there will be spillover onto abutting properties. Staff has indicated to the applicant that a different distribution pattern of the lighting may evenly distribute the lighting around the parking area with lower levels under the poles.

Screening

The applicant is proposing a condenser unit to the east of the building. The plan does not show screening of this condenser unit. The applicant shall screen the unit with either landscaping or stockade fencing.

Conditional Use Review

1. The following standards apply for review of an institutional expansion in the R-2 zone.

Section 14-78(2)

- i. In the case of expansion of existing such uses onto land other than the lot on which the principal use is located, it shall be demonstrated that the proposed use cannot be reasonably be accommodated on the existing site through more efficient utilization of land or buildings, and will not cause significant physical encroachment into established areas; and
- ii. The proposed use will not cause significant displacement or conversion of any residential uses as of June 1, 1983 or thereafter; and
- iii. In the case of a use or use expansion which constitutes a combination of a above-listed uses with capacity for concurrent operations, the applicable minimum lot sizes shall be cumulative.

2. The following standards apply for all conditional uses:

Section 14-474(2)

- i. There are unique or distinctive characteristics or effects associated with the proposed conditional use.
- ii. There will be an adverse impact upon the health, safety, or welfare of the public or the surrounding area; and
- iii. Such impact differs substantially from the impact which would normally occur from such a use in that zone.

Motions for the Board to Consider

On the basis of plans and materials submitted by the applicant and on the basis of information provided in Planning Report #16-99 and memos dated June 8, 1999 and August 10, 1999 relevant to standards for site plan and conditional use review, the Board finds:

- i. That the plan is/is not in conformance with the Conditional Use Standards of the Land Use Code.
- ii. That the plan is/is not in conformance with the Site Plan Standards of the Land Use Code.

Potential Conditions of Approval

- that the applicant screen the condenser unit with either landscaping or stockade fencing and revise the plan accordingly for review and approval by staff
- that the applicant revise the plans to show the actual limit of impact on curb and sidewalk that will be affected by the proposed utility connections along with details for review and approval by Public Works
- that the applicant revise the plans in accordance with the Development Review Coordinator's memo dated August 4, 1999 in regards to sidewalk, storm drain infrastructure, and sidewalk stairs details.
- that the applicant submit a revised photometrics plan for Planning staff review and approval which meets the city standards in regards to level of footcandles.

Attachments:

1. Letter Regarding Removal of Residential Units
2. Stormwater Runoff Narrative
3. DRC's Memo dated 8/4/99
4. Revised Plans
5. Photometric Plan
6. Public Works' Memo
7. Previous Memos and Reports

To: Chair Carroll and Members of the Portland Planning Board

From: Joyce Gauthier and Bill Linnell, 1905 Congress Street

Date: August 23, 1999

Subject: The proposed 32 Degree Masonic Building, 1903 Congress Street

We are abutters to the above-referenced development, and are concerned about the way in which the applicant is continuing to ignore a city ordinance which restricts displacement of residences for other types of use.

We bought our house at 1905 Congress Street with the understanding that the area was and is zoned residential. Now we have learned that the Masons hope to convert the neighboring property to another use, in clear violation of an established ordinance prohibiting such development. As we understand it, one residence was removed with the blessing of a previous planning board, while another residence was supposed to stay put. No sooner had the Masons made this agreement, than they contracted to remove the second residence in clear and flagrant violation of the ordinance and agreement with the city! Evidence of the Masons' deal to remove the second building, a letter from Guy McLellan, agent for the Masons, dated 10 April 1990, is attached. It should be noted that the Ahlquists, who purchased and moved the building, did so legally, and at the Mason's request. It was the Masonic Lodge which had the agreement with the City, not the Ahlquists.

The Masons seem to be slow to accept responsibility for removing the building in question, which they contracted to do in apparent violation of the ordinance and their word. Subsequent approvals or permits granted ought to be invalid, if they were granted with the understanding that the lot was otherwise in compliance with city ordinances. Flouting of the city's ordinances as the Masons have done, and can only continue to do with the Planning Board's help, ought not to be rewarded.

Sincerely,



William S. Linnell II
1905 Congress Street
871-0367



Joyce E. Gauthier
1905 Congress Street

(207) 284-6484
1 Fides Drive
Saco, ME 04072-9360
April 10, 1990

Mr. Guy S. McLellan, Agent
MASONIC TRUSTEES OF PORTLAND
Masonic Lodge
415 Congress Street
Portland, ME 04101

Dear Mr. McLellan:

Having purchased and paid in full for the red cape house on outer Congress Street on April 5th, under the terms of our agreement signed that day, I hereby give written notice of intent to move the building as called for in item 3. of our agreement. It will be removed from your property to land in Scarborough. It's anticipated that the move will be in mid to late April, all conditions permitting.

The moving will be done by Mr. Levine, whose certificate of insurance as called for in item 7. was received by us yesterday and is being forwarded to you today under separate cover.

This will confirm that, under the authority granted you in item 12, we have agreed with you as to the trees and shrubs to be cut and/or removed, namely only those necessary and/or appropriate for the most expeditious and convenient moving of the building. Further we have agreed with you that any trees and shrubs cut will either be removed from the property or will be cut up (not left in long lengths) and thrown in the cellar hole. Any such pieces will be in lengths less than 8 feet long unless you request an even shorter length in the copy of this that you return to us.

Also confirming prior verbal agreement, I have been given ownership of any contents of the house and garage which I may want, whether attached or separate but within those structures.

Please sign and return one copy of this letter to indicate our agreement.

Thank you!

Sincerely yours,

Earlene A. Chadbourne
Earlene ("Kitty") Ahlquist Chadbourne

I acknowledge receipt of the above notifications and satisfactory evidence of insurance, and state that the above agreements have been made between me and Mrs. Chadbourne, and that all conditions and notifications required prior to the move have been met except (if any) as follows:

Guy S. McLellan

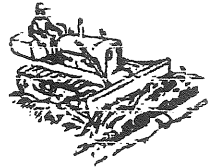
Guy S. McLellan, Agent
Masonic Trustees of Portland



W. H. LAVIGNE, INC.

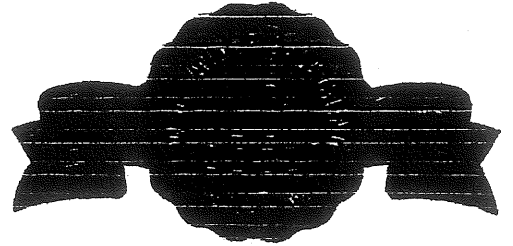
EXCAVATING

Septic Tanks Driveways Test Holes
 Loam, Sand and Gravel ♦ Snow Removal and Plowing
 NEWTON DRIVE GORHAM, MAINE 04038
 PHONE 839-4036



No 3353

Earle Ahlquist

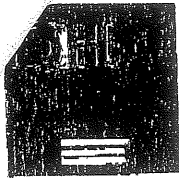


3) moving Building - Congress St.

DATE		AMOUNT
5/2/90	- Tractor from Flynn 9 hrs.	315.00
	Tractor from Flynn 9 hrs.	315.00
13/90	- Tractor from Flynn 11 hrs.	385.00
	Tractor from Flynn 11 hrs.	385.00
14/90	- Tractor from Flynn 5 hrs.	175.00
	Tractor from Flynn 14 hrs.	490.00
		<u>2065.00</u>

Billed you \$35.00, normally get \$40.00 per hr.

TOTAL 2065.00



DELUCA-HOFFMAN ASSOCIATES, INC.
CONSULTING ENGINEERS

778 MAIN STREET
SUITE 8
SOUTH PORTLAND, MAINE 04106
TEL. 207 775 1121
FAX 207 879 0396

Att. 3

- ROADWAY DESIGN
- ENVIRONMENTAL ENGINEERING
- TRAFFIC STUDIES AND MANAGEMENT
- PERMITTING
- AIRPORT ENGINEERING
- SITE PLANNING
- CONSTRUCTION ADMINISTRATION

MEMORANDUM

TO: Kandi Talbot, Planner

FROM: Jim Wendel, P.E. Development Review Coordinator

DATE: August 4, 1999

RE: Site Plan Review
32° Masonic Learning Center
1903 Congress Street

Review of the submission dated August 3, 1999 has been completed. We offer the following comments;

1. The plan should be clear that the installation of the storm drain infrastructure at the drive entrance must conform to Portland's Standards. The details should reflect the City's Standards so it is clear to a Contractor.
2. A detail for the sidewalk is needed; both for the site and the City's Standards.
3. A detail for the stairs in the sidewalk is also needed.

Should you have any questions please call.

99143

STORMWATER RUNOFF NARRATIVE**Masonic Learning Center for Children
1903 Congress Street
Portland, Maine****Introduction**

Sebago Technics has been retained to prepare a stormwater runoff narrative to present the pre and post-development drainage flows in association with the Masonic Learning Center for Children. The project consists of an approximately 2,740 square foot Learning Center and associated parking area. The development site is located on the northerly side of outer Congress Street and is comprised of two parcels which total approximately 6.1 acres. Information provided by the project architect, Mr. Michael Bowdler, includes:

- Location and Lot Plan (Sheet 1) by Michael Bowdler dated February 4, 1999
- Site Plan (Sheet 2) by Michael Bowdler dated February 4, 1999
- Prior Boundary Plan by Survey, Inc. dated June 1980
- Prior Site Utilities, Grading & Drainage Plan by Winton Scott Architects dated August 30, 1988

(Note: Portions of these surveys apparently pre-date earthwork operations in the northerly portion of the parcel and do not include topography in the area immediately adjacent to the proposed building. Topography in this area has been provided by Mr. Bowdler.)

The scope of this study consists solely of evaluation of anticipated drainage flows based on plans and designs by others. Sebago Technics has performed no field survey and is relying solely on the plans and information prepared as part of Mr. Bowdler's site design.

Pre-Development Conditions

The development site has frontage along Congress Street and abuts a small tributary to the Stroudwater River along the rear. The parcel previously contained two residences which, according to plans supplied by the architect, included approximately 8,276 square feet of roofs and paved driveways. These residences were razed within the past few years as part of earthwork conducted on the northerly portion of the parcel. A sparsely vegetated stockpile now encompasses a large portion of the northerly section of the property.

The site is generally divided into two subwatersheds. There are no apparent significant sources of runoff which enter the development area. The southerly watershed (Watershed 1) is collected in the municipal storm drain system. In the pre-development condition, this watershed encompasses approximately 1.42 acres.

The second site watershed (Watershed 2) is located on the northerly end of the parcel and drains toward the tributary at the parcel border. Watershed 2 received runoff from the rear portion of the northernmost residence on the site and the remaining undeveloped portion of the watershed. This watershed encompasses approximately 4.73 acres.

Post-Development Conditions

The proposed site improvements occur primarily in Watershed 1. The new Learning Center and the majority of the parking lot will be constructed within this watershed. Initially, it is expected that the parking area will be gravel and will be paved at some point in the future. For the purposes of these calculations, the parking area has been considered paved. The project entrance drive will use the existing paved driveway which accessed the rear residence. A new paved drop-off area will be constructed adjacent to the building. According to the site plan prepared by the project architect, the building and parking area will drain overland via a constructed swale and will be collected in a new catch basin located at the southwest corner of the parcel. This new catch basin and storm drain is intended to tie into an existing basin and drain line in Congress Street. In the post-developed condition, the total impervious area in Watershed 1 is expected to be 11,761 square feet. The total watershed area is 1.25 acres.

A small portion of the development will discharge to Watershed 2. This area consists of the northerly portion of the parking area. Flows will pass overland from the parking area via curb breaks. This runoff will flow in a generally northerly course through the remaining undeveloped portion of the property and will eventually reach the tributary along the northerly parcel border. The total impervious area in the post-development condition in Watershed 2 is 4,791 square feet. This represents a slight overall shift in the total imperviousness in this watershed. The total post-development watershed area is 4.9 acres.

Soils

The on-site soils have been determined based on the Cumberland County Medium Intensity Soil Survey to be as follows:

Soil	HSG
Limerick (Ls)	C
Buxton (BuB)	C/D

The soils in the stockpile area have been mapped as Hollis (C/D) and Belgrade (B). Due to their disturbance, the soils have been assumed to be in the HSG "C" category.

Methodology

In order to evaluate the anticipated runoff conditions, pre and post-development calculations were performed for the 2, 10 and 25-year storms. Flows were evaluated using the HydroCAD system software based on the USDA's TR-55 and TR-20 methodology. Tables in the following sections summarize the input data and results of the calculations. HydroCAD computations are attached to this narrative. Hydrographs for the 10-year storm are also included.

Results

The following input data was used to generate the anticipated runoff values:

Table 1						
Watershed	Pre-Development			Post-Development		
	Area (Ac)	CN	Tc (Min)	Area (Ac)	CN	Tc (Min)
1	1.42	79	7	1.25	79	7
2	4.73	86	21.2	4.9	86	21.2

Based on the input data, the following results have been obtained:

Table 2									
Watershed	2-Year Storm (cfs)			10-Year Storm (cfs)			25-Year Storm (cfs)		
	Pre	Post	Change	Pre	Post	Change	Pre	Post	Change
1	1.67	1.47	-0.20	3.62	3.18	-0.44	4.59	4.04	-0.55
2	6.01	6.23	+0.22	11.44	11.85	+0.41	14.03	14.54	+0.51

Water Quality

According to Mr. Bowdler’s site design, the majority of the parking area runoff is dispersed off the pavement by breaks in the perimeter curbing. Flows from the parking area in Watershed 1 are collected via a vegetated swale along the western side of the building. This swale provides a degree of water quality enhancement via vegetative contact prior to entering the new site catch basin and storm drain connection. Runoff from the paved parking area in Watershed 2 is also benefited by the use of overland flow prior to reaching the site’s discharge along the property line. Given the limited increase in impervious area on the site and the benefits afforded by contact with surface vegetation, no further water quality measures are proposed.

Closure

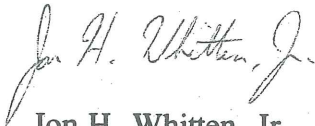
As Tables 1 and 2 show, the proposed improvements in Watershed 1 are not expected to increase the peak flow rates entering the Congress Street drainage system. As such, no formal detention is proposed. The proposed land use changes in Watershed 2 do cause an expected increase in peak runoff. This anticipated increase in peak runoff is 0.51 cfs in the 25-year storm. This equates to an approximately 3.6% increase in the 25-year peak. As was noted, the point of analysis for Watershed 2 is the tributary to the Stroudwater River which forms the northerly parcel border. According to the USGS mapping, this point is approximately 800’ upstream of the point at which the tributary meets the Stroudwater River. Watershed 2 is very small in the context of the overall size of the entire watershed contributing to this tributary. In addition, the site’s discharge is in a downstream location in the Stroudwater River Watershed.

7c

Given these factors, in conjunction with the slight increase in peak runoff leaving the parcel, on-site stormwater detention is not proposed. It is expected that the slight increase in peak runoff as a result of this project will not have a significant adverse effect on the downstream receiving bodies.

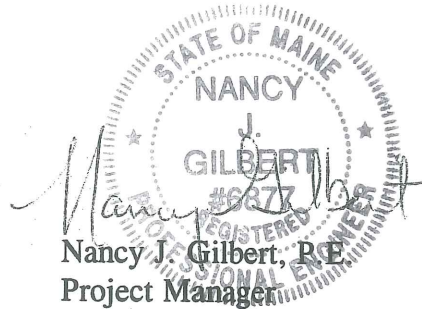
Prepared by:

SEBAGO TECHNICS, INC.



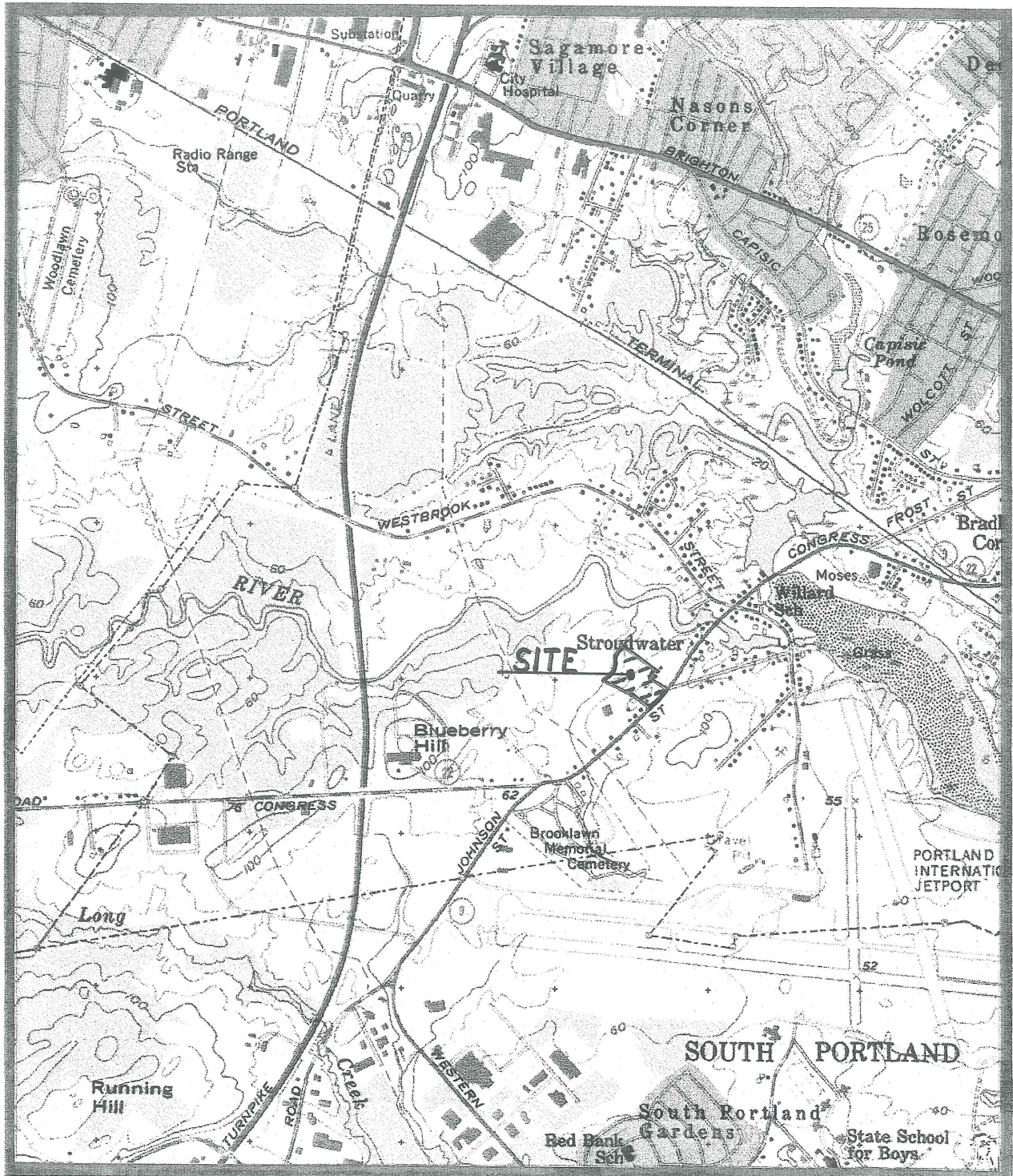
Jon H. Whitten, Jr.
Design Engineer

JHW/NJG:jc
March 19, 1999



Nancy J. Gilbert, P.E.
Project Manager

7d



SITE LOCATION MAP
USGS 7.5 MIN. TOPOGRAPHIC
PORTLAND WEST QUADRANGLE
SCALE 1"=2000'

WATERSHED ROUTING



SUBCATCHMENT



REACH



POND



LINK

SUBCATCHMENT 1 FRONT OF PARCEL

PEAK= 1.72 CFS @ 12.04 HRS, VOLUME= .13 AF

<u>ACRES</u>	<u>CN</u>		SCS TR-20 METHOD
.16	98	BUILDINGS AND DRIVEWAY	TYPE III 24-HOUR
.31	86	GRASS POOR C SOILS	RAINFALL= 3.00 IN
.95	74	GRASS GOOD C SOILS	SPAN= 10-20 HRS, dt=.1 HRS
<u>1.42</u>	<u>79</u>		

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	4.9
Grass: Short n=.15 L=75' P2=3 in s=.07 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.9
Short Grass Pasture Kv=7 L=100' s=.07 '/' V=1.85 fps		
Total Length= 175 ft		Total Tc= 5.8

SUBCATCHMENT 2 REAR OF PARCEL

PEAK= 6.01 CFS @ 12.25 HRS, VOLUME= .60 AF

<u>ACRES</u>	<u>CN</u>		SCS TR-20 METHOD
.03	98	EXISTING HOUSE AND GARAGE	TYPE III 24-HOUR
4.70	86	GRASS POOR C SOILS	RAINFALL= 3.00 IN
<u>4.73</u>	<u>86</u>		SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	18.5
Grass: Short n=.15 L=150' P2=3 in s=.01 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	1.8
Short Grass Pasture Kv=7 L=75' s=.01 '/' V=.7 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.2
Short Grass Pasture Kv=7 L=50' s=.25 '/' V=3.5 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.7
Short Grass Pasture Kv=7 L=50' s=.03 '/' V=1.21 fps		
Total Length= 325 ft		Total Tc= 21.2

REACH 1

Not described

Qin = 1.72 CFS @ 12.04 HRS, VOLUME= .13 AF
Qout= 1.72 CFS @ 12.04 HRS, VOLUME= .13 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT

PEAK VELOCITY= 0.0 FPS

TRAVEL TIME = 0.0 MIN

SPAN= 10-20 HRS, dt=.1 HRS

WATERSHED ROUTING



SUBCATCHMENT



REACH



POND



LINK

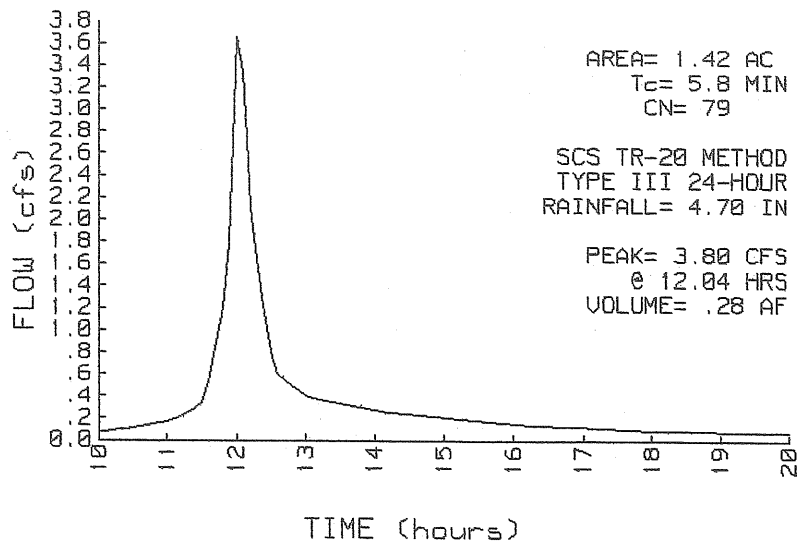
SUBCATCHMENT 1 FRONT OF PARCEL

PEAK= 3.80 CFS @ 12.04 HRS, VOLUME= .28 AF

ACRES	CN		SCS TR-20 METHOD
.16	98	BUILDINGS AND DRIVEWAY	TYPE III 24-HOUR
.31	86	GRASS POOR C SOILS	RAINFALL= 4.70 IN
.95	74	GRASS GOOD C SOILS	SPAN= 10-20 HRS, dt=.1 HRS
1.42	79		

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	4.9
Grass: Short n=.15 L=75' P2=3 in s=.07 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.9
Short Grass Pasture Kv=7 L=100' s=.07 '/' V=1.85 fps		
Total Length= 175 ft		Total Tc= 5.8

SUBCATCHMENT 1 RUNOFF
 FRONT OF PARCEL



SUBCATCHMENT 2 REAR OF PARCEL

PEAK= 11.44 CFS @ 12.24 HRS, VOLUME= 1.13 AF

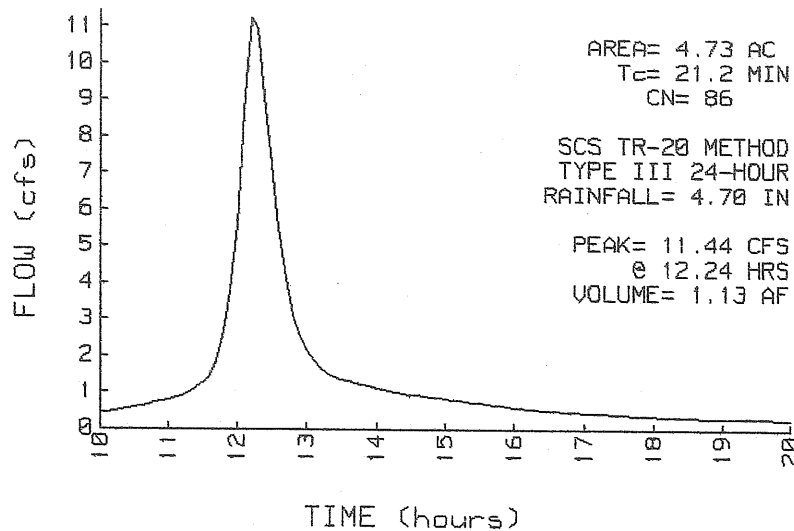
ACRES	CN
.03	98
4.70	86
4.73	86

EXISTING HOUSE AND GARAGE
 GRASS POOR C SOILS

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 4.70 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	18.5
Grass: Short n=.15 L=150' P2=3 in s=.01 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	1.8
Short Grass Pasture Kv=7 L=75' s=.01 '/' V=.7 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.2
Short Grass Pasture Kv=7 L=50' s=.25 '/' V=3.5 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.7
Short Grass Pasture Kv=7 L=50' s=.03 '/' V=1.21 fps		
Total Length= 325 ft		Total Tc= 21.2

**SUBCATCHMENT 2 RUNOFF
 REAR OF PARCEL**



REACH 1

Not described

Qin = 3.80 CFS @ 12.04 HRS, VOLUME= .28 AF

Qout= 3.80 CFS @ 12.04 HRS, VOLUME= .28 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

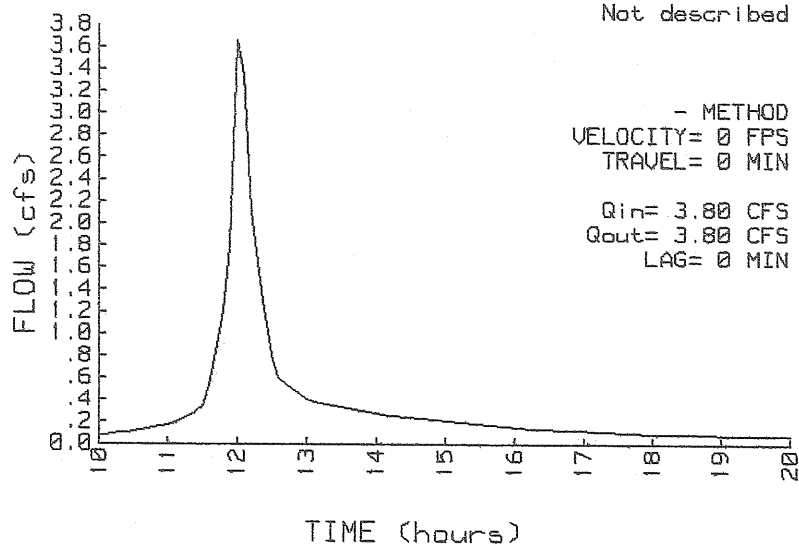
PEAK DEPTH= 0.00 FT

PEAK VELOCITY= 0.0 FPS

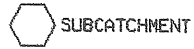
TRAVEL TIME = 0.0 MIN

SPAN= 10-20 HRS, dt=.1 HRS

REACH 1 INFLOW & OUTFLOW



WATERSHED ROUTING



SUBCATCHMENT 1 FRONT OF PARCEL

PEAK= 4.83 CFS @ 12.03 HRS, VOLUME= .35 AF

<u>ACRES</u>	<u>CN</u>		SCS TR-20 METHOD
.16	98	BUILDINGS AND DRIVEWAY	TYPE III 24-HOUR
.31	86	GRASS POOR C SOILS	RAINFALL= 5.50 IN
.95	74	GRASS GOOD C SOILS	SPAN= 10-20 HRS, dt=.1 HRS
1.42	79		

<u>Method</u>	<u>Comment</u>	<u>Tc (min)</u>
TR-55 SHEET FLOW	Segment ID:	4.9
Grass: Short n=.15 L=75' P2=3 in s=.07 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.9
Short Grass Pasture Kv=7 L=100' s=.07 '/' V=1.85 fps		
Total Length= 175 ft		Total Tc= 5.8

SUBCATCHMENT 2 REAR OF PARCEL

PEAK= 14.03 CFS @ 12.24 HRS, VOLUME= 1.39 AF

<u>ACRES</u>	<u>CN</u>		SCS TR-20 METHOD
.03	98	EXISTING HOUSE AND GARAGE	TYPE III 24-HOUR
4.70	86	GRASS POOR C SOILS	RAINFALL= 5.50 IN
4.73	86		SPAN= 10-20 HRS, dt=.1 HRS

<u>Method</u>	<u>Comment</u>	<u>Tc (min)</u>
TR-55 SHEET FLOW	Segment ID:	18.5
Grass: Short n=.15 L=150' P2=3 in s=.01 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	1.8
Short Grass Pasture Kv=7 L=75' s=.01 '/' V=.7 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.2
Short Grass Pasture Kv=7 L=50' s=.25 '/' V=3.5 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.7
Short Grass Pasture Kv=7 L=50' s=.03 '/' V=1.21 fps		
Total Length= 325 ft		Total Tc= 21.2

REACH 1

Not described

Qin = 4.83 CFS @ 12.03 HRS, VOLUME= .35 AF

Qout= 4.83 CFS @ 12.03 HRS, VOLUME= .35 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

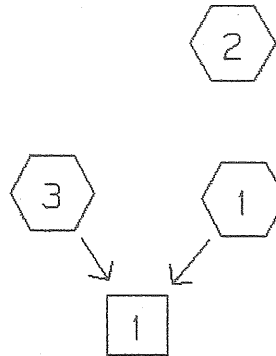
PEAK DEPTH= 0.00 FT

PEAK VELOCITY= 0.0 FPS

TRAVEL TIME = 0.0 MIN

SPAN= 10-20 HRS, dt=.1 HRS

WATERSHED ROUTING



SUBCATCHMENT 1 FRONT OF PARCEL

PEAK= 1.08 CFS @ 11.99 HRS, VOLUME= .07 AF

ACRES	CN	
0.00	0	
.15	98	PROPOSED DRIVEWAY
.04	98	PROPOSED SIDEWALK
0.00	0	
.56	74	GRASS GOOD C SOILS
.75	80	

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 3.00 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	.2
Smooth surfaces n=.011 L=20'	P2=3 in s=.05 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.6
Paved Kv=20.3282 L=175'	s=.05 '/' V=4.55 fps	
Total Length= 195 ft		Total Tc= .8

SUBCATCHMENT 2 REAR OF PARCEL

PEAK= 6.23 CFS @ 12.25 HRS, VOLUME= .62 AF

ACRES	CN	
.11	98	PROPOSED PARKING
4.79	86	GRASS POOR C SOILS
4.90	86	

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 3.00 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	18.5
Grass: Short n=.15 L=150'	P2=3 in s=.01 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	1.8
Short Grass Pasture Kv=7 L=75'	s=.01 '/' V=.7 fps	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.2
Short Grass Pasture Kv=7 L=50'	s=.25 '/' V=3.5 fps	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.7
Short Grass Pasture Kv=7 L=50'	s=.03 '/' V=1.21 fps	
Total Length= 325 ft		Total Tc= 21.2

SUBCATCHMENT 3

FRONT OF PARCEL

PEAK= .72 CFS @ 12.01 HRS, VOLUME= .05 AF

ACRES	CN	
.06	98	PROPOSED BUILDING
0.00	0	
.01	98	PROPOSED SIDEWALK
.06	98	PROPOSED PARKING
.37	74	GRASS GOOD C SOILS
.50	80	

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 3.00 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	.5
Smooth surfaces n=.011 L=30'	P2=3 in s=.02 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.7
Short Grass Pasture Kv=7 L=40'	s=.02 '/' V=.99 fps	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	2.4
Short Grass Pasture Kv=7 L=190'	s=.035 '/' V=1.31 fps	
Total Length= 260 ft		Total Tc= 3.6

REACH 1

Not described

Qin = 1.79 CFS @ 12.00 HRS, VOLUME= .12 AF

Qout= 1.79 CFS @ 12.00 HRS, VOLUME= .12 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

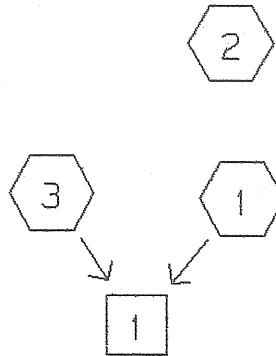
PEAK DEPTH= 0.00 FT

PEAK VELOCITY= 0.0 FPS

TRAVEL TIME = 0.0 MIN

SPAN= 10-20 HRS, dt=.1 HRS

WATERSHED ROUTING



SUBCATCHMENT 1 FRONT OF PARCEL

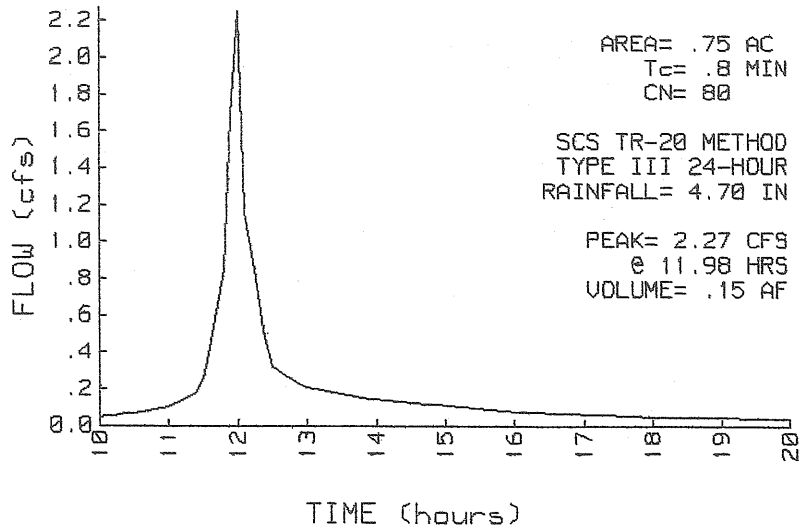
PEAK= 2.27 CFS @ 11.98 HRS, VOLUME= .15 AF

ACRES	CN	
0.00	0	
.15	98	PROPOSED DRIVEWAY
.04	98	PROPOSED SIDEWALK
0.00	0	
.56	74	GRASS GOOD C SOILS
.75	80	

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 4.70 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	.2
Smooth surfaces n=.011 L=20'	P2=3 in s=.05 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.6
Paved Kv=20.3282 L=175'	s=.05 '/' V=4.55 fps	
Total Length= 195 ft		Total Tc= .8

SUBCATCHMENT 1 RUNOFF
 FRONT OF PARCEL



SUBCATCHMENT 2 REAR OF PARCEL

PEAK= 11.85 CFS @ 12.24 HRS, VOLUME= 1.17 AF

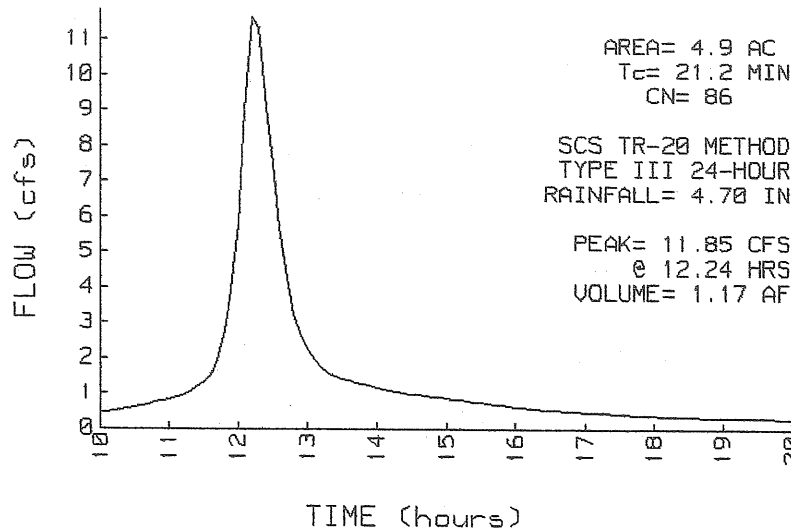
ACRES	CN
.11	98
4.79	86
4.90	86

PROPOSED PARKING
 GRASS POOR C SOILS

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 4.70 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	18.5
Grass: Short n=.15 L=150' P2=3 in s=.01 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	1.8
Short Grass Pasture Kv=7 L=75' s=.01 '/' V=.7 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.2
Short Grass Pasture Kv=7 L=50' s=.25 '/' V=3.5 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.7
Short Grass Pasture Kv=7 L=50' s=.03 '/' V=1.21 fps		
Total Length= 325 ft		Total Tc= 21.2

SUBCATCHMENT 2 RUNOFF
 REAR OF PARCEL



SUBCATCHMENT 3 FRONT OF PARCEL

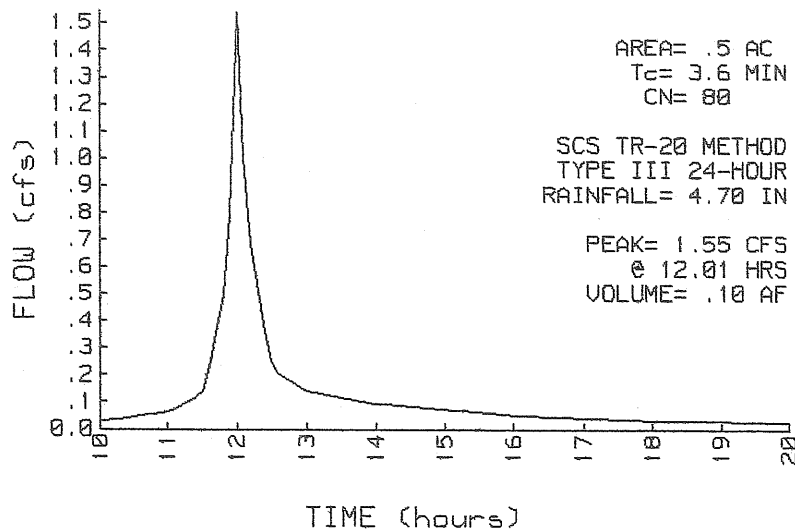
PEAK= 1.55 CFS @ 12.01 HRS, VOLUME= .10 AF

ACRES	CN	
.06	98	PROPOSED BUILDING
0.00	0	
.01	98	PROPOSED SIDEWALK
.06	98	PROPOSED PARKING
.37	74	GRASS GOOD C SOILS
.50	80	

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 4.70 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	.5
Smooth surfaces n=.011 L=30'	P2=3 in s=.02 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.7
Short Grass Pasture Kv=7 L=40'	s=.02 '/' V=.99 fps	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	2.4
Short Grass Pasture Kv=7 L=190'	s=.035 '/' V=1.31 fps	
Total Length= 260 ft		Total Tc= 3.6

SUBCATCHMENT 3 RUNOFF
 FRONT OF PARCEL



REACH 1

Not described

Qin = 3.80 CFS @ 11.99 HRS, VOLUME= .25 AF

Qout= 3.80 CFS @ 11.99 HRS, VOLUME= .25 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

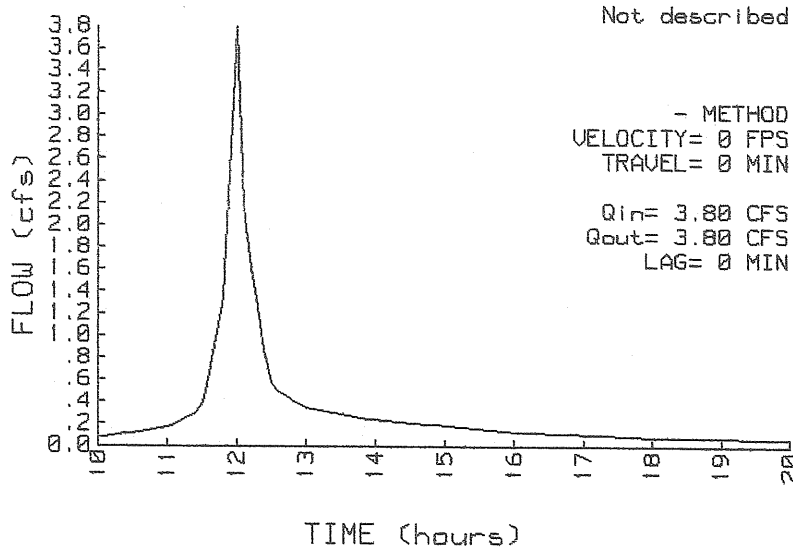
PEAK DEPTH= 0.00 FT

PEAK VELOCITY= 0.0 FPS

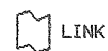
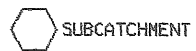
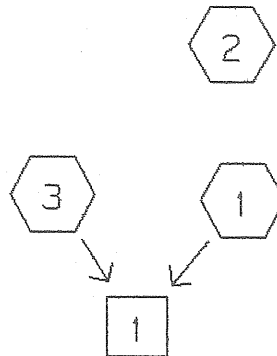
TRAVEL TIME = 0.0 MIN

SPAN= 10-20 HRS, dt=.1 HRS

REACH 1 INFLOW & OUTFLOW



WATERSHED ROUTING



SUBCATCHMENT 1 FRONT OF PARCEL

PEAK= 2.86 CFS @ 11.98 HRS, VOLUME= .19 AF

ACRES	CN	
0.00	0	
.15	98	PROPOSED DRIVEWAY
.04	98	PROPOSED SIDEWALK
0.00	0	
.56	74	GRASS GOOD C SOILS
.75	80	

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 5.50 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	.2
Smooth surfaces n=.011 L=20' P2=3 in s=.05 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.6
Paved Kv=20.3282 L=175' s=.05 '/' V=4.55 fps		
Total Length= 195 ft		Total Tc= .8

SUBCATCHMENT 2 REAR OF PARCEL

PEAK= 14.54 CFS @ 12.24 HRS, VOLUME= 1.44 AF

ACRES	CN	
.11	98	PROPOSED PARKING
4.79	86	GRASS POOR C SOILS
4.90	86	

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 5.50 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	18.5
Grass: Short n=.15 L=150' P2=3 in s=.01 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	1.8
Short Grass Pasture Kv=7 L=75' s=.01 '/' V=.7 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.2
Short Grass Pasture Kv=7 L=50' s=.25 '/' V=3.5 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.7
Short Grass Pasture Kv=7 L=50' s=.03 '/' V=1.21 fps		
Total Length= 325 ft		Total Tc= 21.2

SUBCATCHMENT 3

FRONT OF PARCEL

PEAK= 1.95 CFS @ 12.01 HRS, VOLUME= .13 AF

ACRES	CN	
.06	98	PROPOSED BUILDING
0.00	0	
.01	98	PROPOSED SIDEWALK
.06	98	PROPOSED PARKING
.37	74	GRASS GOOD C SOILS
.50	80	

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 5.50 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	.5
Smooth surfaces n=.011 L=30'	P2=3 in s=.02 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.7
Short Grass Pasture Kv=7 L=40'	s=.02 '/' V=.99 fps	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	2.4
Short Grass Pasture Kv=7 L=190'	s=.035 '/' V=1.31 fps	
Total Length= 260 ft		Total Tc= 3.6

REACH 1

Not described

Qin = 4.78 CFS @ 11.99 HRS, VOLUME= .32 AF

Qout= 4.78 CFS @ 11.99 HRS, VOLUME= .32 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT

PEAK VELOCITY= 0.0 FPS

TRAVEL TIME = 0.0 MIN

SPAN= 10-20 HRS, dt=.1 HRS

CITY OF PORTLAND, MAINE
PLANNING BOARD

John H. Carroll, Chair
Jaimey Caron, Vice Chair
Kenneth M. Cole III
Cyrus Y. Hagge
Deborah Krichels
Erin Rodriguez
Mark Malone

June 22, 1999

Mr. Walter Webber
Jensen Baird Gardner & Henry
Ten Free Street
P.O. Box 4510
Portland, ME 04112

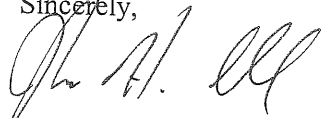
RE: Masonic Learning Center for Children, 1903 Congress Street

Dear Mr. Webber:

On June 22, 1999 the Portland Planning Board voted 4-0 (Carroll, Hagge absent, Cole abstained) to reconsider the conditional use project for the Masonic Learning Center for Children located at 1903 Congress Street. The Board also voted 4-0 (Carroll, Hagge absent, Cole abstained) to table this item to the next available meeting.

If there are any questions, please contact the Planning Staff.

Sincerely,



Jaimey Caron, Vice Chair
Portland Planning Board

cc: Joseph E. Gray, Jr., Director of Planning and Urban Development
Alexander Jaegerman, Chief Planner
✓Kandice Talbot, Planner
P. Samuel Hoffses, Building Inspector
Marge Schmuckal, Zoning Administrator
Tony Lombardo, Project Engineer
Development Review Coordinator
William Bray, Director of Public Works
Jeff Tarling, City Arborist
Penny Littell, Associate Corporation Counsel
Lt. Gaylen McDougall, Fire Prevention
Inspection Department
Kathleen Brown, Director of Economic Development
Susan Doughty, Assessor's Office
Approval Letter File

CITY OF PORTLAND, MAINE
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June 22, 1999

Mr. Walter Webber
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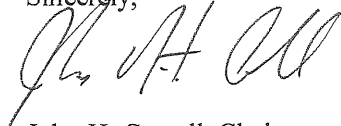
RE: Masonic Learning Center for Children, 1903 Congress Street

Dear Mr. Webber:

On June 8, 1999 the Portland Planning Board voted 1-4 (Carroll, Caron, Hagge, Malone opposed, Cole abstained, Krichels absent) to deny the conditional use project for the Masonic Learning Center for Children located at 1903 Congress Street. The denial was based on the fact that the applicant did not meet the conditional use standard regarding displacement of residential uses after 1983.

If there are any questions, please contact the Planning Staff.

Sincerely,



John H. Carroll, Chair
Portland Planning Board

cc: Joseph E. Gray, Jr., Director of Planning and Urban Development
Alexander Jaegerman, Chief Planner
✓ Kandice Talbot, Planner
P. Samuel Hoffses, Building Inspector
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SUZANNE R. SCOTT

June 14, 1999

BY FAX #756-8258

Mr. John Carroll, Chairman
Planning Board
City of Portland
City Hall
389 Congress Street
Portland, ME 04101

Re: 32° Masonic Learning Center for Children, 1905 Congress Street, Portland

Dear Mr. Carroll:

Please consider this letter as a request for reconsideration of the Conditional Use Permit application in connection with the above project that was denied on Tuesday, June 8, 1999.

The issue as I understand it is with reference to Section 14-78(2)d ii – “the proposed use will not cause significant displaced or conversion of residential uses existing as of June 1, 1983, or thereafter;” Originally, the Masonic Trustees of Portland had acquired the property located at 1877-1901 Congress Street for the relocation of the Masonic activities which then and now occur at 415 Congress Street in Portland.

The original plan as approved by the Planning Board in 1989 was for a 62,000 square foot building. At that point, it was determined that one of the two residences on site would be demolished and that the second residence would be maintained for a caretaker’s residence. Because of what had then become a languishing real estate market, in May 1990, the Trustees requested a twelve month extension of the approvals given (see copy of my letter dated May 25, 1990, to Joseph E. Gray, Jr.). Both residences were moved from the site in the spring of 1990. One home was purchased by S&L Enterprises and was moved to 11 Humboldt Street in Portland. The second home was purchased by Ahlquist and Chadborne and was moved to Beech Ridge Road in Scarborough.

The Trustees had determined that the homes should not be demolished so as not to diminish the residential housing stock and hence a concerted effort was made to find prospective

Mr. John Carroll, Chairman
City of Portland Planning Board
June 14, 1999
Page 2

purchasers for the houses. At no time were any of the people who were involved in the decision making aware that the second home on the site could not be or should not be moved. Indeed, my letter of May 25, 1990, would indicate that the site was being further prepared for new construction with the removal of the two residences.

During the intervening nine years, the character of the neighborhood has changed dramatically – much of it by action of the City of Portland including a new entrance to the Airport and the sale of much of the Elks Club land to UNUM and the proposed rezoning of that land to Professional Office Zone, presumably to accommodate future expansion plans for UNUM.

The relevant Section 14-78(2)d ii speaks in terms of “significant displacement or conversion of residential uses.” A review of abutting properties and property uses would caption this an area of mixed uses. The Planning Board, in all due respect, seemed not to focus on this fact and did not make a finding of fact of “significant displacement.” Remember, we are speaking of at best one residence being removed, as it was always contemplated that one would be demolished. The Trustees chose to have it relocated.

I, also, believe it is most relevant that the Board consider the fact that neither house was demolished but were given, so to speak, new leases on life by being relocated and currently being utilized for residential purposes.

Further, the proposed use is to construct a three hundred thousand dollar facility whose sole purpose will be an eleemosynary one – to tutor children, who have been diagnosed with dyslexia, on a one on one basis using the Orton-Gillingham training method. The national organization will provide up to \$125,000 annually (excluding utility and insurance costs) to fund the program. The program is designed to accommodate about thirty children between the ages of 6 and 16 years of age at a cost per student of between \$3,000 and \$3,400 at no cost to the student or their parents.

To date, the Scottish Rite Masons in Portland have funded the project to approximately \$25,000 for architectural and engineering costs and the Portland Commandery York Rite Masons have pledged \$100,000 and the land upon which to locate the facility. The sole purpose is to enrich our community fabric by providing a learning technique to overcome a disability, thereby unleashing potential that might not otherwise be unleashed. Truly a magnificent goal and one which can become a beacon of voluntary and charitable effort for the entire Portland region and without cost to the community.

JENSEN BAIRD GARDNER & HENRY

Mr. John Carroll, Chairman
City of Portland Planning Board
June 14, 1999
Page 3

For the foregoing reasons, I would ask that you reconsider the denial action of the conditional use permit taken at your June 8, 1999, meeting.

Very truly yours,

A handwritten signature in black ink, appearing to read "Walter E. Webber". The signature is fluid and cursive, with a large initial "W" and "E".

Walter E. Webber

baw

Enclosure

cc: Stanley F. Sampson, Jr.
Joseph F. Gray
Michael Bowdler
Kandice Talbot

JENSEN BAIRD GARDNER & HENRY

775-7935

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GWENDOLYN H. LYFORD
JEFFREY D. CLEMENTS
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BIDDEFORD OFFICE
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TELECOPIER (207) 282-6301

May 25, 1990

Joseph E. Gray, Jr., Director
Planning & Urban Development
City of Portland
389 Congress Street
Portland, ME 04101

Re: 1877-1901 Congress Street

Dear Joe:

Please consider this a request on behalf of Portland Masonic Trustees for the City of Portland to extend its approval of their site plan for an additional twelve-month period.

One of the existing residences on the site has been moved to a new location. The second residence will be moved in a few days so some work has, in fact, commenced. We are still awaiting our 501(c)(3) status determination from the Internal Revenue Service.

Thank you for your consideration.

Very truly yours,


Walter E. Webber

WEW/nlv

cc: Charles Tarkinson

**CITY OF PORTLAND, MAINE
MEMORANDUM**

TO: Chair Carroll and Members of the Portland Planning Board

FROM: Kandice Talbot, Planner

DATE: June 8, 1999

SUBJECT: The 32 Degree Masonic Learning Center For Children, 1903 Congress Street

At the May 11th Public Hearing, the Planning Board tabled this item due to unresolved issues. Masonic Temple has now revised the plans and is requesting conditional use and site plan approval for a 2,785 sq. ft. building. Attached please find the May 11th Planning Board Report. Following is a recap of the issues and information submitted to address these issues.

Traffic/Circulation/Parking

Staff had concerns with the driveway entrance, pavement structure buildup and a turning circle to the north of the parking lot. The applicant has revised the driveway and parking layout since the last meeting. Because of grades within the driveway area, the driveway now bends towards the north to accommodate a handicap accessible sidewalk. The turning circle has been eliminated, along with two parking spaces to reduce the amount of pavement on site. The applicant has also revised the plan to show 20 ft. radius at the entrance of the driveway and revised the pavement structure buildup detail as recommended by the Development Review Coordinator.

Building Design

At the last planning board meeting, the Board raised a number of issues concerning building design. The plans do not indicate any change to the design of the building.

Utilities

Since the last meeting, the applicant has received capacity letters from Portland Water District, Portland Sewer Division, Northern Utilities, and Bell Atlantic. The applicant had proposed to connect the storm drain system into catch basins in Congress Street. Public Works does not allow extensions of storm drain systems from catch basins. The applicant has revised the plan to show the storm drain system connecting into a new manhole in Congress Street. Public Works has reviewed the plan and is recommending that the applicant specify the repairs necessary within the City's Congress Street right of way which will be affected by the proposed utility connections. Public Works' memo is included as Attachment 6.

Landscaping

Since the last meeting, the applicant has revised the plan to show three additional 5 ft. pines along Congress Street. The applicant has also added the note regarding preservation of existing vegetation.

Drainage

The drainage plan has been revised since the last meeting. The applicant is proposing that the front portion of the site, which includes the building and the access drive will drain toward Congress Street and will be collected in catch basins and tie into the city storm drain system. The parking area will sheetflow in a northerly course to a stone check dam, then through the undeveloped portion of the site and will eventually reach the tributary along the northerly property line.

The Development Review Coordinator has reviewed the plan and feels that the site plan needs to be revised to show additional details regarding building, road and parking layout dimensions, walkway stairs detail, on-site and city standard sidewalk details, and curb details. The DRC is also recommending that the new drain manhole be located opposite catch basin 2 instead of catch basin 1 because of the slope of Congress Street. Also the catch basins should conform to city standards and include the use of casco traps. The DRC is also recommending that the stormwater analysis be revised. The applicant is stating that the proposed condition will be less than the existing conditions. However, the area of impervious surface doubled in size, therefore the DRC does not agree with the applicant that the post-condition is less than the pre-condition. The DRC's memo is included as Attachment 7. A potential condition of approval is:

- That the applicant revise the plans in accordance with the Development Review Coordinator's memo dated June 4, 1999 in regards to details, location of drain manhole, catch basin standards, and revision to stormwater analysis.

Lighting

The Planning Board was concerned with the amount of lights on site. The applicant is still proposing seven light poles, six surrounding the parking lot, and one along the access drive. All poles will be 14 ft. high and the wattage will be 175 watts. The applicant has submitted a photometric plan showing the entire site, and there will be no trespassing of light onto abutting properties.

Fire Safety

The Fire Department had asked that a fire hydrant be located within 800 ft. of the project. The plan shows a hydrant located across from the entrance drive.

Residential Uses

At the last meeting, the Planning Board had asked when the residential home was removed from the site and whether they were displaced as of June 1, 1983, or thereafter. Records show that in 1988 when the Masonic Trustees received conditional use and site plan approval for a 62,000 sq. ft. Masonic lodge, there were two single family homes located on the site. At that time it was the intention of the applicant to move the existing homes to other lots in the area. At the request of the Planning Board, the applicant had agreed to keep one home on site and retain it as a residential use.

*Lighting
is still
a concern -
too
much*

Since 1988 these residential uses have been removed. There is no record of when these buildings were removed from the site, but the applicant's attorney believes that in both instances they were moved from the site and were not demolished so as to not to adversely effect the housing stock in the City of Portland. Corporation Counsel will be available at the meeting to answer any questions the Board may have regarding displacement of residential units as of June 1, 1983 or after.

Solid Waste Removal and Screening

The applicant is not proposing a dumpster for this facility, because they do not believe they will generate sufficient solid waste to require a dumpster.

The applicant is proposing a condenser unit to the east of the building. The plan does not show screening of this condenser unit. The applicant shall screen the unit with either landscaping of stockade fencing.

Motions for the Board to Consider

On the basis of plans and materials submitted by the applicant and on the basis of information provided in Planning Board Report #16-99 and Memo dated June 8, 1999 relevant to standards for site plan and conditional use review, the Board finds:

- Rodriguez*
1-4 fails
- i. That the plan is/is not in conformance with the Conditional Use Standards of the Land Use Code.
 - ii. That the plan is/is not in conformance with the Site Plan Standards of the Land Use Code.

Potential Conditions of Approval

- James Caron, Carroll, Hagge, Malone*
Cole abstained, Krichels absent
- that the applicant screen the condenser unit with either landscaping or stockade fencing and revise the plan accordingly for review and approval by staff
 - that the applicant revise the plan in accordance with Public Works' memo dated 6/4/99 regarding repairs necessary within the City right of way which will be affected by utility connections.
 - That the applicant revise the plans in accordance with the Development Review Coordinator's memo dated June 4, 1999 in regards to details, location of drain manhole, catch basin standards, and revision to stormwater analysis.

Attachments:

1. Letter to Applicant dated 5/15/99
2. Letter from Applicant's Attorney dated 5/19/99
3. Letter from Applicant dated 6/1/99
4. Revised Stormwater Report
5. Utility Letters
6. Public Works' Memo dated 6/4/99
7. DRC's Memo dated 6/4/99
8. Plans
9. Planning Board Report #16-99

JENSEN BAIRD GARDNER & HENRY

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June 8, 1999

BY FAX #756-8258

Ms. Kandice Talbot, Planner
City of Portland
Planning Department
389 Congress Street
Portland, ME 04101

Re: 32° Masonic Learning Centers for Children, 1905 Congress Street, Portland, Maine

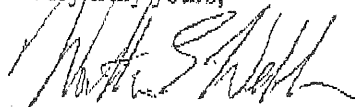
Dear Kandi:

I have been in touch with White Brothers, Inc., in connection with their fill operation at 1905 Congress Street conducted with permission and oversight by the City of Portland. The fill had been placed on the back of the site commencing in mid-1994 through the spring of 1998. As the area was filled, it was compacted with mulch covering the embankment on the back and northeasterly side of the fill area. In addition, a silt fence was installed and remains in place. There now appears to be a stabilized bank with grass and clover ground cover in place.

In speaking with White Brothers, specifically Bob St. Clair, I am informed that they have placed all of the fill that they intend to on the site, that throughout there has been oversight by the City and that they have maintained best erosion control practices and that both the elevation and dimension of the fill area was limited by the City in the first instance and that the work is now complete from their perspective.

I trust that the foregoing addresses your concerns.

Very truly yours,



Walter E. Webber

baw

cc: Mr. Robert St. Clair (White Bros.)
Mr. Charles Tarkinson

JENSEN BAIRD GARDNER & HENRY

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June 8, 1999

BY FAX #756-8258

Ms. Kandice Talbot, Planner
City of Portland
Planning Department
389 Congress Street
Portland, ME 04101Re: 32nd Masonic Learning Centers for Children, 1905 Congress Street, Portland, Maine

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June 8, 1999

BY FAX #756-8258

Ms. Kandice Talbot, Planner
City of Portland
Planning Department
389 Congress Street
Portland, ME 04101Re: 32nd Masonic Learning Centers for Children, 1905 Congress Street, Portland, Maine

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June 8, 1999

BY FAX #756-8258

Ms. Kandicc Talbot, Planner
City of Portland
Planning Department
389 Congress Street
Portland, ME 04101Re: 32nd Masonic Learning Centers for Children, 1905 Congress Street, Portland, Maine

Dear Kandi:

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I trust that the foregoing addresses your concerns.

Very truly yours,



Walter E. Webber

baw

cc: Mr. Robert St. Clair (White Bros.)
Mr. Charles Tarkinson

JENSEN BAIRD GARDNER & HENRY

ATTORNEYS AT LAW

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June 8, 1999

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City of Portland
Planning Department
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Portland, ME 04101

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June 8, 1999

BY FAX #756-8258

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City of Portland
Planning Department
389 Congress Street
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June 8, 1999

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City of Portland
Planning Department
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June 8, 1999

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Planning & Urban Development

Joseph E. Gray Jr.
Director

CITY OF PORTLAND

May 15, 1999

Michael C. Bowdler
Architect
29 Trundy Road
Cape Elizabeth, ME 04107

Re: Masonic Learning Center

Dear Mr. Bowdler:

Below are a list of items that will need to be addressed prior to the Public Hearing, which has been scheduled for June 8, 1999. The revised plans and information should be submitted two weeks prior to the June 8th meeting.

1. The storm drain system proposes to connect into catch basins in Congress Street; typically, Public Works does not allow extensions of storm drain systems into catch basins. The applicant should coordinate with Tony Lombardo at Public Works as to where the storm drain system should connect.
2. The driveway entrance should have a minimum 20 ft. radius with handicapped ramps for the sidewalks. A detail shall be added to the plan showing the 20 ft. radius. The applicant should coordinate with Tony Lombardo or Larry Ash at Public Works regarding the driveway entrance.
3. A sewer capacity letter shall be submitted to staff. The applicant will need to contact Frank Brancely at Public Works.
4. Is the applicant proposing any school buses or large vehicles to frequent the site? If not, then the applicant should eliminate the cul-de-sac. If a turnaround is needed for buses or large vehicles, the applicant should look into alternatives so that there is not such a huge amount of pavement.
5. Staff is recommending that the applicant revise the pavement structure buildup be increased to 12" of subbase gravel, 3" of base gravel, 2" of base pavement and 1" of surface pavement. The detail on the plan shall be revised.

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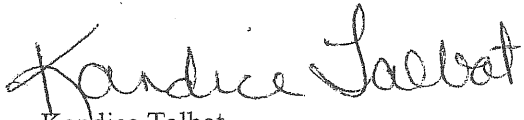
6. Erosion control notes should be added to the plan that meet the technical standards. If the applicant is retaining Sebago Technics, they can provide you with the typical erosion control notes which shall apply to the plan. Staff is also recommending that an appropriate erosion control blanket 5 ft. wide be installed within the on-site swale to the catch basin. The erosion control plan should be placed within the construction plan set.
7. The stormwater report needs to be revised based on revised site plan. The conclusions will likely change and Public Works may require the revised flows to evaluate the impact of the flow on capacity with the City system. Further, based on the submitted site plan showing the existing topography, we do not agree with the limits of the existing watersheds.
8. The existing grade around the upper parking area and cul-de-sac is very flat. Runoff from the new pavement area is likely to pond just off the pavement surface. Some minor grading of this area is recommended to positively drain the runoff away to prevent probable ponding.
9. The plan is not clear with regard to power, telephone, and cable service to the building. Will this facility require a pole or pad mounted transformer? If this will be a pad-mounted transformer, where will it be located? If there will be a transformer, then it should be screened by either landscaping or fencing, and a detail would need to be added to the plan.
10. An area for a dumpster has not been provided; if the applicant is not proposing a dumpster, please explain how much solid waste will be generated and what the proposal is for removal of solid waste.
11. It is staff's understanding that the fill operation on the site is completed except for final stabilization. The applicant should submit from MeDEP as to whether they are satisfied with the permit compliance to date. Also the applicant shall state what the schedule for final stabilization as it relates to this project schedule.
12. The plan shows new utility lines going through existing mature trees in the southwesterly area of the site. The applicant should try to relocate the utility lines, so as to not interfere with these existing trees.
13. The applicant shall install three (3) additional pine trees along Congress Street to extend the row of existing pines trees.
14. The applicant shall add the following note to the plan: Existing vegetation shall be conserved in areas shown on this site. Fencing or other protective barriers shall be erected outside the drip-line of individual, groupings of trees designated for preservation prior to the onset of construction. Regrading shall not take place within the drip-line of trees designated for preservation. No storage or construction materials shall be permitted within the drip-line of trees to be preserved.
15. What are the ages of the students to be taught at this school? The parking requirements state that schools providing instruction for students up to and including those fifteen years of age are required one parking space for each room used for purposes of instruction. Schools providing instruction for students sixteen years of age and older require one parking space for each ten

seats or major fraction thereof, used for purposes of instruction; if no fixed seats, one parking space for each one hundred square feet or major fraction thereof used for purposes of instruction. You may be able to eliminate some unnecessary pavement if the students are to be fifteen years and younger.

- 16. A revised photometric plan should be submitted showing the actual boundary of the property. The applicant should also provide height of light poles and wattage of light fixtures. The applicant should look into eliminating some light poles, which seem to be excessive.
- 17. I am in the process of doing research as to when the residential unit at this site was demolished. Is it possible that somebody from the Masonics who can tell me when this residential structure was demolished?
- 18. It was mentioned previously that the applicant had agreed to plant some additional spruce trees to provide screening for the abutting neighbor. The applicant shall show this additional planting on the site plan.

If you have any questions, please do not hesitate to contact me at 874-8901.

Sincerely,



Kandice Talbot
Planner

JENSEN BAIRD GARDNER & HENRY

ATTORNEYS AT LAW

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May 19, 1999

BY FAX #756-8258

Ms. Kandice Talbot, Planner
City of Portland
Planning Department
389 Congress Street
Portland, ME 04101

Re: 32° Masonic Learning Centers for Children, Inc.

Dear Kandi:

At the risk of complicating matters, I thought it perhaps best to write directly as a representative of owner with reference to several of the items covered in your May 15, 1999, letter to Michael C. Bowdler.

We understand that this matter has now been rescheduled for the Planning Board for hearing on June 8, 1999, and that prior to that you have requested:

1. That a storm drain system and storm drainage plan be submitted that is acceptable to the City of Portland. We have asked Nancy Gilbert at Sebago Technics to prepare that and to present it on our behalf.
2. With respect to the driveway entrance having a minimum 20-foot radius, that will be done together with handicapped ramps for sidewalks, and I have asked the architect to coordinate with your Public Works Department regarding the driveway entrance.
3. We have been in touch with Frank Brancely at Public Works with reference to a sewer capacity letter, and we would expect that to be forthcoming as the utilization of this property will be well under what a normal single family home would produce by way of sewage.
4. There is no anticipation whatsoever of any school buses or large vehicles frequenting in the site. Children will be dropped off presumably by their parent at the Center or the parent will stay while the student is being tutored. If buses are utilized, it would be as a result of children being dropped off on Congress Street at the property line and then walking up to the Center itself.

Ms. Kandice Talbot, Planner
City of Portland
May 19, 1999
Page 2

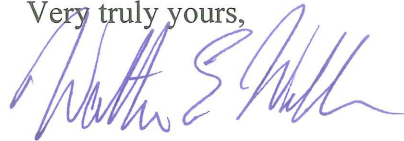
5. With reference to the requirement of pavement structure buildup, that will be done and the detail on the plan will be revised accordingly.
6. Erosion control notes will be added to the plan, and we will look to Sebago Technics to provide that information to us.
- 7&8. The stormwater report will reflect the revised site plan and there will be corrections with respect to the grading around the upper parking area and cul-de-sac.
9. The power, telephone and cable service to the building will be specified on the plan.
10. With respect to a dumpster, there is none planned for this facility, as we cannot image sufficient solid waste being generated by this facility to qualify. We will make arrangements to have whatever solid waste removed from the site directly.
11. With respect to the fill operation, that has been conducted on the back portion of the site. White Brothers will be contacted and will provide a separate update to you with respect to the status of that particular project.
12. With reference to the new utility lines, we will make every effort to prevent damage from occurring to existing mature trees and the architect will look at the feasibility of relocating utility lines so as not to interfere with those trees.
13. We have no difficulties in installing three additional pine trees along Congress Street.
14. We will make the requested note on the plan with reference to existing vegetation.
15. The Centers are being operated for dyslexic children between the ages of six and sixteen. We find that as a practical matter, most of our students are under the age of sixteen. There will be a total of ten students being tutored at any given time on a one-on-one basis, so there would appear to be no concern with reference to the parking requirements of one space for each ten student seats or major fraction thereof for students over the age of sixteen.
16. We will provide additional information on the photometric plan as requested.
17. Unfortunately, I cannot tell you when the residential units left the site. I believe in both instances they were moved from the site and were not demolished so as not to adversely effect the housing stock in the City of Portland.

Ms. Kandice Talbot, Planner
City of Portland
May 19, 1999
Page 3

18. We will show the additional screening with respect to the abutting neighbor's property on the site plan.

Should you have additional questions or concerns, please feel free to give me a call.

Very truly yours,



Walter E. Webber

baw

cc: Michael C. Bowdler, Architect
Stanley Sampson
Nancy Gilbert, Sebago Technics

3a

I would appreciate it if you would contact me as soon as possible on the important question of the scheduled date for the Planning Board submission.

Yours sincerely,



Michael C. Bowdler

MCB/ms

cc: Walter Webber, Att. at Law

Stan Sampson, Chairman

Sebago Technics

99143

STORMWATER RUNOFF NARRATIVE

**Masonic Learning Center for Children
1903 Congress Street
Portland, Maine
Revised May 28, 1999**

Introduction

This Stormwater Management report has been prepared in order to evaluate the pre and post-development conditions associated with the proposed development of the Masonic Learning Center for Children. The project consists of an approximately 2,740 square foot Learning Center and associated parking. The development site is located on the northerly side of outer Congress Street and is comprised of two parcels, which total approximately 6.1 acres. The following is the information provided by the project architect, Mr. Michael Bowdler, includes:

- Location and Lot Plan (Sheet 1) by Michael Bowdler dated February 4, 1999
- Site Plan (Sheet 2) by Michael Bowdler dated February 4, 1999
- Prior Boundary Plan by Survey, Inc. dated June 1980
- Prior Site Utilities, Grading & Drainage Plan by Winton Scott Architects dated August 30, 1988

(Note: Portions of these surveys apparently pre-date earthwork operations in the northerly portion of the parcel and do not include topography in the area immediately adjacent to the proposed building. Topography in this area has been provided by Mr. Bowdler.)

The scope of this study consists solely of evaluation of anticipated drainage flows based on plans by others. Sebago Technics has performed no field survey and is relying solely on the plans and information prepared as part of Mr. Bowdler's prior site design.

This report has been revised to accommodate the layout and grading revisions prepared by Sebago Technics, Inc. as part of an expanded design scope. This revised report reflects site grading revisions made as part of the May 28, 1999 response to City Staff Comments.

Pre-Development Conditions

The development site has frontage along Congress Street and abuts a small tributary to the Stroudwater River along the rear. The parcel previously contained two residences that, according to plans supplied by the architect, included approximately 8,276 square feet of roofs and paved driveways. These residences were razed within the past few years as part of earthwork conducted on the northerly portion of the parcel. A sparsely vegetated stockpile now encompasses a large portion of the northerly section of the property.

The site is generally divided into two subwatersheds. There are no apparent significant sources of runoff which enter the development area. The southerly watershed (Watershed 1) is collected in the municipal storm drain system. In the pre-development condition, this watershed encompasses approximately 1.42 acres.

The second site watershed (Watershed 2) is located on the northerly end of the parcel and drains toward the tributary at the parcel border. Watershed 2 received runoff from the rear portion of the northernmost residence on the site and the remaining undeveloped portion of the watershed. This watershed encompasses approximately 4.73 acres.

Reach 1 is the solely the point of comparison between the pre and post-development analysis.

Post-Development Conditions

Subcatchment 1 has been divided into two subcatchments in the post-development analysis, Subcatchments 1 and 3. Subcatchment 1 includes the proposed access drive to the parking area and the sidewalk that runs along the edge of the access drive and is approximately 0.75 acres in size. The runoff from this area will be collected by catch basins near the intersection of the access drive and Congress Street (Reach 1). The catch basins area proposed to be connected to the existing storm drain system in Congress Street.

Subcatchment 3 is approximately 0.50 acres in size and includes the proposed building and a portion of the proposed parking lot. The runoff from this area will flow along the lawn area westerly of the proposed building and will be directed toward the proposed catch basin at the intersection of the access drive and Congress Street (Reach 1).

A small portion of the development will discharge to Watershed 2. This area consists of the northerly portion of the parking area. The runoff is allowed to sheet flow off the pavement and will flow in a generally northerly course through the remaining undeveloped portion of the property and will eventually reach the tributary along the northerly parcel border. The total impervious area in the post-development condition in Watershed 2 is approximately 4,791 square feet. This represents a slight overall shift in the total imperviousness in this watershed. The total post-development watershed area is 4.9 acres.

Soils

The on-site soils have been determined based on the Cumberland County Medium Intensity Soil Survey to be as follows:

Soil	HSG
Limerick (Ls)	C
Buxton (BuB)	C/D

The soils in the stockpile area have been mapped as Hollis (C/D) and Belgrade (B). Due to their disturbance, the soils have been assumed to be in the HSG "C" category.

Methodology

In order to evaluate the anticipated runoff conditions, pre and post-development calculations were performed for the 2, 10 and 25-year storms. Flows were evaluated using the HydroCAD system software based on the USDA's TR-55 and TR-20 methodology. Tables in the following sections summarize the input data and results of the calculations. HydroCAD computations are attached to this narrative. Hydrographs for the 10-year storm are also included.

Results

The following input data was used to generate the anticipated runoff values:

Table 1						
Watershed	Pre-Development			Post-Development		
	Area (Ac)	CN	Tc (Min)	Area (Ac)	CN	Tc (Min)
1	1.42	79	7.0	0.75	80	1.5
2	4.73	86	21.2	4.9	86	21.2
3	--	--	--	0.5	80	9.1

Based on the input data, the following results have been obtained:

Table 2									
Watershed	2-Year Storm (cfs)			10-Year Storm (cfs)			25-Year Storm (cfs)		
	Pre	Post	Change	Pre	Post	Change	Pre	Post	Change
Reach 1 Study Point	1.67	1.57	-0.10	3.62	3.35	-0.27	4.59	4.24	-0.35
2	6.01	6.23	+0.22	11.44	11.85	+0.41	14.03	14.54	+0.51

Water Quality

According to Mr. Bowdler's site design, the majority of the parking area runoff is allowed to sheet off the pavement. Flows from the parking area in Watershed 3 are collected via a vegetated swale along the western side of the building. This swale provides a degree of water quality enhancement via vegetative contact prior to entering the new site catch basin and storm drain connection. Runoff from the paved parking area in Watershed 2 is also benefited by the use of overland flow prior to reaching the site's discharge along the property line. Given the limited increase in impervious area on the site and the benefits afforded by contact with surface vegetation, no further water quality measures are proposed.

Closure

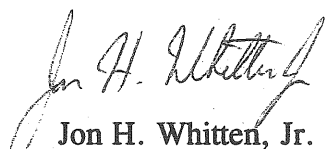
As Tables 1 and 2 show, the proposed improvements in Watersheds 1 and 3 are not expected to increase the peak flow rates entering the Congress Street drainage system. As such, no formal detention is proposed. The proposed land use changes in Watershed 2 do cause an

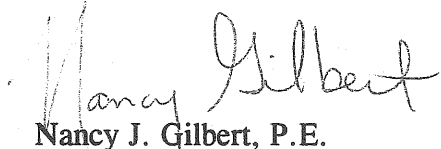
expected increase in peak runoff. This anticipated increase in peak runoff is 0.51 cfs in the 25-year storm. This equates to an approximately 3.6% increase in the 25-year peak. As was noted, the point of analysis for Watershed 2 is the tributary to the Stroudwater River which forms the northerly parcel border. According to the USGS mapping, this point is approximately 800' upstream of the point at which the tributary meets the Stroudwater River. Watershed 2 is very small in the context of the overall size of the entire watershed contributing to this tributary. In addition, the site's discharge is in a downstream location in the Stroudwater River Watershed.

Given these factors, in conjunction with the slight increase in peak runoff leaving the parcel, on-site stormwater detention is not proposed. It is expected that the slight increase in peak runoff as a result of this project will not have a significant adverse effect on the downstream receiving bodies.

Prepared by:

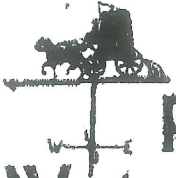
SEBAGO TECHNICS, INC.


Jon H. Whitten, Jr.
Design Engineer


Nancy J. Gilbert, P.E.
Project Manager

JHW/NJG:jhw/jc
May 28, 1999

Attachment 5



Portland Water District

225 Douglass St. • P.O. Box 3553 • Portland, ME 04104-355

(207) 774-596
FAX (207) 761-83
www.pwd.org

May 10, 1999

Ms. Nancy Gilbert
Sebago Technics, Inc.
P.O. Box 1339
12 Westbrook Common
Westbrook, Maine 04098-1339

Re: Masonic Learning Center

Dear Nancy:

The Portland Water District has a 12" water main in Congress Street, Portland, near the proposed site. A test on a nearby hydrant produced the following results: static pressure 71 psi; pito pressures of 16 & 17 psi; with a flow of 1363 gpm. With these results in mind, the District feels we have a healthful and sufficient capacity available to serve this proposed project and meet all normal fire protection and domestic water service demands.

With certification by the developer that all required permits have been received, we look forward to serving this project.

Sincerely,

PORTLAND WATER DISTRICT

David W. Coffin, PLS
Engineering Supervisor

MASONIC
LEARNING

5a

Department of Public Works



William J. Bray, P. E.
Director

FAXED TO WALTER WEBBER
AND KANDI TALBOT
CITY OF PORTLAND
Mike B 26 MAY 99. 26 May 1999

Mr. Michael C. Bowdler, Architect,
Bowdler Associates,
29 Trundy Road,
Cape Elizabeth, Maine 04107

RE: Sanitary Sewer Capacity to Handle Anticipated Wastewater Flows, from a Proposed 32nd Degree Masonic Learning Centers for Children, Incorporated, to the City Sewers, and Ultimately the Sewage Treatment Facilities, of the Portland Water District.

Dear Mr. Bowdler:

Both the existing eight inch diameter PVC sanitary sewer pipe, located in Congress Street, and the Portland Water District sewage treatment facilities, located off Marginal Way, have adequate capacity to transport and treat the anticipated wastewater flows of 261 GPD, from your proposed learning center, to be located at #1903 Congress Street, City of Portland.

<u>Anticipated Wastewater Flows from the Proposed Learning Center</u>	
Proposed Nine Students @ 09 GPD/Student	= 081 GPD
Proposed Nine Teachers @ 15 GPD/Teacher	= 135 GPD
Proposed One Principal @ 15 GPD/Principal	= 015 GPD
Proposed One Secretary @ 15 GPD/Secretary	= 015 GPD
Proposed One Custodian @ 15 GPD/Custodian	= 015 GPD
Total Proposed Increase in Wastewater Flows for this Project	= 261 GPD

If I can be of further assistance, please call me at 874-8832.

Post-it [®] Fax Note	7671	Date	5/26/99	# of pages	One
To	Michael Bowdler	From	Frank Brancely		
Co./Dept.	Bowdler Assoc.	Co.	City of Portland		
Phone #	799-2360	Phone #	874-8832		
Fax #	799-4519	Fax #	874-8852		

Sincerely,
CITY OF PORTLAND
Frank Brancely
Frank J. Brancely, BA, MA.
Senior Engineering Technician

FJB

- cc:
- Joseph E. Gray, Director, Department of Planning & Urban Development, City of Portland
 - Kandi Talbot, Planner, Dept. of Planning & Urban Development, City of Portland
 - Katherinc A. Staples, PE, City Engineer, City of Portland
 - Bradley A. Roland, PE, Environmental Projects Engineer, City of Portland
 - Anthony W. Lombardo, PE, Project Engineer, City of Portland
 - Stephen K. Harris, Assistant Engineer, City of Portland
 - Walter E. Webber, Attorney at Law, Jenson Baird Gardner & Henry
 - Desk File



Northern Utilities, Inc.

5b

April 27, 1999

Mr. Michael Bowdler
29 Trundy Road
Cape Elizabeth, ME 04107

RE: Natural Gas Availability for Masonic Learning Center for Children,
1903 Congress Street, Portland, ME

Dear Mr. Bowdler:

We are pleased to announce we have adequate gas supply for the above referenced project. Please supply our office with the total connected gas load and a site plan when the information becomes available.

Thank you for choosing natural gas. Please call me directly with any questions or concerns.

Sincerely,

NORTHERN UTILITIES

Bill Howard
Sales Representative

MASONIC
LEARNING

Bell Atlantic - Maine
5 Davis Farm Road
Portland, ME 04103
207 797-1785

Troy F. McDonald
Manager - Right Of Way

5C



April 28, 1999

Michael C. Bowdler
29 Trudy Road
Cape Elizabeth, Maine 04107

**RE: Adequate Facilities – Masonic Learning Center for Children, 1903 Congress Street,
Portland, Maine**

Dear Mr. Bowdler:

In accordance with your recent request, please be advised that our engineering department has reviewed the facility records for your project located on Congress Street in Portland.

Based upon their findings, we have adequate facilities to provide for present and future service requirements utilizing the very latest in telecommunications technology.

If you have any questions, do not hesitate to contact me at (207) 797-1785.

Sincerely,

A handwritten signature in black ink, appearing to read "Troy F. McDonald".

Troy F. McDonald
Manager – Right of Way

cc: Erin Murphy

MASONIC LEARN

PUBLIC WORKS ENGINEERING
MEMORANDUM

To: Kandi Talbot, Planner

From: Anthony Lombardo, P.E., Project Engineer

Date: June 4, 1999

Subject: Masonic Learning Center....1903 Congress St.

The following comments were generated during Public Works Engineering second review of proposed Masonic Learning Center on Congress Street. The plans and application materials were dated May 28, 1999.

- *The applicant must specify the repairs necessary within the City's Congress Street right of way (i.e. resetting curb, rebuilding impacted sidewalk and street pavement.) which will be affected by the proposed utility connections.*

JENSEN BAIRD GARDNER & HENRY

ATTORNEYS AT LAW

TEN FREE STREET
P.O. BOX 4510
PORTLAND, MAINE 04112
(207) 775-7271

TELECOPIER (207) 775-7935

WALTER E. WEBBER
KENNETH M. COLE III
NICHIOLAS S. NADZO
FRANK H. PRYE
DAVID J. JONES
MICHAEL A. NELSON
RICHARD H. SPENCER, JR.
RONALD A. EPSTEIN
WILLIAM H. DALE
JOSEPH H. CROFF III

F. BRUCE SLEEPER
DEBORAH M. MANN
LESLIE F. LOWRY III
PATRICIA MCDONOUGH DUNN
MICHAEL J. QUINLAN
R. LEE IVY
NATALIE L. BURNS
SALLY J. DAGGETT
BRENDAN P. RIKILLY
SUZANNE R. SCOTT

RAYMOND E. JENSEN
M. DONALD GARDNER
MAYRON G. HENRY
JOHN D. BRADFORD
JAMES R. KAPLAN
OF COUNSEL

KENNETH BAIRD
(1944-1987)

YORK COUNTY
OFFICE
11 MAIN STREET, SUITE 4
KENNEBUNK, MAINE 04043
(207) 985-4676
TELECOPIER (207) 985-4931

June 8, 1999

BY FAX #756-8258

Ms. Kandice Talbot, Planner
City of Portland
Planning Department
389 Congress Street
Portland, ME 04101

Re: 32° Masonic Learning Centers for Children, 1905 Congress Street, Portland, Maine

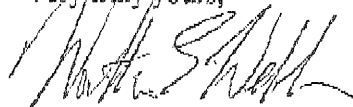
Dear Kandi:

I have been in touch with White Brothers, Inc., in connection with their fill operation at 1905 Congress Street conducted with permission and oversight by the City of Portland. The fill had been placed on the back of the site commencing in mid-1994 through the spring of 1998. As the area was filled, it was compacted with mulch covering the embankment on the back and north-easterly side of the fill area. In addition, a silt fence was installed and remains in place. There now appears to be a stabilized bank with grass and clover ground cover in place.

In speaking with White Brothers, specifically Bob St. Clair, I am informed that they have placed all of the fill that they intend to on the site, that throughout there has been oversight by the City and that they have maintained best erosion control practices and that both the elevation and dimension of the fill area was limited by the City in the first instance and that the work is now complete from their perspective.

I trust that the foregoing addresses your concerns.

Very truly yours,

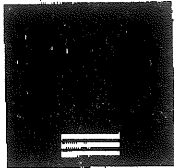


Walter E. Webber

baw

cc: Mr. Robert St. Clair (White Bros.)
Mr. Charles Tarkinson

Attachment 7



DELUCA-HOFFMAN ASSOCIATES, INC.
CONSULTING ENGINEERS

778 MAIN STREET
SUITE 8
SOUTH PORTLAND, MAINE 04106
TEL. 207 775 1121
FAX 207 879-0896

- ROADWAY DESIGN
- ENVIRONMENTAL ENGINEERING
- TRAFFIC STUDIES AND MANAGEMENT
- PERMITTING
- AIRPORT ENGINEERING
- SITE PLANNING
- CONSTRUCTION ADMINISTRATION

MEMORANDUM

TO: Kandi Talbot, Planner

FROM: Jim Wendel, P.E., Development Review Coordinator

DATE: June 4, 1999

RE: Site Plan Review
32° Masonic Learning Center
1903 Congress Street

Review of the submission dated May 28, 1999 has been completed. We offer the following comments:

1. The site needs additional detail:
 - a. Building, road and parking layout dimensions
 - b. A walkway stairs detail
 - c. Is the sidewalk on Congress Street brick or bituminous? There is brick in the area. The plan should be clear on the material for the existing sidewalk and the required sidewalk construction for the new curb cut. A detail for the on-site and the appropriate City standard sidewalk is needed.
 - d. The plan should provide granite transition curb to provide a match between the vertical granite and the Cape Cod style site curb. Also, the plan should note the limits where the curb types are installed.
2. Recommend that the new drain manhole be located opposite CB-2 instead of CB-1. Congress Street slopes downgradient from west to east; the suggested new location will take advantage of the slope of the road for providing maximum cover for the new pipes. Also the catch basins should conform to City standards, i.e., 3' sumps, and include the use of Casco Traps.
3. Revisions to the stormwater analysis are required; we do not agree that in the proposed condition less flow will drain to Congress Street. The total area did change slightly; however, the area of impervious surface doubled in size. The travel paths are excessive, including the sheet flow component. Finally, the travel paths must be noted on the watershed maps.

Should you have any questions, please call.

SEBAGO TECHNICS, INC.

12 Westbrook Common
P.O. Box 1339
WESTBROOK, ME 04098-1339

LETTER OF TRANSMITTAL

Hand Carried

Phone (207) 856-0277 FAX (207) 856-2206

TO City of Portland

DATE	<u>5-28-99</u>	JOB NO.	<u>99/43</u>
ATTENTION	<u>Kandi Talbot</u>		
RE:	<u>Masonic Learning Center</u>		

WE ARE SENDING YOU Attached Under separate cover via _____ the following items:

- Shop drawings Prints Plans Samples Specifications
 Copy of letter Change order Site Plan Submittal

COPIES	DATE	NO.	DESCRIPTION
<u>1</u>	<u>5-28-99</u>		<u>Site Plan submittal for the Masonic Learning Center.</u>

THESE ARE TRANSMITTED as checked below:

- For approval Approved as submitted Resubmit _____ copies for approval
 For your use Approved as noted Submit _____ copies for distribution
 As requested Returned for corrections Return _____ corrected prints
 For review and comment _____
 FOR BIDS DUE _____ PRINTS RETURNED AFTER LOAN TO US

REMARKS _____

COPY TO Tony Lombardo - Public Works
Jim Wendel - DeLuca - Hoffman

SIGNED: *J. H. Whittier*

WATERSHED ROUTING



SUBCATCHMENT



REACH



POND



LINK

SUBCATCHMENT 1 FRONT OF PARCEL

PEAK= 1.67 CFS @ 12.08 HRS, VOLUME= .13 AF

<u>ACRES</u>	<u>CN</u>		SCS TR-20 METHOD
.16	98	BUILDINGS AND DRIVEWAY	TYPE III 24-HOUR
.31	86	GRASS POOR C SOILS	RAINFALL= 3.00 IN
.95	74	GRASS GOOD C SOILS	SPAN= 10-20 HRS, dt=.1 HRS
<u>1.42</u>	<u>79</u>		

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	6.1
Grass: Short n=.15 L=100' P2=3 in s=.07 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.9
Short Grass Pasture Kv=7 L=95' s=.07 '/' V=1.85 fps		
Total Length= 195 ft		Total Tc= 7.0

SUBCATCHMENT 2 REAR OF PARCEL

PEAK= 6.01 CFS @ 12.25 HRS, VOLUME= .60 AF

<u>ACRES</u>	<u>CN</u>		SCS TR-20 METHOD
.03	98	EXISTING HOUSE AND GARAGE	TYPE III 24-HOUR
4.70	86	GRASS POOR C SOILS	RAINFALL= 3.00 IN
<u>4.73</u>	<u>86</u>		SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	18.5
Grass: Short n=.15 L=150' P2=3 in s=.01 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	1.8
Short Grass Pasture Kv=7 L=75' s=.01 '/' V=.7 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.2
Short Grass Pasture Kv=7 L=50' s=.25 '/' V=3.5 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.7
Short Grass Pasture Kv=7 L=50' s=.03 '/' V=1.21 fps		
Total Length= 325 ft		Total Tc= 21.2

REACH 1

Not described

Qin = 1.67 CFS @ 12.08 HRS, VOLUME= .13 AF
Qout= 1.67 CFS @ 12.08 HRS, VOLUME= .13 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD
PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

WATERSHED ROUTING



SUBCATCHMENT



REACH



POND



LINK

SUBCATCHMENT 1 FRONT OF PARCEL

PEAK= 3.62 CFS @ 12.07 HRS, VOLUME= .28 AF

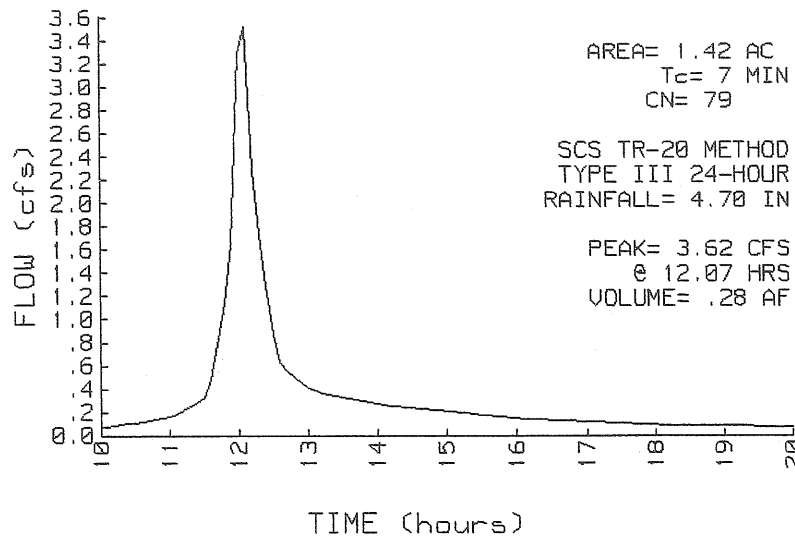
ACRES	CN
.16	98
.31	86
.95	74
1.42	79

BUILDINGS AND DRIVEWAY
 GRASS POOR C SOILS
 GRASS GOOD C SOILS

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 4.70 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	6.1
Grass: Short n=.15 L=100' P2=3 in s=.07 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.9
Short Grass Pasture Kv=7 L=95' s=.07 '/' V=1.85 fps		
Total Length= 195 ft		Total Tc= 7.0

SUBCATCHMENT 1 RUNOFF FRONT OF PARCEL



SUBCATCHMENT 2 REAR OF PARCEL

PEAK= 11.44 CFS @ 12.24 HRS, VOLUME= 1.13 AF

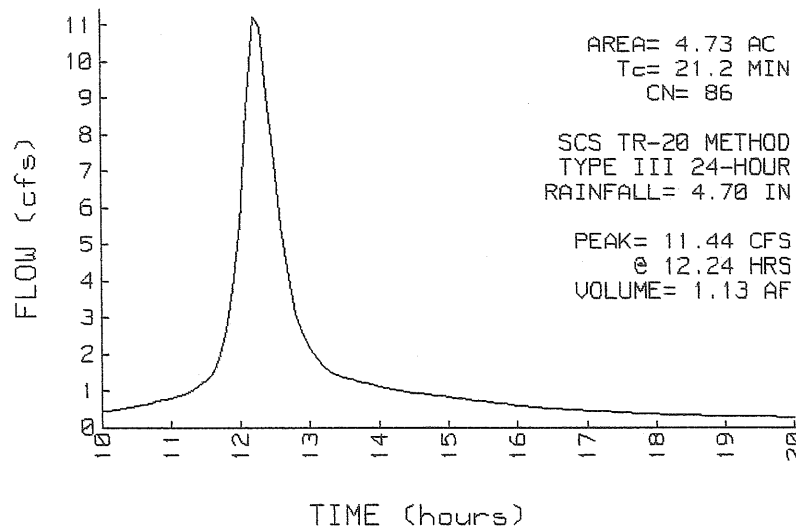
ACRES	CN
.03	98
4.70	86
4.73	86

EXISTING HOUSE AND GARAGE
 GRASS POOR C SOILS

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 4.70 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	18.5
Grass: Short n=.15 L=150' P2=3 in s=.01 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	1.8
Short Grass Pasture Kv=7 L=75' s=.01 '/' V=.7 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.2
Short Grass Pasture Kv=7 L=50' s=.25 '/' V=3.5 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.7
Short Grass Pasture Kv=7 L=50' s=.03 '/' V=1.21 fps		
Total Length= 325 ft		Total Tc= 21.2

SUBCATCHMENT 2 RUNOFF
 REAR OF PARCEL



REACH 1

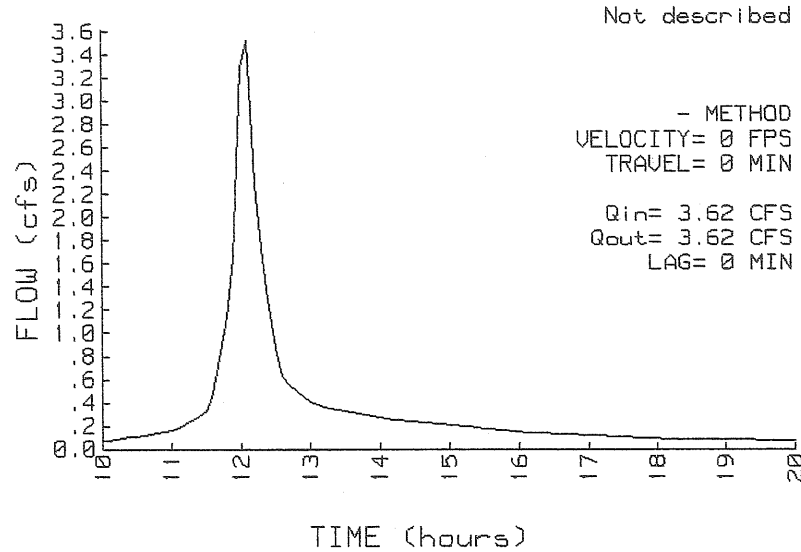
Not described

Qin = 3.62 CFS @ 12.07 HRS, VOLUME= .28 AF
Qout= 3.62 CFS @ 12.07 HRS, VOLUME= .28 AF, ATTEN= 0%, LAG= 0.0 MIN

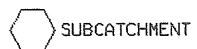
DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD
PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

REACH 1 INFLOW & OUTFLOW



WATERSHED ROUTING



SUBCATCHMENT



REACH



POND



LINK

SUBCATCHMENT 1 FRONT OF PARCEL

PEAK= 4.59 CFS @ 12.06 HRS, VOLUME= .35 AF

<u>ACRES</u>	<u>CN</u>		SCS TR-20 METHOD
.16	98	BUILDINGS AND DRIVEWAY	TYPE III 24-HOUR
.31	86	GRASS POOR C SOILS	RAINFALL= 5.50 IN
.95	74	GRASS GOOD C SOILS	SPAN= 10-20 HRS, dt=.1 HRS
1.42	79		

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	6.1
Grass: Short n=.15 L=100' P2=3 in s=.07 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.9
Short Grass Pasture Kv=7 L=95' s=.07 '/' V=1.85 fps		
Total Length= 195 ft		Total Tc= 7.0

SUBCATCHMENT 2 REAR OF PARCEL

PEAK= 14.03 CFS @ 12.24 HRS, VOLUME= 1.39 AF

<u>ACRES</u>	<u>CN</u>		SCS TR-20 METHOD
.03	98	EXISTING HOUSE AND GARAGE	TYPE III 24-HOUR
4.70	86	GRASS POOR C SOILS	RAINFALL= 5.50 IN
4.73	86		SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	18.5
Grass: Short n=.15 L=150' P2=3 in s=.01 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	1.8
Short Grass Pasture Kv=7 L=75' s=.01 '/' V=.7 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.2
Short Grass Pasture Kv=7 L=50' s=.25 '/' V=3.5 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.7
Short Grass Pasture Kv=7 L=50' s=.03 '/' V=1.21 fps		
Total Length= 325 ft		Total Tc= 21.2

REACH 1

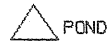
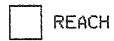
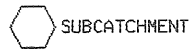
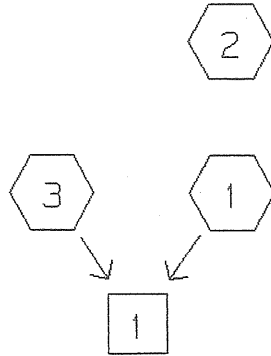
Not described

Qin = 4.59 CFS @ 12.06 HRS, VOLUME= .35 AF
Qout= 4.59 CFS @ 12.06 HRS, VOLUME= .35 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD
PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

WATERSHED ROUTING



SUBCATCHMENT 1 FRONT OF PARCEL

PEAK= 1.11 CFS @ 12.00 HRS, VOLUME= .07 AF

<u>ACRES</u>	<u>CN</u>		SCS TR-20 METHOD
0.00	0		TYPE III 24-HOUR
.15	98	PROPOSED DRIVEWAY	RAINFALL= 3.00 IN
.04	98	PROPOSED SIDEWALK	SPAN= 10-20 HRS, dt=.1 HRS
0.00	0		
.56	74	GRASS GOOD C SOILS	
<u>.75</u>	<u>80</u>		

<u>Method</u>	<u>Comment</u>	<u>Tc (min)</u>
TR-55 SHEET FLOW	Segment ID:	.9
Smooth surfaces n=.011 L=100'	P2=3 in s=.05 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.6
Paved Kv=20.3282 L=165' s=.05 '/' V=4.55 fps		
Total Length= 265 ft		Total Tc= 1.5

SUBCATCHMENT 2 REAR OF PARCEL

PEAK= 6.23 CFS @ 12.25 HRS, VOLUME= .62 AF

<u>ACRES</u>	<u>CN</u>		SCS TR-20 METHOD
.11	98	PROPOSED PARKING	TYPE III 24-HOUR
4.79	86	GRASS POOR C SOILS	RAINFALL= 3.00 IN
<u>4.90</u>	<u>86</u>		SPAN= 10-20 HRS, dt=.1 HRS

<u>Method</u>	<u>Comment</u>	<u>Tc (min)</u>
TR-55 SHEET FLOW	Segment ID:	18.5
Grass: Short n=.15 L=150' P2=3 in s=.01 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	1.8
Short Grass Pasture Kv=7 L=75' s=.01 '/' V=.7 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.2
Short Grass Pasture Kv=7 L=50' s=.25 '/' V=3.5 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.7
Short Grass Pasture Kv=7 L=50' s=.03 '/' V=1.21 fps		
Total Length= 325 ft		Total Tc= 21.2

SUBCATCHMENT 3 FRONT OF PARCEL

PEAK= .62 CFS @ 12.10 HRS, VOLUME= .05 AF

ACRES	CN	
.06	98	PROPOSED BUILDING
0.00	0	
.01	98	PROPOSED SIDEWALK
.06	98	PROPOSED PARKING
.37	74	GRASS GOOD C SOILS
.50	80	

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 3.00 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	.5
Smooth surfaces n=.011 L=30'	P2=3 in s=.02 '/'	
TR-55 SHEET FLOW	Segment ID:	5.8
Grass: Short n=.15 L=50'	P2=3 in s=.02 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	2.8
Short Grass Pasture Kv=7 L=220'	s=.035 '/' V=1.31 fps	
Total Length= 300 ft		Total Tc= 9.1

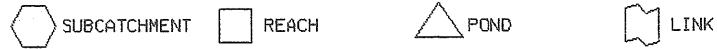
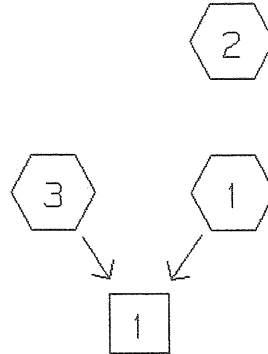
REACH 1

Qin = 1.57 CFS @ 12.02 HRS, Not described VOLUME= .12 AF
Qout= 1.57 CFS @ 12.02 HRS, VOLUME= .12 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD
PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

WATERSHED ROUTING



SUBCATCHMENT 1 FRONT OF PARCEL

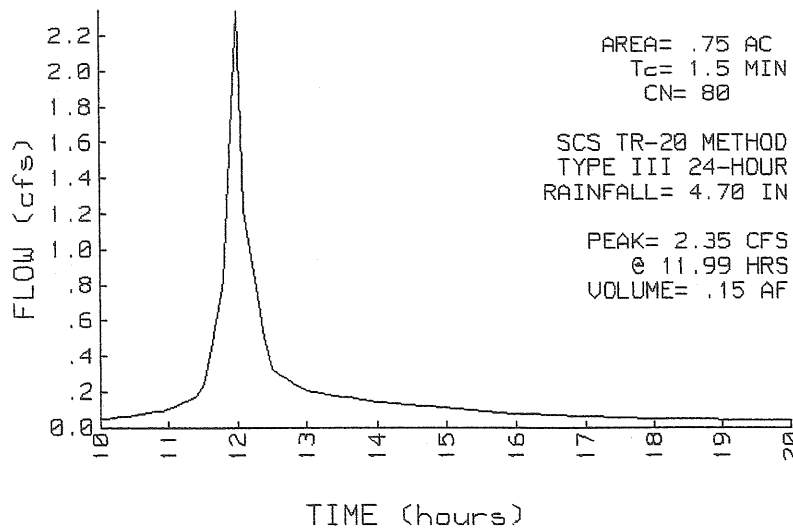
PEAK= 2.35 CFS @ 11.99 HRS, VOLUME= .15 AF

ACRES	CN	
0.00	0	
.15	98	PROPOSED DRIVEWAY
.04	98	PROPOSED SIDEWALK
0.00	0	
.56	74	GRASS GOOD C SOILS
.75	80	

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 4.70 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	.9
Smooth surfaces n=.011 L=100'	P2=3 in s=.05 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.6
Paved Kv=20.3282 L=165' s=.05 '/' V=4.55 fps		
Total Length= 265 ft		Total Tc= 1.5

SUBCATCHMENT 1 RUNOFF
 FRONT OF PARCEL



SUBCATCHMENT 2 REAR OF PARCEL

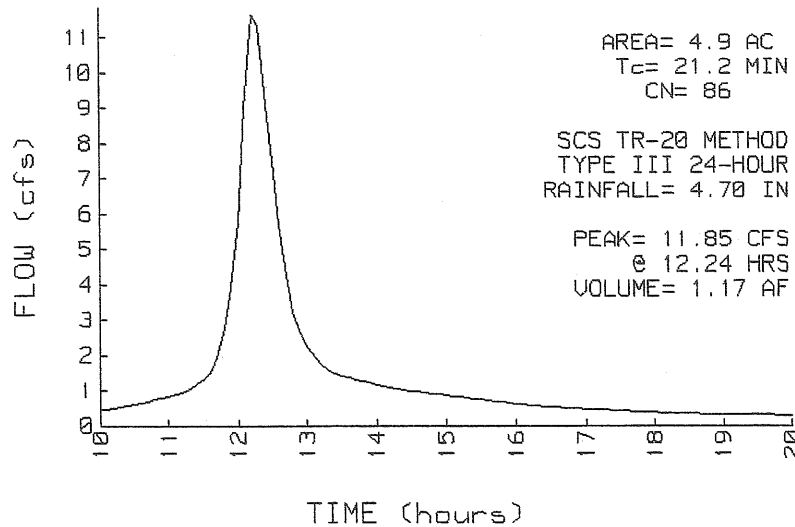
PEAK= 11.85 CFS @ 12.24 HRS, VOLUME= 1.17 AF

ACRES	CN	
.11	98	PROPOSED PARKING
4.79	86	GRASS POOR C SOILS
4.90	86	

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 4.70 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	18.5
Grass: Short n=.15 L=150' P2=3 in s=.01 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	1.8
Short Grass Pasture Kv=7 L=75' s=.01 '/' V=.7 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.2
Short Grass Pasture Kv=7 L=50' s=.25 '/' V=3.5 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.7
Short Grass Pasture Kv=7 L=50' s=.03 '/' V=1.21 fps		
Total Length= 325 ft		Total Tc= 21.2

**SUBCATCHMENT 2 RUNOFF
 REAR OF PARCEL**



SUBCATCHMENT 3 FRONT OF PARCEL

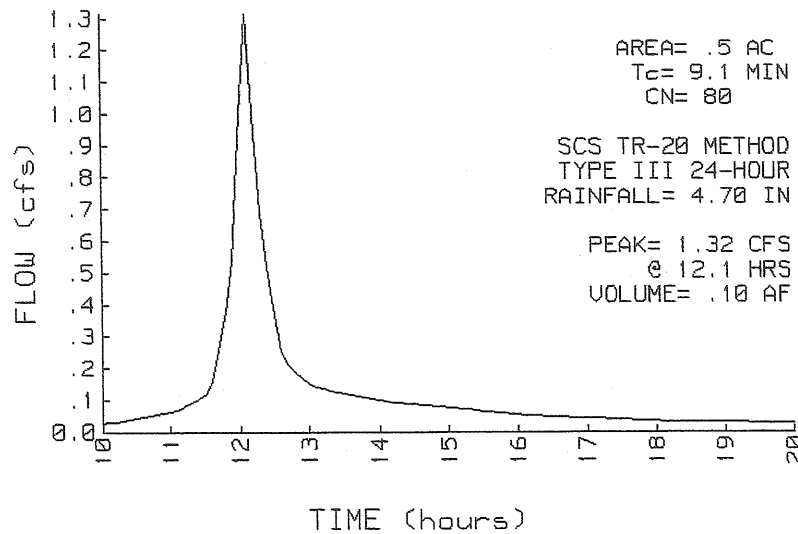
PEAK= 1.32 CFS @ 12.10 HRS, VOLUME= .10 AF

ACRES	CN	
.06	98	PROPOSED BUILDING
0.00	0	
.01	98	PROPOSED SIDEWALK
.06	98	PROPOSED PARKING
.37	74	GRASS GOOD C SOILS
.50	80	

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 4.70 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	.5
Smooth surfaces n=.011 L=30'	P2=3 in s=.02 '/'	
TR-55 SHEET FLOW	Segment ID:	5.8
Grass: Short n=.15 L=50'	P2=3 in s=.02 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	2.8
Short Grass Pasture Kv=7 L=220'	s=.035 '/' V=1.31 fps	
Total Length= 300 ft		Total Tc= 9.1

SUBCATCHMENT 3 RUNOFF
 FRONT OF PARCEL



REACH 1

Not described

Qin = 3.35 CFS @ 12.01 HRS, VOLUME= .25 AF

Qout= 3.35 CFS @ 12.01 HRS, VOLUME= .25 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT

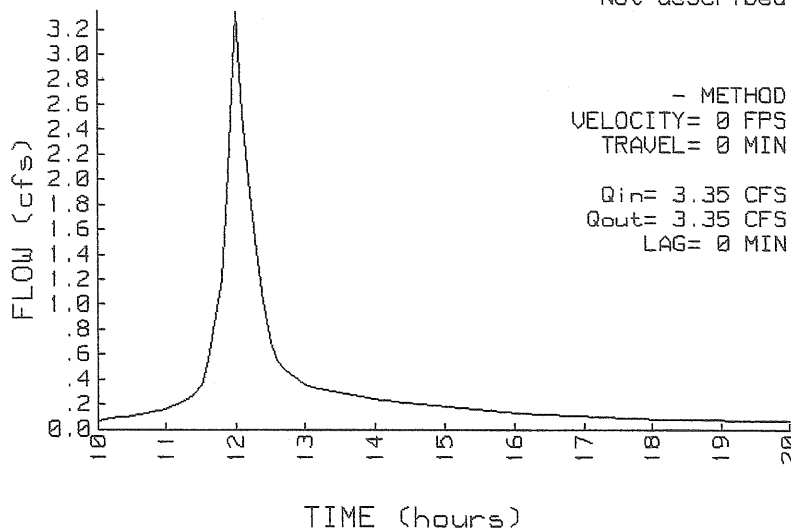
PEAK VELOCITY= 0.0 FPS

TRAVEL TIME = 0.0 MIN

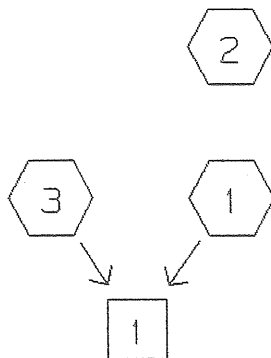
SPAN= 10-20 HRS, dt=.1 HRS

REACH 1 INFLOW & OUTFLOW

Not described



WATERSHED ROUTING



SUBCATCHMENT 1 FRONT OF PARCEL

PEAK= 2.96 CFS @ 11.99 HRS, VOLUME= .19 AF

ACRES	CN		SCS TR-20 METHOD
0.00	0		TYPE III 24-HOUR
.15	98	PROPOSED DRIVEWAY	RAINFALL= 5.50 IN
.04	98	PROPOSED SIDEWALK	SPAN= 10-20 HRS, dt=.1 HRS
0.00	0		
.56	74	GRASS GOOD C SOILS	
.75	80		

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	.9
Smooth surfaces n=.011 L=100'	P2=3 in s=.05 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.6
Paved Kv=20.3282 L=165' s=.05	/' V=4.55 fps	
Total Length= 265 ft		Total Tc= 1.5

SUBCATCHMENT 2 REAR OF PARCEL

PEAK= 14.54 CFS @ 12.24 HRS, VOLUME= 1.44 AF

ACRES	CN		SCS TR-20 METHOD
.11	98	PROPOSED PARKING	TYPE III 24-HOUR
4.79	86	GRASS POOR C SOILS	RAINFALL= 5.50 IN
4.90	86		SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	18.5
Grass: Short n=.15 L=150' P2=3 in	s=.01 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	1.8
Short Grass Pasture Kv=7 L=75'	s=.01 '/' V=.7 fps	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.2
Short Grass Pasture Kv=7 L=50'	s=.25 '/' V=3.5 fps	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.7
Short Grass Pasture Kv=7 L=50'	s=.03 '/' V=1.21 fps	
Total Length= 325 ft		Total Tc= 21.2

SUBCATCHMENT 3

FRONT OF PARCEL

PEAK= 1.66 CFS @ 12.09 HRS, VOLUME= .13 AF

ACRES	CN	
.06	98	PROPOSED BUILDING
0.00	0	
.01	98	PROPOSED SIDEWALK
.06	98	PROPOSED PARKING
.37	74	GRASS GOOD C SOILS
.50	80	

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 5.50 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	.5
Smooth surfaces n=.011 L=30'	P2=3 in s=.02 '/'	
TR-55 SHEET FLOW	Segment ID:	5.8
Grass: Short n=.15 L=50'	P2=3 in s=.02 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	2.8
Short Grass Pasture Kv=7 L=220'	s=.035 '/' V=1.31 fps	
Total Length= 300 ft		Total Tc= 9.1

REACH 1

Not described

Qin = 4.24 CFS @ 12.01 HRS, VOLUME= .32 AF

Qout= 4.24 CFS @ 12.01 HRS, VOLUME= .32 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT

PEAK VELOCITY= 0.0 FPS

TRAVEL TIME = 0.0 MIN

SPAN= 10-20 HRS, dt=.1 HRS



CITY OF PORTLAND

26 May 1999

Mr. Michael C. Bowdler, Architect,
Bowdler Associates,
29 Trundy Road,
Cape Elizabeth, Maine 04107

RE: Sanitary Sewer Capacity to Handle Anticipated Wastewater Flows, from a Proposed 32nd Degree Masonic Learning Centers for Children, Incorporated, to the City Sewers, and Ultimately the Sewage Treatment Facilities, of the Portland Water District.

Dear Mr. Bowdler:

Both the existing eight inch diameter PVC sanitary sewer pipe, located in Congress Street, and the Portland Water District sewage treatment facilities, located off Marginal Way, have adequate capacity to transport and treat the anticipated wastewater flows of 261 GPD, from your proposed learning center, to be located at #1903 Congress Street, City of Portland.

Anticipated Wastewater Flows from the Proposed Learning Center

Proposed Nine Students @ 09 GPD/Student	= 081 GPD
Proposed Nine Teachers @ 15 GPD/Teacher	= 135 GPD
Proposed One Principal @ 15 GPD/Principal	= 015 GPD
Proposed One Secretary @ 15 GPD/Secretary	= 015 GPD
Proposed One Custodian @ 15 GPD/Custodian	= 015 GPD
Total Proposed Increase in Wastewater Flows for this Project	= 261 GPD

If I can be of further assistance, please call me at 874-8832.

Sincerely,
CITY OF PORTLAND
Frank Brancely
Frank J. Brancely, BA, MA.
Senior Engineering Technician

FJB

- cc: ✓ Joseph E. Gray, Director, Department of Planning & Urban Development, City of Portland
- Kandi Talbot, Planner, Dept. of Planning & Urban Development, City of Portland
- Katherine A. Staples, PE, City Engineer, City of Portland
- Bradley A. Roland, PE, Environmental Projects Engineer, City of Portland
- Anthony W. Lombardo, PE, Project Engineer, City of Portland
- Stephen K. Harris, Assistant Engineer, City of Portland
- Walter E. Webber, Attorney at Law, Jensen Baird Gardner & Henry
- Desk File

JENSEN BAIRD GARDNER & HENRY

ATTORNEYS AT LAW

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TELECOPIER (207) 985-4932

TELECOPIER TRANSMITTAL INFORMATION

Client/Matter # _____

TO:	Kandice Talbot, City of Portland	Michael C. Bowdler, Architect
FAX NO.:	756-8258	799-4519
FROM:	Walter E. Webber, Esquire	DATE: May 19, 1999

This transmission consists of three pages, including this cover sheet. The original [X] will [] will not follow by mail.

Please deliver this telecopy immediately upon receipt. If there has been an uncorrected error in transmission, please call our office at the number listed above.

Return telecopy phone number, direct line is: (207) 775-7935.

Thank you.

MESSAGE

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May 19, 1999

BY FAX #756-8258Ms. Kandice Talbot, Planner
City of Portland
Planning Department
389 Congress Street
Portland, ME 04101Re: 32° Masonic Learning Centers for Children, Inc.

Dear Kandi:

At the risk of complicating matters, I thought it perhaps best to write directly as a representative of owner with reference to several of the items covered in your May 15, 1999, letter to Michael C. Bowdler.

We understand that this matter has now been rescheduled for the Planning Board for hearing on June 8, 1999, and that prior to that you have requested:

1. That a storm drain system and storm drainage plan be submitted that is acceptable to the City of Portland. We have asked Nancy Gilbert at Sebago Technics to prepare that and to present it on our behalf.
2. With respect to the driveway entrance having a minimum 20-foot radius, that will be done together with handicapped ramps for sidewalks, and I have asked the architect to coordinate with your Public Works Department regarding the driveway entrance.
3. We have been in touch with Frank Brancely at Public Works with reference to a sewer capacity letter, and we would expect that to be forthcoming as the utilization of this property will be well under what a normal single family home would produce by way of sewage.
4. There is no anticipation whatsoever of any school buses or large vehicles frequenting in the site. Children will be dropped off presumably by their parent at the Center or the parent will stay while the student is being tutored. If buses are utilized, it would be as a result of children being dropped off on Congress Street at the property line and then walking up to the Center itself.

JENSEN BAIRD GARDNER & HENRY

Ms. Kandice Talbot, Planner
City of Portland
May 19, 1999
Page 2

5. With reference to the requirement of pavement structure buildup, that will be done and the detail on the plan will be revised accordingly.

6. Erosion control notes will be added to the plan, and we will look to Sebago Technics to provide that information to us.

7&8. The stormwater report will reflect the revised site plan and there will be corrections with respect to the grading around the upper parking area and cul-de-sac.

9. The power, telephone and cable service to the building will be specified on the plan.

10. With respect to a dumpster, there is none planned for this facility, as we cannot image sufficient solid waste being generated by this facility to qualify. We will make arrangements to have whatever solid waste removed from the site directly.

11. With respect to the fill operation, that has been conducted on the back portion of the site. White Brothers will be contacted and will provide a separate update to you with respect to the status of that particular project.

12. With reference to the new utility lines, we will make every effort to prevent damage from occurring to existing mature trees and the architect will look at the feasibility of relocating utility lines so as not to interfere with those trees.

13. We have no difficulties in installing three additional pine trees along Congress Street.

14. We will make the requested note on the plan with reference to existing vegetation.

15. The Centers are being operated for dyslexic children between the ages of six and sixteen. We find that as a practical matter, most of our students are under the age of sixteen. There will be a total of ten students being tutored at any given time on a one-on-one basis, so there would appear to be no concern with reference to the parking requirements of one space for each ten student seats or major fraction thereof for students over the age of sixteen.

16. We will provide additional information on the photometric plan as requested.

17. Unfortunately, I cannot tell you when the residential units left the site. I believe in both instances they were moved from the site and were not demolished so as not to adversely effect the housing stock in the City of Portland.



CITY OF PORTLAND

May 15, 1999

Michael C. Bowdler
Architect
29 Trundy Road
Cape Elizabeth, ME 04107

Re: Masonic Learning Center

Dear Mr. Bowdler:

Below are a list of items that will need to be addressed prior to the Public Hearing, which has been scheduled for June 8, 1999. The revised plans and information should be submitted two weeks prior to the June 8th meeting.

1. The storm drain system proposes to connect into catch basins in Congress Street; typically, Public Works does not allow extensions of storm drain systems into catch basins. The applicant should coordinate with Tony Lombardo at Public Works as to where the storm drain system should connect.
2. The driveway entrance should have a minimum 20 ft. radius with handicapped ramps for the sidewalks. A detail shall be added to the plan showing the 20 ft. radius. The applicant should coordinate with Tony Lombardo or Larry Ash at Public Works regarding the driveway entrance.
3. A sewer capacity letter shall be submitted to staff. The applicant will need to contact Frank Brancely at Public Works.
4. Is the applicant proposing any school buses or large vehicles to frequent the site? If not, then the applicant should eliminate the cul-de-sac. If a turnaround is needed for buses or large vehicles, the applicant should look into alternatives so that there is not such a huge amount of pavement.
5. Staff is recommending that the applicant revise the pavement structure buildup be increased to 12" of subbase gravel, 3" of base gravel, 2" of base pavement and 1" of surface pavement. The detail on the plan shall be revised.

O:\PLANDEVREVW\CONG1903\LETTERS\BOWD5-14.WPD


6. Erosion control notes should be added to the plan that meet the technical standards. If the applicant is retaining Sebago Technics, they can provide you with the typical erosion control notes which shall apply to the plan. Staff is also recommending that an appropriate erosion control blanket 5 ft. wide be installed within the on-site swale to the catch basin. The erosion control plan should be placed within the construction plan set.
7. The stormwater report needs to be revised based on revised site plan. The conclusions will likely change and Public Works may require the revised flows to evaluate the impact of the flow on capacity with the City system. Further, based on the submitted site plan showing the existing topography, we do not agree with the limits of the existing watersheds.
8. The existing grade around the upper parking area and cul-de-sac is very flat. Runoff from the new pavement area is likely to pond just off the pavement surface. Some minor grading of this area is recommended to positively drain the runoff away to prevent probable ponding.
9. The plan is not clear with regard to power, telephone, and cable service to the building. Will this facility require a pole or pad mounted transformer? If this will be a pad-mounted transformer, where will it be located? If there will be a transformer, then it should be screened by either landscaping or fencing, and a detail would need to be added to the plan.
10. An area for a dumpster has not been provided; if the applicant is not proposing a dumpster, please explain how much solid waste will be generated and what the proposal is for removal of solid waste.
11. It is staff's understanding that the fill operation on the site is completed except for final stabilization. The applicant should submit from MeDEP as to whether they are satisfied with the permit compliance to date. Also the applicant shall state what the schedule for final stabilization as it relates to this project schedule.
12. The plan shows new utility lines going through existing mature trees in the southwesterly area of the site. The applicant should try to relocate the utility lines, so as to not interfere with these existing trees.
13. The applicant shall install three (3) additional pine trees along Congress Street to extend the row of existing pines trees.
14. The applicant shall add the following note to the plan: Existing vegetation shall be conserved in areas shown on this site. Fencing or other protective barriers shall be erected outside the drip-line of individual, groupings of trees designated for preservation prior to the onset of construction. Regrading shall not take place within the drip-line of trees designated for preservation. No storage or construction materials shall be permitted within the drip-line of trees to be preserved.
15. What are the ages of the students to be taught at this school? The parking requirements state that schools providing instruction for students up to and including those fifteen years of age are required one parking space for each room used for purposes of instruction. Schools providing instruction for students sixteen years of age and older require one parking space for each ten

seats or major fraction thereof, used for purposes of instruction; if no fixed seats, one parking space for each one hundred square feet or major fraction thereof used for purposes of instruction. You may be able to eliminate some unnecessary pavement if the students are to be fifteen years and younger.

16. A revised photometric plan should be submitted showing the actual boundary of the property. The applicant should also provide height of light poles and wattage of light fixtures. The applicant should look into eliminating some light poles, which seem to be excessive.
17. I am in the process of doing research as to when the residential unit at this site was demolished. Is it possible that somebody from the Masonics who can tell me when this residential structure was demolished?
18. It was mentioned previously that the applicant had agreed to plant some additional spruce trees to provide screening for the abutting neighbor. The applicant shall show this additional planting on the site plan.

If you have any questions, please do not hesitate to contact me at 874-8901.

Sincerely,

A handwritten signature in cursive script that reads "Kandice Talbot".

Kandice Talbot
Planner

513-291177

-2-

Also, both incandescent as well as fluorescent lighting is desirable so adequate wall plugs should be considered for banker's lamps or similar incandescent units.

The building is beautiful and your architect has done a fine piece of work in developing a child-friendly structure instead of giving the appearance of an institutional-style building.

Please feel free to call upon Jim Salmons or me if we can be of further assistance in your planning stages and we certainly look forward to your plans coming to fruition. Feel free to call upon Mrs. Phyllis Meisel in your search for a Director and tutors.

With kindest personal regards and best wishes in this endeavor,

Sincerely and fraternally,

JPB:jmcg

- cc: Ill.: Robert O. Ralston, 33°
- Ill.: Walter E. Webber, 33°
- Ill.: James W. Salmons, Jr., 33°
- Bro.: Joseph J. Berlandi, 32°

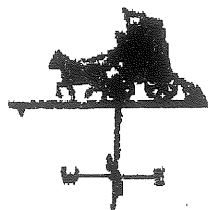
10 MAY 99

TO: KANDY TALBOT. PORTLAND PLANNING BO.

KANDY: SOME PLANNING BOARD MEMBERS AND SITE NEIGHBORS SEEM APPREHENSIVE ABOUT THE APPEARANCE OF THE PROPOSED MASONIC LEARNING CENTRAL BUILDING. PERHAPS THIS SHORT EXCERPT FROM THE MASONIC HEAD OFFICE IN LEXINGTON MASS MIGHT ALLAY THEIR FEARS.

Ref PL 11 Bergquist (617) 527 8169.

MASONIC LEARNING



Portland Water District

225 Douglass Street, PO Box 3553, Portland, ME 04104-3553
 (207)774-5961 Ext. 3041
 Fax (207)761-8307 Ext.:

F a x T r a n s m i s s i o n

To: STI - Nancy Gilbert

From: Dave Coffin

Re: Masonic Learning Center

Date: May 10, 1999

Total pages transmitted: 2 (including cover sheet)

Message: I am faxing you a copy of the Ability to Serve letter you requested. This should have all the information you need to proceed with permitting.

If I can be of any further help, please feel free to call me at the above number and extention.

Post-it® Fax Note	7671	Date: 5/10/99	# of pages: 2
To: Michael Bowler		From: Nancy Gilbert	
Co./Dept.		Co.: Sebago Technics	
Phone #: 799-2360		Phone #: 886-0277	
Fax #: 799-4519		Fax #:	



225 Douglass St. • P.O. Box 3553 • Portland, ME 04104-355

(207) 774-594
FAX (207) 781-83
www.pwd.org

May 10, 1999

Ms. Nancy Gilbert
Sebago Technics, Inc.
P.O. Box 1339
12 Westbrook Common
Westbrook, Maine 04098-1339

Re: Masonic Learning Center

Dear Nancy:

The Portland Water District has a 12" water main in Congress Street, Portland, near the proposed site. A test on a nearby hydrant produced the following results: static pressure 71 psi; pito pressures of 16 & 17 psi; with a flow of 1363 gpm. With these results in mind, the District feels we have a healthful and sufficient capacity available to serve this proposed project and meet all normal fire protection and domestic water service demands.

With certification by the developer that all required permits have been received, we look forward to serving this project.

Sincerely,

PORTLAND WATER DISTRICT

David W. Coffin, PLS
Engineering Supervisor

MASONIC
LEARNING



Northern Utilities, Inc.

April 27, 1999

Mr. Michael Bowdler
29 Trundy Road
Cape Elizabeth, ME 04107

RE: Natural Gas Availability for Masonic Learning Center for Children,
1903 Congress Street, Portland, ME

Dear Mr. Bowdler:

We are pleased to announce we have adequate gas supply for the above referenced project. Please supply our office with the total connected gas load and a site plan when the information becomes available.

Thank you for choosing natural gas. Please call me directly with any questions or concerns.

Sincerely,

NORTHERN UTILITIES

Bill Howard
Sales Representative

MASONIC
LEARNING

Bell Atlantic - Maine
5 Davis Farm Road
Portland, ME 04103
207 797-1785

Troy F. McDonald
Manager - Right Of Way



April 28, 1999

Michael C. Bowdler
29 Trudy Road
Cape Elizabeth, Maine 04107

**RE: Adequate Facilities - Masonic Learning Center for Children, 1903 Congress Street,
Portland, Maine**

Dear Mr. Bowdler:

In accordance with your recent request, please be advised that our engineering department has reviewed the facility records for your project located on Congress Street in Portland.

Based upon their findings, we have adequate facilities to provide for present and future service requirements utilizing the very latest in telecommunications technology.

If you have any questions, do not hesitate to contact me at (207) 797-1785.

Sincerely,

A handwritten signature in black ink, appearing to read "Troy F. McDonald".

Troy F. McDonald
Manager - Right of Way

cc: Erin Murphy

MASONIC LEARNING

Michael Bowdler A.R.I.B.A.
ARCHITECT

Attachment 7

29 Apr 99

Kandice Talbot, Planner
Portland City Planning Office
Portland City Hall
389 Congress Street
Portland, Maine 04101

Masonic Learning Center

Dear Kandice:

Thank you for your letter of 23 Apr 99 on the above mentioned project. We have taken the following action; using clause numbers from your's and the enclosed city letter:

1. The owner should give you a report on this. However, there will be ten pupils, ten instructors, one principal and one secretary. The pupils are expected to be delivered by ten parents. There will be no food catering and no overnight stay. Deliveries should only be stationery. I would appreciate it if you would let me know if this will sufficient to act as the report sort by the city, or shall I ask the owner to prepare a separate report?
2. The site plan has now been revised tp conform fully: drawings sheets 2 and 13.
3. I have written to five utility companies for this information. So far only Gas has responded and it may be difficult to procure these. However, over the phone the TV and Phone companies have indicated that there will be no problem.
4. My Electrical Engineer Hal Thomas phone 761-2884 says that his design does conform with this requirement and that he has already sent in a photometric plan. It could short circuit communiations if you and he spoke directly on this item. Let me know result.
5. The city's requirement for the Landscaping has now been included in the construction documetns; site plan sheet 2. and construction specification.
6. You have Sebago Technics report. The site plan now includes three catch basins and man holes; one at the low topography at the end of the swail to the south east of the buiding and two to serve the new 24' roadway positioned 50' from Congress Street. I'm not sure if this conforms with what is being asked. I would appreciate it if you would let me know. If you would like I will deliver a new site plan to you for perusal.

Response to
rick Knowland's letter of 3 Mar 99:

1. See repsonse to you letter.
2. See our construction spec.

Attachment 7a

3. This has now been shown on the site plan, sheet 2.
4. See response to your letter.
5. See our site plan and roadway details sheets 2 and 13 and specs.
6. This is shown on our site plan sheet 2 and details taken from the city public works dept.
7. The drywill has been eliminated.
8. No.
9. By underground: see our site plan and electrical drawings.

I would appreciate it if you would let me know if this leaves anything outstanding. Let me know exactly what construction contract drawings, specifications and other documents you would like submitted for the 11 May 99 Planning Board presentation; how many copies and before what date. Also I can bring in a copy of the new site plan ahead of time if you wish.

Thank you for your time.

Yours sincerely,



Michael C. Bowdler

MCB/ms

cc: Walter Webber, att

Stanley F. Sampson, Chairman



CITY OF PORTLAND

April 23, 1999

Michael C. Bowdler
Architect
29 Trundy Road
Cape Elizabeth, ME 04107

Re: Masonic Learning Center

Dear Mr. Bowdler:

Below are a list of items that will need to be addressed before the Public Hearing.

1. Traffic: A document should be submitted stating what type of traffic will be generated by this project. It should state how many students and teachers will occupy the building. It should also be stated what type of deliveries are expected and how often.
2. Driveway Entrance and Parking Lot: The driveway entrance should be a width of 24 ft. The site plan should be revised accordingly. All parking and driveway area shall be paved and a detail of the pavement depth should be provided.
3. Utilities: Letters from Portland Sewer Department and Portland Water District stating whether there is adequate capacity in this area should be submitted.
4. Lighting: The light fixture proposed is not a true cut-off light. The City of Portland requires cut-off light fixtures. Some examples of these are attached. There shall also be no spillover of lighting onto abutting properties. A photometric plan shall be submitted.
5. Landscaping: Please see the attached plan to show what staff is recommending for landscaping of the site.

The following notes should be added to the plan:

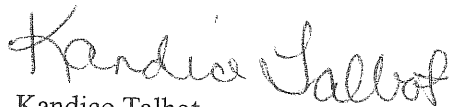
- * Landscaping shall meet the "Arboricultural Specifications and Standards of Practice and Landscape Guidelines" of the City of Portland Technical and Design Standards and Guidelines

O:\PLANDEVREVW\CONG1903\LETTER.WPD

- * Existing vegetation shall be conserved in areas shown on this site. Fencing or other protective barriers shall be erected outside the drip-line of individual, groupings of trees designated for preservation prior to the onset of construction. Regrading shall not take place within the drip-line of trees designated for preservation. No storage or construction materials shall be permitted within the drip-line of trees to be preserved.
 - * If during or after construction, existing plant material shows signs of bark damage or excessive root damage, or which have been subjected to grade changes other than those originally indicated in the approved grading plan, or which have declined considerably due to mechanical or natural conditions, shall be rejected and replaced at the rate of one (1) 2 1/2 - 3 inch caliper tree for every 4 inches of caliper removed.
6. Drainage: I am attaching the engineer's comments regarding drainage. You have already received this memo before, but I am enclosing it as a reminder. The Development Review Coordinator is currently reviewing the stormwater management report and I will forward any further comments as soon as I receive them.

If you have any questions, please do not hesitate to contact me at 874-8901.

Sincerely,



Kandice Talbot
Planner

100

LINE

PERFORMANCE
SCONCES



102 Rounded Wedge Sconce

High Performance Architectural Outdoor Sconces

- Wide luminaire spacings from sharp cutoff wall mounted luminaires.
- Handsome, compact forms integrate to mounting surface.

Wide Spacings

The mcPhilben 100 Line luminaires are offered with a forward throw distribution for small parking areas or a wide throw distribution for pedestrian areas. Both optical systems feature highly specular faceted reflectors designed to efficiently direct light and provide high light levels, uniform distributions and remarkably wide luminaire spacings. These high performance optical systems may result in the ability to design with fewer fixtures providing a cleaner wall appearance, lower installation costs, and lower energy and lamp replacement costs over the life of the project.

Sharp Cutoff

Unlike refractor wall packs, the candlepower distributions produced by the precision optical systems of the mcPhilben 100 Line meet the strict IES cutoff criteria. This assures that light above 30° is minimized resulting in exceptional control of disabling glare, curtailed light trespass beyond the property line, and elimination of direct upward sky pollution.

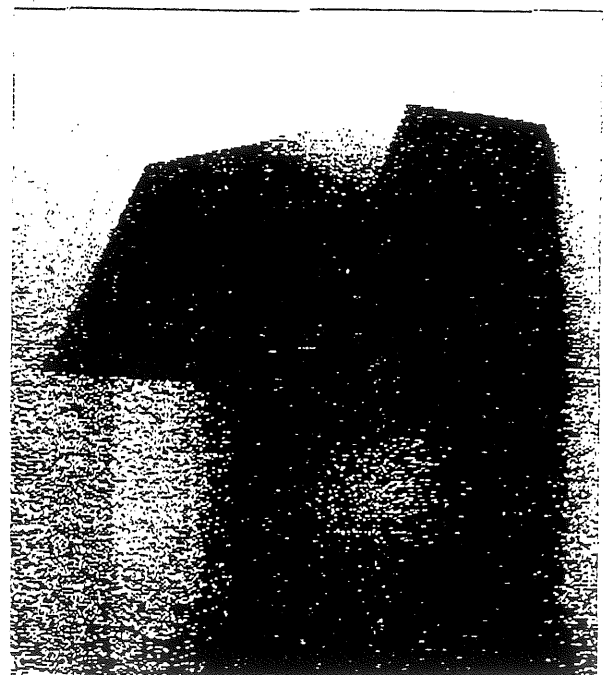
Handsome, Compact Designs

These outdoor sconces are available in two exquisite shapes and both were conceived with critical design sensitivity. The 101 trapezoidal luminaire mates naturally with rectilinear architectural elements and the 102 rounded wedge is appropriate for softer building details. Both units feature

compact dimensions which are perfectly in scale for the recommended mounting heights of 10-14 feet.

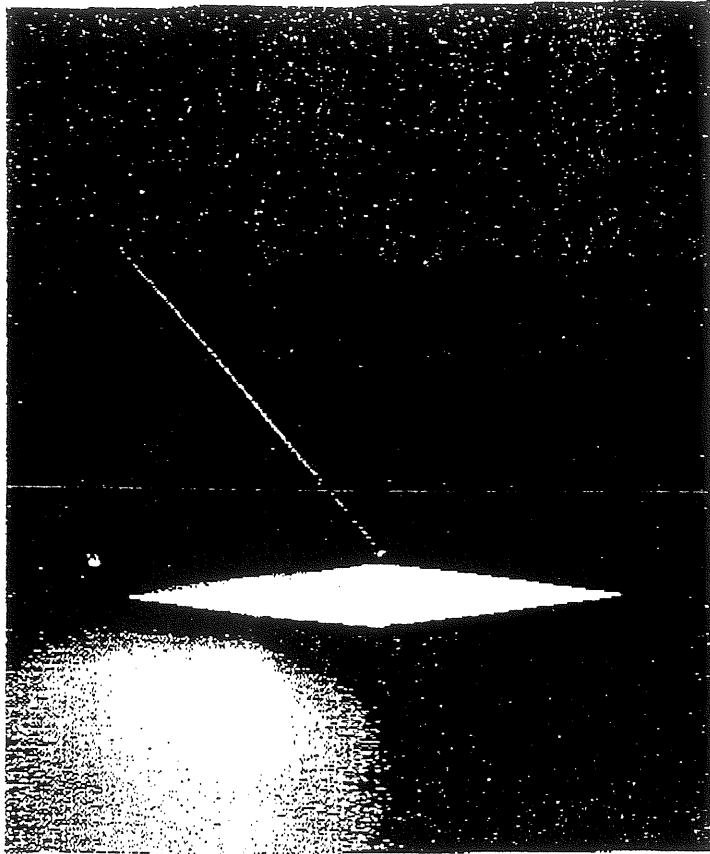
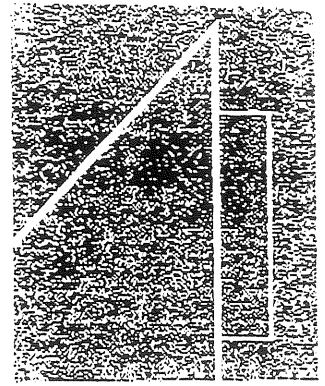
Rugged Construction

Housing, door frame, and back plate are all precision die cast aluminum. Heat dissipating fins integrated into the back plate assure cool operation and extended ballast life. Each luminaire is completely prewired and factory tested before shipment. The lens is optically clear tempered glass. Completely sealed and gasketed at every point of entry and material transition to thoroughly exclude the elements and effects of time the mcPhilben 100 Line is certain to make a lasting contribution wherever it might be applied.



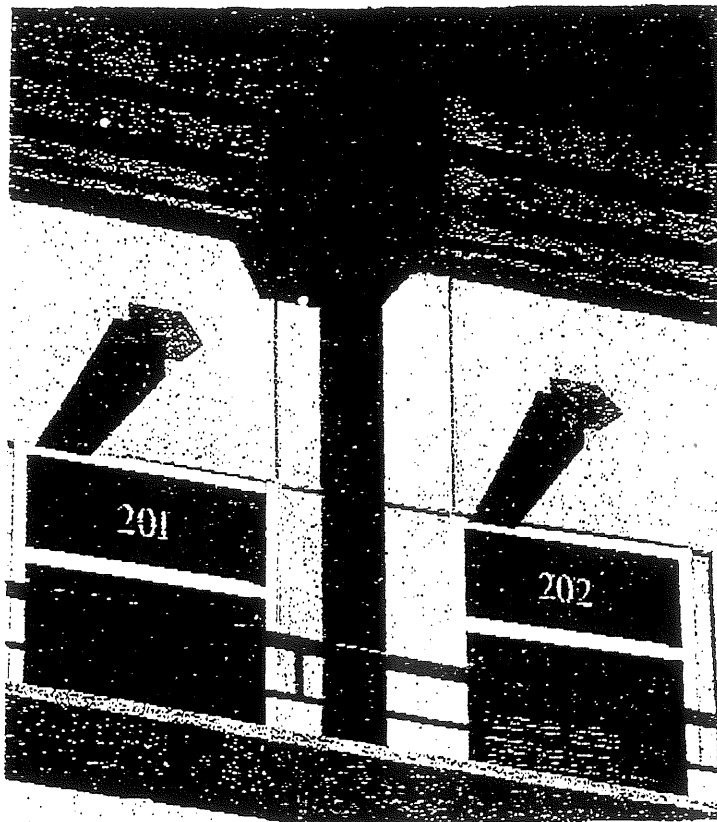
101 Trapezoidal Sconce

682

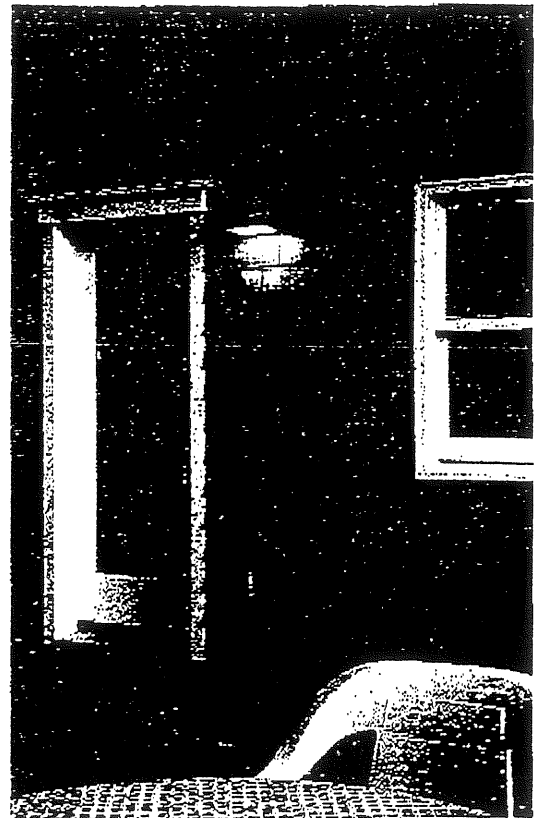


Wedge Downlight

The classic design of this clean wedge shape will endure as long as the solid, bronze it is fabricated from. The acid washed factory finish will weather to a dark brown patina. Two larger sizes are available for H.I.D. lamping and can be found elsewhere in this section. For an uplight version - 687 - see Section C.



TRUDY TOWER BUILDING
MARTIN G. DE
ARCH. DAVID BAKER



ARBY PERFORMANCE
DAVID G. DE

Uplight/Downlight with Minimal Light Trespass

SUNDOWNER™ 19

Sundowner offers light sculpturing and indirect lighting with controls that dramatizes walls, ceilings and surfaces with unparalleled uniformity... both indoor and outdoor.

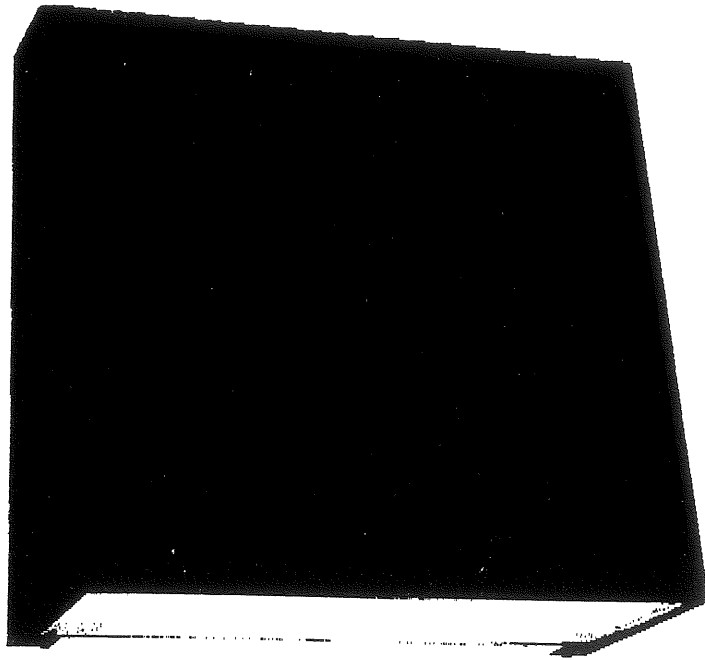
Available in wattages from 150-400 watt, Sundowner's vertical lamp position and optical system develops a sharp 85-degree light cutoff and uniform light distribution that is unique for uplight applications.

Ideal for lighting exterior walls, soffits and overhangs, tunnels, walkways, garages, stepwells and canopies.

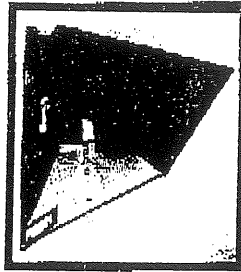
Indoor applications include shopping malls, auditoriums and convention centers. Double-up Sundowner units to create an uplight/downlight combination that is architecturally arresting.

The corrosion resistant canopy is sealed to the mounting plate, and the tempered diffused glass lens is silicone sealed in fixture canopy to prevent water and minimize insect infiltration. Units are Listed for Damp Locations for uplighting.

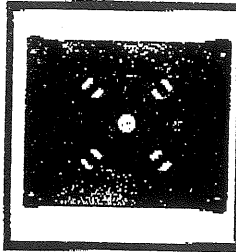
Sundowner - Another unique lighting tool for conquering demanding lighting requirements from Guth.



Canopy hinges for lamp or electrical maintenance and easily removes from backplate.



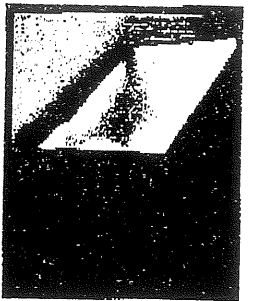
One-man hanging of SND 19 with adjustable mounting and leveling plate for conventional junction box.



Fixture canopy seals to backplate with quality silicone gasketing.



Diffusing glass lens is silicone sealed in canopy to resist moisture and insect infiltration.



Specifications/Features

GENERAL

- Sharp cutoff, wall mounted HID luminaire suitable for low glare applications and light trespass code compliance.
- Utilizes Metal Halide and High Pressure Sodium HID lamps up to 400W for best design options available.
- Wet location applications.
- Uplight mounting available. (Damp Location)

CONSTRUCTION

- Corrosion resistant .06" low copper content aluminum canopy and .09" back plate finished in baked bronze polyester powder coat.
- Easy one man installation with quick leveling, gasketed 18 ga 304 stainless steel mounting bracket; has extra holes for additional wall anchors; fixture simply attaches to 4 threaded studs on mounting plate.
- Canopy hinged and easily removable from back plate; enhances ease of installation.
- Prop rod included to hold fixture open and free hands for lamp replacement and maintenance.
- Specular aluminum reflectors produce front cutoff at 85 degree and 9/MH 2.75:1.

- Canopy sealed to back plate with extruded, high temperature, silicone gasket.
- Corrosion resistant stainless steel external hardware.
- 5/32" tempered diffused glass lens silicone sealed to prevent entrance of water, and minimize insect infiltration.
- Canopy secured by two captive stainless steel screws; optional temper resistant screws.

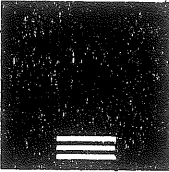
LISTINGS

- Listed 1572 Wet location for downlight and damp location for uplight versions.

ELECTRICAL

- Standard ballasts are 120V, HPF, maximum 400W mogul base HID lamp in vertical position.
- Ballast mounted to backplate with stake-in screws for positive grounding and secure mounting.
- Ground wire attached to backplate for positive grounding and quick installation.
- Optional button type photocell mounts in top of housing.
- All fixtures are IBEW, Union made to ensure quality.

GUTH
LIGHTING



DeLUCA-HOFFMAN ASSOCIATES, INC.
CONSULTING ENGINEERS

778 MAIN STREET
SUITE 8
SOUTH PORTLAND, MAINE 04106
TEL. 207 775 1121
FAX 207 879 0896

Attachment 3

- ROADWAY DESIGN
- ENVIRONMENTAL ENGINEERING
- TRAFFIC STUDIES AND MANAGEMENT
- PERMITTING
- AIRPORT ENGINEERING
- SITE PLANNING
- CONSTRUCTION ADMINISTRATION

MEMORANDUM

TO: Rick Knowland, Senior Planner

FROM: Jimi Wendel, PE, Development Review Coordinator

DATE: March 3, 1999

RE: Site Plan Review
32^o Masonic Learning Center
1903 Congress Street

A review of the submission dated 2/4/99 has been completed. A significant level of information is needed. Our comments are:

1. A stormwater management report is required. This report should describe where the runoff drains and calculations showing the increase. The requirements for a stormwater management report are outlined in the City of Portland Technical and Design Standards and Guidelines. A portion of the increased runoff will drain to Congress Street; Public Works may have some comments. Congress Street is a heavily traveled route and appropriate drainage control is very important.
2. An erosion and sediment control plan is required. The requirements for the plan are outlined in the same reference noted in item 1.
3. The grading plan needs additional proposed grades in the upper parking field. Erosion control BMP is needed on the outlet end of the curb openings at the corners of the upper parking field facing Congress Street.
4. Will this facility have a significant amount of drop-off traffic? Will buses frequent this facility? What needs are there for trash removal? Internal vehicle movement is problematic. A loop or cul-de-sac circulation pattern may be warranted. The entrance drive is only 14' wide; the width is insufficient for two-way traffic. The curb cut width is insufficient for larger vehicles.
5. Additional construction details are needed; i.e., curb installation, pavement and sidewalk structure build-up, dumpster pad and enclosure, planting schedule and installation details, light pole base, etc.
6. The actual status of the existing water, sanitary and gas services should be fully defined.

DeLUCA HOFFMAN ASSOCIATES, INC.
CONSULTING ENGINEERS

3a

7. What is the intent of the 4 cy drywell, to collect the roof drainage? Detailed soil information should be provided to support the use of this system for whatever the source of the inflow.
8. Will the fill operation currently going on in the site continue?
9. How will power and telephone get to the site and the building - by overhead or underground? The plan should be clear.

Should you have any questions, please call.

From: Larry Ash
To: Kandi Talbot
Date: Thu, Apr 15, 1999 9:34 AM
Subject: Mason's Learning Center Development

Kandi: I need to see some sort of documentation of what this development is proposing to do from a traffic standpoint. Please advise. Thanks.

Michael Bowdler A.R.I.B.A.
ARCHITECT

7 Apr 99

Kandi Talbot, Planner
Planning Board Office
City Hall
Portland, Maine 04101

Masonic Learning Center

Dear Kandi:

For submission of the Final Construction Documents for the above mentioned project to the City Planning Board's next 27 Apr 99 meeting, I need from the Planning Board some clarifications and instructions, as follows:

1. Landscaping: I understood that city's Jeff Tarling was to provide me with his report and the city's requirements.
2. The New Catch Basin at the end of the new swail: possibly damaging existing tree roots: PB Chairman John Carroll expressed concern. I need the PB's requirements on the issue.
3. Screening and Fencing: Ditto.
4. Traffic Report: Ditto.
5. Neighbors correspondence on the project: May I receive copies of these in order to possibly address the issues.

The project's construction documents already call for the removal of all demolished building floor slabs, and now include for a new 24'-0" wide entrance driveway, traffic turning circle and parking area, all paved.

Accommodating the five items mentioned above will take some time and I would appreciate anything you can do to expedite a response to this document.

Thank you for your attention.

Yours sincerely, *Michael C Bowdler*

Michael C. Bowdler MCB/ms

cc: Att. Walter E. Webber
Stanley F. Sampson

3-23-99
1859 Congress Street
Portland, Maine 04102
772-5527

Members of the Portland Planning Board
City Hall
389 Congress Street
Portland, Maine 04101

RE: Outer Congress Street Masonic Temple Plans

Dear Director and Planning Board Members:

The site of the proposed Scottish Rite Masonic Children's Learning Center is flanked by residential homes. This site, owned by the Masons has been filled by White Bros. Construction to raise the elevation approximately 30 feet above the original and surrounding elevation. This has been an ongoing project for almost 3 years. (Apparently there is no mechanism in City Hall that requires a Planning Board meeting for such site filling.)

Consequently, the proposed building will sit on a plateau, dominating the surrounding area. This will make it nearly impossible to adequately screen with fencing or landscaping.

Any plan or approval should carefully consider the negative impact to the residential neighbors of this site elevation and provide adequate plans for blending this building into the neighborhood.

Sincerely,


Robert and Andrea Kelly-Rosenberg

Michael Bowdler A.R.I.B.A.
ARCHITECT

2 Feb 99

Richard Knowland, Senior Planner
Planning Board
City Hall
Portland, Maine 04101

The 32 degree Masonic Learning Center for Children, 1903 Congress Street, Portland, Maine.

Dear Mr. Knowland:

This responds to your 24 Feb 99 review of Site Review documents for the above mentioned project. Quoting the clause numbers from your letter as follows:

1. Accepted.
2. (a) The city's site review requirements did not ask for full sets of working drawings: only site plans and floor plan and elevations. We can supply these if necessary but there are eighteen drawings and printing seven sets of these will be expensive for the owner, especially considering that the site plan review could very well necessitate amending many of these drawings.
(b) We can provide more spot levels if required, but the topographical lines shown on the drawings over that relatively flat area show the levels and drainage levels clearly.
(c) With our submission seven 8½ x 11 survey sheets were included showing all boundary lines and having a registered surveyors seal to scale 1" = 100' exactly as asked for in the city's requirements. Do we have to buy from the surveyor involved larger scale sheets?
(d) This item covered in the construction specifications earthwork already submitted.
(e) This calculation we can get from a civil engineer, but it will be an extra cost for the owner. This project is only 2700 square feet, no bigger than a house! Such requirements seem out of scale with the cost projections for the project.
(f) This can and will be covered in the construction specification.
3. The entire property is shown on page one of the submission detail A/1. Sheet two shows the area we are building on to the large scale of 1" = 10'. And again the property line plan was submitted on seven 8½ x 11 sheets with a registered surveyors seal. Are we required to have our construction site plans show a registered surveyor's seal?
4. The relative merits of an historical versus a contemporary (meaning of today) approach to the design for this project would be correctly addressed by professionals. Our architect Michael Bowdler, who has published articles on architectural design philosophy will be glad to discuss this subject with the city. In this case the location is outside of the historical area legally and

from it no historical buildings can be seen. In fact the only two significant buildings around are the modern church across the street and the Elks club. The roof pitch is the well known most economical 4 in 12 pitch. The aesthetics or the magnitude of the roof pitch is a matter of opinion. Many public buildings are flat! The triple arch feature is an economical and in good taste effort to provide some relief where this can be functionally applied at the front entrance to provide a canopy protection from inclement weather. We are well aware of the prominence of this building to this busy highway. A great deal of thought and time was devoted to the positioning of the building to appear well from Congress Street.

5. Civil Engineer Fred Johnson who is on our building committee feels that this item has been taken care of.
6. We feel that the topography on the plans is complete. If the city will point out specifically where they would like to see the topography planning to be more comprehensive our architect will attend to this.
7. We will get this done if we have to, but repeat that this project is no bigger than a house.
8. This information is included in the complete contract drawings and specification documents and we will supply this at the site plan review stage if required, but this was not asked for in the city's site plan review requirements.
9. We did not know that this was a requirement, but the construction contract documents will be amended to include this.
10. For the landscaping the existing planting is considered sufficient. It is a beautiful area and not requiring additional planting. The intention is to give this matter further consideration when the building is nearing completion when the available building funds will be more finalized.
11. The original application gave the owner's name. The anticipated cost of the building, because of the present erratic construction bidding climate is difficult to predict, but we are saying \$ 270,000. The use of the building is shown on the original application. Obviously there are no residential units included. The total land area is shown on the site plan. The area of the building is also shown. The easements are shown on the site plan. The solid waste estimate was provided with the application. The utilities are all shown clearly and taken from a plan supplied to our architect by the city public works dept. A storm water management plan we will provide if the city really requires this, but it will require the owner to employ a civil engineer for the task. Again it is a project only the size of a house. The project is anticipated to be completed by September 30 this year. The roads, seeding and drainage are shown on the site plans. If we are required to provide erosion control measures and pollution abatement measures we will, but this all adds to the cost for a small project. As far as we know aside from the City Site Review we only need get building permits from the city and the state safety department, but it is up to the city to tell us what permits are required. The city and state building permits we anticipate will take a few days. The plans have already been circulated through these bodies informally to save time at the formal submission. Financial responsibility of the owner was shown in documents already submitted. The land deed was submitted with the application. Unusual natural areas on or near the site should be better known to the city planning authorities than ourselves. We can promote and pay for such a study if required.
12. There is a substantial sidewalk fronting the project's site and this was shown clearly on the submitted drawings.

we note that the comments from the Public Works and your office are said to be tentative only meaning that there could be another batch of requirements from the city. Receiving requirements at different intervals necessitates substantial altering of plans in stages requiring reprinting the whole set at each stage. This could get very expensive in printing and time for many persons. We feel that we should be entitled to a list of further city requirements in one batch at say an conference with yourself.

Thank you for your attention and again we feel that we should emphasise the smallness of this project. It is a building being done for a good cause.

We apologise for this document being in unedited draft form only; the only option for having available for our 2 March 99 meeting.

Yours sincerely,

Walter E. Webber Att. at Law.

cc: Stan Sampson
Michael Bowdler
Fred Johnson

Michael Bowdler A.R.I.B.A.

ARCHITECT

4wd

8 Mar 99

Richard Knowland, Senior Planner
Planning Board
City Hall, Portland, Maine 04101

The 32 degree Masonic Learning Center for Children, 1903 Congress St. Portland, Maine

Dear Mr. Knowland:

Referring to the submission documents required by the city for Site Plan Review for the above mentioned project; of the 27 items cited on your letter of 24 Feb 99 to Walter Webber, we still need clarification on several. Using the clause numbers from your letter as follows those items starred we need clarification:

1. Accepted
- * 2. * (a) Seven copies of all working drawings would involve 126 prints, any of which could be made obsolete from changes the city might require. To be more practical I will bring in to city a full set from which you may make a selection of those sheets you will require. Let me know if this is satisfactory to you.
 - (b) This will be done
 - (c) We will submit a large scale survey with surveyors seal.
 - (d) This is covered in the construction specification.
 - (e) The owner will engage the service of a Civil Engineer to do this and will submit his report in due course.
 - (f) This is covered in the construction specification: Earthwork clause 3.11.
3. See 2 (c) above.
4. Subject of a separate letter
5. Yes.
6. We feel that the topography is complete. We will put on the drawings a few more spot levels and additional level notations.
7. As we understand the agreement at our meeting this will not be required
8. We will submit these.

9. This will be done.
10. The plan was to use the existing landscape undisturbed. A review and further visit to the site confirms our feelings on the issue. We would consider some additional planting adjacent to the entrance, which we will demonstrate on sketches at our next meeting. We also still feel that planing could be considered with more clarity in the late stage of construction.
11. Portland Code 525 (c)

* First clause: Please clarify.

Items 1 through 5 already submitted.

(6) See 2 (e) above.

(7) Break ground 27 April 99. Complete 27 Sep 99. For such a small project the sequence should be obvious. Earthwork, Concrete, Framing, Roof, Sheathing, Insulation heating and lighting, lining, finishes, painting, millwork, landscaping.

(8) After site review: Building Inspector, Fire Marshal, State Public Safety including requirements for Handicapped. These can not be processed until site review is done. However, I have processed through these bodies informally in order to save time. Also these bodies have indicated that their permits will be forthcoming the same day as submitted.

9. Already given.
10. Ditto.
11. None as far as I know.

I would appreciate your contacting me if any of the above shows any misunderstanding.

Thank you for your attention.

Yours sincerely.



Michael C. Bowdler

MCB/ms

cc: Stanley F. Sampson, Chairman
Walter E. Webber, Att. at Law.

Attachment 2

Planning & Urban Development



Joseph E. Gray Jr.
Director

CITY OF PORTLAND

February 24, 1999

Mr. Walter Webber
Jensen Baird Gardner & Henry
Ten Free Street
Portland ME 04101

re: Masonic Learning Center (1903 Congress Street)

Dear Mr. Webber:

This letter is intended to outline staff comments regarding the Masonic Learning Center site plan in the vicinity of 1903 Congress Street.

1. The proposal will require site plan and conditional use review by the Planning Board. Typically, this process involves a workshop and a public hearing.
2. For Public Works comments, see attached memo from Anthony Lombardo, dated February 12, 1999.
3. The entire property needs to be shown on the plan, along with a standard boundary survey stamped by a land surveyor.
4. Based on what we have seen so far, we have concerns whether the proposed building is compatible with the character at the Stroudwater area, in terms of roof pitch, building form, and design elements (such as stucco arches). Also, we will need detailed elevations for all sides of the building. Although the building is apparently just outside the Stroudwater Historic District, it is important that neighborhood compatibility issues be addressed. The appearance of the building from Congress Street is very important.
5. Is White Brothers done with their landfill project? Has the site been appropriately stabilized in terms of grading, ground cover, and erosion and sedimentation control?
6. Topography and grade information are not complete.
7. A traffic report will need to be submitted. Please contact Larry Ash, City Traffic Engineer, on the specific traffic analysis that will be required.
8. Exterior lighting. Type of lighting fixture (with catalog cut) and height of pole.
9. Power line should be underground.


- 10. Landscaping. Size and specific number of proposed landscaping. Also what existing vegetation will be preserved.
- 11. A response to the written statements to sec. 14-525(c).
- 12. I cannot recall whether there is a sidewalk along the entire frontage of the property. If there is not, a sidewalk must be installed unless the applicant requests a waiver, and it is approved by the Planning Board.

These are the comments generated by staff to date. As other comments are generated, they will be forwarded to you accordingly.

We have tentatively scheduled a workshop with the Planning Board on Tuesday, March 23, 1999. We would be interested in reviewing a revised plan that substantially addresses these issues, prior to the workshop. I realize a number of these comments are technical and full documentation will be required for the public hearing, but I would encourage the applicant to address comments with particular emphasis on numbers 3, 4, 5, and 7.

Should you have any questions concerning this letter, please call me. We would be happy to sit down with you or your representative to go over the site issues in more detail.

Sincerely,


 ✓ Richard Knowland
 Senior Planner

Enclosure

- cc: Joseph E. Gray, Jr., Director of Planning and Urban Development
- Alexander Jaegerman, Chief Planner
- Anthony Lombardo, Project Engineer
- Jim Wendel, Development Review Coordinator

26

PUBLIC WORKS ENGINEERING
MEMORANDUM

To: Alex Jaegerman, Chief Planner
From: Anthony Lombardo, P.E., Project Engineer
Date: February 12, 1999
Subject: Masonic Learning Center....1903 Congress St.

The following comments were generated during Public Works Engineering review of proposed Masonic Learning Center on Congress Street. The plans and application were dated February 8, 1999.

Plan set is not complete. The applicant must provide construction details for the proposed features of this development.

More spot grades need to be specified in the parking area on site in order to verify positive draining and to ensure no potential ponding problems.

The must provide a Standard Boundary Plan.

This application does not provide measures for temporary and permanent sediment and erosion control.

The nature of this site has changed, therefore the applicant must provide stormwater calculations as specified in City's ordinance as well as the City's Design and Technical Standards.

If the gas service to this site is a proposed utility, the applicant must specify the repairs necessary within the City's Congress Street right of way (i.e. resetting curb, rebuilding impacted sidewalk and street pavement.

These are some of the most obvious comments, however, upon review of a complete set of plans my comments will become more specific and detailed.

page 2 of 8

Engineer Review and Site Inspection Fee Invoice Worksheet

Address: Masonic Learning Center....1903 Congress St..... DATE: 2/12/99

Engineering Review

To be filled out by Development Review Coordinator and Public Works at time of application.

Planning	Public Works
# of Hours Estimated: (Private Improvements)	# of Hours Estimated: (Public Improvements)
Field Work _____	Field Work <u>1.0</u>
Memos/Corresp. _____	Memos/Corresp. <u>2.0</u>
Review/Analysis <u>3.0</u>	Review/Analysis _____
Meetings/phone calls <u>2.0</u>	Meetings/phone calls _____
Total Hours _____ at _____ per hour	Total Hours <u>8.0</u> at <u>\$35</u> per hour
Review Fee (Private): \$ <u>\$280</u>	Review Fee (Public): \$ _____
_____	_____
Development Review Coordinator Signature	Public Works Engineer Signature

Site Inspection

To be filled out by DRC and Public Works at time of Performance Guarantee approval.

Planning	Public Works
____ Accept 1.7% of Private Improvements P.G.	____ Accept 1.7% of Private Improvements
\$ _____ (dollar amount)	\$ _____ (dollar amount)
# of Hours Estimated:	# of Hours Estimated:
Field Work <u>8.0</u>	Field Work _____

Memos/Corresp. _____
1.0

Memos/Corresp.

Review/Analysis _____

Review/Analysis

Meetings/phone calls _____
1.0

Meetings/phone calls

Total Hours _____ at _____ per hour

Total Hours 10.0 at \$35 per hour

Alternate Inspection Fee (Private): \$ _____
\$350

Alternate Inspection Fee (Public): \$

 Development Review Coordinator Signature

 Public Works Engineer Signature



SUPREME COUNCIL, 33°
A.A. SCOTTISH RITE
NORTHERN MASONIC JURISDICTION, U.S.A.

Walter E. Webber, 33°
Active Member

179 Morton Road
Yarmouth, Maine 04096
(207) 846-4693

February 8, 1999

Bus: Ten Free Street, P.O. Box 4510
Portland, Maine 04112
(207) 776-7271

Email: wwebber@jbgh.com

Alexander Jaegerman, AICP
Chief Planner, City of Portland
Department of Planning & Urban Development
389 Congress Street
Portland, ME 04101

Re: The 32° Masonic Learning Center for Children
1903 Congress Street, Portland, ME 04102

Dear Mr. Jaegerman:

1. This applies for a site review for the above-mentioned project.

Enclosed under separate cover are:

- (a) One copy of deed. *will deposit in couple of days*
- (b) Sevens sets of drawings --
 - (i) Location Plan
 - (ii) Site Plan
 - (iii) Floor Plan
 - (iv) Construction Specification sections application to site work
 - (v) Surveyor's Property Plan
 - (vi) City Application Form
- (c) Check for \$500.00.
- (d) The Performance Guarantee is a Performance and Payment and Bid Bond requirement from the appointed general contractor, contained in the construction specification.
- (e) Evidence of Financial Responsibility is the enclosed brochure: "Scottish Rite Masonic Children's Learning Center Inc."

2. In your document items (a) to (f) are missing, so we assume that those items do not apply in the case of our project.

3. Responding directly to your items (g) through (n):

(g) See Plans and Specs.

(h) Ditto.

(i) None.

(j) See Plans and Specs.

(k) Ditto.

(l) Not as far as we know.

(m) See Plans and Specs.

(n) Ditto.

(3) Not applicable.

(3c) Owner Portland Commandery #2
415 Congress Street
Portland, ME 04101

Estimated Construction Cost: \$200,000.00

(3c) (1) School for Dyslexic Children

(2) 5.72 acres

Building Floor area 2,785 s.f.

(3) None.

(4) 80 lb. Paper

(5) See Plans and Specs.

(6) See Plans and Specs, existing surface drainage will not be radically changed. See Construction Document Site Plan.

(7) Normal Construction Schedule. Estimated Construction time, five months. Seeding and erosion control covered in Construction Specifications.

(8) Not applicable.

(9) Enclosed.

(10) Enclosed.

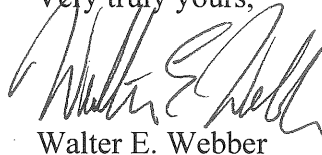
Alexander Jaegerman, AICP
Chief Planner, City of Portland
Department of Planning & Urban Development
February 8, 1999
Page 3

(11) None.

Your checklist #46 calls for "letter of non-jurisdiction." We are not sure what you mean by this.

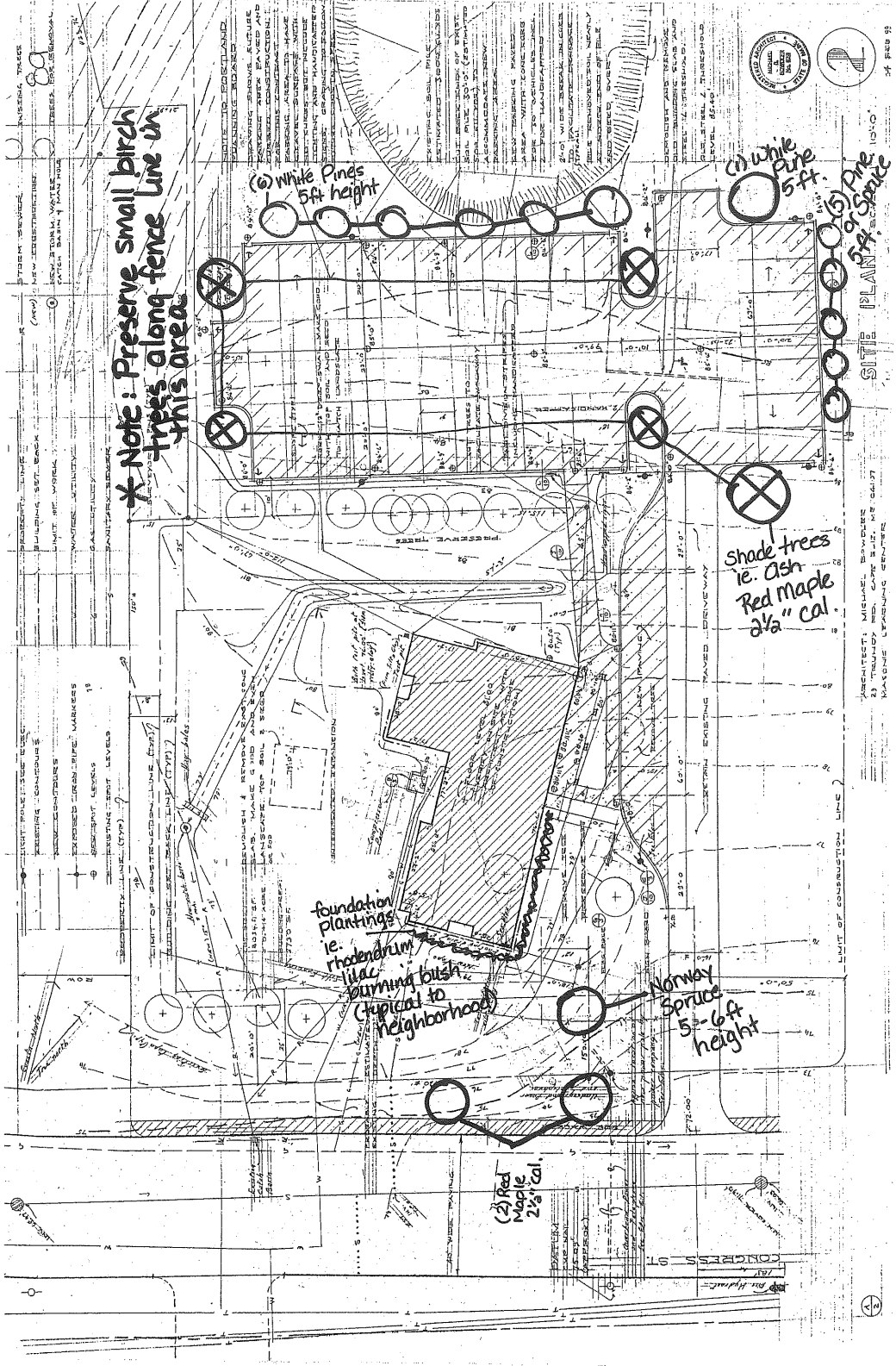
We have studied your Site Review Pre-Application Documents meticulously to meet your requirements comprehensively. Our program is to break ground for this project in mid-April this year. Please let us know in good time of any specific item of information you require from us. Any assistance from your department to help expedite City approval for this project, we would very much appreciate.

Very truly yours,

A handwritten signature in black ink, appearing to read "Walter E. Webber", written in a cursive style.

Walter E. Webber

baw



X Note: Preserve small birch trees along fence line in this area.

(6) White Pines 5ft height

(3) White Pine 5ft.

Shade trees i.e. Ash Red Maple 2 1/2" Cal.

foundation plantings i.e. rhododrum lilac burning bush (typical to neighborhood)

Norway Spruce 5-6 ft height

(3) Red Maple 2 1/2 ft Cal.

SITING PLAN 5/24/80

CONGRESS ST

LIMIT OF CONSTRUCTION LINE

EXISTING DRIVEWAY



CONSULTANTS

Fred R. Johnson, P.E., #1143

CSI, CCS

Specification Divisions 1-14

Whitney Engineering

Specification Division 15

Richard P. Whitney, P.E. #4844

10 Danforth St., Portland, ME

Thomas Engineering

Specification Division 16

Harold W. Thomas, P.E. #1800

424 Fore St., Portland, ME

Michael C. Bowdler, Architect

29 Trundy Road

Cape Elizabeth, ME

TABLE OF CONTENTS

BIDDING AND CONTRACT REQUIREMENTS	Number of Pages
Instructions to Bidders.....	3
General Contractors Form of Proposal.....	3
Form of Bid Bond (AIA A310).....	1
Form of Performance and Payment Bond (AIA A312).....	6
General Conditions of the Contract (AIA A201).....	24
Supplementary Conditions.....	6
Addenda and Modifications.....	1

SPECIFICATIONS

DIVISION 1 - GENERAL REQUIREMENTS

<u>Section</u>	
01010	Summary of Work..... 1
01020	Allowances..... 1
01100	Alternatives..... 1
01500	Temporary Facilities..... 3
01700	Project Closeout..... 1

DIVISION 2 - SITE WORK

<u>Section</u>	
02100	Clearing & Grubbing..... 2
02200	Earthwork..... 8
02500	Bituminous Paving..... 1
02600	Site Utilities..... 2
02800	Site Improvements..... 1
02900	Landscaping..... 8

DIVISION 3 - CONCRETE

<u>Section</u>	
03300	Cast in Place Concrete..... 12

DIVISION 4 - MASONRY

<u>Section</u>	
04100	Mortar..... 2
04200	Masonry..... 2

DIVISION 5 - METALS

<u>Section</u>	
05100	Structural Metals..... 2

DIVISION 6 - WOOD AND PLASTICS

<u>Section</u>	
06100	Rough Carpentry..... 4
06180	Prefabricated Wood Trusses..... 2
06200	Finish Carpentry..... 4

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

<u>Section</u>	
07200	Building & Sound Insulation..... 2
07240	Exterior Insulated Finish..... 8
07300	Roofing Shingles..... 1
07810	Skylights..... 1
07900	Sealants..... 2

DIVISION 8 - DOORS AND WINDOWS

<u>Section</u>	
08100	Metal Door Frames..... 1
08200	Wood Doors..... 2
08400	Aluminum Entrances..... 2
08600	Wood and Plastic Windows..... 1
08700	Finish Hardware..... 2
08710	Weatherstripping and Thresholds..... 1
08800	Glazing..... 2

DIVISION 9 - FINISHES

<u>Section</u>	
09250	Gypsum Wall Board..... 3
09300	Tile..... 2
09500	Acoustical Ceilings..... 2
09650	Resilient Flooring..... 2
09680	Carpeting..... 2
09900	Painting..... 5

DIVISION 10 - SPECIALTIES

<u>Section</u>	
10100	Chalkboards and Tackboards..... 1
10150	Toilet Compartments..... 1
10200	Louvers and Vents..... 1
10350	Flagpoles..... 1
10520	Fire Extinguishers..... 1
10800	Toilet Accessories..... 2

DIVISION 11 - EQUIPMENT -NONE

DIVISION 12 - FURNISHINGS

Section

12670 Entrance Mats and Frames..... 1

DIVISION 15 - MECHANICAL

Section

15100 General Requirements..... 12
15250 Mechanical Insulation and Condensation Products. 7
15300 Sprinkler System..... 9
15400 Plumbing..... 17
15488 Natural Gas..... 7
15530 Refrigerant Piping & Accessories..... 5
15772 Split System HVAC System..... 4
15841 Low Pressure Duct Work & Accessories..... 6
15860 Fans..... 3
15880 Testing & Adjusting..... 6
15991 Automatic Temperature Controls..... 4

DIVISION 16 - ELECTRICAL - (Refer to Section 16000)

---END OF TABLE OF CONTENTS---

INSTRUCTIONS TO BIDDERS

1. RECEIPT AND OPENING OF BIDS

The Ancient Accepted Scottish Rite Northern Masonic Jurisdiction, USA, hereinafter called the OWNER), invites bids on the forms attached hereto. All blanks must be appropriately filled in.

Bids will be received until 4:00 P.M., prevailing time, Monday, May 24, 1999.

The envelope containing the Bids must be sealed, and addressed to:

George C. Smythe, Secretary
Masonic Temple,
415 Congress Street,
Portland, Maine 04101

and shall be designated as follows:

BID FOR: 32nd. Degree Scottish Rite
Learning Center for Children
1903 Congress Street
Portland, ME

for: Ancient Accepted Scottish Rite, Northern Masonic Jurisdiction, USA.

Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified will not be considered.

2. PREPARATION OF PROPOSAL

Submit proposals on the Form of Proposal furnished herein. All blank spaces for bid prices must be filled in, in ink, in both words and figures. (Refer to Article 5 of this Section.)

3. QUALIFICATION OF BIDDERS

Bidders will be from a selected list as determined by the Architect and the Owner. The Owner, or his representative may make such investigation as deemed necessary to determine the ability of the Bidder to perform the work. The Bidder shall furnish all such information and data for this purpose as they may request. The Owner reserves

3. PREPARATION OF PROPOSAL

Submit proposals on the Form of Proposal furnished herein. All blank spaces for bid prices must be filled in, in ink, in both words and figures. (Refer to Article 5 of this Section.)

4. QUALIFICATION OF BIDDERS

Bidders will be from a selected list as determined by the Architect and the Owner. The Owner, or his representative may make such investigation as deemed necessary to determine the ability of the Bidder to perform the work. The Bidder shall furnish all such information and data for this purpose as they may request. The Owner reserves the right to reject any Bid if the evidence submitted, or investigations of such bidder fails to satisfy them that such Bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein. Conditional bids will not be accepted. Bids must be accompanied by 5% of Proposal amount in form of cash, certified check, bank cashier's check, bank money order, postal money order, or a bid bond.

6. SECURITY FOR FAITHFUL PERFORMANCE

Performance Bond and Labor and Material Payment Bond shall be furnished on standard AIA Form A312.

7. AWARD OR REJECTION OF BIDS

The Owner reserves the right to make award to the Bidder who, in the opinion of the Owner, can complete the work by complying with the conditions of the Contract Documents, provided his bid is reasonable and it is in the interest of the Owner to accept it. The Bidder to whom the award is made will be notified at the earliest possible date. The Owner, however, reserves the right to reject any and all bids and to waive any informality in the bids received whenever such rejection or waiver is in the interest of the Owner.

The Owner also reserves the right to reject the proposal of a Bidder who has previously failed to perform properly or to complete on time contracts of a similar nature or a bid of a Bidder who is not in a position to perform the Contract.

8. OBLIGATION OF BIDDER

At the time of the opening of Bids, each Bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the contract documents, including all addenda. The failure or omission of any Bidder to receive or examine any instrument or document shall in no way relieve him from any obligation in respect to his Bid.

9. USE OF THE SITE

Use of the site and the new building for storage will be permitted as long as it does not interfere with his work or the work of other subcontractors. Full cooperation with others working on the site will be required as a part of this Contract.

10. PERMITS

All necessary permits shall be obtained by the General Contractor unless stated otherwise in applicable Sections of the Specifications.

11. STATE SALES TAX

The Owner is NOT exempt from State Sales Taxes.

---END OF SECTION---

PROPOSAL FORM FOR GENERAL CONTRACTOR

BIDDER

TO: The Ancient Accepted Scottish Rite
Northern Masonic Jurisdiction, U.S. A.
% Stanley S. Sampson, Chairman
Masonic Temple
415 Congress Street
Portland, ME 04101

A. Having carefully examined the Form of Contract, General
Conditions, Special Provisions and Plans and Specifications dated
February, 1999,

prepared by: Michael C. Bowdler, Architect
Trundy Road, Cape Elizabeth, ME 04107

for: 32nd. Degree Scottish Rite Learning Center
for Children, 1903 Congress Street, Portland, Maine

as well as the premises and conditions affecting the work, we the
undersigned propose to furnish all labor, equipment and materials
necessary for and reasonably incidental to the construction and
completion of this Proposal for the amount of:

(1) _____ Dollars
\$ _____
_____.

The amount above includes the sum of \$ 2,000.00 for
Allowances as specified under Article 1.2 in Section
01020, Allowances of the Specifications.

B. For Alternates as listed following and as specified in Section
01100, Alternatives:

ALT. #1. - To Substitute extra-heavy figerglass mesh for Exterior
Insulated Finish as specified in Section 07240 and as stated in
Section 01100, Alternatives.

ADD.....\$ _____ to the Base Bid.

C. Unit Prices are as follows:

The undersigned agrees to perform additional work as ordered or to allow for the work ordered omitted, at the following prices:

	ADD	OMIT
Earth Excavation per C.Y. (open).....	\$ _____	\$ _____
Earth Excavation per C.Y. (trench)...	\$ _____	\$ _____
Concrete per C.Y. (including forms, Reinforcing and stripping) for adjustments in foundations.....	\$ _____	\$ _____
Backfill per C.Y., measured in place.	\$ _____	\$ _____
Rock Excavation (open).....	\$ _____	\$ _____
Rock Excavation (trench).....	\$ _____	\$ _____

D. Subcontract Proposals as follows: (List those trades required, but do not combine trades except as noted.)

Sprinkler System (includes Section 15100, as applicable.)	15300	_____	\$ _____
Plumbing (includes Section 15100, Section 15488 & Section 15240 as applicable.)	15400	_____	\$ _____
Heating & Ventilating (includes Section 15100, 15841, 15488, 15860, 15880 & 15891 as applicable.)	15772	_____	\$ _____
Combined Plumbing, Heating & Ventil- ating as above listed.	15400 & 15772	_____	\$ _____
Electrical	16000	_____	\$ _____

The undersigned agrees that each of the above named subcontractors represents a bonafide proposal based on the Plans and Specifications and will be used for the work indicated at the amount stated.

E. This Proposal includes the following addenda to the Drawings and Specifications:

Addendum #____, Dated _____

Addendum #____, Dated _____

Addendum #____, Dated _____

F. The undersigned agrees, if this Proposal is accepted to sign a Contract and deliver it, along with the bonds and affidavits of all insurance specified within twelve (12) calendar days after the date of notification of such acceptance except if the 12th day falls on a holiday, a Saturday or a Sunday, then the conditions will be fulfilled if the required documents are received before 12 o'clock noon on the day following the holiday, or the Monday following the Saturday or Sunday, and as a guarantee thereof, herewith submits a certified or cashier's check or Bid Bond as required.

The undersigned agrees, if awarded the Contract, to complete the work on or before:

DATE

This Proposal includes the cost of 100% Performance and Payment Bond.

Signed _____

By: _____

Address: _____

Corporate Seal:

---END OF FORM OF PROPOSAL---

THE AMERICAN INSTITUTE OF ARCHITECTS



AIA Document A310

Bid Bond

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

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

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

as Obligee, hereinafter called the Obligee, in the sum of _____ Dollars (\$ _____),
for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind
ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by
these presents.

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

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

Signed and sealed this _____ day of _____ 19____

(Witness) { _____
(Principal) _____
(Seal)
_____ (Title)

(Witness) { _____
(Surety) _____
(Seal)
_____ (Title)



BID BOND



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*

1987 EDITION TABLE OF ARTICLES

- | | |
|--|--|
| 1. GENERAL PROVISIONS | 8. TIME |
| 2. OWNER | 9. PAYMENTS AND COMPLETION |
| 3. CONTRACTOR | 10. PROTECTION OF PERSONS AND PROPERTY |
| 4. ADMINISTRATION OF THE CONTRACT | 11. INSURANCE AND BONDS |
| 5. SUBCONTRACTORS | 12. UNCOVERING AND CORRECTION OF WORK |
| 6. CONSTRUCTION BY OWNER OR BY
SEPARATE CONTRACTORS | 13. MISCELLANEOUS PROVISIONS |
| 7. CHANGES IN THE WORK | 14. TERMINATION OR SUSPENSION OF THE
CONTRACT |

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

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CONTRACTOR	3	Emergencies	4.3.7, 10.3
Contractor, Definition of	3.1 , 6.1.2	Employees, Contractor's	3.3.2, 3.4.2, 3.8.1, 3.9, 3.18.1, 3.18.2, 4.2.3, 4.2.6, 8.1.2, 10.2, 10.3, 11.1.1, 14.2.1.1
Contractor's Bid	1.1.1	Equipment, Labor, Materials and	1.1.3, 1.1.6, 3.4, 3.5.1, 3.8.2, 3.12.3, 3.12.7, 3.12.11, 3.13, 3.15.1, 4.2.7, 6.2.1, 7.3.6, 9.3.2, 9.3.3, 11.3, 12.2.4, 14
Contractor's Construction Schedules	3.10 , 6.1.3	Execution and Progress of the Work	1.1.3, 1.2.3, 3.2, 3.4.1, 3.5.1, 4.2.2, 4.2.3, 4.3.4, 4.3.8, 6.2.2, 7.1.3, 7.3.9, 8.2, 8.3, 9.5, 9.9.1, 10.2, 14.2, 14.3
Contractor's Employees	3.3.2, 3.4.2, 3.8.1, 3.9, 3.18, 4.2.3, 4.2.6, 8.1.2, 10.2, 10.3, 11.1.1, 14.2.1.1	Execution, Correlation and Intent of the	
Contractor's Liability Insurance	11.1	Contract Documents	1.2 , 3.7.1
Contractor's Relationship with Separate Contractors and Owner's Forces	2.2.6, 3.12.5, 3.14.2, 4.2.4, 6, 12.2.5	Extensions of Time	4.3.1, 4.3.8, 7.2.1.3, 8.3, 10.3.1
Contractor's Relationship with Subcontractors	1.2.4, 3.3.2, 3.18.1, 3.18.2, 5.2, 5.3, 5.4, 9.6.2, 11.3.7, 11.3.8, 14.2.1.2	Failure of Payment by Contractor	9.5.1.3, 14.2.1.2
Contractor's Relationship with the Architect	1.1.2, 3.2.1, 3.2.2, 3.3.3, 3.5.1, 3.7.3, 3.11, 3.12.8, 3.16, 3.18, 4.2.3, 4.2.4, 4.2.6, 4.2.12, 5.2, 6.2.2, 7.3.4, 9.8.2, 11.3.7, 12.1, 13.5	Failure of Payment by Owner	4.3.7, 9.7, 14.1.3
Contractor's Representations	1.2.2, 3.5.1, 3.12.7, 6.2.2, 8.2.1, 9.3.3	Faulty Work (See Defective or Nonconforming Work)	
Contractor's Responsibility for Those Performing the Work	3.3.2, 3.18, 4.2.3, 10	Final Completion and Final Payment	4.2.1, 4.2.9, 4.3.2, 4.3.5, 9.10 , 11.1.2, 11.1.3, 11.3.5, 12.3.1, 13.7
Contractor's Review of Contract Documents	1.2.2, 3.2, 3.7.3	Financial Arrangements, Owner's	2.2.1
Contractor's Right to Stop the Work	9.7	Fire and Extended Coverage Insurance	11.3
Contractor's Right to Terminate the Contract	14.1	GENERAL PROVISIONS	1
Contractor's Submittals	3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 7.3.6, 9.2, 9.3.1, 9.8.2, 9.9.1, 9.10.2, 9.10.3, 10.1.2, 11.4.2, 11.4.3	Governing Law	13.1
Contractor's Superintendent	3.9, 10.2.6	Guarantees (See Warranty and Warranties)	
Contractor's Supervision and Construction Procedures	1.2.4, 3.3, 3.4, 4.2.3, 8.2.2, 8.2.3, 10	Hazardous Materials	10.1, 10.2.4
Contractual Liability Insurance	11.1.1.7, 11.2.1	Identification of Contract Documents	1.2.1
Coordination and Correlation	1.2.2, 1.2.4, 3.3.1, 3.10, 3.12.7, 6.1.3, 6.2.1	Identification of Subcontractors and Suppliers	5.2.1
Copies Furnished of Drawings and Specifications	1.3, 2.2.5, 3.11	Indemnification	3.17, 3.18 , 9.10.2, 10.1.4, 11.3.1.2, 11.3.7
Correction of Work	2.3, 2.4, 4.2.1, 9.8.2, 9.9.1, 12.1.2, 12.2, 13.7.1.3	Information and Services Required of the Owner	2.1.2, 2.2 , 4.3.4, 6.1.3, 6.1.4, 6.2.6, 9.3.2, 9.6.1, 9.6.4, 9.8.3, 9.9.2, 9.10.3, 10.1.4, 11.2, 11.3, 13.5.1, 13.5.2
Cost, Definition of	7.3.6, 14.3.5	Injury or Damage to Person or Property	4.3.9
Costs	2.4, 3.2.1, 3.7.4, 3.8.2, 3.15.2, 4.3.6, 4.3.7, 4.3.8.1, 5.2.3, 6.1.1, 6.2.3, 6.3, 7.3.3.3, 7.3.6, 7.3.7, 9.7, 9.8.2, 9.10.2, 11.3.1.2, 11.3.1.3, 11.3.4, 11.3.9, 12.1, 12.2.1, 12.2.4, 12.2.5, 13.5, 14	Inspections	3.3.3, 3.3.4, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 4.3.6, 9.4.2, 9.8.2, 9.9.2, 9.10.1, 13.5
Cutting and Patching	3.14 , 6.2.6	Instructions to Bidders	1.1.1
Damage to Construction of Owner or Separate Contractors	3.14.2, 6.2.4, 9.5.1.5, 10.2.1.2, 10.2.5, 10.3, 11.1, 11.3, 12.2.5	Instructions to the Contractor	3.8.1, 4.2.8, 5.2.1, 7, 12.1, 13.5.2
Damage to the Work	3.14.2, 9.9.1, 10.2.1.2, 10.2.5, 10.3, 11.3	Insurance	4.3.9, 6.1.1, 7.3.6.4, 9.3.2, 9.8.2, 9.9.1, 9.10.2, 11
Damages, Claims for	3.18, 4.3.9, 6.1.1, 6.2.5, 8.3.2, 9.5.1.2, 10.1.4	Insurance, Boiler and Machinery	11.3.2
Damages for Delay	6.1.1, 8.3.3, 9.5.1.6, 9.7	Insurance, Contractor's Liability	11.1
Date of Commencement of the Work, Definition of	8.1.2	Insurance, Effective Date of	8.2.2, 11.1.2
Date of Substantial Completion, Definition of	8.1.3	Insurance, Loss of Use	11.3.3
Day, Definition of	8.1.4	Insurance, Owner's Liability	11.2
Decisions of the Architect	4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 4.3.2, 4.3.6, 4.4.1, 4.4.4, 4.5, 6.3, 7.3.6, 7.3.8, 8.1.3, 8.3.1, 9.2, 9.4, 9.5.1, 9.8.2, 9.9.1, 10.1.2, 13.5.2, 14.2.2, 14.2.4	Insurance, Property	10.2.5, 11.3
Decisions to Withhold Certification	9.5 , 9.7, 14.1.1.3	Insurance, Stored Materials	9.3.2, 11.3.1.4
Defective or Nonconforming Work, Acceptance, Rejection and Correction of	2.3, 2.4, 3.5.1, 4.2.1, 4.2.6, 4.3.5, 9.5.2, 9.8.2, 9.9.1, 10.2.5, 12, 13.7.1.3	INSURANCE AND BONDS	11
Defective Work, Definition of	3.5.1	Insurance Companies, Consent to Partial Occupancy	9.9.1, 11.3.11
Definitions	1.1, 2.1.1, 3.1, 3.5.1, 3.12.1, 3.12.2, 3.12.3, 4.1.1, 4.3.1, 5.1, 6.1.2, 7.2.1, 7.3.1, 7.3.6, 8.1, 9.1, 9.8.1	Insurance Companies, Settlement with	11.3.10
Delays and Extensions of Time	4.3.1, 4.3.8.1, 4.3.8.2, 6.1.1, 6.2.3, 7.2.1, 7.3.1, 7.3.4, 7.3.5, 7.3.8, 7.3.9, 8.1.1, 8.3 , 10.3.1, 14.1.1.4	Intent of the Contract Documents	1.2.3, 3.12.4, 4.2.6, 4.2.7, 4.2.12, 4.2.13, 7.4
Disputes	4.1.4, 4.3, 4.4, 4.5, 6.2.5, 6.3, 7.3.8, 9.3.1.2	Interest	13.6
Documents and Samples at the Site	3.11	Interpretation	1.2.5, 1.4, 1.5 , 4.1.1, 4.3.1, 5.1, 6.1.2, 8.1.4
Drawings, Definition of	1.1.5	Interpretations, Written	4.2.11, 4.2.12, 4.3.7
Drawings and Specifications, Use and Ownership of	1.1.1, 1.3, 2.2.5, 3.11, 5.3	Joinder and Consolidation of Claims Required	4.5.6
Duty to Review Contract Documents and Field Conditions	3.2	Judgment on Final Award	4.5.1, 4.5.4.1, 4.5.7
Effective Date of Insurance	8.2.2, 11.1.2	Labor and Materials, Equipment	1.1.3, 1.1.6, 3.4 , 3.5.1, 3.8.2, 3.12.2, 3.12.3, 3.12.7, 3.12.11, 3.13, 3.15.1, 4.2.7, 6.2.1, 7.3.6, 9.3.2, 9.3.3, 12.2.4, 14
		Labor Disputes	8.3.1
		Laws and Regulations	1.3, 3.6, 3.7, 3.13, 4.1.1, 4.5.5, 4.5.7, 9.9.1, 10.2.2, 11.1, 11.3, 13.1, 13.4, 13.5.1, 13.5.2, 13.6
		Liens	2.1.2, 4.3.2, 4.3.5.1, 8.2.2, 9.3.3, 9.10.2
		Limitation on Consolidation or Joinder	4.5.5
		Limitations, Statutes of	4.5.4.2, 12.2.6, 13.7
		Limitations of Authority	3.3.1, 4.1.2, 4.2.1, 4.2.3, 4.2.7, 4.2.10, 5.2.2, 5.2.4, 7.4, 11.3.10

Rules and Notices for Arbitration	4.5.2	Suspension by the Owner for Convenience	14.3
Safety of Persons and Property	10.2	Suspension of the Work	4.3.7, 5.4.2, 14.1.1.4, 14.3
Safety Precautions and Programs	4.2.3, 4.2.7, 10.1	Suspension or Termination of the Contract	4.3.7, 5.4.1.1, 14
Samples, Definition of	3.12.3	Taxes	3.6 , 7.3.6.4
Samples, Shop Drawings, Product Data and	3.11, 3.12 , 4.2.7	Termination by the Contractor	14.1
Samples at the Site, Documents and	3.11	Termination by the Owner for Cause	5.4.1.1, 14.2
Schedule of Values	9.2 , 9.3.1	Termination of the Architect	4.1.3
Schedules, Construction	3.10	Termination of the Contractor	14.2.2
Separate Contracts and Contractors	1.1.4, 3.14.2, 4.2.4, 4.5.5, 6, 11.3.7, 12.1.2, 12.2.5	TERMINATION OR SUSPENSION OF THE CONTRACT	14
Shop Drawings, Definition of	3.12.1	Tests and Inspections	3.3.3, 4.2.6, 4.2.9, 9.4.2, 12.2.1, 13.5
Shop Drawings, Product Data and Samples	3.11, 3.12 , 4.2.7	TIME	8
Site, Use of	3.13 , 6.1.1, 6.2.1	Time, Delays and Extensions of	4.3.8, 7.2.1, 8.3
Site Inspections	1.2.2, 3.3.4, 4.2.2, 4.2.9, 4.3.6, 9.8.2, 9.10.1, 13.5	Time Limits, Specific	2.1.2, 2.2.1, 2.4, 3.10, 3.11, 3.15.1, 4.2.1, 4.2.11, 4.3, 4.4, 4.5, 5.3, 5.4, 7.3.5, 7.3.9, 8.2, 9.2, 9.3.1, 9.3.3, 9.4.1, 9.6.1, 9.7, 9.8.2, 9.10.2, 11.1.3, 11.3.6, 11.3.10, 11.3.11, 12.2.2, 12.2.4, 12.2.6, 13.7, 14
Site Visits, Architect's	4.2.2, 4.2.5, 4.2.9, 4.3.6, 9.4.2, 9.5.1, 9.8.2, 9.9.2, 9.10.1, 13.5	Time Limits on Claims	4.3.2, 4.3.3 , 4.3.6, 4.3.9, 4.4, 4.5
Special Inspections and Testing	4.2.6, 12.2.1, 13.5	Title to Work	9.3.2, 9.3.3
Specifications, Definition of the	1.1.6	UNCOVERING AND CORRECTION OF WORK	12
Specifications, The	1.1.1, 1.1.6 , 1.1.7, 1.2.4, 1.3, 3.11	Uncovering of Work	12.1
Statutes of Limitations	4.5.4.2, 12.2.6, 13.7	Unforeseen Conditions	4.3.6, 8.3.1, 10.1
Stopping the Work	2.3, 4.3.7, 9.7, 10.1.2, 10.3, 14.1	Unit Prices	7.1.4, 7.3.3.2
Stored Materials	6.2.1, 9.3.2, 10.2.1.2, 11.3.1.4, 12.2.4	Use of Documents	1.1.1, 1.3, 2.2.5, 3.12.7, 5.3
Subcontractor, Definition of	5.1.1	Use of Site	3.13 , 6.1.1, 6.2.1
SUBCONTRACTORS	5	Values, Schedule of	9.2 , 9.3.1
Subcontractors, Work by	1.2.4, 3.3.2, 3.12.1, 4.2.3, 5.3, 5.4	Waiver of Claims: Final Payment	4.3.5 , 4.5.1, 9.10.3
Subcontractual Relations	5.3 , 5.4, 9.3.1.2, 9.6.2, 9.6.3, 9.6.4, 10.2.1, 11.3.7, 11.3.8, 14.1.1, 14.2.1.2, 14.3.2	Waiver of Claims by the Architect	13.4.2
Submittals	1.3, 3.2.3, 3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 7.3.6, 9.2, 9.3.1, 9.8.2, 9.9.1, 9.10.2, 9.10.3, 10.1.2, 11.1.3	Waiver of Claims by the Contractor	9.10.4, 11.3.7, 13.4.2
Subrogation, Waivers of	6.1.1, 11.3.5, 11.3.7	Waiver of Claims by the Owner	4.3.5, 4.5.1, 9.9.3, 9.10.3, 11.3.3, 11.3.5, 11.3.7, 13.4.2
Substantial Completion	4.2.9, 4.3.5.2, 8.1.1, 8.1.3, 8.2.3, 9.8 , 9.9.1, 12.2.1, 12.2.2, 13.7	Waiver of Liens	9.10.2
Substantial Completion, Definition of	9.8.1	Waivers of Subrogation	6.1.1, 11.3.5, 11.3.7
Substitution of Subcontractors	5.2.3, 5.2.4	Warranty and Warranties	3.5 , 4.2.9, 4.3.5.3, 9.3.3, 9.8.2, 9.9.1, 12.2.2, 13.7.1.3
Substitution of the Architect	4.1.3	Weather Delays	4.3.8.2
Substitutions of Materials	3.5.1	When Arbitration May Be Demanded	4.5.4
Sub-subcontractor, Definition of	5.1.2	Work, Definition of	1.1.3
Subsurface Conditions	4.3.6	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
Successors and Assigns	13.2	Written Interpretations	4.2.11, 4.2.12, 4.3.7
Superintendent	3.9 , 10.2.6	Written Notice	2.3, 2.4, 3.9, 3.12.8, 3.12.9, 4.3, 4.4.4, 4.5, 5.2.1, 5.3, 5.4.1.1, 8.2.2, 9.4.1, 9.5.1, 9.7, 9.10, 10.1.2, 10.2.6, 11.1.3, 11.3, 12.2.2, 12.2.4, 13.3 , 13.5.2, 14
Supervision and Construction Procedures	1.2.4, 3.3 , 3.4, 4.2.3, 4.3.4, 6.1.3, 6.2.4, 7.1.3, 7.3.4, 8.2, 8.3.1, 10, 12, 14	Written Orders	2.3, 3.9, 4.3.7, 7, 8.2.2, 11.3.9, 12.1, 12.2, 13.5.2, 14.3.1
Surety	4.4.1, 4.4.4, 5.4.1.2, 9.10.2, 9.10.3, 14.2.2		
Surety, Consent of	9.9.1, 9.10.2, 9.10.3		
Surveys	2.2.2, 3.18.3		

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 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

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

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

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

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

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

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

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

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

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

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

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

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

4.3 CLAIMS AND DISPUTES

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

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

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

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

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

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

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

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

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

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

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

ARTICLE 5

SUBCONTRACTORS

5.1 DEFINITIONS

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

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

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

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

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

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

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

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.

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 desig-

ARTICLE 10

PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

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

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

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

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

10.2 SAFETY OF PERSONS AND PROPERTY

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

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

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

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

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

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

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

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

10.3 EMERGENCIES

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

ARTICLE 11

INSURANCE AND BONDS

11.1 CONTRACTOR'S LIABILITY INSURANCE

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

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

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

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 jus-

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AIA Document A312

Performance Bond

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

SURETY (Name and Principal Place of Business):

OWNER (Name and Address):

CONSTRUCTION CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Date (Not earlier than Construction Contract Date):

Amount:

Modifications to this Bond:

None

See Page 3

CONTRACTOR AS PRINCIPAL

Company:

(Corporate Seal)

SURETY

Company:

(Corporate Seal)

Signature: _____

Name and Title:

Signature: _____

Name and Title:

(Any additional signatures appear on page 3)

(FOR INFORMATION ONLY—Name, Address and Telephone)

AGENT or BROKER:

OWNER'S REPRESENTATIVE (Architect, Engineer or other party):

1 The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except to participate in conferences as provided in Subparagraph 3.1.

3 If there is no Owner Default, the Surety's obligation under this Bond shall arise after:

3.1 The Owner has notified the Contractor and the Surety at its address described in Paragraph 10 below that the Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Construction Contract. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default; and

3.2 The Owner has declared a Contractor Default and formally terminated the Contractor's right to complete the contract. Such Contractor Default shall not be declared earlier than twenty days after the Contractor and the Surety have received notice as provided in Subparagraph 3.1; and

3.3 The Owner has agreed to pay the Balance of the Contract Price to the Surety in accordance with the terms of the Construction Contract or to a contractor selected to perform the Construction Contract in accordance with the terms of the contract with the Owner.

4 When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

4.1 Arrange for the Contractor, with consent of the Owner, to perform and complete the Construction Contract; or

4.2 Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors; or

4.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and the contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by the Owner resulting from the Contractor's default; or

4.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

.1 After investigation, determine the amount for

which it may be liable to the Owner and, as soon as practicable after the amount is determined, tender payment therefor to the Owner; or

.2 Deny liability in whole or in part and notify the Owner citing reasons therefor.

5 If the Surety does not proceed as provided in Paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Subparagraph 4.4, and the Owner refuses the payment tendered or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

6 After the Owner has terminated the Contractor's right to complete the Construction Contract, and if the Surety elects to act under Subparagraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. To the limit of the amount of this Bond, but subject to commitment by the Owner of the Balance of the Contract Price to mitigation of costs and damages on the Construction Contract, the Surety is obligated without duplication for:

6.1 The responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

6.2 Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 4; and

6.3 Liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

7 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators or successors.

8 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

9 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation avail-

able to sureties as a defense in the jurisdiction of the suit shall be applicable.

10 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page.

11 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

12 DEFINITIONS

12.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Con-

tractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

12.2 Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

12.3 Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract.

12.4 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

MODIFICATIONS TO THIS BOND ARE AS FOLLOWS:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL
Company: _____ (Corporate Seal)

SURETY
Company: _____ (Corporate Seal)

Signature: _____
Name and Title:
Address:

Signature: _____
Name and Title:
Address:

THE AMERICAN INSTITUTE OF ARCHITECTS



AIA Document A312

Payment Bond

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address): SURETY (Name and Principal Place of Business):

OWNER (Name and Address):

CONSTRUCTION CONTRACT

Date:
Amount:
Description (Name and Location):

BOND

Date (Not earlier than Construction Contract Date):
Amount:
Modifications to this Bond:

[] None [] See Page 6

CONTRACTOR AS PRINCIPAL SURETY
Company: (Corporate Seal) Company: (Corporate Seal)

Signature: Name and Title: Signature: Name and Title:

(Any additional signatures appear on page 6)

(FOR INFORMATION ONLY—Name, Address and Telephone)

AGENT or BROKER: OWNER'S REPRESENTATIVE (Architect, Engineer or other party):

1 The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference.

2 With respect to the Owner, this obligation shall be null and void if the Contractor:

2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and

2.2 Defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity whose claim, demand, lien or suit is for the payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, provided the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 12) of any claims, demands, liens or suits and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety, and provided there is no Owner Default.

3 With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.

4 The Surety shall have no obligation to Claimants under this Bond until:

4.1 Claimants who are employed by or have a direct contract with the Contractor have given notice to the Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

4.2 Claimants who do not have a direct contract with the Contractor:

- .1 Have furnished written notice to the Contractor and sent a copy, or notice thereof, to the Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed; and
- .2 Have either received a rejection in whole or in part from the Contractor, or not received within 30 days of furnishing the above notice any communication from the Contractor by which the Contractor has indicated the claim will be paid directly or indirectly; and
- .3 Not having been paid within the above 30 days, have sent a written notice to the Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the Contractor.

5 If a notice required by Paragraph 4 is given by the Owner to the Contractor or to the Surety, that is sufficient compliance.

6 When the Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:

6.1 Send an answer to the Claimant, with a copy to the Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.

6.2 Pay or arrange for payment of any undisputed amounts.

7 The Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

8 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any Construction Performance Bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and the Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

9 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

11 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the work or part of the work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Subparagraph 4.1 or Clause 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page. Actual receipt of notice by Surety, the Owner or the Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this

Bond shall be construed as a statutory bond and not as a common law bond.

14 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15 DEFINITIONS

15.1 Claimant: An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the

Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

15.2 Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

MODIFICATIONS TO THIS BOND ARE AS FOLLOWS:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL
Company:

(Corporate Seal)

SURETY
Company:

(Corporate Seal)

Signature: _____
Name and Title:
Address:

Signature: _____
Name and Title:
Address:

SUPPLEMENTARY CONDITIONS

SGC-01
GENERAL CONDITIONS

The "General Conditions of the Contract for Construction", AIA Document A201, Fourteenth Edition 1987, Articles 1 through 14 inclusive, is a part of this Contract and is incorporated herein as fully as if here set forth.

SGC-02
THE SUPPLEMENTARY GENERAL CONDITIONS

The following Supplements modify, change, delete, or add to the General Conditions. Where any part of the General Conditions is modified or voided by these Articles, the unaltered provisions of that part shall remain in effect.

SGC-03

TABLE OF CONTENTS
STANDARD ARTICLES AMENDED BY THE SUPPLEMENTARY CONDITIONS

ARTICLE 1 - GENERAL PROVISIONS

- Para.
1.1.1 - Precedence of Contract Documents

ARTICLE 2 - OWNER

- 2.2.2 - Surveys

ARTICLE 3 - CONTRACTOR

- 3.3.1 - Verify and Establish Grades, Lines etc.
3.4.2 - Incompetent Workmen
3.4.3 - Staging
3.4.4 - Elevators
3.5.1 - Specified Product Names
3.12.4 - Number of Shop Drawings
3.12.5 - Variations in Shop Drawings
3.12.7 - Corrections on Shop Drawings
3.15.1 - Cleaning Up

ARTICLE 4 - ADMINISTRATION OF THE CONTRACT

- 4.5.1 - Arbitration

ARTICLE 7 - CHANGES IN THE WORK

- 7.3.6 - Percentage to Cover Overhead and Profit
7.3.6 - Amended Schedule

ARTICLE 9 - PAYMENTS AND COMPLETION

- 9.6.1 - Certificates for Payment

ARTICLE 11 - INSURANCE AND BONDS

- 11.1.1 - Hold Owner Harmless
- 11.1.1.1 - Statutory Workmen's Compensation
- 11.1.1.2 - Employer's Liability and Workmens Compensation
- 11.1.1.3 - Comprehensive General Liability
- 11.1.1.4 - Property Damage
- 11.1.1.5 - Comprehensive Automobile Liability
- 11.1.1.6 - Builder's Risk Insurance

ARTICLE 12 - UNCOVERING AND CORRECTION OF WORK

- 12.2.2 - Written Guarantee

ARTICLE 13 - MISCELLANEOUS PROVISIONS

- 13.5.6 - Claims for Tests

SGC-04

STANDARD ARTICLES AMENDED BY THE SUPPLEMENTARY CONDITIONS

ARTICLE 1 - CONTRACT DOCUMENTS

Para. 1.1.1 - The Contract Documents

ADD the following: "The Agreement takes precedence over all other Contract Documents."

ARTICLE 2 - OWNER

Para. 2.2 - Information and Services required of the Owner

ADD to sub-paragraph 2.2.2 the following: "Physical characteristics and legal limit are construed to mean property lines, restrictions and a permanent bench mark. All other grades, lines, levels and bench marks shall be established and maintained by the Contractor."

ARTICLE 3 - CONTRACTOR

Para. 3.3 - Supervision and Construction Procedures

ADD to sub-paragraph 3.3.1 the following: "The Contractor shall verify all grades, lines, levels and dimensions indicated on the Drawings, and shall report any inconsistencies before commencing work. He shall provide and maintain well built batter boards at corners. He shall establish and safeguard bench marks in at least two (2) widely separated places. As work progresses he shall establish exact locations of partitions on rough floors as a guide to trades. The Contractor shall be responsible for duly notifying local authorities of any work requiring inspection or approval by such local authority.

Para. 3.4 - Labor and Materials

ADD to sub-paragraph 3.4.2 the following: "The Owner shall have the right to require the removal of any employee of the Contractor or a subcontractor, who, in the Owner's opinion may be incompetent or not qualified to perform the work assigned to him.

ADD sub-paragraphs as follows:

3.4.3 Exterior and interior staging required to be over fourteen (14) feet in height, shall be initially erected by the Contractor and maintained in safe condition by him for use of all trades. Moving or dismantling and re-erection of staging, if required, shall be by the affected subcontractor.

3.4.4 All necessary elevator equipment and machinery shall be installed, operated and maintained in safe condition by the Contractor for use of all subcontractors except for equipment specifically required to be furnished by the subcontractors themselves.

Para. 3.5 - Warranty and Guarantee

ADD to sub-paragraph 3.5.1 the following: "Where the Specifications refer to specific products of one or more manufacturers, such reference designates only the quality of materials, construction, design or equipment to be furnished. References to specified products or the absence of an 'or equal' clause is not intended to restrict competitive bidding, Similar products of other manufacturers which are equal in quality as determined by the Architect will be approved."

Para. 3.12 - Shop Drawings, Products and Samples

ADD to sub-paragraph 3.12.4 the following: "Not less than four (4) approved copies of all Shop Drawings shall be submitted by the Contractor for approval as above stated."

ADD to sub-paragraph 3.12.5 the following: "If Shop Drawings show variation from Contract requirements because of standard shop practice, or other reasons, the Contractor shall submit a letter to the Architect and make specific mention of such variations in order that suitable action may be taken."

ADD to sub-paragraph 3.12.7 the following: "Any corrections or changes indicated on Shop Drawings shall not be considered as extra work."

Para. 3.15 - Cleaning Up

ADD to sub-paragraph 3.15.1 the following: "Contractor shall replace all broken glass, have all glass cleaned by qualified window

Para. 3.15 (cont.)

cleaners; remove stains, marks and dirt from decorated work; clean all hardware; remove paint spots and smears from all surfaces; clean all fixtures; and wash all concrete and tile floors. The Contractor shall also comply with all special cleaning instructions contained in the Specifications.

ARTICLE 4 - ADMINISTRATION OF THE CONTRACT

Para. 4.5 - Arbitration

DELETE sub-paragraph 4.5.1 and insert the following: 4.5.1 All claims, disputes and other matters in question between the Contractor and the Owner arising out of, or relating to, the Contract Documents or the breach thereof, except as provided in sub-paragraph 4.2.13 with respect to the Architect's decisions on matters relating to artistic effect, shall be decided by court action unless the Owner agrees to arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then obtaining. The Contractor and the Owner agree that any arbitration proceeding instituted by either of them arising out of or relating to the Contract Documents or breach thereof may be consolidated, at the option of the Owner, with any other arbitration proceeding then pending or commenced thereafter, when the arbitrations involve common questions of law or fact. The foregoing agreement to arbitrate and any other agreement to arbitrate with an additional person or persons shall be specifically enforceable under the prevailing arbitration law. The judgement rendered by the arbitrators shall be final, and judgement thereon entered upon it in accordance with the applicable law in any court having jurisdiction thereof.

ARTICLE 7 -CHANGES IN THE WORK

Para. 7.3 - Construction Change Directives

AMEND sub-paragraph 7.3.6, the first sentence, as follows: DELETE the words "---, a reasonable allowance for overhead and profit." and INSERT "---, an allowance for overhead and profit in accordance with the schedule set forth below in paragraph 7.3.6."

ADD to sub-paragraph 7.3.6 the following: "The allowance for overhead and profit combined, included in the cost to the Owner, shall be based on the following schedule:

For the Contractor - for any work performed by his own forces, 25% of the cost.

For each subcontractor involved - for any work performed by his own forces, 25% of the cost.

For the Contractor - for work performed by his subcontractor, 15% of the amount due the subcontractor.

ARTICLE 9 - PAYMENTS AND COMPLETION

Para 9.6 - Progress Payments

DELETE sub-paragraph 9.6.1 and insert the following:

9.6.1 After the Architect has issued a certificate for payment, the Owner shall, within seven (7) days, pay to the Contractor on account of the Contract 90% of the estimated and approved quantity of work done and 100% of materials suitably stored as provided in Paragraph 9.3.2 up to the first day of that month. However, if the manner of completion of the work and its progress are satisfactory to the Architect, after the work is 50% complete, the Architect may, at his discretion and with the consent of Surety, authorize the remaining partial payments to be paid in full. Upon substantial completion, a sum shall be paid sufficient to increase the total payment to 95% of the Contract Price.

ARTICLE 11 - INSURANCE AND BONDS

Para. 11.1 - Insurance

ADD to sub-paragraph 11.1.1 the following: "All insurance must be written by a company licensed to do business in Maine at the time the policy is issued, and must be acceptable to the Owner."

ADD sub-sub paragraphs as follows:

11.1.1.1 Statutory Workmen's Compensation

11.1.1.2 Employer's Liability Insurance with minimum limits of not less than \$1,000,000.

11.1.1.3 Comprehensive General Liability Insurance with minimum bodily injury limits of not less than \$1,000,000 for each accident and \$1,000,000 aggregate.

11.1.1.4 Property Damage Insurance with minimum limits of not less than \$1,000,000 for each accident and not less than \$1,000,000 aggregate. The policy shall include Contractor's Protective Liability Insurance with the same limits.

11.1.1.5 Comprehensive Automobile Liability Insurance for all owned, non-owned and hired vehicles with minimum combined single limits for bodily injury of not less than \$1,000,000 for each accident and not less than \$1,000,000 aggregate for each accident and property damage minimum limits of not less than \$1,000,000.

11.1.1.6 Builder's Risk Insurance for the life of the Project in the "All Risk Form" for the completed value of the Project and with the Owner as the loss payee.

Para. 11.4 - Performance Bond and Payment Bond

ADD sub-paragraph as follows:

11.4.3 - Furnish, in duplicate, a Performance Bond and a Labor and Material Payment Bond, each in the amount of 100% of the Contract Sum, written by a surety licensed to do business in the State of Maine. The prescribed form of the Performance Bond and Labor and Material Payment Bond is AIA Document No. A 311.

ARTICLE 12 - UNCOVERING AND CORRECTION OF WORK

Para. 12.2 - Correction of Work

ADD to sub-paragraph 12.2.2 the following: "Contractor shall furnish the Owner his written guarantee in accordance with this sub-paragraph. He shall secure all written guarantees and warranties called for in the Specifications. The Contractor is responsible for the guarantee of the entire work."

ARTICLE 13 - MISCELLANEOUS PROVISIONS

Para. 13.5 - Tests and Inspections

ADD to sub-paragraph 13.5.6 the following: "The Contractor shall have no claim because of his failure to designate the proposed source or the order the material in time for adequate testing and inspection."

---END OF SUPPLEMENTS---

ADDENDA AND MODIFICATIONS

NOTICE: Addenda and/or modifications to the Plans and Specifications will be sent to General Contractors only. Notification of changes to the Plans and/or Specifications affecting sub-contractors and trades shall be the responsibility of the General Contractor.

Addenda will be mailed to General Contractors via Certified Mail not less than 5 days (Sundays excluded) prior to the time stated in the Form of Proposal for submission of bids or the time that may be modified by Addenda for submission of bids.

---END OF SECTION---

SECTION 01010

SUMMARY OF THE WORK

PART 1. Description of the Project

1.01 Exterior Area

- A. The Masonic Learning Center is a wood frame building on a concrete slab. Foundations are to undisturbed soil. There is some surface excavation for drainage; brush and trees to be removed, some tree trimming. There is an exterior sign. Trenches for installation of natural gas, sewer and water are required. An existing concrete slab must be removed. Loam beneath building slab area is to be removed to undisturbed subgrade soil. Disturbed areas are to be loamed, seeded and mulched. Use existing removed loam.

1.02 Building

- A. Exterior Framing - Generally wood stud on treated base on concrete slab. (There is one steel pipe column.) Exterior walls are insulated with a poly vapor barrier. Roof is insulated above the ceiling. Sheathing is exterior plywood or particle board.
- B. Exterior Finish - Native white pine clapboards with stain finish. Trim as detailed. Asphalt roof shingles with ridge vents. Eave vents in soffit. Entranceway is Exterior Insulated Finish on wood backing as detailed.
- C. Interior - Wood stud framing with painted gypsum board finish. Classroom partitions are staggered studs with mineral fiber insulation, resilient channels and painted gypsum board finish. Floors in general are carpeted with tile in toilets and vinyl in the kitchen. Classrooms have shelves as detailed. Doors are solid core wood with metal frames. Wood trim is an option.
- D. Mechanical - Heat is natural gas. The entire building is air conditioned and sprinkled. Plumbing is usual and as detailed and specified.
- E. Electrical - Usual for type of construction. Provision is made for camera and TV observation of classrooms.

---END OF SECTION---

SECTION 01020

ALLOWANCES

PART 1 GENERAL

1.01 Allowance Amounts

A. The following items, Specification Sections, or portions of Specification Sections have the Allowance amounts as stated below.

- (1) Soils and concrete testing.....\$ 500.00
- (2) Signage (Ext. & Int. signs & sign lettering)...\$1,000.00
- (3) Owner's Plaque ((Interior).....\$ 500.00

1.02 Use

A. Money from Allowances shall not be expended without written authorization of the Owner. The Owner reserves the right to authorize expenditures in whole or in part. The Contractor shall include in his Base Proposal the sums above scheduled. The Owner reserves the right to select the firms from whom the purchases are to be made. Any unexpended funds shall be returned to the Owner. Should the Owner authorize any expenditures exceeding any Allowance amounts stipulated, the excess will be added to the Contract Amount. The Contractor's profit and overhead shall be as specified in the General Conditions and Supplements thereof for Extra Work. The Contractor shall submit invoices for allowance items delivered and used for the Project.

---END OF SECTION---

SECTION 01100

ALTERNATIVES

PART 1. GENERAL

- 1.1 The Contractor shall state in his Proposal the amount to be ADDED TO or DEDUCTED FROM the Contract Amount for the following Alternates as indicated on the Drawings and/or as specified hereafter.
- 1.2 Work and Materials involved in these Alternates shall be governed by applicable parts of these Specifications unless stated otherwise in this Section.

PART 2. ALTERNATES

- 2.1 ALT. #1
 - A. Substitute Extra-heavy fiberglass mesh for EIF system as specified in Section 07240 Exterior Insulated Finish.

PART 3. EXECUTION

- 3.1 Completion of Alternatives
 - A. Do work specified in this Section in accordance with the applicable Sections of the Specifications and the Contract Drawings.

--END OF SECTION---

SECTION 01500

TEMPORARY FACILITIES

PART 1. GENERAL

1.01 Responsibilities

- A. The work of this Section is the responsibility of the General Contractor unless specifically stated otherwise in this Section of the Specifications.

PART 2. PRODUCTS AND EXECUTION

2.01 Project Sign

- A. Erect, paint and maintain signs with supports, giving the name of the Project, the name of the Owner, the Architect and the General Contractor and major sub-contractors. Design and location shall be as shown on Drawings or as later directed by the Architect.
- B. Construct signs of a 4' x 8' piece of MDO EXT APA plywood. Install with lower edge approximately 5' above the ground.
- C. Other signs will be allowed only the extent permitted by the Architect.

2.02 Storage Shed

- A. Provide, where directed, substantial and reasonably watertight storage shed. Use for storage of all materials which could be damaged by inclement weather.

2.03 Office

- A. Provide a field office with space for the Architect's representative. Office shall be either a separate building or a partitioned section of the Contractor's office. Furnish the space with heat, lights, file cabinet, plan rack, desk, chair, and plan table at least 36 x 48 inches.

2.04 Sanitary Facilities

- A. Provide ample toilet facilities with proper enclosures for the use of workers employed on the Project.
- B. As soon as conditions of the work will allow, the temporary toilet shall be located within the building as directed. Equip this toilet with a water closet and connections to the permanent sewer system.

2.05 Electric

- A. Provide temporary electric service for up to 120 V. Costs shall be paid by the Contractor. For over 120 V. use generators or other sources at users expense.
- B. Furnish temporary wiring, lamps and similar equipment as required for the completion of the work.

2.06 Telephone

- A. Install a job telephone for the use of the Contractor's authorized agents and his sub-contractors. Long distance and toll calls shall be paid for by the party making the call. Locate telephone service in the temporary office. Maintain service at the expense of the General Contractor throughout the entire time of the Contract.

2.07 Water

- A. The permanent water service, as specified in Section 15400, Plumbing, shall be the source of water supply for all construction purposes. Cost of water used shall be paid by the General Contractor.

2.08 Heat

- A. The interior of the building shall have a temperature of approximately 60 Deg. F. for the spackling of gypsum board, installation of wood finish, installation of floor coverings and interior decoration.
- B. Provide approved power operated heating and ventilating equipment as necessary. Should the permanent heating system be sufficiently advanced, the Contractor shall make arrangements for its use as temporary heat. The Heating sub-contractor shall set temporary radiation and provide service and repairs as specified in Section 15772, Split System HBAC Systems. The General Contractor shall provide fuel, electricity, operation and attendance.

2.09 Doors and Screens

- A. Install temporary batten type or other suitable doors at exterior door openings. Keep doors locked during non-working hours. Install polyethylene or cloth screens at windows and other non-covered opening until permanent installations are made. Refer to Section 06100, para. 3.02.

2.10 Temporary Stairs, Ladders, Ramps, Platforms, Hoists

- A. Provide and maintain all necessary means of access as above listed or as required for the proper execution of the work.

Such work shall comply with the requirements of applicable Federal, State and local laws and requirements.

2.11 Fencing and protection

- A. Provide fences, lights, and other safety devices required, or as necessary to conform to law.

2.12 Scaffolding and Shoring

- A. Provide centering, platform scaffolding and other non-mobile type scaffolding as necessary for the proper completion of the work of all trades. Assume responsibilities for such work and make good any damages resulting from improper supports and/or failure of shoring in any respect.

2.13 Pumping

- A. Provide labor and equipment as necessary to keep all portions of the excavations free from water. Maintain pumps in operation as may be required. If conditions so dictate, provide a well-point system to maintain excavations free of water.

2.14 Policing

- A. At all times during the construction phase, provide and maintain adequate access and egress to the property. Properly screen, barricade, guard and protect all areas of the work against hazards of any kind that may affect life, limb, or property.
- B. Periodically, during the progress of the work, remove all debris from the building and premises to make and maintain the entire Project in a neat and orderly condition.

2.15 Removal of Temporary Facilities

- A. Remove all temporary facilities at the completion of the work. Materials used for such facilities shall become the property of the Contractor.

---END OF SECTION---

SECTION 02100
CLEARING AND GRUBBING

PART 1. GENERAL

1.01 Clearing

- A. Cut all trees within the area of the new building and as specifically designated on the Drawings.

1.02 Selective Clearing

- A. Cut those trees specifically noted on the Drawings to be removed.
- B. Trim branches of all remaining trees within the LOWL to six (6) feet above ground.
- C. Cut and remove hanging and broken portions of existing trees and branches within the LOWL.
- D. Remove existing cut tree trunks presently on the ground on the Easterly side of the access drive.

1.03 Grubbing

- A. Remove all cut or existing stumps, brush or other similar unusable materials occurring within the building limits, under walks, drives, areas between the entrance drive and the building and other areas not covered with at least four (4) feet of fill.
- B. Remove existing concrete slabs shown on the Site Plan and stated thereon to be removed.

PART 2. PRODUCTS

2.02 Materials

- A. Paint for cut stubs - Asphaltic type or other approved tree paint.

PART 3. EXECUTION

3.01 Cutting

- A. In all other areas, cut trees, stumps and stubs to existing ground level.
- B. Paint cuts from limb removal with paint specified.
- C. Cutting and pruning shall be done by experienced workmen.

3.02 Disposal

- A. Dispose of cut and picked up trees, limbs, bushes, and similar materials off the site at a location approved by the governing officials. Burning will not be permitted.
- B. Dispose of existing concrete OFF the site in an area approved by the local authorities.

---END OF SECTION---

SECTION 02200

EARTHWORK

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Removal of stumps - Section 02100, Clearing and Grubbing.
- B. Placing and grading of loam - Section 02800, Site Improvements.
- C. Base gravel for walks, drives and parking areas - Section 02800, Site Improvements.
- D. Bituminous Paving - Section 02500.
- E. Precast concrete units for parking area - Section 03400.

1.02 Limit of Work

- A. Do grading indicated on the Drawings that is within the limit of work line (LOWL) shown on the Drawings to the elevations indicated.
- B. Take special care to keep all operations within site limits as shown on the plans, unless written permission is obtained from adjoining owners and from the Architect allowing such use.

1.03 Submittals

- A. Submit test results of the following materials to the Architect at least three (3) weeks prior to use on the Project:
 - (1) Existing excavation to be used as fill.
 - (2) Common borrow to be used as fill.
 - (3) Gravel to be used as base and subbase materials.

1.04 References

- A. Where MDOT appears it shall be taken to mean the State of Maine Department of Transportation Standard Specifications Highways and Bridges - Latest Revision.

1.05 Tests

- A. Tests for density and/or gradations as herein designated will be taken at the option of the Architect at no expense to the Contractor. Tests will be performed by an independent testing service approved by the Owner and/or the Architect. Costs of

1.05 A. (cont.)

testing will be paid by the Owner under amounts specified in Section 01020, Allowances.

- B. Compaction tests will be determined on the basis of laboratory Proctor test (AASHTO T-180, Modified) on samples submitted as in 1.03 above.
- C. Field density test shall be to 95% of maximum density at optimum moisture content unless specified otherwise in this Section.

1.06 Protection of Existing Structures and Utilities

- A. Provide necessary supports, bracing and covering to protect existing and new structures and utilities during all phases of excavation and backfill.
- B. Notify appropriate owners before excavating adjacent to poles, cables, pipes, and other utilities.
- C. Note that location of existing underground utilities on plans is approximate and may be incomplete. Responsibility for exact locations and protection of all utilities rests with the Contractor.
- D. Where location of existing underground utilities differs from that shown on plans, notify the Architect immediately.
- E. Conflicts between existing and new utilities and/or structures to be built under this Contract shall be reported immediately to the Architect.

1.08 Erosion and Sedimentation Control

- A. Seed stockpiled loam as soon as stripping is done with the following seed mixture:

	PERCENT TYPE	PERCENT BY WEIGHT	PERCENT PURITY	PERCENT GERMINATION
Domestic Rye	70	69.75		90
Perennial Rye	30	28.00		85

- B. Place gravel base specified herein at required locations as soon as possible after subgrades are formed in order to deter erosion.
- C. Seed slopes in excess of 20% (5:1) with seed specified in 1.08 above. Cover seeded areas with mulch specified or with burlap. Refer to Section 02440, Site Improvements.

1.08 (cont.)

- D. Install erosion fencing or other suitable erosion deterrents in locations shown on Site Plans or as directed or required by local or State officials.

PART 2. PRODUCTS

2.01 Materials

- A. Subgrade Fill (Excavation or Borrow) - MDOT 703.18.
 - (1) Remove boulders (rocks over eight (8) inches, and foreign matter from excavated material before using for fill.
 - (2) Backfill over pipes shall be free of stones over three (3) inches Dia. for the first one (1) foot over pipes.
- B. Aggregate Base - Screened or crushed gravel of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. Material shall meet the following gradation requirements:

SIEVE DESIGNATION	PERCENT PASSING
2 Inch	100
1/2 Inch	45-70
1/4 Inch	30-55
No. 40	0-20
No. 200	0-5

- C. Granular Fill - MDOT 703.19, Granular Borrow.
- D. Water Service Pipe - PVC 200 psi pressure pipe by Manville or by Corlon. Furnish with rubber ring type connections. Furnish necessary connections and adaptors to connect to building service and supply main.

PART 3. EXECUTION

3.01 Loam

- A. Existing Loam - Remove existing loam under building slab to existing subgrade soil. Stockpile existing loam for reuse on this Project and for future use of the Owner.
- B. Excess loam shall become the property of the Owner.
- C. Contractor shall be prepared to furnish 4" total thickness of loam. (From the site as in 3.01 A. above.)

3.01 (cont.)

- D. Remove that portion of the existing loam pile as indicated on the Drawings to make room for the parking area.

3.02 Rough Grading

- A. Rough grade areas within the Limit of Work Line outside the building as follows:

- (1) Under areas to be grassed - to 4" below finished grade.

- (2) Under bituminous concrete paved areas - to 12" below finished grade.

- B. Rough grade areas within the building to 14" below top of slab. Use existing material as necessary or fill material as required. Compact existing material to density of adjacent undisturbed soil. Compact fill to 92% of maximum density at optimum moisture.

3.03 Embankments and Fills

- A. Dispose of surplus material or material unfit for fill or grading ON the site where directed by the Architect.
- B. Stockpile surplus excavated material on the site where directed for future use of the Owner.
- C. Do not start fills until the area has been inspected and approved by the Architect.
- D. When fill is to be placed over wet ground that will not support the weight of trucks or other equipment, the bottom part of the fill shall be coarse sand, gravel, or other free draining material. Deposit material in a layer deep enough to support the operating equipment. Compact the top 9" of the blanket to 95% of maximum density at optimum moisture before subsequent layers are placed.
- E. Place sandy soils in 6 to 8 inch layers and compact each layer as specified above.
- F. Use excavated or fill material specified in areas not requiring gravel base. Place in maximum 12" horizontal layers and compact to 92% of maximum density at optimum moisture.
- G. Compact inaccessible places with mechanical tampers (jumping jacks) or hand operated pneumatic tampers.
- H. Stones in fills shall be well distributed. Do not leave stones over 4" dia. within 12" of subgrade.

3.03 (cont.)

- I. Each layer shall be free from ruts and shall meet compaction requirements before next layer is placed. Maintain layers with crown or other practical means of drainage.
- J. Do not place fill on frozen ground.
- K. When fill is placed around foundation walls, maintain backfill and compact evenly on both sides. Use extreme care in operation of heavy equipment. Replace or repair walls moved or damaged as a result of backfilling or equipment operations at no additional cost to the Owner. Maintain grades to slope away from the building.
- L. Backfill pipes with material that is well tamped under and around pipes and fittings to prevent settlement or lateral movement. Do not roll rocks into trenches or allow them to drop on pipes. place at least 12" of fine material over pipes before dumping fill into trenches. Compact in eight (8) inch layers for paved areas. Fill under pipe in rock cuts with three (3) inches of well compacted sand.

3.04 Subgrade Preparation

- A. Form rough subgrades in accordance with the Drawings and to within a tolerance of one (1) inch. Compact as specified in this Section for the material used.
- B. Remove soft places in subgrade areas and replace with crushed stone, gravel, or as directed.

3.05 Fine Grading of Aggregate Base and Subbase

- A. Clean rough subgrade of loose and foreign materials and reshape if rutted. Add base or subbase material as necessary to bring to grade. Place in six (6) inch layers, compacting each layer to 95% of maximum density. Do shaping with blade graders. Eliminate soft spots, and recompact and regrade as specified above. Roadway areas to be paved must adequately support paving machinery without rutting. Gravel base beneath the building slab shall have two (2") inches of sand on top of gravel. Wet thoroughly and compact before placing vapor barrier.
- B. Do all shoring and bracing necessary to support soil adjoining excavations.

3.06 Excavating

- A. Keep excavations near sidewalks and trenches properly fenced and guarded. Provide and maintain lights and barricades wherever and whenever necessary.
- B. Do shoring and bracing as necessary to support soil adjoining excavations and remove same when directed.
- C. Make excavations to the proper depths, with the proper allowances for formwork. In general, make excavations clean and clear of loose material. Remove any debris or vegetable matter encountered in the excavation.
- D. If suitable bearing is not found at levels shown on the Drawings, notify the Architect so that any adjustments or changes may be made immediately. If excavation is made too deep, the Contractor, at his own expense, shall increase the depth of structure. Filling below bottom of footing elevations will not be permitted. Use concrete in such cases. Footing shall bear on undisturbed soil.

3.07 Rock Excavation

- A. Soils investigations indicate that blasting for rock IS NOT expected to be required for this project. If unforeseen circumstances necessitates the use of explosives, take the following steps:
 - (1) Notify the Architect immediately before proceeding with any work in this regard.
 - (2) Obtain written consent and approval from local authorities for the methods to be used before proceeding with blasting or related work.
 - (3) Handle and employ explosives as stipulated in the "Manual of Accident Prevention in Construction" of the A.G.C.
- B. Storage - Store explosives in accordance with the laws and ordinances relating thereto and to the satisfaction of the local governing authorities. Bring explosives to the site only as needed and in small quantities. Keep exploders (caps) entirely separate from explosives. The precautions against accident by blasting or premature explosions shall be entirely the responsibility of the Contractor and to the satisfaction of the local authorities.

3.07 (cont.)

C. Liability - The Contractor shall be liable for all damage to persons, buildings, or property caused by blasting or explosions, or arising from neglect to properly guard and protect the excavations and all portions of the work. He shall wholly indemnify the Owner against any such claims on such account. No compensation will be allowed the Contractor in any event or any circumstances for loss incurred by him or arising from his neglect to fully comply with these requirements.

D. Payment

- (1) Payment for rock required to be removed shall be in accordance with the Bid Unit Prices stated in the Proposal. The actual amount removed will be measured as specified in (2) thru (6) below. Give the Architect not less than 48 hours notice of rock to be measured for payment. Make measurements by means of cross-sections taken before blasting on thoroughly cleaned rock surfaces. The Architect will check the Contractor's quantities. The Architect's findings will be final.
- (2) Rock Excavation shall include boulders over one (1) cu. yd. volume, and masses of rock or conglomerate masses requiring systematic drilling and blasting to be removed.
- (3) For payment, calculate Rock Trench Excavation as 18" wider than the structure to be installed. Compute depths to 4" below pipes and to bottoms of footings.
- (4) Rock excavation removed with open masses but below the required elevation for the mass, as for footing drains, shall not be considered as trench excavation.
- (5) Excavation which measures 4 ft. or less in width, regardless of length, will be classified as trench excavation. Measurement will be as above specified.
- (6) Excavation which does not meet the above requirements for Rock Excavation will be classified as Earth Excavation.

E. Soft Rock - Weathered loose rock which can be removed by the use of power shovel bucket teeth shall be removed after it has been measured by the Architect. Rock so removed will be paid for at one-half the bid unit price for Rock Excavation. The unit price for Rock Excavation is net and is not subject to credit for any other material which it may replace.

3.08 Sewer Pipes and Manholes

- A. Install pipes specified herein in locations shown on the Drawings. Bed pipe on a 4" thick layer of crushed and graded stone or gravel specified. Maintain pipes on design grade shown on the Drawings. Fill over pipes with minimum of 4" of material used for bedding. Follow Detail Drawings if they vary from above requirements.

3.09 Drywells

- A. Excavate drywell where shown on the Drawings. Fill with crushed stone retained on a 2" screen.
- B. Place pipes to grades shown on Detail Drawings. Cut off pipes to be not over 6" inside the excavation.
- C. Clean debris and dirt from drainage pipes before placing stone fill.

3.11 Work in Public Streets

- A. Do work in existing municipal streets or Highways in accordance with applicable local and/or State requirements.

3.12 Cleaning

- A. On completion of work, clean up the premises of wood, stone, cement bags and other debris. Leave the premises in a first class and satisfactory manner.

---END OF SECTION---

SECTION 02500

BITUMINOUS PAVING

PART 1. GENERAL

- 1.01 Related Work Specified Elsewhere
- A. Base and Sub-base courses - Section 02200, Earthwork.
 - B. Excavation for items in this Section - Section 02200, Earthwork.
 - C. Cast in place Concrete - Section 03300.
 - D. Precast concrete curb units - Section 02440, Site Improvements.

PART 2. PRODUCTS

- 2.01 Materials
- A. Bituminous Concrete - An approved hot plant mix conforming to M.D.O.T. Standard Specifications for Grading C Mix for surface, and Grading B Mix for base course.
 - B. Bituminous Curb - To conform to MDOT Type 3 Curbing.

PART 3. EXECUTION

- 3.01 Bituminous Concrete Paving
- A. Paving contractor shall be responsible that gravel is in proper condition to pave before starting work.
 - B. Pavement mix shall be as herein specified and shall consist of a 1 1/4 inch binder and a 1 inch surface course after compaction. Cut joints at existing driveway paving and new paving with a power saw, power chisle chisel or with a mattox. Note finished grade elevations on Drawings.
 - C. The spreading of bituminous concrete shall be done wherever practicable by an approved mechanical spreader. Place mixture while it is still hot. (+250 deg. F.) Roll mixture as soon as practicable after spreading and in no case after the mixture has cooled. The exposed finished surface shall present a true smooth plane, free from roller marks, conspicuous joining lines, patches, voids, or other imperfections. Where brown spots or other serious imperfections occur, they shall be cut down to the base course and replaced by new pavement rather than attempting to patch the surface. Feathered edge patches will not be permitted. Edges of existing pavement shall be cut neatly and square and tack coated with asphalt before paving to match adjacent work.
 - D. For hand placed mix, place hot mix on a steel dump board or wheelbarrow from the truck and then shovel into place.
 - E. Place bituminous curb at driveway perimeters and the traffic circle where shown on Drawings.

---END OF SECTION---

SECTION 02600
SITE UTILITIES

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Excavation and Backfill - Section 02200, Earthwork.
- B. Gravel Base - Section 02200, Earthwork.
- C. Site Improvements - Section 02800
- D. Bituminous Paving - Section 02500
- E. Water and gas service from mains to property line will be by the local Water District and Northern Utilities respectively.

PART 2. PRODUCTS

2.01 Materials

- A. Water Pipe (Exterior) - Soft drawn type K copper of size indicated on the Drawings. Joints and connections shall be pressure type couplings, or be silver soldered bronze fittings.
- B. Exterior Sewer Pipe - 200 psi PVC pressure pipe by Manville or by Corlon. Furnish with rubber ring type connections. Furnish all necessary connections and adaptors to connect to building service and sewer main.
- C. Pipe to drywell - 100 psi PVC with collar connectors. Do not allow pipe to extend into drywell more than 12".
- D. Exterior Pipe for natural gas - furnished by Northern Utilities.

PART 3. EXECUTION

3.01 Water Service

- A. Place water line of size shown and type specified. Use continuous pipe if possible. If joints are necessary they shall be as specified or to the satisfaction of the local Water District.

3.03 Sanitary Sewer and Dry Well

- A. Excavate for sewer lines to 6 inches below invert elevations shown. Place crushed stone or gravel to pipe grade and set pipe to elevations indicated. Place pipe in the dry. Test pipe joints for correct location of gasket before backfilling. Compact backfill in layers as specified in Section 02200, Earthwork. Make break through in existing manhole as small as possible to allow entry of new pipe. Patch around new pipe with brick and mortar as soon as possible.

3.03 (cont.)

- B. Excavate for pipe to drywell to grade to within 12 inches of bottom of dry well excavation. Place pipe to even grade and extend into pit excavation as above specified.
- C. Excavate for natural gas pipe line to building. Bed pipe furnished according the the requirements of Northern Utilities.
- D. Safety regulation of the State of Maine and the Federal Government, as applicable, shall be followed in regards to work in trenches and trench excavations.

---END OF SECTION---

SECTION 02800

SITE IMPROVEMENTS

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Base and Sub-base Courses - 02200, Earthwork.
- B. Excavations for items in this Section - Section 02200 Earthwork.
- C. Cast in Place Concrete - Section 03300.
- D. Landscaping - Section 02900.

PART 2. PRODUCTS

2.01 Materials

- A. Concrete Curb Units - Standard precast trapazoidal shape units by Swann's Saco Brick Co. or Gagne & Sons.
- B. Catchbasin - Standard 4 ft. I.D. precast concrete base and top as manufactured by Gagne and Sons, Superior Concrete Products, American Concrete Industries or approved equal. Sumps shall be minimum 2 ft. deep below outlet pipe flow line. Furnish standard square C.I. cover and frame by Etheridge or approved equal.
- C. Storm Water Pipe - Standard pvc of size shown on the drawings.

PART 3. EXECUTION

3.01 Concrete Curbing

- A. Install curb units at end of each parking space as shown on the Drawings. Stake to bituminous paving using minimum 5/8 dia. re-bars.

3.02 Catchbasin and Storm Drains

- A. Locate where shown on Drawings to provide for storm drain at elevations shown.

---END OF SECTION---

SECTION 02900

LANDSCAPING

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. General Excavations and Earthwork
- B. Salvaging Existing Loam - Section 02200 Earthwork.
- C. Site Improvements - Section 02800.

1.02 Certification of Acceptability.

- A. Inspection to determine completion of the work of this Section will be made at the conclusion of the maintenance period. The Landscaping Contractor shall submit written notice requesting such inspection at least five (5) days in advance. The Architect shall determine whether maintenance shall continue based on the noted condition of lawns and plantings.

1.03 Guarantee

- A. Lawns and plantings shall be guaranteed for one year after Certification of Acceptability by the Architect. Lawns and Plantings shall be alive and in satisfactory growth at the end of the guarantee period except for damage resulting from causes beyond the responsibility of the Landscaping Contractor.

1.04 Laws and Regulations

- A. Perform and complete work in accordance with regulations of municipal, State, and other applicable regulatory agencies.
- B. Do not close or obstruct any street, sidewalk, or passageway outside the areas indicated on the Drawings. Conduct operations so as to interfere as little as possible with the use ordinarily made of such ways or facilities that are near enough to the work to be affected thereby.

1.05 Quality Assurance

- A. Trees and shrubs shall conform to the requirements of the current edition of the "American Standard for Nursery Stock", sponsored by the American Association of Nurserymen, Inc., unless otherwise indicated on the Plans or in the Specifications.

1.05 (cont.)

- B. Dealers in nursery stock operating in Maine must obtain a license from the State Horticulturist, (State House, Augusta, Maine 04333)
- C. The current edition of "Standardized Plant Names", prepared by the Editorial Committee of the American Joint Committee on Horticultural Nomenclature, shall be the authority for all plant names.

PART 2. PRODUCTS

2.01 Materials

- A. Topsoil - Make use of as much existing stockpiled topsoil as possible. Furnish and place any additional topsoil required or as directed for proper completion of the work. Use natural loam topsoil removed to a maximum depth of one (1) foot or to just above a subsoil. Material shall be of uniform quality, free from hard clods, still clay, hard pan, sods, and undesirable inorganic material as approved by the Architect or his representative. Topsoil shall contain between 5.5 and 7.5 percent organic matter as determined by loss on ignition of moisture free samples dried in accordance with the current method of the Association of Official Agricultural Chemists. The acidity range shall be ph 6.5 to 7.0.

- B. Grass Seed - Fresh, clean, new crop seed consisting of the following:

Kentucky Bluegrass.....	50%
Red Fescue.....	25%
Perennial Rye.....	15%
Red Top.....	10%

Deliver the dealer's guarantee statement to the Architect.

- C. Sod

- (1) Field Sod: Dense, well rooted, vigorous growth turf forming perennial grasses indigenous to the locality where it is to be used. Take sod from approved sources where the soil is of such character that the sod will not crumble or break during cutting, transporting and laying. Sod shall be reasonably free from noxious weeds, annual grasses, moss, large stones, tree roots or other materials harmful to growth or material that will interfere with future mowing or subsequent maintenance of the sodded areas. Cut to a uniform minimum thickness of approximately two (2) inches.

2.01 C. (cont.)

- (2) Cultivated Sod: Turf obtained from an approved commercial sod farm. Furnish sod substantially free from objectionable grassy and broad leaf weed. Cut to a uniform minimum thickness of approximately one (1) inch.

D. Additives

- (1) Lime - Commercial ground lime.
- (2) Commercial Fertilizer - 10-8-6 in unopened bags with manufacturer's analysis printed on the bag.
- (3) Humus - Ground or shredded peat that has been stockpiled at least one year prior to use, or commercial bagged peat.
- (4) Manure - Well rotted unleached stable manure with no more than 25 percent straw, shavings, or sawdust content. a mixture of one cubic yard of peat humus or peat moss and 100 lbs. of commercial dehydrated bagged manure such as Bovung or Spurigon may be used.
- (5) Mulch for Plants - Shredded or chipped bark as approved by the Architect.
- (6) Mulch for Grass - New crop dry hay or Silva-Fiber by Weyerhaeuser.

F. Plant Materials - Furnish plants shown and specified on the Drawings as listed in the Plant Materials List. Plants that do not conform the the following will be rejected.

- (1) Have been grown under climatic conditions similar to those in the locality of the planting site, or have been acclimated to such conditions for at least two (2) years.
- (2) Have been nursery grown unless otherwise stipulated. No tree will be considered nursery grown unless it has been transplanted at least once and has been growing in a nursery for at least two years.
- (3) Be first class representatives of their species or varieties, unless otherwise specified; have good, healthy, well formed upper growth and a large compact root system; be healthy, vigorous, free from disease, insects, their eggs or larvae, broken branches, decay or other defects.
- (4) Be true to name and size and legibly and securely labeled.

1.05 F. (cont.)

- (5) Large, growing deciduous trees shall have straight trunks and a single leader or as may be characteristic of the species. Tops shall be fully branched, densely foliated, well balanced, and in good proportion to the height of the tree.
- (6) Small, growing deciduous trees shall be well branched with a well balanced, natural shape.
- (7) Unless otherwise specified, coniferous (evergreen) trees shall be uniformly and thickly branched from the ground up. shape shall be characteristic of the species.

G. Sprays and Dusts for tree and shrub maintenance.

- (1) Arsenate of Lead Spray: For caterpillars and chewing insects. Mix two (2) lbs. of arsenate of lead powder with fifty (50) gals. of water with one (1) lb. of casein sticker added.
- (2) Bordeaux mixture, Dry Powder form: For fungus, leaf disease, anthracnose or leaf blight.
- (3) Lime-Sulphur, liquid form: For dormant scale. Mix 1:10 with water.
- (4) Nicotine-Sulfate plus Volck's Nursery Spray: For woolly aphids on thorns, flowering crabs and others. Mix one-half (1/2) pint nicotine sulfate with two (2) quarts of Volck's Nursery Spray to fifty (50) gals. of water.
- (5) Fish Oil Soap: For scale on hawthorne. Mix one (1) lb. to 10 gals. of water.
- (6) Tri-X-L by Natural Development: for control of mites, beetles, and other insects. Mix five (5) lbs. to one hundred (100) gals. of water.

H. Guying and Staking Materials

- (1) Stakes for supporting trees - Sound wood of type indicated on the Drawings. Furnish stakes 2" x 2" and not less than eight (8) ft. long.
- (2) Wire for guys - 12 gauge, pliable, galvanized iron wire.
- (3) Hose to encase wires - New or used 2-ply reinforced rubber garden hose.
- (4) Wrapping material - Burlap or moisture proofed kraft type tree wrapping paper. Furnish first quality burlap, at least eight (8) ounces in weight and between six (6) and

ten (10) inches wide.

PART 3. EXECUTION

3.01 Protection of Plant Materials

- A. Plants designated "B&B" in the Plant List - Dig with firm natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant. Wrap balls firmly with burlap or similar material and bind with twine, cord, or wire mesh. Where necessary to prevent breaking or cracking of the ball during the process of planting, the ball may be secured to a platform.
- B. Other Plants - Dig and remove earth without injury to the fibrous root system necessary for the full recovery of the plant. Cover roots with a thick coating of mud by puddling or wrapping in wet straw, moss, or other suitable packing material immediately after they are dug.
- C. After delivery, cover the balls of "B&B" plants which cannot be planted immediately with moist soil or mulch. Plant or heel in other plants immediately upon delivery. Water all plants as necessary until planted.

3.02 Loaming, Seeding and Sodding

- A. Conduct planting operations under favorable weather conditions. Plant areas to grass that are not required to be otherwise developed
- B. Prior to placing loam, scarify compacted subgrade areas; remove rocks and debris; and set grade stakes as necessary. Place topsoil evenly over areas to be loamed to a minimum thickness of four (4) inches. Hand rake to remove clods, lumps, brush, roots, and stones over one (1) inch in diameter. Hand roll to show depressions and uneven grades. Regrade as necessary to smooth, even grades.
- C. Apply additives as follows:

Lime.....100#/1000 sq. ft.
Fertilizer.....35#/1000 sq. ft.

Apply above additives and harrow into top two (2) inches of the seed bed.

- D. Place sod specified in locations indicated on the Drawings. place sod on scarified bed of loam with tight joints. Total depth of loam and sod shall be not less than six (6) inches. After placement, lightly roll or tamp sod. Peg sod on slopes greater than 2:1 with pegs specified in this Section.

3.02 (cont.)

- E. Sow seed specified by use of a mechanical spreader at the rate of 5#/1000 sq. ft. Rake lightly in, roll with 200# roller, and water with a fine spray. Method of seeding may vary at Landscaping Contractor's discretion, but a full, even growth in all areas must be guaranteed.
- F. Apply mulch specified to be 1/2 in. to 1 in. deep over grassed area. (Approximately 3 Tons/Acre for dry hay.)

3.03 Planting of Trees and Shrubs

- A. Stake locations for approval of the Landscape Architect before pits are dug. Locations as shown on the Drawings maybe varied due to existing conditions. Adjust the depth of planting beds and pits as necessary to permit a minimum of six (6) inches of planting soil under balls or roots of plants.
- B. Preparation of soil - Use mixture of manure, peat humus and loam indicated on the Drawings for Rhododendrons and Azaleas. For all other plantings, mix manure and peat humus and loam in proportion of 10%, 15% and 75% respectively and use as backfill in planting pits.

3.04 Staking and Guying

- A. Stake trees at the time of planting in accordance with the Typical Section of Tree Planting Details.

3.05 Pruning and Mulching

- A. Remove dead wood or suckers and broken or badly bruised branches. In addition, remove one-fourth (1/4) to one-third (1/3) of the wood by thinning out and shortening branches to balance root loss due to transplanting.
- B. Paint cuts over one (1) inch diameter with an approved tree paint. Cover exposed cambium with paint as well as other exposed tissue.
- C. Immediately after planting operations are completed, cover tree and shrub pits with three (3) inch layer of mulch specified. Limit mulch to the area of the pit for individual plantings. For shrubs in beds, cover the entire area of the bed.

3.06 Maintenance

- A. General - Maintenance is the responsibility of the Landscape Contractor.

3.06 (cont.)

- B. Begin maintenance immediately after each portion of lawn and each plant is planted and continue in accordance with the following:
- (1) Lawns: Water, weed, resow, cut, and replant as necessary, for at least sixty (60) days after sowing and as much longer as is necessary to establish a uniform stand of the specified grasses. No bare spots will be allowed. Reseed those areas that fail to show a uniform stand of grass, for any reason, until all areas are covered with a satisfactory growth of grass. At time of cutting, keep mower blades no less than two and one-half (2 1/2) inches high. Continue the maintenance period after seeding and until the lawns are certified acceptable by the Landscape Architect. This Certifications shall not be earlier than the date of substantial completion of the Contract for the entire Project.
 - (2) New plantings: Protect and maintain until the end of the lawn maintenance period. If installed after the lawn maintenance period a Certificate of Acceptability will be issued by the Architect. Water, mulch, tighten and repair guys, replace sick or dead plants, reset plants to proper grades or upright position, restore planting saucers, and all other care needed for proper growth and maintenance of the plants. If planting is done after the lawn preparation provide proper protection to lawn areas. Promptly repair any damage resulting from planting operations.
 - (3) Spraying and Dusting: Do all seasonal spraying and/or dusting of trees and shrubs as required during the maintenance and guarantee periods.
 - (4) Protection: Protect planting areas and plants against trespassing and damage of any kind. Treat or replace as directed, any plants that become damaged or injured.
 - (5) Damage: The Landscaping Contractor, at his own expense, shall repair damage resulting from erosion, gulleys, washouts, or other causes that occur prior to issuance of a Certificate of Acceptability. Repair by filling with topsoil, tamping, refertilizing, and sod as necessary to restore the area to it's finished condition.
 - (6) Responsibility: (Refer to (1), (2) and (3) above. During the Guarantee period, the Landscaping Contractor shall make replacements as stated in (2) above and spray and dust as in (3) above. No other maintenance will be required.

3.07 Replacement

- A. At the end of the Guarantee period, inspection will be made by the Landscape Architect upon written notice requesting such inspection. Landscaping Contractor shall submit a request at least ten (10) days prior to the date proposed for inspection. Any plant placed under this Contract that is dead or not in satisfactory condition, as determined by the Architect, shall be removed from the site. Replace these, and any other plants missing due to negligence of the Landscaping Contractor as soon as conditions permit, but during the normal planting season.

3.08 Clean-up

- A. The Landscaping Contractor shall remove from the site, debris, construction equipment, excess fill, rocks, and other excess material caused by his work upon completion of the work of this Section.

---END OF SECTION---

SECTION 03300

CAST IN PLACE CONCRETE

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Precast Concrete Curb - Section 02800, Site Improvements.

1.02 Submittals

- A. Submit Shop Drawings as follows for reinforcing steel as required by Article 3.12 of the General Conditions and Supplements thereto.

(1) Schedules and detailed setting diagrams.

(2) Shop Drawings of inserts showing setting and locations of all applicable items.

1.03 Tests

- A. Tests required herein on mixed concrete will be done by a testing laboratory chosen by the Owner and Architect. Tests will be paid for by the Owner under Section 01020, Allowances. Field tests shall be taken by a Maine Certified Concrete Testing Technician.

B. Preliminary Tests

(1) The concrete supplier shall furnish copies of tests taken by an independent testing laboratory on all aggregates, and on mix design proportions for concrete of strengths specified herein.

(2) Tests occasioned by changes of materials or mix proportions shall be at the expense of the Contractor.

- C. Other Tests - All other tests designated herein shall be as specified in 1.03 A. above.

(1) Make four (4) standard test cylinders for each 50 cubic yards or fraction thereof of each strength concrete placed during any one day. Test one cylinder after 7 days and two cylinders after 28 days. The necessity of breaking cylinders at intermediate periods will be determined by the Architect.

(2) Tests necessary to resolve disputes will be made by the designated laboratory only. If work is found to be

3.01 C.(2) (cont.)

deficient, testing cost shall be paid by the Contractor. If work is satisfactory, testing cost will be paid as specified in "A." above.

- (3) Tests for slump and air content shall be taken by the Contractor when the Architect deems such tests necessary.

1.04 References

A. The following informational data shall be furnished by the General Contractor and shall be available on the construction site at all times as a standard of reference when applicable.

(1) A.C.I. Manual 301-72.

(2) P.C.A. Manual of Design and Control of Concrete Mixes - Latest Edition.

PART 2. PRODUCTS

2.01 Concrete Mix Materials

A. Cement - Type I by Dragon, St. Lawrence, Independent or Lehigh conforming to ASTM C-150.

B. Air entraining admixture - Darex, Airolith or Ayrtrap.

C. Water - Potable.

D. Aggregate - To conform to ASTM C-33 of maximum sizes specified in 3.01 Proportioning of this Section.

(1) Regard different size aggregates as separate ingredients.

(2) Variation of required aggregate gradation will be permitted only upon the written guarantee of the strengths of the concrete determined in accordance with cylinder tests specified herein. Such guarantee shall be by the concrete supplier.

E. Storage of Materials

(1) Store cement in weather tight bins or buildings and keep dry at all times.

(2) Store aggregate in separate piles or bins. Handle in such a manner that segregation will be minimized and contamination eliminated.

2.02 Reinforcement

- A. Reinforcing steel for foundations and footings - 60,000 psi new billit steel, intermediate grade conforming to ASTM A-305.
- B. Welded wire fabric - 6 x 6-6/6 WWM conforming to ASTM A-185.

2.03 Joints and Imbedded Items

- A. Metal accessories including chairs, bolsters, spacers, ties and other items necessary for properly tying, supporting and spacing reinforcing - Plastic or hot-dip galvanized after fabrication.
- B. Form Ties - Snap-off type with deep removable cones in exposed areas by Richmond, Jahn, or Hohmann & Barnard.
- C. Expansion joint for use at exterior walls of slabs - 1/4 in thick urethane by Barrett, W. R. Meadows or Hohmann and Barnard. Height shall be 1/2 in. less than slab thickness.
- D. Sealer for use over joint filler. Hot-poured rubberized asphalt compound equal to Para-Plastic by W.R. Grace or Hotpour by Tex-mastic.
- E. Screed Key Joints - By Jahn, Vulcan or Tex-Mastic for depth of slab shown on Drawings. Provide stakes for all joints and 5/8 in. dia. dowels for load transfer joints indicated on the Drawings.
- F. Moisture Barrier beneath concrete grade slabs - 6 mil. clear or translucent PVC by Vis-Queen, Gerpak, or Zendel. G. Non-shrink grout for column bases and bearing plates - Vibrofoil by Grace, Ferrolith G by Sonneborn or Embecco Premixed by Master Builders.

2.04 Hardener - For mechanical room - Hornstone by W.R. Grace, Solidus Crystals by Lambert Corp., or P&W by Standard Dry Wall Products, Inc.

2.05 Curing Materials

- A. Liquid curing compound for use beneath carpeted area - Horncure 30 D&C by Grace, Antisol by Sika or approved equal. Product used shall have a transient dye for coverage check.
- B. Covering for areas with resilient floor, ceramic tile or quarry tile - Polyethylene coated sisalkraft type paper by St. Regis Paper Co. or equal.
- C. Concrete may be cured by ponding or continuous sprinkling subject to protection of all other work.

2.06 Form Materials

- A. Exposed surfaces - Plywood, steel, Plyform, or hardboard.
- B. Concealed surfaces - May be #2 Com. or Btr. boards.

PART 3 EXECUTION

3.01 Proportioning

- A. Concrete - A homogenous mixture of portland cement, water and fine and coarse aggregates, mixed and delivered in transit mix trucks. Concrete shall be 3000 psi at 28 days for all uses. Maximum slump shall be not more than 3 inches.

3.02 Mix Design

- A. Select the proportion of ingredients to produce proper placeability, durability, strength, and other required properties. Proportion the mixture so that it will work readily into corners and angles of the forms and around reinforcement by the methods of placing and consolidating used on the job. Do such work without permitting the materials to segregate or to permit excessive free water to collect on the surface. The determination of the W/C ratio to attain the required strength shall be in accordance with previous mix designs submitted by the supplier as required by "B" below.
- B. The concrete supplier may submit a mix design employing the same ingredients proposed for use and used successfully on a previous project under similar conditions to those anticipated on this Project. To be accepted the following data must be submitted.

(1) The concrete mix design.

(2) Reports for at least 20 consecutive sets of 7 and 28 day concrete strength reports made during the last 6 months.

(3) Reports of compliance tests of fine and coarse aggregates made during the last 6 months.

3.03 Mixing and Batching

- A. General - Concrete shall be Ready Mixed and be batched and mixed in accordance with the "Specifications for Ready Mixed Concrete", ASTM C 941.
- B. Admixtures - Add specified admixtures to the mixer as a solution and dispense automatically by a mixing device accurate to + 3%. Add different admixtures separately.

3.03 (cont.)

C. Retempering

- (1) Add water only to the extent that the permissible slump and the maximum W/C is not exceeded.
- (2) Do not add cement and water to correct wet concrete, and then only to the extent that the maximum W/C is not exceeded.
- (3) The concrete supplier may keep bagged cement on the job site for use as in (2) above.
- (4) Do not add water until the truck is at the job, and then not more than 15 minutes before placing.

3.04 Formwork

A. General - Do not use earth cuts as forms for vertical surfaces.

B. Design of Formwork

- (1) Design formwork in accordance with "Recommended Practice for Concrete formwork", ACI 347.
- (2) Provide temporary openings at the base of wall forms to facilitate cleaning and observation immediately before concrete is deposited.
- (3) Use accessories to be partially or wholly embedded in concrete as specified in this Section and as required by other trades. Install items as recommended by the manufacturer or as required by the Drawings or as required by the work.

C. Tolerances

- (1) Construct forms so that concrete surfaces will conform to the tolerances of Section 203.1 ACI 347 and for wind loads as specified by local building codes.
- (2) Provide positive means of adjustment (wedges or jacks) of shores and struts to take up settlement during concrete placing operations. Brace shores and struts securely against lateral deflections.

D. Preparation of Form Surfaces

- (1) Construct forms sufficiently tight to prevent leakage of grout or cement paste. Thoroughly wet board forms having joints opened by shrinkage of wood before concrete is placed.

3.05 D. (cont.)

- (2) Coat forms with approved non-staining form oil or sealer.
- (3) Coat forms prior to placing reinforcing steel. Do not allow coating material to stand in puddles in forms or to come in contact with concrete against which fresh concrete will be placed.
- (4) Clean form surfaces before reuse.
- (5) Set edge forms and intermediate screed strips accurately to produce the required elevations and contours. Align concrete surfaces to the contours of screed strips by use of strike-off templates or approved strike-off screeds.

E. Removal of Forms

- (1) Footing and foundation forms may be removed after 24 hours as long as no loads are placed on the concrete. The Contractor shall be responsible for any damage.
- (2) Loads shall not be placed on concrete until cured as follows. The length of time the concrete has been cured in the field shall be determined by the cumulative number of days, or fractions thereof, not necessarily consecutive, during which the temperature of the air in contact with the concrete is above 50 deg. F. and the concrete has been damp or thoroughly sealed from evaporation and loss of moisture.

F. Removal Strength

- (1) Loads may be placed on concrete when concrete has reached 90% of its specified 28-day strength. The concrete shall be presumed to have reached this strength when either of the following conditions has been met:
 - (a) When test cylinders, field cured under the most favorable conditions prevailing for any portion of the concrete represented, have reached the required strength. Except for the field curing and age at test, the cylinders shall be molded and tested as specified in 1.03 of this Section.
 - (b) When the concrete has been cured as specified for the same length of time as the age at test of laboratory cured cylinders which reached the required strength.
 - (c) When the concrete has reached the specified 28-day strength as determined by non-destructive tests as approved by the Architect.

3.05 Workmanship

A. Fabricating and Placing Reinforcing

- (1) Fabricate rebars to a Sheared length of +/- 1 inch, and a bending tolerance of +/- of 1 inch.
- (2) Place bars to the following tolerances:
 - (a) Concrete cover to formed surfaces: + 1/2 inch.
 - (b) Minimum spacing between bars: - 1/2 inch.
- (3) If number of bars is shown on Drawing, the number given shall govern over the spacing.
- (4) Bars may be moved up to one diameter for conduits, pipes or embedded items.
- (5) Splicing of bars and details not covered herein shall be in accordance with the recommendations of "Manual of Standard Practice for Detailing Reinforced Concrete Structures" (ACI 315).
- (6) Supports on grade may be concrete brick or block. Other supports shall be as specified in 2.03 of this Section.
- (7) Lap WWM mats not less than one full cross wire spacing plus 2 in. Use same type supports as for rebars.
- (8) Do not bend reinforcement partially embedded in hardened concrete.

B. Construction Joints

- (1) Make and locate joints not indicated so as to least impair the strength of the structure.
- (2) Locate joints in slabs where so indicated on the Drawings. Saw cut all joints. Start cutting as soon as the concrete has hardened sufficiently to prevent aggregates being dislodged by the saw. Complete cutting before shrinkage stresses have developed sufficiently to induce cracking.
- (3) Continue reinforcing steel and welded wire fabric through joints. Construct joints in walls and between walls and footings and glass as indicated.
- (4) Where joints are formed due to stopping the work, clean previously placed concrete and remove laitence. Coat old concrete with fresh mortar before placing fresh concrete.

3.05 B. (cont.)

- (5) Other Embedded Items - Place sleeves, inserts, anchors, conduit, piping, and other embedded items prior to placing concrete.

C. Preparation Before Placing

- (1) Remove hardened concrete and foreign materials from inner surfaces of conveying equipment.
- (2) Complete formwork, remove ice and excess water; secure reinforcement in place and position expansion joint materials, anchors, and other embedded items.
- (3) Sprinkle sand fill over gravel base to compact and smooth prior to placing vapor barrier.
- (4) Place vapor barrier specified in 2.03 of this Section. place to foundation wall and cement with trowel grade asphaltic mastic. Tape to all protrusions and check and patch holes and tears.

D. Conveying

- (1) Convey concrete from mixer to place of deposit as rapidly as practicable without separation and/or loss of ingredients.
- (2) Size conveying equipment for continuous flow of concrete at the delivery end. Conveying equipment and operations shall conform to the following:
 - (a) Truck mixers, agitators, and non-agitating units and their manner of operation: "Specifications for Ready Mixed Concrete", ASTM C94.
 - (b) Chutes shall be metal or metal lined (not aluminum) with a maximum slope of 1 vertical to 2 horizontal. Chutes more than 20 feet long and chutes not meeting the slope requirements may be used provided they discharge into a hopper before distribution.
 - (c) Place concrete in deep wall forms by the use of rigid or flexible "elephant trunk". Do not allow concrete to have a free fall of more that four (4) vertical feet.

E. Depositing

- (1) General - Deposit concrete continuously, or in layers so that no seams or planes of weakness will be formed within a section. If a section cannot be placed continuously, locate construction joints at points as indicated or as approved. Deposit new concrete while previously placed

3.05 E.(1) (cont.)

concrete is still plastic. Discard concrete which has partially hardened or has been contaminated by foreign materials. Remove temporary spreaders in forms when concrete is at elevation where they are unnecessary. Permanent metal or concrete spreaders may be left in forms.

- (2) Place concrete as nearly as practicable in its final position to avoid segregation due to rehandling or flowing.
- (3) Consolidation - Where a surface mortar is to be the basis of the finish, work the coarse aggregate back from the forms with a suitable tool so as to bring a full surface of mortar against the form, without formation of excessive surface voids. Consolidate concrete by vibration, spading, rodding or forking. Work concrete around reinforcement, around embedded items, and in corners of forms, eliminating air or stone pockets. Honeycombing, pitting or planes of weakness will not be allowed. Mechanical vibrators shall have a minimum frequency of 7000 RPM and be operated by competent workmen. Do not over vibrate or use vibrators to transport concrete within forms. Vibrate concrete at many points, from 18 to 30 inches apart. Use care in vibrating so as not to cause segregation. Keep spare vibrator on job site during concrete placements.

F. Bonding - Bond construction joints as specified in 3.05 B. of this Section.

G. Weather Conditions

- (1) Protection - Unless adequate protection is provided, do not place concrete during rain, sleet or snow. Do not allow rain water to damage the surface finish.
- (2) Placing Temperature
 - (a) Cold weather - When the mean daily temperature falls below 40 deg. F., the minimum temperature of concrete as placed shall be 50 deg. F.
 - (b) Hot weather - Concrete deposited in hot weather shall have a placing temperature which will not cause difficulty from loss of slump, flash set, or cold joints, or in any case be a maximum of 85 deg. F.

H. Curing

- (1) General - protect freshly deposited concrete from premature drying and excessive hot or cold temperatures. Maintain minimum moisture loss at a relatively constant

3.05 H. (1) (cont.)

temperature for the period of time necessary for hydration of the cement and proper hardening of the concrete.

- (2) Initial Curing - Do initial curing immediately following finishing operation. Keep concrete continuously moist at least overnight. Use one of the following methods:
 - (a) Ponding or continuous sprinkling.
 - (b) Curing as specified in 2.05 of this Section.
 - (c) Curing compound specified in 2.05 of this Section for slabs not scheduled to receive resilient flooring. Apply such compounds in accordance with recommendations of manufacturers. Do not use on any surface against which additional concrete or other cementitious materials are to be bonded.
 - (d) Continuous steam or vapor mist. (Not over 150 deg. F.)
- (3) Final Curing - Immediately following the initial curing and before the concrete has dried, provide additional curing by continuing the method specified above for initial curing.
- (4) Duration of Curing - Continue final curing until the cumulative number of days or fractions thereof, not necessarily consecutive, during which temperature of the air in contact with the concrete is above 50 deg. F. for the required curing period. When necessary, make arrangements for heating, covering, insulating, or housing the concrete work in advance of placement. Provide adequate arrangements to maintain required temperature and moisture conditions without injury due to concentration of heat.

I. Curing Temperature

- (1) Cold Weather - When the mean daily temperature of the atmosphere is less than 40 deg F., maintain temperature the concrete between 50 and 70 deg. F. for the required curing period. When necessary, make arrangements for heating, covering, insulating, or housing the concrete work in advance of placement. Provide adequate arrangements to maintain required temperature and moisture conditions without injury due to concentration of heat.

3.05 I. (cont.)

- (2) Hot Weather - When necessary, make arrangements for installation of windbreaks, shading, fog spraying, ponding, or wet covering of a light color in advance of placement. Take such protective measures as quickly as concrete hardening and finishing operations will allow.
- (3) Excessive Temperature Changes - During curing period protect concrete from temperature changes in excess of 5 deg. F. in any one (1) hour, or 50 deg. F. in any twenty-four period.

J. Protection from Mechanical Injury

- (1) During the curing period, protect concrete from damaging mechanical disturbances, particularly load stresses and excessive vibration. Protect finished concrete surfaces from damage caused by construction equipment, materials, or methods, and by rain or running water.

K. Surface Repairs

- (1) Remove honeycombed and other defective concrete down to sound concrete. Dampen area to be patched and area six (6) inches around it to prevent absorption of water from patching mortar.
- (2) Make patching mixture of same sand and cement used in concrete. Mix not more than 2 1/2 to 1. Use white cement as necessary to match color of existing concrete as determined by trial patches in unexposed areas.
- (3) Limit amount of mixing water to that necessary for handling and placing. Mix mortar in advance. Allow to stand with frequent manipulation with a trowel, without addition of water, until it has reached the stiffest consistency that will permit placing.
- (4) After surface water has evaporated from the area to be patched, brush area with neat cement grout. Let set until grout loses its sheen, and apply the patching mortar. Pack mortar thoroughly into place, strike off to leave the patch slightly higher than surrounding surfaces to permit initial shrinkage. Leave undisturbed for at least one (1) hour before being finally finished. Keep patched area damp for seven (7) days. Finish exposed surfaces of patch to match adjacent surfaces.
- (5) After cleaning and thoroughly dampening, fill tie holes with patch mortar. Finish off as specified for other exposed areas. Tie holes not exposed in the finished work may be filled with asphalt roofing cement troweled into holes.

3.05 (cont.)

L. Finishing

- (1) Exposed interior slabs - Finish first by consolidating with a power float. Hand float in inaccessible locations. Recheck trueness of surface with a 10 foot straight edge applied at not less than two different angles. Cut down high spots and fill low spots and retrowel before proceeding. Power trowel to smooth surface relatively free of defects. Do additional trowelings by hand after the surface hardens sufficiently. Do final troweling when a ringing sound is produced as the trowel is moved over the surface. The surface shall be free of trowel marks, uniform in texture and appearance. {Slab under gymnasium floor shall be plane to within 1/8 inches in ten (10) feet as determined by a ten (10) foot straight edge placed on the slab in any direction.} All other slabs shall be plane to within 1/4 inches in ten (10) feet as determined by a ten (10) foot straight edge placed on the slab in any direction. Correct defects of sufficient magnitude to show through scheduled floor covering materials.
- (2) Interior Slabs for Tile Finish - Screed to elevation indicated to provide for setting bed required.
- (3) Exposed Exterior Slabs - Wood float to a tolerance of 1/4 inches in five (5) feet. Joint and edge on all sides.
- (4) Exposed Exterior formed Surfaces - Patch as specified in "L" above immediately upon removal of forms. Complete rubbing within 48 hours. Wet surfaces and rub with a carborundum brick or other abrasive until a uniform color and texture is produced. Use no cement grout or slush other than the cement paste drawn from the green concrete itself by the rubbing process.
- (5) Concealed Exterior Formed Surfaces - Knock off protrusions. Fill tie holes and honeycombed areas as previously specified in "L" above.

---END OF SECTION---

3.02 (cont.)

- B. In cold weather, heat sand and water sufficiently to maintain the temperature of mortar when used to above 50 deg. F.
- C. Add color (if not factory mixed) in accordance with manufacturer's directions to produce a color approved by the Architect.
- D. No additives, anti-freeze mixtures or admixtures will be allowed in the mortar.

3.03 Use

- A. Use mortars as specified in the affected Section of these Specifications.

---END OF SECTION---

SECTION 04200

UNIT MASONRY

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Catchbasins - Section 02800, Site Improvements...

1.02 Handling

- A. Carefully handle all materials and units in transit and on the site. Keep units whole with sharp edges and undamaged faces. Do not dump masonry units. Handle individually or in suitably bundled groups.

1.04 Submittals

- A. Submit at least six (6) brick showing range of color to the Architect for approval.

PART 2. PRODUCTS

2.01 Brick

- A. Face Brick - Hardburned, red, waterstruck brick as manufactured by Morin Brick Co. Brick shall conform to ASTM C-62. Grade SW.

PART 3 EXECUTION

3.01 General

- A. Build all work plumb, true and accurately to the dimensions indicated.
- B. Heat water and sand before laying masonry in weather colder than 40 Deg. F. (4 Deg. C.). Do not lay in temperature below freezing unless heating is provided for under the direction of the Architect. Maintain masonry at minimum 50 Deg. F. (10 Deg. C.) for at least 72 hours.
- C. Adequately cover all work at the end of the work period and during storms and showers. When so covered, keep masonry warm as specified in "C." above.
- D. Provide level and solid bearing on concrete foundation.
- E. Where fresh masonry joins work that is partially or totally set, clean the exposed surfaces of the set masonry and wet it lightly so as to obtain the best possible bond with new work. Remove all loose work. When horizontal runs are stopped off, rack back one-half or a full unit length in each course,

depending on the type of bond.

- F. Tool joints in the exposed finish work slightly concave. Strike off other joints flush.

3.02 Brick Work

- A. Wet brick having an absorption of more than 5%.
- B. Spread mortar for the bed joint thick with a shallow furrow and for only a few bricks at a time. Lay brick immediately before mortar can start to stiffen. Shove head joints. Do not move brick after laying. If brick have been improperly laid or spaced and correction is necessary, remove and relay with fresh mortar.
- C. In general, course joints in running bond as shown on the Drawings as uniform as the type brick will allow. Tool joints with a rounded tool to give a firm, concave joint. Do tooling before mortar hardens and with sufficient force to press the mortar tight against the brick on both sides of the joint.
- D. Do not lay brick or any other unit having a film of frost on its surface. Do not build on any frozen work. Such work will be required to be removed and rebuilt.
- E. Provide weep holes where specifically indicated on the Drawings.

3.04 Cleaning

- A. on completion of masonry work, clean exposed brick with a weak solution of muriatic acid and clear water, removing all stains. Clean masonry work of loose mortar and mortar spots, leaving the whole thoroughly clean. Do any pointing of joints as may be necessary, with mortar used for laying units.
- B. Clean down exposed concrete surfaces which have become dirty or spotted with concrete or mortar spatter. Leave such surfaces uniform in color and texture. On completion, leave all parts clean to the satisfaction of the Architect and ready for waterproofing application.

---END OF SECTION---

SECTION 05100
STRUCTURAL STEEL

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Grouting under base and bearing plates - Section 03300, Cast In Place Concrete.

1.02 Furnished But Installed Elsewhere

- A. Anchor bolts, loose bearing plates - Installed under Section 03300, Cast in Place Concrete.

1.03 Regulatory Agencies

- A. Fabrication, erection and welding for this Section - in accordance with the AISC Specification for the Design, Fabrication and Erection of Structural Steel for Buildings, adopted 1969, revised to date.
- B. Welding - in accordance with the American Welding Society "Code for Welding in Building Construction", latest edition.

1.04 Submittals

- A. Provide setting drawings, templates and directions for the installation of anchor bolts and other devices.

1.05 Product Handling

- A. Deliver anchor bolts and other anchorage devices which are embedded in concrete to the Project site in time to be installed before the start of concreting operations.
- B. Store structural steel members at the Project site above ground on platforms, skids, or other supports.

PART 2. PRODUCTS

2.01 Materials

- A. Steel bars and plates - Fy 36 Steel, ASTM A-36.
- B. Structural Columns - Schedule 40 Fy 36 Steel pipe.
- D. Plain washers - ANSI B-27.2, Type A.
- E. Anchor bolts - To conform to Section 1C of ASTM A-307.

2.01 (cont.)

- F. Shop Paint - Stan-Tite #86 Metal Primer, Rust-Oleum X-60, Tnemec 88 or equal approved by the Architect for ungalvanized items. Provide minimum 2.5 mil thickness.
- G. Touch-up Paint - Same as used by fabricator for shop coats.

PART 3. EXECUTION

3.01 Fabrication

- A. Fabricate structural steel in accordance with the requirements of the Drawings and this Section of the Specifications.
- B. Weld shop connections. Utilize angles, plates, seats and gussets to develop in shear the reactions required. Where no such reaction is shown, the connection shall develop the maximum allowable shear for the member. Make shop welds with E70 electrodes.
- C. Shop paint surfaces of steel work with paint specified in 2.01 F. above.

3.02 Erection

- A. Column bases and bearing plates - Align column bases with wedges and shims.
- B. Before installing, clean bearing surfaces and surfaces which will be in permanent contact.

3.03 Field Touch-up Painting

- A. Paint scarred or abraded places after erection. Use same paint as specified for shop paint.

---END OF SECTION---

SECTION 06100

ROUGH CARPENTRY

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Items of Finish Carpentry and Millwork - Section 06200.
- B. Concrete Formwork - Section 03300, Cast In Place Concrete.
- C. Roof insulation and asphalt shingle roofing - Section 07300.
- D. Metal Flashing - Section 07600, Flashing and Sheet Metal.
- E. Special caulking and sealing - Section 07900, Sealants.
- F. Wood Doors - Section 08200.
- G. Wood and Plastic Windows - Section 08600.
- H. Gypsum Wall Board - Section 09250.
- I. Flashings for stock wood windows - Section 07600, Flashing and Sheet Metal.
- J. Roof Insulation - Section 07200, Building Insulation.
- K. Wall Vapor Barrier - Section 07200, Building Insulation.

PART 2. PRODUCTS

2.01 Grading

- A. Lumber referred to herein shall conform to Project Standard 20-70 (American Softwood Lumber Stanmdard). Lumber shall bear the grade and trademark of the Association under whose rules it is produced and a mark of mill identification. Lumber for protection, gravel stops, sleepers, cants and exterior exposed use shall be pressure treated with Wolman salts or with pentachloraphenol to conform to American Wood Preservers Association Standards for normal exposure. Where noted on Drawings, General Contractor shall treat lumber with two brush coats of Woodlife, Cuprinol or approved equal.
- B. Protect lumber and keep it dry, both in transit and at the job site.
- C. Lumber shall be well seasoned with not over 19% moisture content.

2.02 Lumber Requirements

- A. Lumber for rough carpentry, unless otherwise indicated shall be as follows:

2.02 A. (cont.)

- (1) Blocking and framing for general use - Select Structural #2, Eastern Spruce, Fir, or Hemlock.
 - (2) Pressure treated lumber - Select Structural #2, Southern Pine.
- B. Strapping - Native Spruce, Fir or Hemlock. Treat as specified above for blocking and framing if in contact with masonry or concrete.
- C. Exterior Sheathing - No. 4 Com. or Btr., T&G Native White Pine, or B-C EXT APA plywood or Exterior Particle Board Sheathing at the option of the Contractor.
- D. Plywood - to meet the requirements of PS-1-74 for softwood plywood types.
- (1) Wall and roof sheathing - Standard with exterior glue.
 - (2) Exterior exposed trim, fascia, soffits and other trim - C Select Eastern white Pine of sizes shown on the Drawings. Use beveled clapboards for siding, T & G for soffits, and plain rectangular shapes for other trim.
 - (3) Other exterior concealed uses - Structural II EXT, B-C.
 - (4) Interior uses - Structural II INT, B-C.
 - (5) Particle Board - By Georgia-Pacific, Weyhauser or U.S. Plywood.
 - (6) Backboards for electrical and mechanical trades - 3/4 in. INT. A-C.
- E. Incidental Products
- (1) Nails for exterior use - Hot-dip galvanized, aluminum or stainless steel of correct type and size for the work. Use stainless steel for clapboard siding and trim.
 - (2) Joist hangers and framing connectors - By Hohmann & Barnard, Superior, Teco or approved equal. Items shall be hot-dip galvanized after fabrication. Furnish sizes and types required by the work or as indicated on the Drawings.

PART 3. EXECUTION

3.01 Erection

- A. Accurately and properly fit, brace and secure all work in position and direction. Erect framing, fillers and blocking. Provide metal straps and clips as shown on the Drawings.

3.01 (cont.)

- B. Cooperation is required for all the other trades.
- C. In general, install Millwork and Finished Carpentry items to Detail. Set accurately to line, scribed where necessary, fitted, coped, mitered, glued, nailed, bolted, screwed, and of the best workmanship by skilled carpenters and cabinet makers.

3.02 Temporary Enclosures and Protection

- A. Provide temporary wood doors and cloth or transparent plastic covered temporary windows for exterior wall openings until the building has dried out. Windows may be glazed instead of being fitted with temporary covering, if glass is carefully protected. Keep areas closed where temporary heat is being used while heat is on. Buildings shall be put under lock and key as soon as practicable.
- B. Where protection is specified or needed during the progress of the work and wood is used for this purpose, take care that it is held accurately in place and that stains from the wood or nails do not damage the building.

3.03 Cutting and Patching

- A. Do cutting, patching, heading and blocking as required for the work of all trades.

3.04 Blocking and Supports

- A. Install 2 in. thick wood blocking as detailed in wood stud partitions for anchoring mirrors, accessories and other items as necessary. Securely anchor blocking within studs.

3.05 Backing Boards

- A. Install 3/4 in. thick plywood backing boards for electrical and mechanical trades as required.

3.06 Finished Hardware

- A. The finished hardware specified in Section 08700 shall be received, checked against the invoices, stored, cared for, and installed under this Section of the Specifications. Properly tag, index and file keys in cabinet and/or turn over to the Owner on acceptance of the Project.
- B. Install hardware in accordance with the manufacturer's instructions, accurately fitted, securely fixed and carefully adjusted.

---END OF SECTION---

2.02 (cont.)

- B. Plywood for concealed closet shelves and other concealed uses - APA Fir, AB INT. Use 3/4 in. thick for shelves. Other uses shall be of thickness noted or detailed.
- C. Interior wood trim and shelves - C Select, kiln dried, native white pine, cut to shape and detail shown. Stock trim units by Brosco or Anderson may be used if so noted on the Drawings or approved by the Architect. Note Contractor's OPTION regarding wood trim.

2.03 Kitchen Cabinets

- A. Kitchen Cabinets - "Laurens" style by Boro Wood Products or equal by Connors Wood Industries or equal as approved by the Architect and conforming to ANSI 161 and to the following requirements: (NOTE: Cabinets faced with high impact plastic laminate may be substituted in lieu of above.)
 - (1) Front Frames - 3/4 in. hardwood, mortised and tenoned, glued and pinned, grooved to receive ends, bottom, and wall cabinet tops.
 - (2) Exposed wall and base ends - 1/2 in. thick particle board core with hardwood veneer faces, grooved to receive backs, bottoms, shelves and wall cabinet tops.
 - (3) Unexposed wall and base ends - 1/2 in. particle board machined as above in (2).
 - (4) Oven and utility cabinet ends - 1/2 in. hardwood faced plywood.
 - (5) Intermediate shelves - 1/2 in. particle board, nosed and filled.
 - (6) Wall cabinet tops and bottoms - 5/32 or 3/16 in. plywood let into face and ends. Top of wall cabinet supported by minimum 1 1/2 in. x 58 in. hardwood supports spaced 16 in. o.c. Bottom of wall cabinet supported full length with same type support glued and stapled. Top corners of base cabinets reinforced with 4 x 4 x 3/4 in. corner blocks glued and stapled.
 - (7) Door and drawer fronts - 1/2 in. high density wood fiber core with hardwood faces, except as noted.

2.03 A. (cont.)

- (8) Drawers - Interlocked with rabbeted construction; 3/4 in. 5 ply laminated hardwood sides and ends; sides grooved with 1/8 in hardboard bottoms; hardwood self-aligning drawer guide with 3 point plastic suspension. Drawer front attached with glue and screws. Furnish finger groove for pulls on bottom edge.
- (9) Finish - Durasyn Topcoat by Mobil or approved equal.
- (10) Hardware - Heavy duty self-closing semi-concealed hinges. Furnish long life neoprene door bumpers, die cast knobs or pulls in antique english bronze finish for kitchen cabinets.
- (11) Counter Top - Postformed Micarta, Formica or approved equal laminated to particle board with contact cement. Build up front edge and ends to 1 1/2 in. thick.

2.04 Miscellaneous Hardware

- A. Coat Hooks - 7082 by Stanley or approved equal.

PART 3. EXECUTION

3.01 Fabrication

- A. Finish Carpentry work (including cabinets) shall conform to AWI Standards for Custom Grade work.
- B. Mill assemble work insofar as is practicable and deliver ready for erection.
- C. Make all work in accordance with measurements taken at the job site. Accurately assemble finished carpentry work and properly secure together and in place.
- D. Sand exposed work to even, smooth surfaces ready for finish with holes filled with plastic wood filler. Sand on exposed faces.
- E. Join mill assemblies with concealed nails and screws and where practical with mortised tenons. Countersink nails and screws in exposed faces. Fill nail holes with plastic wood and cover screws with glued wood plugs to match type and grain of base wood. Use waterproof glue of best quality.
- F. Install plywood shelving as detailed and where shown on the Drawings. Face edge of shelves shall have glued and rabbeted edge strips of solid Birch.

3.02 Delivery and Storage

- A. Woodwork manufacturer and General Contractor shall jointly be responsible to make certain that items of woodwork are not delivered until building or storage area is sufficiently dry so that woodwork will not be damaged by excessive changes in moisture content. Obtain Architect's approval before delivering kiln dried material to the job site.

3.03 Cabinet Hardware

- A. Install hardware specified herein as required and in accordance with manufacturer's directions. Doors and shelves in cabinet work must operate properly before acceptance.

---END OF SECTION---

SECTION 07210

BUILDING AND SOUND INSULATION

PART 1. GENERAL

1.01 Related Work Specified Elsewhere (Not applicable)

PART 2. PRODUCTS

2.01 Materials

- A. Insulation for stud walls - Batt or roll type fiberglass or mineral fiber as manufactured by Owens-Corning, Gustin-Bacon, W.R. Grace, or U.S., Gypsum. Provide with standard nailing flange for wood stud uses. Thickness shall be R-19 for walls and R-30 for ceilings.
- B. Perimeter Insulation - Rigid, extruded polystyrene foam equal to "Styrofoam SM" by Dow or "Foamular 400 by UC Industries. Thickness shall be as shown on the Drawings.
- C. Sound Attenuation Blanket - 3 inch thick mineral wool of not less than 2 1/2 lb. density, with STC of not less than 37 when used as shown for single studded walls. Use "Premium" by Rockwool Industries or equal by U.S. Gypsum or Owens Corning. Material must conform to Federal Specification HJH-L-521B, Type I, II, and III.
- D. Acoustical Sealant - DAP, Sterling, U.S. Gypsum or approved equal.
- E. Vapor Barrier - 6 mil, clear polyethylene by Vis-Queen, Gerpak, Union Carbide or approved equal.
- F. Sill Sealer - Flexible polystyrene or polyurethane foam. Material shall readily conform to irregularities in the top of the foundation wall and be not less than 3/4 inches thick when not compressed.

PART 3. EXECUTION

3.01 Installation

- A. Staple or nail insulation specified to wood studs.
- B. For insulating other areas indicated, cut the insulation as necessary to provide a tight unbroken layer; butt joints and seal with moisture proof contact type sealing tape. Fully insulate cavities around openings with strips of insulation pressed firmly into position.

3.01 (cont.)

- C. Place perimeter insulation prior to completion of backfilling interior of foundation walls. Lightly spot with adhesive to hold in place until fill is placed.
- D. Place sill sealer between foundation and wood sill before bolting sill into place.
- E. Place sound attenuation blanket between wood studs at corridor walls and as indicated on Drawings. Make sure horizontal and vertical joints are made tight with contact type sealing tape. Calk at floor, walls and ceiling with acoustical sealant specified herein.
- F. Place polyethylene vapor barrier specified on warm side of insulation to areas where shown on Drawings. Staple to wood studs.

---END OF SECTION---

SECTION 07240

EXTERIOR INSULATION AND FINISH SYSTEM

PART 1. GENERAL

1.1 RELATED SECTIONS

- A. Section 03300 - Cast-In-Place Concrete.
- B. Section 06100 - Rough Carpentry.
- C. Section 07210 - Building Insulation.
- D. Section 07600 - Flashing and Sheet Metal.
- E. Section 07900 - Joint Sealers.

1.2 REFERENCES

- A. ASTM B 117 - Operating Salt Spray (Fog) Apparatus.
- B. ASTM C 1063 - Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster.
- C. ASTM D 968 - Abrasion Resistance of Organic Coatings by Falling Abrasive.
- D. ASTM D 1784 - Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
- E. ASTM D 2247 - Testing Water Resistance of Coatings in 100 Percent Relative Humidity.
- F. ASTM E 84 - Surface Burning Characteristics of Building Materials.
- G. ASTM E 96 - Water Vapor Transmission of Materials.
- H. BOCA National Building Code Radiant Heat Exposure Test of Exterior Wall Assemblies.
- I. EIMA Standard 101.86.
- J. Mil Standard 810B.
- K. UBC 26-9.

1.3 SYSTEM DESCRIPTION

- A. Performance Requirements:
 - 1. EIFS tested for durability as follows:

- a. Abrasion Resistance: ASTM D 968; no deleterious effects after 132 gallons (500 L).
- b. Absorption, Freeze-Thaw: 60 cycles, soak at 68 degrees F (20 degrees C) 4 days, then 14 degrees F (-10 degrees C) 2 hours, then 68 degrees F (20 degrees C) 2 hours; no checking, cracking, or splitting.
- c. Accelerated Weathering: ASTM G 23 (Federal Test Standard 141A, Method 6151); 2,000 hours; no deterioration.
- d. Mildew Resistance: Mil Standard 810B; passes.
- e. Moisture Resistance: ASTM D 2247 (Federal Test Standard 141A, Method 6201); 14 days, no deleterious effects.
- f. Salt Spray Resistance: ASTM B 117 (Federal Test Standard 141A, Method 6061); 5 percent concentration, 300 hours, no deleterious effects.
- g. Water Penetration: ASTM E 331; no water penetration to innermost surface of test specimen.
- h. Moisture Drainage Efficiency: Modified ASTM E 331; 95 percent efficiency.
- i. Water Vapor Transmission: ASTM E 96, Procedure B, Standard lamina; 14 grams/hour-sq. ft. (10 g/hr-sq. m).

2. EIFS tested for structural performance as follows:

- a. Tensile Bond Strength, Primus to Backstop: 12.6 psi (86.9 kPa).
- b. Tensile Bond Strength, Genesis to Backstop: 15.1 psi (104 kPa), sheathing facing failure.
- c. Full-Scale Structural Tests: ASTM E 330; minimum failure load under positive or negative load of 90 psf (4.3 kPa) unless otherwise specified; substrate failure.

3. EIFS tested for fire performance as follows:

- a. Flame Spread/Smoke Developed, EPS Insulation Board: ASTM E 84; 25/450.
- b. Flame Spread/Smoke Developed, Adhesives and Coatings: ASTM E 84; 20/10.
- c. Full Scale Fire Test: ASTM E 108 (Modified); passed.
- d. Ignitability Characteristics: BOCA National Building Code Radiant Heat Exposure Test of Exterior Wall Assemblies; passed.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's descriptive literature for each specified product.

C. Quality Assurance Submittals:

1. Certificates: Contractor's certification that:

- a. Products of this Section, as provided, meet or exceed specified requirements.
- b. Manufacturers of products of this section meet specified qualifications.
- c. Applicator of products of this section meets specified qualifications.

2. Manufacturer's instructions:

- a. Printed installation instructions for each specified product.
- b. Manufacturer's Safety Data Sheets (M.S.D.S.) for each specified product.

D. Closeout Submittals: Warranty documents, issued and executed by manufacturer of EIFS materials.

1.5 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer of EIFS Materials: Minimum five (5) years documented experience producing EIFS materials specified in this section, sponsor of applicator certification program, sponsor of certification and quality assurance program for manufacturers of materials for EIFS installations not produced by EIFS materials manufacturer, and certified by ISO 9001.
2. Manufacturer of Insulation Materials: Manufacturer having insulating board product listed as meeting EIFS materials manufacturer's insulation board specification, and as participant in EIFS manufacturer's third-party certification and quality assurance program.
3. Panel Fabricator: Experienced and competent in the fabrication of architectural wall panels.
4. Installer: Experienced and competent in the installation of architectural wall panels; the Panel Fabricator, approved by the Panel Fabricator, or under direct supervision of the Panel Fabricator.

B. Regulatory Requirements:

1. Separate expanded polystyrene from building interior with 15-minute minimum thermal barrier.
2. Expanded polystyrene use and maximum thickness shall be in accordance with applicable building codes.

C. Mock-ups:

1. Construct mock-up of size indicated on drawings; locate on project site as directed by Architect.
2. Prepare substrate and apply finish as specified in this section.
3. Maintain mock-up at project site until Architect directs its removal.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Packing, Shipping, Handling and Unloading:
Deliver products to project site in manufacturer's labeled and sealed packaging.
- B. Acceptance at Site: Accept only products in sealed, unopened manufacturer's packaging with labels intact.
- C. Storage and Protection:
 1. Store products in manufacturer's unopened packaging until installation.
 2. Maintain dry storage area at minimum 45 degrees F (7 degrees C) for products until removal for installation.
 3. Protect product from weather and direct sunlight.

1.7 PROJECT/SITE CONDITIONS

- A. Environmental Requirements:
 1. Applying products of this section during periods of inclement weather is prohibited, except where surfaces to receive products are protected from weather during application and until applied products are cured.
 2. Apply products of this section only above minimum ambient temperature of 45 degrees F (7 degrees C) and when ambient temperature will remain minimum 45 degrees F (7 degrees C) for following 24 hour period.

1.8 WARRANTY

- A. Manufacturer's Warranty: Supply EIFS materials manufacturer's 10-year moisture drainage and 7-year materials warranty against defects in materials only. Manufacturer shall have no liability for application of materials.
- B. The Installer shall separately warrant EIFS against failure due to workmanship for a period of 5 years from the date of Substantial Completion.

PART 2. PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Dryvit Systems, Inc.; One Energy Way, P.O. Box 1014, West Warwick RI 02893; Pleko-Therm system as manufactured by Kern-tac, Inc. 4421 Orchard St., P.O. Box 98287, Tacoma, Washington, or STO System by Kemco installed by Porter Drywall.

2.2 MATERIALS

- A. Air/Weather Barrier:
 - 1. Backstop: 100 percent acrylic, field-mixed.
 - 2. Grid Tape: Open-weave fiberglass mesh tape, pressure sensitive adhesive.
- B. Adhesive/Base Coat: Fiber-reinforced, acrylic modified; field-mixed with Portland cement in 1:1 ratio.
- C. Adhesive/Base Coat: Acrylic polymer-based; field-mixed with Portland cement in 1:1 ratio.
- D. OMD Insulation Board: Expanded polystyrene meeting EIFS manufacturer's specification for insulation board.
 - 1. Thickness: As indicated on drawings, 2 inches (50 mm) minimum.
- E. Back Side: 1/4 inch by 1 inch (6 x 25 mm) vertical grooves at 12 inches (305 mm) on center.
- F. OMD Insulation Board Closure Blocks: Expanded polystyrene meeting EIFS manufacturer's specification for insulation board.
 - 1. Height: 6 inches (150 mm) minimum.
- G. Starter Strip: Expanded polystyrene meeting EIFS manufacturer's specification for insulation board.
 - 1. Height: 6 inches (150 mm) minimum
 - 2. Configuration: To receive OMD Insulation Board.
- H. Vent Assembly: Formed aggregate matrix material encased in piece of insulation board which provides drainage capability.
- I. Track: ASTM D 1784 and C 1063; "J"-shaped.
- J. Vent Track: ASTM D 1784 and C 1063; "J"-shaped with drainage slot.
- K. Standard Weight Reinforcing Mesh:
 - 1. Dryvit Standard(tm) Mesh, or equal by mfgs. specified herein.

2. Product Description: Glass-fiber fabric, balanced and treated for compatibility with other EIFS materials; weight 4.3 ounces per square yard (146 g/sq. m).

L. Extra Heavy Weight Reinforcing Mesh:

1. Product Description: Glass-fiber fabric, balanced and treated for compatibility with other EIFS materials; weight 20.5 ounces per square yard (695 g/sq. m).

M. Detail(R) Reinforcing Mesh:

1. Product Description: Glass-fiber fabric, balanced and treated for compatibility with other EIFS materials; weight 4.3 ounces per square yard (146 g/sq. m).

N. Corner Reinforcing Mesh:

1. Product Description: Glass-fiber fabric, balanced and treated for compatibility with other EIFS materials; weight 7.2 ounces per square yard (244 g/sq. m).

O. Finish: As selected by the Architect.

1. Color: Selected from full range of manufacturer's standard colors.

P. Joint Sealer Primer: Dryvit Demandit or equal by mfgr. selected.

Q. Joint Sealer Primer: Dryvit Color Prime or equal by mfgr. selected

R. Joint Sealers: Specified in Section 07900.

2.3 MIXES

A. Prepare materials requiring field-mixing for application in accordance with manufacturer's printed installation instructions.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verification of Conditions:

1. Substrates to receive EIFS are listed in manufacturer's printed installation instructions as acceptable.
2. Expansion joints are located and sized as indicated on drawings.
3. Products indicated to be installed in surfaces to receive EIFS are installed in correct locations.

B. Installer's Examination:

1. Examine conditions under which construction activities of this Section are to be performed; submit written notification if such conditions are unacceptable.
2. Transmit two copies of Installer's report to Architect within 24 hours of receipt.
3. Beginning construction activities of this section before unacceptable conditions have been corrected is prohibited.
4. Beginning construction activities of this section indicates Installer's acceptance of conditions.

3.2 PREPARATION

- A. Protection: Mask surfaces of adjacent materials to prevent damage to finishes.
- B. Surface Preparation: Prepare surfaces to receive EIFS in accordance with manufacturer's printed installation instructions.

3.3 APPLICATION

- A. Adhesive/Base Coats: Apply types specified in manufacturer's printed installation instructions for project substrate types to prepared surfaces.
- B. OMD Insulation Board: Apply indicated thicknesses, and to form indicated profiles; maintain joint spacing specified in manufacturer's printed installation instructions.
- C. Base Coats: Apply types and number of coats specified in manufacturer's printed installation instructions sufficient to fully embed mesh.
- D. Reinforcing Mesh: Apply types specified to building areas indicated on drawings, and as recommended in manufacturer's printed installation instructions.
- E. Finishes: Apply specified finishes and colors in accordance with manufacturer's printed installation instructions.
- F. Sealer: Apply specified sealers to indicated finishes in accordance with manufacturer's printed installation instructions.
- G. Joint Sealer Primer: Apply to finish surfaces to receive joint sealers in accordance with manufacturer's printed installation instructions.
- H. Installation of joint sealers is specified in Section 07900.
- I. Installation of flashing and sheet metal is specified in Section 07600.

3.4 PROTECTION

- A. Maintain protection of unsealed edges of EIFS finishes from weather until installation of flashings and joint sealers.
- B. Protect EIFS finishes from damage by subsequent construction activities until Substantial Completion.
- C. Repair EIFS finishes damaged by subsequent construction activities in accordance with manufacturer's printed installation instructions; replace EIFS finish to extent of nearest adjacent termination each way at areas where repair to finish is judged unacceptable.
- D. Architect will be sole judge of acceptability of repaired finishes.

END-OF SECTION ---

SECTION 08600

WOOD AND PLASTIC WINDOWS

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

A. Rough openings - Section 06100, Rough Carpentry.

1.02 Submittals

A. Submit complete Shop Drawings in accordance with Article 3.12 of the General Conditions and Supplements thereto. (Submit only if windows are not brand specified.)

PART 2. PRODUCTS

2.01 Materials

A. Window units - Perma-shield "Fire Escape" type double-hung units with white poly-vinyl-chloride covered wood subframes and sash by Anderson Corporation, Bayport, Minnesota. Furnish all necessary stock hardware.

(1) Wood shall be water repellent preservative treated. Exterior exposed surfaces of frames and all surfaces shall be white rigid P.V.C. P.V.C. on frames shall be continuous to provide a flashing and anchorage fin at head, sill and jambs. Corners shall be welded to provide continuity of the P.V.C.

(2) Factory glaze all units with 5/8 in. thick low "E" insulating glass. Use rigid vinyl snap-in glazing beads. Furnish screens for all units.

PART 3. EXECUTION

3.01 Installation

A. Units shall be installed by expert carpenters in the rough openings provided. Place units true, level, and square and ready for interior and exterior trim and/or sealants. Check operating sash prior to completion to insure complete workability of all units. Furnish and install flashings as shown on the Drawings

---END OF SECTION---

SECTION 07300

ROOFING SHINGLES

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Flashing and Sheet Metal - Section 07600.
- B. Ridge Vent - Section 10200, Louvers.
- C. Plywood underlayment - Section 06100, Rough Carpentry.

PART 2. PRODUCTS

2.10 Materials

- A. Roof Shingles - Class A, fiberglass reinforced asphalt type equal to "Mark 80" Traditional by Bird, "Royal Sovereign" by G-A-F, or Regal-Wood by Manville, weighing not less than 280 lbs./'sq. Color shall be standard as selected by the Architect.
- B. Underlayment - 15# asphalted felt.
- C. Underlayment at eaves and in valleys - Bituthene as manufactured by W.R. Grace or equal.
- D. Roofing nails - Standard galvanized, large head roofing nails not less than 1 1/4 inches long. For felt underlay, use standard nailing discs and 4d galvanized box nails.

PART 3. EXECUTION

3.01 Installation

- A. Apply bituthene to eaves and valleys as shown on Drawings or required herein.
- B. Apply 15# felt in horizontal rows starting at low point of roof. Lap approximately four (4) inches.
- C. Install shingles specified using not less than four (4) nails per strip or the minimum nailing recommended by the shingle manufacturer.
- D. Install flashings furnished around plumbing vents and other roof penetrations to be weathertight. See Plumbing, Heating and Ventilating Drawings for number and location of penetrations.

---END OF SECTION---

SECTION 07810

SKYLIGHTS

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Roof shingles and eave flashings - Section 07300.

1.02 Submittals

- A. Submit complete Shop Drawings in accordance with Article 3.12 of the General Conditions and Supplements thereto.

PART 2. PRODUCTS

2.01 Skylights

- A. Furnish and install a stock manufactured skylight of size and type shown on the Drawings by Velux or equal as approved by the Architect. Manufactured unit shall have sealed, double insulating glass, interior drip gutter and exterior counterflashing flange. Sealant shall be as recommended by the Manufacturer. Manufacturer shall furnish all flashings for a complete installation.

PART 3. EXECUTION

3.01 Installation

- A. Skylights - Install in accordance with Detail Drawings or approved Shop Drawings.

---END OF SECTION---

SECTION 07900

SEALANTS

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Calking for rough Carpentry work - Section 06100.
- B. Sealant for skylight glass - Section 07810.
- C. Joint sealer for expansion and perimeter joints in concrete floors - Section 03300, Cast In Place Concrete.

1.02 Experience

- A. Subcontractor shall present evidence of having successfully completed work of a similar nature continuously during the past five (5) years.

PART 2. PRODUCTS

2.01 Materials

- A. Sealant for exterior and interior uses and for concrete expansion and construction joints - A single component polyurethane conforming to Federal Specification TT-S-00230C, Type II, Class A and ASTM C-920, Type S, Grade NS, Class 25, use NT, MG, A. Use primer as recommended by sealant manufacturer as necessary or required. Colors shall match adjacent work.
- C. Back-up material for deep joints and where shown on Drawings - Closed cell polyethylene tubing 1/3 larger than the width of the space being filled.

PART 3. EXECUTION

3.01 Installation

- A. Do calking in accordance with the best practices. Start of work shall indicate acceptance of the surfaces by the approved subcontractor.
- B. Clean excess mortar and other debris and foreign matter from joints to be calked.
- C. Fill large joints with backer rod (filler) specified.
- D. Apply, tool and finish calking compound and sealant as required by the manufacturer.

3.01 (cont.)

- E. Apply calking compound and sealant to joints with a calking gun equipped with a nozzle of suitable size. Fill void completely and point compactly, neatly, and slightly concave. Remove excess material and carefully clean with a cleaner approved by the sealant or calking compound manufacturer.
- F. Use sealant around perimeter of exterior metal (steel and aluminum door and window frames), on both interior and exterior of construction and expansion joints and elsewhere as indicated on the Drawings.
- G. Set thresholds in beds of calking and bolt or screw tightly to the floors.

---END OF SECTION---

SECTION 08100

METAL DOOR FRAMES

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

A

- . Aluminum framed doors - Section 08400, Aluminum Entrances and Store Fronts.

1.02 Submittals

- A. Submit Shop Drawings showing in detail hollow metal work, large scale details of construction, kind and gauge of members, methods of anchorage, quantities, sizes and locations of items in accordance with Article 3.12 of the General Conditions and Supplements thereto.

PART 2. PRODUCTS

- 2.01 Metal Frames - Welded frame assemblies of minimum 16 gauge, cold-rolled prime quality galvanized steel. Furnish six (6) suitable wall anchors as required for the type of wall construction shown. Reinforce strike and hinge locations with 3/16 in. thick plate. Furnish three (3) rubber silencers for each strike jamb. Furnish anchor plates large enough for two (2) studs at each side of door frame. Provide for 1 1/2 pairs of butts per door. Furnish 16 gauge glazing beads mitered at corners and secured to frames with screws. Templates for hardware shall be furnished by the hardware supplier as required. Reinforce closed sections internally for their entire length by a 16 gauge transverse stiffener spot welded to each side 12 in. on center. Frames shall be bonderized and have baked-on prime coat of paint.

PART 3. EXECUTION

3.01 Installation

- A. Erect frames plumb and true, ready for door installation. Do erection in accordance with door manufacturer's instructions.

---END OF SECTION---

SECTION 08200

WOOD DOORS

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Metal door frames - Section 08100, Metal Doors and Frames.
- B. Door hardware - Section 01020, Allowances.
- C. Hardware installation - Section 06100, Rough Carpentry.
- D. Templates for hardware - By hardware supplier.
- E. Wood folding partitions - Section 10600, Partitions.

PART 2. PRODUCTS

2.01 Solid Core Wood Doors

- A. Exterior - 1 3/4 in. thick solid particle board core type oak veneer. Doors shall be equal to Guardian by Paine Lumber, Timblend DPC-1 by Weyhauser or Master Flush- Particle by Eggers. Doors shall have NWMA guarantee for two (2) years. Particle board core shall conform to A.W.I. Type "PC", Face A; to Federal Standard LLLD581, Type I and II, Class 1 and NWMA I.D. 1-76. Doors shall be "3P". Provide copper sheathed top and bottom edges.
- B. Interior - 1 3/4 in. thick solid particle board core type oak veneer. Doors shall be equal to Guardian by Paine Lumber, Timblend DPC-1 by Weyhauser or Master Flush- Particle by Eggers. Doors shall have NWMA guarantee for life of the installation. Particle board core shall conform to A.W.I. Type "PC", Face A; to Federal Standard LLLD581, Type I and II, Class 1 and NWMA I.S. 1-76. Doors shall be "3P".
- C. Furnish louvers and cut-outs in doors so scheduled of sizes shown on the Drawings.

2.03 Mineral Core Fire Doors

- A. Furnish 1 3/4 in. thick mineral core, d 1 1/2 hour "B" U.L. wood fire doors with face veneers as in 2.02 above. doors shall be equal to Paine Fire Door, Mineral Core DFM-90 by Weyhauser or Fire Doors-Flush by Eggers. Doors shall be for interior use and have NWMA guarantee for life of the installation. Doors shall conform to AWI Type FD 1 1/2, Face A; Federal Standard LLLD581, Type IV, Class 3 and to NWMA T.S.. 1-76.

PART 3. EXECUTION

3.01 Installation

- A. Install doors specified in locations shown on Drawings in accordance with manufacturer's instructions.

---END OF SECTION---

SECTION 08400

ALUMINUM ENTRANCES

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Metal Door Frames - Section 08100.
- B. Special Doors - Section 08300.
- C. Wood and Plastic Windows - Section 08600.
- D. Glazing - Section 08800.

1.02 Submittals

- A. Submit complete Shop Drawings in accordance with Article 3.12 of the General Conditions and Supplements thereto.

PART 2. PRODUCTS

2.01 Finish

- A. Finish for all materials in this Section - Clear anodized finish} Equal to Permanodic Clear by Kawneer. Obtain finish by a caustic etch and high density aluminum oxide treatment to produce a minimum coating thickness of 0.0007 inches of integral color.

2.02 Doors

- A. Swinging entrance doors and frames designated or shown - Insulcast 450 Series frame or equal by Pittco, Alumiline/Aldora or Tubelite.
- B. Glazing stops - Square cornered snap-in type for type of glass thickness indicated on Drawings, with neoprene bulb glazing bead. Stops on exterior shall be lock-in, tamper-proof type. There shall be no exposed screw attachments.
- C. Weatherstripping - Metal backed pile cloth with adjustable astragal at meeting and pivot stiles.
- D. Furnish butt hinges, overhead exposed type closers, key operated dead bolts, handle on pull side and panic bar on push side. Hardware shall have same finish as doors and frames. Doors shall be keyed alike.

2.03 Transoms and Sidelights

- A. Store front, transoms, and sidelights for doors in 2.02 above - 450 Series by Kawneer, 6450 Series by Pittco, or S-4500 by Tubelite. Provide reinforcing necessary and where shown on Detail Drawings and on the approved Shop Drawings.

2.03 (cont.)

- B. Glazing Stops - Same as specified in 2.02 B. above.

2.04 Perimeter Sealing

- A. Sealant - A single component urethane based sealant equal to Vulkum 230, Sonolastic NP 1, Dynatrol I by Pecora or equal. Material shall conform to Federal Specification TT-S002230C, Type II, Class A; ASTM C-920, Type S, Grade NS, Class 25, use NT, MG, A. Use primer as recommended by the sealant manufacturer as necessary or required. Colors shall match adjacent work.
- B. Back-up material for deep joints - Closed cell polyethylene tubing 1/3 larger than the width of the space being filled.

PART 3. EXECUTION

3.01 Erection

- A. Units shall be erected by skilled workmen. Use a gasket of non-hardening butyl compound to form compression joints between vertical and horizontal mullions. Place waterstop in accordance with manufacture's recommendations between vertical or horizontal members that are perforated on exterior for drainage. Seal joints in neoprene with sealant specified. Make void between perimeter framing members and adjoining structure watertight by means of a mechanical waterstop and sealant specified. Set framing members plumb and level and anchor them securely to structural members. Install members so as to permit sufficient lateral and vertical movement under expansion and contraction without deflection or buckling.
- B. Glaze aluminum units as specified in Section 08800, Glazing of these specifications.

3.02 Sealing

- A. Clean excess mortar and other debris and foreign matter from joints to be sealed.
- B. Fill large joints with backer rod (filler) specified.
- C. Apply sealant to joints with a calking gun equipped with a nozzle of suitable size., Fill void completely and point compactly, neatly and slightly concave. Remove excess material and carefully clean with and approved cleaner.

---END OF SECTION---

SECTION 08600

WOOD AND PLASTIC WINDOWS

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Rough openings - Section 06100, Rough Carpentry.

1.02 Submittals

- A. Submit complete Shop Drawings in accordance with Article 3.12 of the General Conditions and Supplements thereto. (Submit only if windows are not brand specified.)

PART 2. PRODUCTS

2.01 Materials

- A. Window units - Perma-shield "Fire Escape" type combination units with white poly-vinyl-chloride covered wood subframes and sash by Anderson Corporation, Bayport, Minnesota. Furnish all necessary stock hardware.

(1) Wood shall be water repellent preservative treated. Exterior exposed surfaces of frames and all surfaces shall be white rigid P.V.C. P.V.C. on frames shall be continuous to provide a flashing and anchorage fin at head, sill and jambs. Corners shall be welded to provide continuity of the P.V.C.

(2) Factory glaze all units with 5/8 in. thick low "E" insulating glass. Use rigid vinyl snap-in glazing beads. Furnish screens for all units.

- B. ALTERNATE: Operating units - Double hung "Fire Escape" type windows complete with locks, hardware, and 18 x 16 mesh copper screens with white finish aluminum frames. Screens shall fit in locations for storm panel. Furnish locks and hardware for screens.

PART 3. EXECUTION

3.01 Installation

- A. Units shall be installed by expert carpenters in the rough openings provided. Place units true, level, and square and ready for interior and exterior trim and/or sealants. Check operating sash prior to completion to insure complete workability of all units. Furnish and install flashings as shown on the Drawings

---END OF SECTION---

SECTION 08700

FINISH HARDWARE

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Hardware for factory glazed windows - Section 08600.
- B. Weatherstripping for exterior doors - Section 08710.
- C. Hardware for wood cabinets - Section 06100.
- D. Hardware for aluminum entrances - Section 08400.
- E. Installation of finish hardware - Section 06100.

1.02 Responsibilities to Others

- A. Templates for wood doors - To General Contractor.
- B. Templates for hollow metal doors - To Hollow Metal Door supplier.

PART 2. PRODUCTS

2.01 Hardware

- A. Hinges - by Stanley, Hager or McKinney.
- B. Exterior doors - Schlage Series "A", Orbit design.
- C. Passage Sets - Schlage A10S, Plymouth design .
- D. Privacy Sets - Schlage A40S, Plymouth design.
- E. Door Stops - Ives 060 or equal by Stanley or Baldwin.
- F. Door Closers - By Norton, Sargent or Yale. Provide U.L. approved closers with fusible links as required by law or as shown on the Drawings.
- G. Extra cylinders - By Schlage for aluminum entrance doors.

2.02 Finish

- A. For all hardware - US Stainless steel.

2.03 Keying

- A. Exterior entrance doors shall be keyed alike.

PART 3. EXECUTION

3.01 Installation

- A. Install hardware specified in accordance with manufacturer's recommendations as specified in Section 06100.

---END OF SECTION---

SECTION 08710

WEATHERSTRIPPING AND THRESHOLDS

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Weather stripping for exterior aluminum doors - Section 08400, Aluminum Entrances.
- B. Weatherstripping for factory fabricated windows - Section 08600, Wood and Plastic Windows.

1.02 Submittals

- A. Submit Shop Drawings or acceptable catalog cuts showing types of items and installation in accordance with Article 3.12 of the General Conditions and Supplements thereto.

PART 2. PRODUCTS

2.01 Thresholds

- A. Extruded or cast aluminum of types listed below:

	Zero	Reese	Nat'l Guard Products Inc.
Flat	#655	S2058A	#525
Lipped	#60	S258A	#886

PART 3. EXECUTION

3.01 Installation

- A. Install sill weatherstrip in factory prepared exterior doors in accordance with the manufacturer's directions.
- B. Install thresholds in bed of calking compound. Calk ends and clean off excess material.

---END OF SECTION---

SECTION 08800

GLAZING

PART 1. GENERAL

1.01 Coordination of Work

- A. Note that glazing work shall be done by the same subcontractor as indicated on the Form of Proposal.

1.02 Related Work Specified Elsewhere

- A. Factory glazed windows - Section 08600, Wood and Plastic Windows.

PART 2. PRODUCTS

2.01 Materials

- A. Locations of glass types - As scheduled or as shown on the Drawings.
- B. Glass for all windows and opening scheduled to be glazed shall conform to Federal Specification DD-C-451c and to Interim Federal Specification DD-G-001403. Each light of glass shall bear an identifying label.
- C. Wire glass - 1/4 in. thick, U.L. Labeled and approved, clear wired glass with wire in a diamond or square pattern, welded at intersections of wire. Glass shall be equal to Misco Baroque by Hordis Brothers, Inc. (Note U.L. requirement.)
- D. Insulating glass for aluminum entrances, transoms and sidelights - One in. thick sealed edge type. Units shall be manufactured according to the requirements of the "Sealed Insulating Glass Manufacturers Association" (SIGMA) as approved by the "Insulating Glass Certification Council" (IGCC). Both panes shall be S,B,G,E-1 (clear)
- E. Glass for locations not otherwise shown or scheduled - Clear flat drawn window glass. Use D.S.B for areas up to 12 sq. ft., 3/16 in. thick for areas 12 to 28 sq. ft. and 1/4 in. thick plate or float glass for areas over 28 sq. ft.
- F. Glazing compound - Non-bleeding elastic material conforming to Federal Specification TT-G-00410C or ASTM C-834-76. Color shall match trim of unit being glazed. Use standard gray color for metal frames to be painted.
 - (1) Tape - Tremco 440, Pecora Extru-Seal, Weatherban 1202 or approved equal, compatible with sealant hereinafter specified and complying with TT-C-598.
 - (2) Sealant - Dymonic by Tremco, Dynatrol I by Pecora, Dar-a-Seal by Grace or Sonolastic NP-I by Sonneborn.

2.01 (cont.)

- (3) Setting beds and blocks - Neoprene, 70-90 Shore "a" hardness.

PART 3. EXECUTION

3.01 Aluminum framing (without integral glazing)

- A. Cut tape to proper length and apply to head, sill and then jambs of the stops without overlap. Remove backing paper.
- B. Place setting blocks at quarter points and press glass firmly and evenly to tape or back bead.
- C. Apply head bead of sealant, maintaining minimum 3/16 in. bite on glass and filling void under glass.
- D. Install glazing beads and fill void between metal and glass with sealant specified. Leave enough sealant to catch vision strip firmly on fixed metal frames.

3.02 Aluminum Framing (with integral glazing)

- A. Set glazing sheet in neoprene glazing strips and install beads as recommended by the window or frame manufacturer.

3.03 Other

- A. Bed all other glass and materials specified to be glazed in glazing compound and face glaze to a neat, clean surface, parallel with inside of muntin or glazing rebate. Make corners carefully, remove excess compound and leave surfaces clean. Do all work in conformance to the standards of the Flat Glass Jobbers Association.
- B. Doors, transoms, sidelights, and other areas detailed to be glazed shall be provided with glazing beads. Remove beads carefully and bed glass in glazing compound. Place a layer of compound on both sides of glass to prevent glass to metal or glass to wood contact. Use neoprene blocks specified for all glass setting. Replace glazing beads, clean off excess glazing compound and clean adjacent surfaces.

3.04 Responsibilities

- A. The glazing subcontractor shall be responsible for glass broken due to faulty setting and shall replace same at his own expense.
- B. Clean and immediately wipe dry surfaces and areas glazed. Use solvents as recommended by the glazing material manufacturer.

---END OF SECTION---

SECTION 09250

GYPSUM DRYWALL

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Painting of finished walls - Section 09900, Painting.
- B. Insulation - Section 07200, Building Insulation.
- C. Vapor Barrier - Section 07200. Building Insulation.

PART 2. PRODUCTS

2.01 Storage and Handling

- A. Deliver materials in their original packages, containers or bundles bearing the brand name and the manufacturer or the supplier for whom the product is manufactured.
- B. Keep materials dry, preferably by storing inside the building under the roof.

2.02 Materials

- A. Wall Board - In general, 5/8 in. thick Type X (fire rated), tapered edge gypsum board, as shown or scheduled, by U.S. Gypsum, National Gypsum, Georgia-Pacific or Flintkote. Lengths shall be as long as possible to eliminate vertical joints (up to 16 ft. long). Use Type M-R board for toilet and kitchen areas and other locations scheduled or shown on the Drawings.
- B. Screws - Bugle head type. In general lengths shall be 1/2 inch longer than the thickness of the board or boards being attached. For attachment to sound attenuation channels screws shall be 1/4 inch to 3/8 inch longer than board being attached.
- C. Outside Corner Beads, Control Joint Channels, Edge Channels, Sound Attenuation Channels and other trim as required - Galvanized metal by the gypsum board manufacturer. Casing beads shall be square type.
- D. Tape Joint System - As provided by the gypsum board manufacturer.

PART 3. EXECUTION

3.01 Installation of Gypsum Wall Board

- A. Preparation - Examine and inspect materials to which gypsum board is to be applied. Remedy defects prior to installation.

3.01 (cont,)

of wall board. Any defects in the finished installation due to misaligned framing or other cause will be the responsibility of those doing the work performed under this Section. Starting of work shall imply the acceptance of conditions.

- B. Insulation - Install insulation where required before applying wall board to both sides of the partition or wall. Note that mineral fiber insulation is woven in studs between classrooms and at end of classrooms where future expansion is planned.
- C. Vapor Barrier - Install prior to applying wall board.
- D. Cutting - Cut wall board by scoring and breaking or by sawing, working from the face side. Scribe neatly where board meets projecting surfaces.
- E. Placing - Bring boards into contact with each other, but do not force into place. Maximum allowable gap at end joint is tagger end joints. Arrange joints on opposite sides of partitions so as to occur on different studs. Make joint layout at openings so that no end joint will align with edges at opening.
 - (1) Space screws not less than 3/8 in. from edges and ends of wall board. Locate screws on studs a maximum of 12 in. o.c. in field and 8 in. o.c. at edges Where backed up with wood. Refer to ASA Specification for screw attachment procedure.
 - (2) Hold the board in firm contact with the member into which the screws are being driven. Attachment shall proceed from central portion of board toward ends and edges. Drive screws home with heads slightly below the surface of the board. Take care to avoid breaking the paper face. Remove improperly driven screws.
- F. Joint Treatment - Apply field joints and corners in strict accordance with the directions of the wall board manufacturer. Use specified tape and a minimum of three (3) coats of cement. Use cement in accordance with recommendations of manufacturer. Sand each coat as necessary to prepare for following coat. Make finish coat smooth and to a plane surface. Protect external corners with metal corner beads. Treat screw head dimples as outlined above for joints, but without tape. Note that concealed joints above acoustical ceiling do not require sanding. Such joints shall be filled and taped.
- G. Accessories
 - (1) Install corner beads on all outside corners.

3.01 G. (cont.)

- (2) Use square casing beads where gypsum board abuts dissimilar materials and is not covered by a casing or other concealment. Note option for elimination of interior wood trim.
 - (3) Use expansion joints and other metal trim where indicated on the Drawings or required by the work.
- H. Patching - After trim has been applied and prior to decoration, correct damage and defects as required.

---END OF SECTION---

SECTION 09300
TILE

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Toilet and Mechanical/Janitor Room Accessories - Section 10800
- B. Setting of plumbing fixtures - Section 15400, Plumbing.

1.02 Reference Standard

- A. The "TCA Handbook" as referred to herein means the latest edition of the Handbook for Ceramic Tile Installation as published by the Tile Council of America.

1.03 Guarantee

- A. The Tile Contractor shall guarantee the work of this Section against defects of materials and workmanship for a period of one (1) year after the final acceptance of the Project.

1.04 Responsibility

- A. It is the intent and purpose of this Specification to procure a first class, permanent installation. The Tile Contractor must examine the work of other trades over which tile is to be applied and report any obviously inferior or incomplete work to the Architect before installation of any tile.

1.05 Submittals

- A. Furnish one full carton of each color and type of tile used for possible future use of the Owner.

PART 2. PRODUCTS

2.01 Ceramic Tile

- A. General - Standard Grade, with grade certificate furnished to the Architect per SPR-R61. Tile shall be manufactured in the U.S.A. with floor and wall tile purchased from the same manufacturer. Tile shall be the products of American-Olean Tile Co., Romany Spartan Tile Co., Mosaic Tile Co., or equal as approved by the Architect.
- B. Glazed wall color will be selected by the Architect from standard matte colors. No more than two (2) colors per room or a total of six (6) colors for the job. Tile shall be 4 1/4 x 4 1/4 x 5/16 in. Furnish matching base units as required.
- C. Unglazed ceramic mosaic floor tile colors will be selected from groups 2 - 2A. Sizes shall be modular 1 x 1, 2 x 1 and 2 x 2 x 1/4 inches. Furnish matching base units where there is no wall tile indicated, scheduled or required.

2.02 Other Materials

- A. Water - Potable as supplied for permanent use.
- B. Portland Cement - White for walls, gray for floors, conforming to ASTM C-150 Type I or II.
- C. Lime - Hydrated, conforming to ASTM C-207, Type N.
- D. Aggregate - Clean, hard, uniformly graded and conforming to ASTM C-144.
 - (1) Sand for pointing - 100% passing a 100 mesh sieve.
 - (2) Coarse - 100% passing a 1 in. sieve, 95-100% retained on #4 sieve.
 - (3) Fine - 100% passing a #30 sieve.
- E. Dry Set Mortar for setting and grouting - Presanded mix conforming to ANSI A118.1-1967.
- F. Epoxy for setting and grouting - AARII Epoxy conforming to ANSI A-118.3-1967.

PART 3. EXECUTION

3.01 Ceramic Wall Tile

- A. Set glazed wall tile on gypsum board walls according to Section W243-98, Dry Set on Wood Studs. {W242-90 Organic Adhesive} of the TCA Handbook.

3.02 Ceramic Floor Tile

- A. Set ceramic mosaic floor tile according to Section F113-98, Dry Set of the TCA Handbook.

3.04 Expansion Joints

- A. Provide expansion joints in floors according to EJ711-98 of the TCA Handbook.

3.05 Protection, Cleaning and Drilling

- A. Cutting and drilling of tile necessary to receive work of other trades that occur within the tiled areas is considered as the Tile Contractor's responsibility.
- B. Tile, joints and accessories must be properly cleaned and left in acceptable condition.

---END OF SECTION---

SECTION 09500

ACOUSTICAL CEILINGS

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Gypsum board ceilings - Section 09250, and Gypsum Wall Board.

1.02 Submittals

- A. Furnish, to the Owner, one (1) extra carton of each type of unit specified for future use. Units shall be in sealed polyethylene bags.

PART 2. PRODUCTS

2.01 Materials

- A. 24 x 24 in. acoustical units - 5/8 in. thick white painted mineral fiber units. Tile shall be non-directional fissured as manufactured by Armstrong, Conwed, Gold Bond or Celotex.
- B. Exposed grid mounting system - Steel Tee sections with white enameled finish on 15/16 in wide exposed faces.
- (1) Main tees - Heavy duty minimum 1 1/2 in deep section.
- (2) Cross Tees - Minimum 1 in. deep.
- (3) System shall be as manufactured by Cupples Products Corp., Donn Products Corp., Armstrong or approved equal. Supporting wires shall be of size and spacing recommended by the ceiling tile manufacturer.

PART 3. EXECUTION

3.01 Installation

A. Ceilings

- (1) Install suspension systems specified with competent workmen approved by the tile manufacturer. Layout shall conform to detailed or approved reflected ceiling plan.
- (2) Install tile in accordance with manufacturer's recommendations.
- (3) Installer shall coordinate his work with electrician and mechanical systems installers. Provide full support for recessed and or hanging light fixtures to main runners of suspension system.

3.02 Cleaning

- A. On completion, clean all materials and accessories. Leave ceilings free of finger marks, dirt and in perfect condition.
- B. Replace abraded or damaged materials as necessary.

---END OF SECTION---

SECTION 09650

RESILIENT FLOORING

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Plastic laminate - Section 06200, Finish Carpentry.

1.02 Submittals

- A. Submit samples indicating color, gage and maker's names of all materials of this Section to the Architect for approval and selection before start of work. Make submittals in accordance with Article 3.12 of the General Conditions and Supplements thereto.

PART 2. PRODUCTS

2.01 Materials

- A. Vinyl Composition Floor Tile - 1/8 in. thick, 12 x 12 in. as selected by the Architect. Furnish tile as manufactured by Azrock, Armstrong, G-A-F or equal conforming to FS Specification 00345.d.
- B. Sheet Vinyl - Vinyl Corlon by Armstrong, Contrac-Flor by G-A-F Sundance by Amtico or Flor-ever by Congoleum.
- C. Reducer strips from carpeted areas to resilient tile - Vinyl or rubber tapered from 1/4 in. high to 1/8 in. high by R.C. Musson, B.F. Goodrich or approved equal. Colors shall be as later selected by the Architect.
- D. Top set resilient cove and carpet base - 1/8 in. thick, 4 in. high vinyl in colors later selected by the Architect. Furnish premoulded inside and outside corners.
NOTE: This item is specified as an option to wood base shown on the Drawings.
- E. Vinyl edging for transition to concrete floors - 1/8 in thick by Mercer, Roppe or Johnson.
- F. Adhesives - Waterproof type approved by the manufacturer for installation of flooring, base and reducer strips on the surfaces specified or scheduled.

PART 3. EXECUTION

3.01 Installation

- A. Lay flooring on concrete subfloors. Start of work implies acceptance of subfloors.

3.01 ((cont.))

- B. Fill cracks, hollows and joints in floors with an approved crack filler.
- C. Lay tiles and flooring so as to be true, level and even, with tight joints and in accordance with the manufacturer's instructions. Fit tightly to all permanent fixtures.
- D. Install cove and carpet base with approved adhesive. Secure same to both walls and floor. Fit carefully to premoulded corners and end stops.
- E. Install reducer strips as recommended by the manufacturer where tile will abut concrete floors or carpeting.

3.02 Cleaning and Waxing

- A. Clean off surplus adhesive from all surfaces with approved cleaning materials.
- B. Immediately before final acceptance of the Project, carefully wash the tile type flooring and apply two (2) thin coats of an approved wax. Use power applicators and polishers. Lay heavy paper to protect floors as soon as they are finished.

---END OF SECTION---

SECTION 09680

CARPETING

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Resilient flooring and transition edges - Section 09650.

1.02 Submittals

- A. Submit samples indicating color, gage and maker's names of all materials to the Architect for approval and selection before start of work. Make submittals in accordance with Article 3.12 of the General Conditions and Supplements thereto.

PART 2. PRODUCTS

2.01 Materials

- A. Carpeting - Manufactured from 100% Zeftron Nylon fiber by Monsanto or by Allied Chemical Co. Carpet shall be as manufactured by Bigalow-Sanford, Lees, Mohawk, Gulistan or Armstrong. Carpet shall be moth-proofed and conform to the following minimum standards:

- (1) Construction.....Plush
- (2) Pile Yarn.....3 ply 100% Zeftron Nylon,
with static control yarns.
- (3) Gauge.....5/32 in.
- (4) Pile Height.....0.435 in. (Min.)
- (5) Pile Yarn Weight.....40 oz.
- (6) Primary Backing.....Polypropylene Olefin.
- (7) Secondary Backing.....Jute.
- (8) Total Weight.....80 oz. per sq. yd. (Min.)
- (9) Flame Spread.....NFPA Life Safety Code Class C.

- B. Pad - Omalon "SPEC 4" high density prime urethane foam as manufactured by the Olin Corporation. Material shall be 5.0 pcf density and be 0.375 in. thick.

- C. Carpet stripping - Equal to "Smooth Edge" by Roberts Co.

PART 3. EXECUTION

3.01 Installation

- A. Lining - Cement pad to floor with padding cement at seams at approximately three (3) foot intervals throughout the field of padding or as recommended by the padding manufacturer. Stagger pad joints at least six (6) inches from joints in carpeting.

- B. Carpet stripping - Attach carpet indirectly to the floor securing at six (6) inch centers.

3.01 (cont.)

- C. Seams and edge strips - Seams shall be either back-sewn by hand and then latexed, or neatly taped with quick-strip seaming tape or approved equal.
- D. Field Measurements - It will be the responsibility of the flooring sub-contractor to check room and area sizes and to compute the quantities. Dimensions shown shall be verified by field measurements.
- E. Lay-out requirements - Bidders shall be prepared to describe their lay-out, showing the seams.

---END OF SECTION---

SECTION 09900

PAINTING

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Prime coat for structural steel and other factory finished items is specified in their respective Sections.
- B. Prime coat for exterior wood trim - Section 06200, Finish Carpentry.
- C. Prime coat for interior wood trim - Section 06200, Finish Carpentry.

1.02 Manufacturers

- A. Materials specified are Pratt & Lambert. Equal products by the manufacturers listed below that will result in the same type finish intended may be used.

Sherwin Williams.
California Products Corporation.
Benjamin Moore Company.
ICI Paint Stores

- B. NOTE: Paint used throughout the project shall be by one manufacturer except for specialty coatings.

1.03 Colors and Samples

- A. Paint colors in general will be selected by the Architect. Painting sub-contractor shall base his bid on a single color for gypsum board walls throughout the building. Before any work is done the Architect will furnish the Contractor with a set of color cards and a schedule showing where the various colors shall go. The Contractor shall then prepare samples at the job as required until the colors and textures are satisfactory to the Architect.
- B. Before proceeding with painting, Contractor shall, if required, finish one complete room, space or item of each color scheme required, showing selected colors, finished texture, materials, and workmanship. After approval, these sample rooms or items shall serve as a standard for similar work throughout the building.

PART 2. PRODUCTS

2.01 Materials

- A. Paint, varnish, stains and fillers - Of types and brands hereinafter specified under "Schedule of Painting". Linseed oil, shellac, turpentine, and other painting materials required shall be of highest quality, and have identifying labels on containers.

2.01 (cont.)

- B. Deliver paint to site in manufacturers sealed and labeled containers. Labels shall give manufacturer's name, type of paint, color of paint and instructions for reducing. Do thinning only in accordance with manufacturer's instructions. Job tinting may be done when approved by the Architect.
- C. Base bids on the use of brands and quality as hereinafter specified, or equal quality by manufacturer specified in 1.02 of this Specification.
- D. Use materials only as specified by manufacturer's direction label on each container.
- E. Oil - Pure raw linseed oil of boiled linseed oil if specifically required.
- F. Paint Thinner - Pure spirits of turpentine, or thinner recommended by the paint manufacturer.
- G. Shellac - 4 lbs. and shall meet U.S. Government Specifications as issued by the Bureau of Commerce.
- H. Exterior Wood Primer - Use at mill for prime and back coat.
(P&L) Permalize Exterior Primer
- I. Exterior Wood Finish
(P&L) Permalize House Paint
- J. Primer
(P&L) Vapex Flat Wall Primer or Finish
- K. Undercoater
(P&L) Vapex Wall Primer
- L. Semi-Gloss Finish
(P&L) Cellu-tone Satin
- M. Eggshell Finish
(P&L) Lyt-all Stippling Eggshell, Stippled
- N. Enamel
(P&L) Vitralite Enamel Gloss
- O. Stain
Minwax
Cabot's
Olympic

- P. Traffic and Parking Striping - Standard, fast drying highway type, white traffic striping paint.

PART 3. EXECUTION

3.01 Surfaces to be Painted

- A. See Drawings and Schedules for type and location of various surfaces requiring paint. Include all field painting necessary to complete work shown and specified. Paint baseboard heating enclosures and convectors to match adjacent walls.
- B. Paint or finish any material introduced on the job which requires painting or finishing as part of this Contract. This includes piping, either plumbing, heating, sprinkler, electric or other, where such occurs in painted portions of the building. Paint ductwork in such areas but do NOT paint canvas connections.
- C. Paint prime coated butts and door closers to match door trim to which they are attached.
- D. Metal and hollow metal doors and adjacent trim will generally be painted the same color but a different color than adjacent walls. Paint top and bottom ends of doors.

3.02 Preparation of Surfaces - General

- A. Wood - Sandpaper to smooth and even surface and then dust off. After priming or stain coat has been applied, fill nail and other holes and cracks with plastic wood or putty. Wood plugs should cover exposed screw heads. (Done in Section 06200, Finish Carpentry.) For natural finish, color putty to match the wood. Sandpaper between coats if surfaces are not smooth.
- B. General - Before painting, remove hardware, accessories, plates, lighting fixtures and similar items or provide ample protection of such items. Upon completion of each space, replace above items. When necessary, disconnect radiators to permit painting of wall behind them; replace and reconnect upon completion of painting. Remove doors if necessary to paint bottom edges. Use only skilled mechanics for removing and connecting above items. Where painted signs or numerals are applied on glass doors, thoroughly clean glass with soap and water prior to painting.
- C. Cleaning - The cleaning up prior to painting is required to be done with vacuum cleaners. Do not apply paint or varnish when potentially dusty conditions prevail.

3.03 Schedule of Painting

A. Exterior

Surfaces to be Treated	Preparation & Pretreatment	1st Coat	2nd Coat	3rd Coat
---------------------------	-------------------------------	-------------	-------------	-------------

32nd. Deg. Scottish Rite
Learning Center

(1) Wood for Paint	Solvent clean, Scrape, Seal, Sandpaper	House Paint Primer	House Paint	House Paint
(2) Wood for stain	Clean, stain all sides	-----	-----	-----
B. Interior				
(1) Ferrous Metals	Sandpaper, Solvent clean, Touch-up	Interior Metal Undercoat	Enamel Semi-gloss	Enamel Semi-gloss
(2) Galvanized Metals	Wash with white vinegar or copper sulfated	Interior Metal primer	Enamel Semi-gloss	Enamel Semi-gloss Eggshell
(3) Gypsumboard	Dryclean	Undercoat	Enamel Eggshell Semi-gloss	Enamel Eggshell Stippled Semi-gloss
(4) Wood for paint finish	Dryclean, Fill, Sandpaper	Enamel Undercoat	Enamel Eggshell	Enamel Eggshell Stippled
(5) Bituminous Concrete	Sweep clean	Highway Paint		

3.04 Application

- A. Employ skilled mechanics to do painting in a workmanlike manner. Spread materials evenly, flow on smoothly, free from brush marks, hairs, runs or sags. Rub down between coats. Ceilings, walls and other large areas may be spray painted. Protect adjacent areas subject to spotting from spraying operations.
- B. Do not apply paint or enamel until the preceeding coat is thoroughly dry and hard. In general, and unless otherwise specified, allow exterior oil paints to dry at least 72 hours between coats and interior coats to dry at least 48 hours between coats. Each undercoat shall differ in shade from the preceeding coat and shall be applied through one section of the building before the next coat is begun. Obtain tentative acceptance from the Architect before proceeding with successive coats.
- C. No interior painting will be permitted until the building has thoroughly dried.
- D. Do no exterior painting in rainy or damp weather until the surface is thoroughly dry, or when the temperature is below 50 Deg. F., or above 90 Deg. F.

3.04 (cont.)

- E. Where lead and oil priming is specified, mix and apply as specified. Elsewhere, the prime coat shall be that recommended by the manufacturer of the paint for succeeding coats or as herein specified.
- F. Priming, sealing and finish coats shall be by one manufacturer.
- G. Do not thin transparent finish in any manner or apply in a temperature below 70 Deg. F., nor in any place not properly closed and protected from drafts and from dust. Flow on evenly without runs, sags or brush marks.
- H. Apply all materials in accordance with the manufacturer's instructions.
- I. Adequately protect work adjacent to surfaces to be painted with drop cloths or other approved means.
- J. Rectify any damage caused by paint or painting operations by this sub-contractor and perform necessary touch-up.
- K. Generally, the workmanship and the method of carrying out the work shall be in accordance with the "Paint Manual B.M.S.. 105" issued by the National Bureau of Standards.
- L. Number of coats herein specified is the minimum required. If in the opinion of the Architect, surfaces do not conform to the approved samples, apply additional coats.

3.05 Piping Identification

- A. See Mechanical Sections of this Specification.

3.06 Names and Numbers - (Under Section 01020, Allowances)

---END OF SECTION---

SECTION 10150

TOILET COMPARTMENTS

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Toilet accessories for toilets without partitions - Section 10800, Toilet and Janitor Room Accessories.

1.02 Submittals

- A. Submit Shop Drawings and/or satisfactory cuts and details for items of this Section as specified in Article 3.12 of the General Conditions and Supplements thereto.

PART 2. PRODUCTS

2.01 Toilet Partitions

- A. Flush metal, floor supported, and overhead braced, Academy Type as manufactured by the Sanymetal Co., Type FP-500 by Metpar, Hi-Stile by Weis, or Overbrook by Cutler for locations shown on the Drawings. Screens, doors and partitions shall be for setting 12 inches above the floor and be 57 or 58 inches high. Floor plate is to be supplied by the partition manufacturer and installed by the General Contractor prior to applying the floor covering scheduled. Exposed hardware and fittings shall be chrome plated brass or bronze, or stainless steel. Furnish with concealed type latch. Equip each stall with one (1) roll type toilet paper holder and one (1) coat hook with both fastened in place. Panel finish shall be a factory applied acrylic semi-gloss enamel, baked on galvanized, bonderized steel. Furnish certification that steel is "Bonderized". Partition panels adjacent to urinals shall be hot-dip galvanized before painting. Colors to be standard and solid with a maximum of two (2) colors in combination.

PART 3. EXECUTION

3.01 Installation

- A. Erect partitions and compartments plumb and square and left rigid and secure in all parts.

---END OF SECTION---

SECTION 10100

CHALKBOARD AND TACKBOARD

PART 1. GENERAL

1.01 Submittals

- A. Submit samples of chalkboard and tackboard including backing material in accordance with Article 3.12 of the General Conditions and Supplements thereto.

PART 2. PRODUCTS

2.01 Chalkboard

- A. Porcelain on 28 gauge steel with tempered hardboard core and aluminum foil back by Alliance Wall, Ceramite by Aywon, or Durasteel by Claridge. Hardboard core shall be minimum 3/8 in. thick. Face color shall be standard as later selected.
- B. Trim - Extruded anodized aluminum clip-on type with box type chalk tray with enclosed ends by the chalkboard manufacturer. Furnish required mounting clips, bolts and appurtances for complete installation of both chalkboard and tackboard.

2.02 Tackboard

- A. 1/4 inch thick, fine grained natural cork on 1/4 inch tempered hardboard backing by Alliance Wall, Aywon, Claridge, or approved equal. Furnish trim as specified in 2.01 B. above but with no chalk tray.

PART 3. EXECUTION

3.01 Installation

- A. Install chalkboards and tackboards in locations shown on Drawings in accordance with manufacturer's directions.

---END OF SECTION---

SECTION 10200

LOUVERS AND VENTS

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Air Conditioning ducts and vents.- Section 15772, and Section 15841 in Division 15000, Mechanical.

PART 2. PRODUCTS

- 2.01 Gable End Vents - Triangular white enameled aluminum vents of size shown on the Drawings.
- 2.02 Eave Vents - 2" wide stock white enameled aluminum continuous eave vents.
- 2.03 Ridge Vents - Stock shingle vents.

PART 3. EXECUTION

3.01 Installation

- A. Contractor shall provide framing and backing for vents specified. Flash and counterflash to make watertight installations. Install vents as shown on the Drawings.

---END OF SECTION---

SECTION 10350

FLAGPOLE

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Concrete for base - Section 03300, Cast In Place Concrete.

1.02 Submittals

- A. Submit detailed Shop Drawings and installation details to the Architect for approval in accordance with Article 3.12 of the General Conditions and Supplements thereto.

PART 2. PRODUCTS

2.01 Materials

- A. Furnish 40 foot above ground cone tapered fiberglass flagpole for ground setting as manufactured by Acme/Lingo & Sons, Inc.; or Concord Industries. Pole shall be complete with all standard fittings for two flags. Finish shall be standard white. Provide aluminum, non-fouling ball-bearing truck, satin gold anodized finish aluminum waxed ball, two 1/2 inch. halyards with bronze snaps and two bronze cleats. Provide sonotube foundation tube of size as recommended by the pole manufacturer; welded steel bottom plate, internal centering wedges, ground spike and plate support, all hot-dip galvanized.

PART 3. EXECUTION

3.01 Installation

- A. Excavate hole, set base (Concrete by General Contractor) and set pole plumb and according to approved Shop and Detail Drawings.

---END OF SECTION---

SECTION 10520

FIRE EXTINGUISHERS

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

A. Sprinkler system - Section 15300.

1.02 Submittals

A. Submit Shop Drawings and/or satisfactory catalog cuts and details for all items of this Section in accordance with Article 3.12 of the General Conditions and Supplements thereto.

PART 2. PRODUCTS

A. Furnish and install 5 lb. U.L. Class A,B, and C type fire extinguishers complete with semi-recessed cabinets in locations indicated on the Drawings.

(1) Extinguishers - A 500T by Amerex, Lawson 24096R by Badger or 415205 by Ansul.

(2) Cabinets -1017f10 by J L Industries or equal approved by the Architect. Cabinets shall have 2 1/2 " rolled trim.

B. Furnish and install in Mechanical Room:

1 - 5# Carbon Dioxide fire extinguisher with wall hanging bracket by Amerex, Badger or Ansul. Locate where shown on the Drawings.

PART 3. EXECUTION

3.01 Installation

A. Unless specified otherwise for the particular item, installation shall be by manufacturer's approved representatives or by the General Contractor, if so recommended by the manufacturer. Installation in all cases is to be as directed by the manufacturer.

---END OF SECTION---

SECTION 10800

TOILET ACCESSORIES

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Plumbing fixtures and connections to sinks in counter tops - Section 15400, Plumbing
- B. Submit Shop Drawings and/or satisfactory catalog cuts and details for all items of this Section in accordance with Article 3.12 of the General Conditions and Supplements thereto.

PART 2. PRODUCTS

2.01 Items Required

- A. Furnish and install the following for each lavatory in all toilet rooms:
 - 1- 15 in. x 24 in. (or approximate stock size) mirror with integral stainless steel shelf. Mirror shall be 1/4 in. polished mirror quality plate glass, copper backed, with all metal, concealed, tamperproof mounting as manufactured by Parker, Hall-Mack or Miami-Cary. Mount at height shown on the Drawings.
 - 1 - Lather soap dispenser equal to type B-47HS by Bobrick, Type H9300 by American Dispenser Co., or No. 30 by Parker.
 - 1 - Double fold paper towel dispenser with satin chrome or stainless steel finish as manufactured by Bobrick, Crown- Zellerback or Fort Howard paper Co.
- B. Furnish and install for each water closet in Women's Toilet Room and in Handicapped Toilet Room.
 - 1 - Recessed feminine napkin disposal equal to No. B-353 or B-354, as applicable, or equal by Hall Mack or by Miami-Cary for mounting to serve either one or two toilet compartments as necessary.
 - 1 - 18 in. x 60 in. mirror of same quality as specified in 2.01 B. of this Section.
- C. Furnish and install for waterclosets for handicapped use:
 - 1 1/4 in. dia. stainless steel "L" shaped, double braced grab bars attached to floor and wall. Bars shall be knurled for hand-holds and have concealed mountings. Bars shall be as manufactured by Hall Mack, Parker, or Bobrick. Bars must be minimum 3 ft. 6 in. long and project a minimum of 2 in. beyond front of water closet.

PART 3. EXECUTION

3.01 Installation

- A. Unless specified otherwise for the particular item, installation shall be by manufacturer's approved representatives or by the General Contractor, if so recommended by the manufacturer. Installation in all cases is to be as directed by the manufacturer.

---END OF SECTION---

SECTION 12670

ENTRANCE MATS AND FRAMES

PART 1. GENERAL

1.01 Related Work Specified Elsewhere

- A. Thresholds for aluminum entrances - Section 08400, Entrances and Store Fronts.
- B. Thresholds for other doors - Section 08710.

1.02 Submittals

- A. Submit complete and detailed Shop Drawings in accordance with Article 3.12 of the General Conditions and Supplements thereto.

PART 2. PRODUCTS

2.01 Frames

- A. One-half inch deep extruded aluminum equal to Style No. 1005 by Afco, No. RF-14 by Musson, No. RF-1 by Durable Mat Co., or Style 1005 by Pawling Rubber Co.

2.02 Mats

- A. Resilient, flame retardent virgin vinyl link type equal to Super-Kleen by American Floor Products, SAF-D-Cor 109 by Durable Mat Co, No. OW-118 by R.C. Musson, or Style A by Pawling Rubber Co.

PART 3. EXECUTION

3.01 Frames

- A. Supply frames specified early in Project process to allow installation in concrete slabs.
- B. Install in accordance with manufacturer's requirements and approved Shop Drawings.

3.02 Mats

- A. Clean space in previously set frames and install mats as required.

---END OF SECTION---

SECTION 15100

MECHANICAL GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

General Provisions of Contract, including General and Supplementary conditions and General Requirements (if any) apply to work specified in this Section.

1.2 DESCRIPTION OF WORK

A. Work Included

1. Furnish all labor, materials, equipment, transportation and perform all operations required to install complete plumbing, heating, ventilating and air conditioning systems in the building, in accordance with these specifications and applicable drawings.
2. Work to be performed includes, but is not limited to the following:
 - a. Provide and install plumbing system, heating, and air conditioning system in building areas indicated on drawings.
 - b. Pipe, valve and fittings
 - c. HVAC units, accessories, and roo
 - d. Duct and pipe insulation
 - e. Fans and louvers
 - f. Sheetmetal
 - g. Temperature control, testing and balancing
 - h. Plumbing systems and equipment including natural gas piping.
3. Specifications and accompanying drawings do not indicate every detail of pipe, valves, fittings, hangers, duct work and equipment necessary for complete installation; but are provided to show general arrangement and extent of work to be performed.

4. Before submitting proposal, Contractor shall be familiar with all conditions. Failure to do so does not relieve Contractor of responsibility regarding satisfactory installation of the system.

B. Related Work Described Elsewhere

1. Excavation and back fill
2. Cutting and patching
3. Electrical conduit and wiring, except as noted below
4. Roofing, curb openings and framing of openings
5. Setting of sleeves in masonry work (sleeves provided by HVAC Heating and Plumbing Contractors)
6. All finish painting

C. Mechanical Electrical Work

1. Provide and erect all motors, temperature controls, limit switches as specified. All other switches, fused switches, outlets, motor starters required and all necessary wiring and fuses to properly connect and operate all electrical equipment specified shall be furnished and installed under Electrical Section 16000.
2. All electric wiring for temperature control system shall be furnished and installed by Temperature Control Contractor and installed in accordance with Electrical Section 16000.

3. Fans

Fans shall be wired and provided with disconnect switches with overload protector, or disconnect switches with magnetic starters by Electrical Contractor and shall operate as described in Automatic Temperature Control.

4. Temperature Control Panel

Electrical Contractor shall run 120 volt circuit to temperature control panel and provide duplex receptacle on or adjacent to panel.

5. Humidifier and Electorstatic Filter

Electrical Contractor shall wire units and provide switch as recommended by unit Manufacturer.

6. HVAC Units

Electrical Contractor shall wire each unit through fused disconnect switches as recommended by unit manufacturer.

7. Gas Burner

Electrical Contractor shall furnish circuit breakers for wiring to gas burner control panel. Wiring between circuit breaker and burner shall be by Division 15.

8. Plumbing Electrical Work

Electrical Contractor shall furnish circuit breakers for wiring to gas burner control panel. Wiring between circuit breaker and burner shall be by Division 15.

9. Sprinkler

Provide 120 VAC power to sprinkler entrance switches.

10. All motors 1/3 HP and smaller, except for HVAC systems, shall be wired for 120 volt, 1 phase, 60 hz; motors 1/2 hp and larger shall be wired for 208/230 volt, 1 phase, 60 hz.

1.3 PERMITS

Contractor shall apply for, obtain, and pay for all permits and inspections required by law and notify proper authorities in ample time for such inspections to be made. See also Section 15400, "Plumbing".

1.4 QUALITY ASSURANCE

A. Qualification of Personnel

Use sufficient qualified personnel, competent supervisors in execution of this portion of the work to ensure proper and adequate installation of system throughout.

Provide at least one person who shall be thoroughly trained and experienced in skills required and shall be completely familiar with design and application of work described for Mechanical Sections. One who shall be present at all times during progress of Plumbing and HVAC Work of these Sections and shall direct all work performed under these Sections.

- B. Work performed shall conform with all Local and State Rules and Regulations as well as those of the National Fire Protection Association.

1.5 MATERIALS

All materials and equipment shall be new and of the latest design of respective manufacturers. All materials and equipment of the same classification shall be same manufacturer, unless specified otherwise.

- A. Any proposal for substitution of Plumbing and HVAC equipment shall be made in writing. Submit full details for consideration and obtain written approval of the Architect. Architect's decision on acceptability of substitute materials shall be final.
- B. Approval by Architect for such substitution shall not relieve Contractor from responsibility for a satisfactory installation and shall not affect guarantee covering all parts of work.
- C. Any material or equipment submitted for approval which are arranged differently or of different physical size from that shown or specified shall be accompanied by shop drawings indicating different arrangements of size and method of making the various connections to equipment. Final results will be compatible with system as designed.
- D. Any additional cost resulting from the substitution of equipment shall be paid by this Contractor.

1.6 SHOP DRAWINGS

- A. As soon as possible after award of Contract, before any material or equipment is purchased, Contractor shall submit to the Architect eight (8) copies of shop drawings for approval. Shop drawings shall be properly identified and described in detail the material, equipment or fixtures.

- B. All related items shall be submitted as a package. Partial submission shall not be reviewed until the package is complete, as itemized in paragraph "E" below.
- C. HVAC shop drawings shall be separate from Plumbing shop drawings. All submittal shall have a clear area on the front no less than 4" x 3" to be reserved exclusively for the Engineers' shop drawing stamp.
- D. Contractor shall prepare and attach to shop drawing submittal a Certificate of Compliance on Contractor's letterhead using the form included after Paragraph 1.6. If submittal drawings are bound as a brochure, then one (1) Certificate of Compliance may cover all items in the brochure; however, all variations must be listed with appropriate reference to items in the brochure.
- E. Review must be obtained on the following items:

- 1. HVAC Equipment

- Registers, diffusers, and grilles
- Duct access doors
- Volume control dampers (manual and automatic)
- Duct sealant
- Turning vanes
- Spin-in fittings
- Flexible duct
- Backdraft dampers
- Louvers; provide color selector chart
- Gas vent pipe and accessories
- Heating, ventilating and air conditioning units and accessories
- Fans and accessories
- Equipment, identification tags; material, colors and letter size.
- Pipe, valves, unions and flanges for water, gas, drain, condensate and refrigerant systems
- Pipe hangers
- Exterior wall sleeves and accessories
- Wall hydrostatic pipe closure devices
- Pipe and valve markers
- Pipe including refrigerant piping and accessories
- Duct
- Temperature Controls
- Electrostatic filter
- Humidifier

2. Plumbing Equipment

Valves

Pipe hangers

Shock absorbers

Pipe markers

Drainage specialties

Traps

Floor drains

Cleanouts

Carriers

Wall hydrants

Hose Bibbs

Identification (charts and tags)

Insulation

Plumbing fixtures and accessories

Fixtures

Stop valves

Supply pipe

Seats

Drains and traps

Faucets

Trap Primers

Backflow Preventer

(Firm's Letterhead or
Name, Address and
Telephone No.)

CERTIFICATE OF COMPLIANCE

FOR SUBMITTAL

Project Name: _____
Project Location: _____
Project Number: _____
General Contractor: _____
Sub Contractor: _____
Submission Supplied By: _____
(Name, Address, Contact
Person, Telephone No.) _____

Specification Section: _____

Reference Paragraph/
Subparagraph: _____

It is certified that (material), (equipment) shown and marked in this submittal, shop drawing, catalog cut and proposed to be incorporated in Contract, is in compliance with contract drawings and specifications, can be installed in allocated space and is (_____ approved for use) (_____ submitted for review).

Authorized Reviewer: _____

Date: _____

Signature of Contractor: _____

Date: _____

____ This submission contains variations from contract documents. Each variation is described in itemized detail on attached sheet.

____ This submission does not contain any variations from the Contract documents.

1.7 PRODUCT HANDLING

A. Protection

Use all means necessary to protect heating and ventilating materials before, during and after installation, and to protect the installed work and materials of all other trades.

B. Replacements

In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect at no additional cost to the Owner.

1.8 AS-BUILT DRAWINGS

Keep in good condition at the job, apart from all other prints used in actual construction, one complete set of all blueprints furnished for this job. On this special set of blueprints, record completely and accurately all differences between the work as actually installed and the design as shown on the drawings. These record prints must be kept up to date by recording all changes within one week of the time that the changes are authorized. At the completion of the work, this set of drawings shall be delivered to the Architect for the Owner. If a complete record of changes is not made by the Contractor, a record shall be made by the Engineers, and the cost of the record shall be paid for by this Contractor. All yard piping shall be located accurately on these drawings; including sewer, domestic water entrance, storm and waste.

1.9 MAINTENANCE MANUAL

- A. Upon completion of this portion of the work, and as a condition of its acceptance, submit for approval two copies of a manual describing the system. Prepare manuals in durable plastic binders approximately 8 1/2" by 11" inches in size with at least the following:
1. Identification on, or readable through, the front cover stating general nature of the manual.
 2. Neatly typewritten index near the front of the manual, furnishing immediate information as to location in the manual of all emergency data regarding the installation.
 3. Complete instructions regarding operation and maintenance of all equipment involved.

4. Complete nomenclature of all replaceable parts, their part numbers, current cost, and name and address of nearest vendor of parts.
 5. Copy of all guarantees and warranties issued.
 6. Where contents of manuals including manufacturer's catalog pages, clearly indicate the precise item included in this installation and delete, or otherwise clearly indicate, all manufacturers' data with which this installation is not concerned.
- B. In addition to above, provide two (2) binders, properly identified, each containing a copy of all approved shop drawings and catalog cuts.

1.10 OBJECTIONABLE NOISE AND VIBRATION

Mechanical equipment shall operate without objectionable noise and vibration. Should objectionable noise or vibration be transmitted to any occupied part of the building by apparatus, piping or ducts, as determined by the Architect, the necessary changes eliminating the noise or vibration shall be made by this Contractor at no extra cost to the Owner.

1.11 INSURANCE

Contractor shall purchase and maintain all Workmen's Compensation Insurance, Public Liability and Property Damage Insurance during the progress of the work and until completion and acceptance of the entire project by the Owner in the amounts as specified in the Supplementary General Conditions.

1.12 GUARANTEE

Contractor shall guarantee all materials and workmanship furnished, including sub-contractors, to be free from all defects for a period of one (1) year from date of final acceptance of completed system and shall make good, repair or replace any defective work which may develop within that time at Contractor's own expense and without expense to Owner.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Inspection

1. Prior to all work of this Section, carefully inspect installed work of all other trades and verify that all work is complete to the point where this installation may properly commence.
2. Verify that H&V systems may be installed in strict accordance with all pertinent codes and regulations and the approved shop drawings.

B. Discrepancies

1. In the event of discrepancy, notify Architect immediately.
2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.2 CLOSING IN UNINSPECTED WORK

A. General

Do not cover up or enclose work until it has been inspected and approved.

B. Noncompliance

Should any work be covered up or enclosed prior to all required inspections and approvals, uncover the work as required. After it has been inspected and approved, make all repairs and replacements with materials necessary for approval by the Architect and at no additional cost to the Owner.

3.3 TEST AND ADJUST

- A. During the installation, all piping shall be tested with water to a pressure of 125 psi and held for a period of 4 hours. Any leaks shall be repaired and another test applied to the piping. All piping shall be tested before it is insulated or otherwise concealed.
- B. Before operating the system, all of the new piping shall be flushed out to remove oil and foreign materials.

- C. After the installation is complete and ready for operation, the system shall be tested under normal operating conditions in the presence of the Architect and demonstrated that the system functions as designed.
- D. It shall be demonstrated that all parts of heating system have a free and noiseless circulation of hot water and that all parts are tight. It shall also be demonstrated that all units are functioning properly and that control system operates correctly.
- E. Should any defects in operation develop during the test periods, the Contractor will proceed to correct defects immediately. Additional tests will be conducted after correction.

3.6 CLEANING

Prior to acceptance of building, clean all exposed casings of HVAC installation, removing all labels and all traces of foreign substance. Vacuum and clean inside of new and existing cabinet unit heaters.

3.7 INSTRUCTIONS

On completion of the job, the Contractor shall provide a competent technician to thoroughly instruct the Owner's Representative in the care and operation of the system. The total period of instruction shall not exceed four (4) hours.

(Temperature control system instruction shall be in addition to this instruction period). The time of instruction shall be arranged with the Owner.

3.8 EQUIPMENT IDENTIFICATION

- A. Each fan, circulating pump, HVAC unit (indoor and outdoor) and switch shall be identified with plastic identification tags. Tags to be engraved plastic equal to Setonply by Seton Name Plate Corp.
- B. Identify hot and cold water piping for both plumbing and HVAC systems with Seton mark pipe markers by Seton Name Plate Corporation. Marker shall snap completely around pipe and be visible from all directions. Marker shall include both identification and direction of flow. Use yellow background with black letters for hot water supply and return, green with white letters for cold water supply and return. Use red letters with white background for gas piping.

- C. Tag all valves (if not tagged by valve manufacturer) with 1-1/2" round brass tags and #6 bead chains. Tag shall be consecutively numbered. Provide valve charts identifying valve number, valve identification and service. Mount charts in 8 1/2" x 10" / 8 1/2" x 11" self-closing aluminum frame with plastic windows and locate as directed by Architect.
- D. Identify ducts and fire dampers with Ventmark HVAC markers.

END OF SECTION 15100

SECTION 15250

MECHANICAL INSULATION AND CONDENSATE PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and supplementary conditions and Division-1 Specification Sections apply to work of this section.

1.2 DESCRIPTION OF WORK

A. General

Insulate piping and ducts and elsewhere as specified in this Section or indicated on the drawings.

1.3 QUALITY OF COMPLIANCE

A. Fire and Smoke Ratings: For all insulation systems.

Provide composite mechanical insulation (insulation, jackets, coverings, sealers, mastics and adhesives) with flame spread index of 25 or less, smoke developed index of 50 or less, as tested by ASTM E 84 (NFPA 255) method.

Exception: Insulation installed on services located outdoors may have flame spread index of 75 and smoke developed index of 150.

B. Submittals

Submit manufacturer's technical product data, installation data, maintenance data, and certifications for each type of required insulation.

PART 2 - PRODUCTS

2.1 INTERIOR HOT AND COLD WATER PIPING INSULATION

A. Fiberglass Pipe Insulation

Preformed heavy density glass fiber insulation snap on type with single seam, vapor barrier and all service jacket (ASJ) with self-sealing lap. Insulation shall be rated for -20°F to 500°F minimum with a thermal conductivity value not more than 0.24 BTU-IN per hour per square foot, degree F at 75F mean temperature as rated by ASTM (335).

B. Fiberglass Pipe Fitting Insulation

1. All fittings shall be Zeston pre-molded Hi-Lo temperature PVC insulation fittings with two layers of pre-cut inserts. Covers shall be same color as jacketing material and by same manufacturer.
2. Ends of insulation on exposed pipes at valves, unions, flanges and equipment shall be finished with Zeston pre-molded covers. Fitting covers shall be sealed to adjacent insulation.
3. Valves, unions, flanges and piping within radiation enclosures shall not be insulated.

Note: No other type fitting insulation will be accepted

C. Provide shielding per Paragraph 3.6 I.

D. Exposed Piping

Wherever insulation is exposed it shall be covered with a white PVC plastic covering material. Covering shall be applied in no less than 4 foot lengths with shingle joints. Longitudinal joints shall be on the top or back sides so as to be out of sight and sealed with adhesive materials provided with the jacketing. Material shall be butted to finish walls, or Insulation Contractor shall be required to provide escutcheon plates. Jacketing material shall be Ceel-Tite 130 series, as manufactured by Ceel-Co. or approved equal. Provide samples if substituting.

E. Manufacturers

One of the following: Certainteed Corp. & Owens-Corning

2.2 REFRIGERANT PIPING INSULATION

A. Flexible Unicellular Pipe Insulation

Black unslit flexible elastomeric with usage temperature range of -40°F to 220°F.
Thermal conductivity shall not exceed 0.27 BTU hour, per hour - square feet - 0°F.

B. Manufacturer: Armstrong Armaflex

2.3 EXTERIOR WATER PIPING

A. Exterior Water Piping

Insulate all exterior chilled water piping and fittings with 2" thick isocyanurate insulation and vinyl sheet outdoor PVC jacket. Insulating system shall be Solar-7 SSL by Northeast Specialty Insulations, Inc., or approved equal.

2.4 INTERIOR DOMESTIC HOT AND COLD WATER PIPING

Provide same as specified for hot and cold water piping in Paragraph 2.1.

2.5 DUCTWORK

Fiber glass duct wrap with factory supplied, non-combustible, vapor barrier facing. Thermal conductivity shall not be greater than 0.28 BTU/hour - square feet - F/inch. Duct wrap shall have UL label. All laps to be sealed and held in place with adhesive and flare staples. All lap joints to be folded under before stapling so no raw insulation will be showing. On bottom of ducts 24" or wider, mechanical fasteners shall be provided approximately 12" on centers.

2.6 MISCELLANEOUS MATERIALS

A. Staples, Bands, Wires and Cement

As recommended by insulation manufacturer for applications indicated.

B. Adhesives, Sealers, and Protective Finishes

As recommended by insulation manufacturer for applications indicated.

PART 3 - EXECUTION

3.1 PLUMBING PIPING SYSTEM INSULATION

Omit insulation on exposed non-handicap type plumbing fixture runouts from face of wall or floor to fixture; on unions, flanges, strainers, flexible connections and expansion joints.

- A. Insulate the following hot/cold plumbing piping systems, including exposed piping at handicap fixtures with insulation thickness specified in Table I.

- Domestic cold water piping
 - Domestic hot water piping

TABLE I

Minimum Pipe Insulation
Insulation Thickness for Pipe Sizes*

Plumbing Water Temperatures	Non-Circulating Runouts		Circulating Mains and Runouts	
	<u>Up to 1"</u> <u>Inch</u>	<u>Up to 1-1/4"</u> <u>Inch</u>	<u>1-1/2"-2"</u> <u>Inch</u>	<u>Over 2"</u> <u>Inch</u>
<u>F</u>				
170-180	0.5	1.0	1.5	2.0
140-160	0.5	0.5	1.0	1.5
100-130	0.5	0.5	0.5	1.0

Cold Water: 1-inch all pipe sizes

3.2 HVAC PIPING SYSTEM INSULATION

Omit insulation on hot piping within radiation enclosures or unit cabinets; on cold piping within unit cabinets provided piping is located over drain pan; on heating piping beyond control valve located within heated space; on condensate piping between steam trap and union; and on unions, flanges, strainers, flexible connections, and expansion joints.

- A. Insulate the following sub-freezing HVAC piping (0 to 39°F) with 1/2" thick unicellular insulation:
 - 1. Refrigerant suction lines between evaporators and compressors.
 - 2. Refrigerant hot gas piping: Insulate hot gas piping if low ambient head pressure is installed and piping is exposed to low temperature outdoor air; otherwise, no insulation is required.

3. Refrigerant liquid piping: Insulation of liquid line is not required, except where exposed to direct sun out-doors, passing through hot rooms or near hot equipment.
- B. Insulate the following HVAC piping in thickness, in accordance with Table II following:
- HVAC make up water piping
 - Air conditioner condensate drain piping
 - HVAC hot water supply & return piping
 - Hot gas refrigerant piping

TABLE II

Minimum Pipe Insulation
Insulation Thickness for Pipe Sizes*

<u>PIPING SYSTEM TYPES</u>	FLUID					
	TEMPERATURE RUNOUTS					
	RANGE	2" **	1/2-1	1 1/4-2	2 1/2-4	5/LARGER
	<u>F</u>	<u>INCH</u>	<u>INCH</u>	<u>INCH</u>	<u>INCH</u>	<u>INCH</u>
<u>Heating Systems</u>						
<u>Hot Water</u>						
<u>Cooling Systems</u>						
Refrigerant***	Below 40	1.0	1.0	1.5	1.5	1.5

*Pipe sizes are nominal dimensions. For piping exposed to ambient temperatures, increase thickness by 0.5 in.

**Runouts to Individual Terminal Units (not exceeding 12 ft. in length)

***If fiberglass insulation is used in lieu of flexible unicellular insulation specified in Paragraph 3.2A.

3.3 HVAC DUCT SYSTEMS INSULATION

- A. Insulate the following ducts with 1-1/2" thick duct wrap:
1. Outdoor air intake ducts between air entrance and fan inlet or HVAC inlet.
 2. All supply air ductwork.

3. Duct risers to intake hoods, exhaust/relief hoods, exhaust fans, gravity ventilators and horizontal duct connections between riser and motor operated damper.
4. All ducts located in attic spaces.

3.4 INSTALLATION

- A. Examine areas and conditions under which mechanical insulation will be installed. Do not proceed with work until unsatisfactory conditions have been corrected.
- B. Install insulation products in accordance with manufacturer's written instructions, and in accordance with recognized industry practices to ensure that insulation serves its intended purpose.
- C. Install insulation on mechanical systems subsequent to testing and acceptance of tests.
- D. Install insulation materials with smooth and even surfaces. Insulate each continuous run of piping with full-length units of insulation with single cut piece to complete run. Do not use pieces or scraps abutting each other.
- E. Clean and dry mechanical surfaces prior to insulating. Butt insulation joints firmly together to ensure complete and tight fit over surfaces to be covered.
- F. Maintain integrity of vapor-barrier jackets on mechanical insulation, and protect to prevent puncture or other damage.
- G. Cover valves, fittings, and similar items in each piping system with equivalent thickness and composition or efficiency of insulation, as applied to adjoining pipe run. Install factory molded, precut, or job fabricated units, except where specified form or type is indicated.
- H. Extend mechanical insulation without interruption through walls, floors, and similar piping penetrations, except where otherwise indicated.
- I. Install protective metal shields and insulated saddles wherever needed to prevent compression of insulation.
- J. Butt pipe insulation against pipe protection saddles and/or thermal hanger shields. For hot pipes, apply 3" wide vapor-barrier lap cement on butt joints, and seal joints with 3" wide vapor-barrier tape or band.

- K. Do not insulate fibrous glass ducts.
- L. Omit insulation on ducts where internal insulation or sound absorbing linings have been installed, except as otherwise indicated.
- M. Protect outdoor insulation from weather by installing outdoor protective finish or jacketing, as recommended by manufacturer or as specified.
- N. Install corner angles on external corners of insulation on ducts in exposed finished spaces before covering with jacketing.
- O. Replace damaged insulation which cannot be repaired satisfactorily, including units with vapor barrier damage and moisture saturated units.
- P. Installer of mechanical insulation shall advise Contractor of required protection for insulation work during remainder of construction period to avoid damage and deterioration.

END OF SECTION 15250

SECTION 15300

SPINKLER SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

General Provisions of Contract, including General and Supplementary conditions and General Requirements (if any) apply to work specified in this Section.

1.2 SCOPE

- A. It is the intent of this specification to provide automatic wet type sprinkler fire protection of the entire building including, but not limited to occupied and unoccupied spaces, interstitial spaces between ceiling and roof above and canopies. Provide freeze protected systems for areas exposed to ambient air temperatures below 40F.
- B. Contractor shall prepare hydraulic calculations of the fire protection systems for entire building including existing plus new additions in compliance with NFPA and I.S.O.
- C. Make allowance in calculations and installation for addition of four (4) future classrooms.

1.3 RELATED WORK SPECIFIED ELSEWHERE

Electrical wiring: Division 16 sections.

1.4 CODE COMPLIANCE

- A. NFPA Compliance: Install fire protection systems in accordance with NFPA 13: "Standard for the Installation of Sprinkler Systems, 1996 Edition".
- B. UL Compliance: Provide fire protection products in accordance with UL standards; provide UL label on each product.
- C. City of Portland, Maine Compliance: Provide fire protection in accordance with City of Portland, Maine requirements and ordinances.

- D. Screw Thread Connections: Comply with Portland Fire Department requirements for sizes, threading and arrangement of connections for fire department equipment to fire protection systems.

1.5 SUBMISSIONS

- A. Submittal: Submit manufacturer's technical product data and installation instructions for fire protection materials and products.
- B. Approval Drawings: Prepare approval drawings of fire protection systems indicating pipe sizes, pipe locations, fittings, shutoff and equipment. Submit to Agency having jurisdiction for approval. Submit one approved copy, bearing stamp and/or signature of Agency having jurisdiction, before proceeding with installation.
- C. Approval Calculations: Prepare hydraulic calculations of fire protection systems. Submit to Agency having jurisdiction for approval. Submit one approved copy, bearing stamp and/or signature of Agency having jurisdiction, before proceeding with installation.
- D. Certificate of Installation: Submit certificate upon completion of fire protection piping work which has been tested in accordance with NFPA 13 and also that system is operational, complete, and has no defects.
- E. Maintenance Data: Submit maintenance data and parts lists for fire protection materials and products. Include this data, product data, shop drawings, approval drawings, approval calculations, certificate of installation, and record drawings in maintenance manual; in accordance with requirements of Division 1.

1.6 QUALITY ASSURANCE

- A. The entire fire protection automatic sprinkler system shall be designed, fabricated, installed and tested by a Contractor regularly engaged, a minimum of 5 years, in sprinkler installations of similar size and qualified to install sprinkler systems. Sprinkler Contractor shall submit evidence of qualifications to the Architect under sprinkler firm's letterhead and signed by senior official of the corporation.
- B. In addition to complying with code compliance specified in Paragraph 1.3, conform to requirements of insurance underwriter, BOCA 1996 and authority having local jurisdiction- Portland Fire Department, State Fire Marshall or both.
- C. Provide and coordinate location of access panels for sprinkler heads installed in areas with concealed heads.

- D. Provide adjustable, semi-recessed or two piece pipe escutcheons so that sprinkler head can be removed or repaired without damaging ceiling tiles. Center sprinkler head in ceiling tile wherever possible.
- E. All sprinkler piping shall be run concealed except in rooms with ceilings at roof deck.

1.7 WATER SUPPLY

- A. Test water supply from municipal water system and report results to Architect.

1.8 INSTALLATION

All supervisory type valves and switches shall be automatic and interconnected to Fire Alarm Control Panel.

PART 2 - PROTECTION

2.1 PIPING MATERIALS AND PRODUCTS

Provide piping materials and factory-fabricated piping products of sizes, types, pressure ratings, temperature ratings, and capacities as determined by Sprinkler Contractor to comply with installation requirements. Provide sizes and types matching piping and equipment connections; provide fittings of materials which match pipe materials used in fire protection piping systems. Where more than one type of materials or products are indicated, selection is Sprinkler Contractor's option. All materials shall be in accordance with NFPA-13 requirements.

2.2 IDENTIFICATION

Provide identification in accordance with the following listing:

- A. Fire Protection Valves - Plastic valve tags.
- B. Fire Protection Signs - Provide the following signs.

At each sprinkler valve, sign indicating what portion of system valve controls
At each outside alarm device, sign indicating what authority to call if device is activated.

- C. Install fire protection signs on piping in accordance with NFPA 13 requirements.

- D. Provide master schematic line diagram of sprinkler mains identifying pipe run and risers, major valves, test points, disconnect and shutoffs. Mount diagram on laminated plastic board and hang on wall near front door. Coordinate location with Architect.

2.3 PIPES AND PIPE FITTINGS

Provide pipes, and pipe fittings in accordance with the following listing:

- A. Black Steel Pipe - Schedule 40 for less than 8"; Schedule 30 for 8" and larger; Class 125, cast-iron threaded fittings and threaded joints, or mechanical grooved pipe couplings and fittings; cut-groove type.
- B. Black Steel Pipe - Schedule 10 for 5" and smaller; 0.134" wall thickness for 6"; and 0.188" walls thickness for 8" and 10"; wrought-steel; buttwelding fittings and welded joints, or mechanical grooved pipe couplings and fittings; roll-groove or mechanical locking type.
- C. Comply with requirements of NFPA 13 for installation of fire protection piping materials. Install piping products in accordance with manufacturer's written instructions, and in accordance with recognized industry practices to ensure that piping systems comply with requirements and serve its intended purposes.
- D. Coordinate with other work, including plumbing piping, as necessary to interface components of fire protection piping properly with other work.
- E. Install drain piping at low points of piping systems. Provide dry drum drips where required.
- F. Install fire department connection valves in piping where required.
- G. Install paddle water flow indicators.
- H. Install manual shutoff at each audible alarm station.
- I. Install Inspector's test connection at most remote point from riser.

2.4 PIPING SPECIALTIES

Provide piping specialties in accordance with the following listing and install as shown on Plumbing Drawing:

Pipe escutcheons
Dielectric unions

Drip pans
Pipe sleeves
Sleeve seals
Fire Barrier Penetration Seals equal to SpecSeal Series 100 Sealant or equal by Hilti or 3-M

2.5 SUPPORTS AND ANCHORS

Provide supports and anchors in accordance with the following listing:

Adjustable steel clevis hangers, adjustable steel band hangers, or adjustable band hangers, for horizontal-piping hangers and supports.

Two-bolt riser clamps for vertical piping supports.

Steel turnbuckles and malleable-iron sockets for hanger-rod attachments.

Concrete inserts, top-beam C-clamps, side beam or channel clamps or center beam clamps for building attachments.

2.6 VALVES

Provide valves in accordance with the following listing:

- A. Sectional Valves - Gate valves or butterfly valves; UL-listed.
- B. Check Valves - Swing check valves; UL-listed.
- C. Dry-Pipe Valves - Provide cast-iron dry-pipe valves, differential type, 175 psi working pressure.

OR

- D. Alarm Check Valve - Provide cast-iron water flow alarm check valve, 175 psi working pressure.
- E. Fire Department Connection Valves - Provide flush type fire department connection iron swing check valve, 175 psi rated working pressure and constructed of polish brass.

2.7 METERS AND GAGES

Provide meters and gages in accordance with the following listing: Pressure gages, 0-250 psi range.

2.8 FIRE PROTECTION SPECIALTIES

Provide fire protection specialties, UL-listed, in accordance with the following listing. Provide sizes and types which mate and match piping and equipment connections.

- A. Water-Motor Gongs - Provide weatherproof, red enameled finish, water-motor gongs.
- B. Low Air Pressure Horn - Provide low air pressure horn as indicated.
- C. Air-Pressure Maintenance Device, Dry-Pipe System - Provide air-pressure maintenance device for dry-pipe standpipe piping as recommended by the manufacturer.
- D. Supervisory Switches - Provide products recommended by manufacturer for use in service indicated.
- E. Fire Protection Specialties Manufacturers - Allen (W.D.); Croker-Standard; Elkhart Brass; Grinnell Fire Protection Systems; Grunau Sprinkler; Guardian Fire Equipment; Potter Roemer; or Western Fire Equipment.
- F. Tamper switches for control valves.
- G. Install fire protection specialties as indicated and in accordance with NFPA 13.

Furnish wiring requirements to electrical installer for electrical wiring of supervisory switches.

2.9 AUTOMATIC SPRINKLERS

Provide automatic sprinklers in accordance with UL and FM listing. Provide fusible links for 165F (74C) unless indicated otherwise.

Upright
Pendent
Vertical sidewall
Semi-recessed pendant
Flush dry-type pendent
Standard dry-type pendent
Standard dry-type upright
Horizontal sidewall

- A. Finish - White colored for occupied areas, cast brass for all other areas.
- B. Sprinkler Cabinet and Wrench - Furnish steel, baked red enamel, sprinkler box with capacity to store 12 sprinklers and wrench sized to sprinklers.
- C. Automatic Sprinklers Manufacturers - Automatic Sprinkler; Grinnell Fire Protection Systems; or Viking.

2.10 WALL TYPE SIAMESE CONNECTIONS

Coordinate final location with Architect and Portland Fire Department.

Provide wall flush type cast brass siamese connections and escutcheon plate assembly per Portland Fire Department requirements including fire department inlets with female hose connections, American National fire hose connection screw thread, equipped with individual drop clapper valves, equipped with plugs and chains, construction features as indicated, and constructed with the following additional construction features:

- A. Finish - Rough brass.
- B. Inlet Pipe - 4" pipe.
- C. Cast Lettering - "AUTO. SPKR."
- D. Escutcheon - 12" diameter or 7" x 14" rectangular.
- E. Siamese Manufacturers - Croker-Standard; Elkhart Grass; or equal.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Work shall be started as soon as the general construction permits.
- B. All detail of installation is to be done in a neat and workman-like manner.
- C. Risers are to be plumbed with adjacent construction.
- D. O.S. & Y. gate valves are to be aligned with adjacent walls or partitions to provide maximum clearance.
- E. Contractor shall be responsible for coordinating his work with other trades.

- F. Provide insulation around sprinkler head and on drop and 18" on horizontal pipe for sprinklers in freezer and cooler. Caulk openings for pipe penetrations.

3.2 SPRINKLER PIPING FLUSHING

Prior to connecting sprinkler risers for flushing, flush water feed mains, lead-in connections and control portions of sprinkler piping. After fire sprinkler piping installation has been completed and before piping is placed in service, flush entire sprinkler system, as required to remove foreign substances, under pressure as specified in NFPA 13. Continue flushing until water is clear, and check to ensure that debris has not clogged sprinklers.

3.3 HYDROSTATIC TESTING

After flushing system, test fire sprinkler piping hydrostatically, for period of 2 hours, at not less than 200 psi or at 50 psi in excess of maximum static pressure when maximum static pressure is in excess of 150 psi. Check system for leakage of joints. Measure hydrostatic pressure at low point of each system or zone being tested.

- A. Dry-Pipe Testing - Test dry-pipe hydrostatically except, in freezing conditions, test with air at pressures not less than 50 psi, for a period of 2 hours. Check system for leakage. Leave differential dry-valve clappers open during test, to prevent damage.
- B. Repair or replace piping system as required to eliminate leakage in accordance with NFPA standards for "little or no leakage" and retest as specified to demonstrate compliance.

3.4 EXTRA EQUIPMENT

- A. Extra Heads - For each style and temperature range required, furnish additional sprinkler heads, amounting to one unit for every 100 installed units, but not less than 5 units of each.
- B. Extra Wrenches - Furnish 2 spanner wrenches for each type and size of valve connection and fire hose coupling.
- C. Cabinet - Emergency cabinet shall be a 12 capacity standard metal cabinet with head wrench and required spare heads.

3.5 QUALIFICATION

This contractor shall be well qualified by previous experience to complete this installation and may be required to submit evidence of such qualification to the engineers.

3.6 GUARANTEE

This contractor shall guarantee all materials and workmanship to be free from all defects for a period of one (1) year from date of final acceptance, and shall make good, repair or replace any defective work within that time at his own expense and with no cost to the owner.

END OF SECTION 15300

SECTION 15400

PLUMBING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specifications sections, as well as 15100, "Mechanical General Requirements," apply to work of this section.

1.2 DESCRIPTION

A. Work Included:

All labor, materials, equipment and transportation shall be provided as required to completely install plumbing and water systems with all connections, as shown on drawings and described in these specifications, or as required by the State of Maine Plumbing Code. Accompanying drawings do not show every detail of pipe, valves, fittings, hangers, equipment and fixtures, which are necessary for complete installation, but are provided to show general arrangement and extent of work to be performed.

Plumbing System required for this work includes, but is not limited to:

1. Entrance inside building.
2. Sanitary and vent piping connection.
3. Natural gas system - See Section 15488
4. Hot and cold water piping within building
5. Soil, waste, and vent systems piping
6. Floor drains
7. Valves
8. Plumbing fixtures and trim
9. Pipe insulation

10. Connections to fixtures furnished by owner.
11. Pipe hangers and supports
12. Piping and equipment identification
13. Tests
14. All other plumbing items indicated on drawings specified, or needed for complete plumbing installation.

B. Work Not Included

1. Sanitary outside building wall
2. Storm outside building wall
3. All required excavation work such as backfilling and grading
4. All required masonry, carpenter work, cutting and patching and furring as specified
5. Domestic water entrance
6. Gas entrance
7. Flashing for vents at roof
8. Electrical work
9. Heating and ventilating work
10. Painting, except as specified in this section

1.3 CODES

- A. Work done by this Contractor shall conform to Local and State Plumbing Codes having jurisdiction. State and Local Codes are considered part of these specifications.
- B. State of Maine Plumbing Code shall be minimum requirements for system. Where drawings show more stringent requirements than the State Code, drawings shall be adhered to.

1.4 CROSS CONNECTIONS

- A. No piping shall be installed to permit back-siphonage or flow of any liquid into water service piping under any conditions.
- B. Air gaps, funnel type drains and approval vacuum breakers shall be provided as required by the Maine State Plumbing Code. Piping to hose end faucets shall have breakers.

1.5 CUTTING AND PATCHING

- A. Plumbing Contractor shall be responsible for informing various trades of sizes and locations of all chases, hole sleeves and supports required for plumbing work within the building structure.
- B. Architect shall be notified and approval must be received for any chases and holes which are needed by this Contractor if they involve cutting away steel, concrete, brickwork, or digging under foundation walls. Plumbing Contractor will be held responsible for any damage resulting from work not approved by Architect.

PART 2 - PRODUCTS

2.1 PIPE

- A. Soil, Waste and Vent
 - 1. Except for fixture connections, all buried pipe and fittings shall be standard weight cast iron coated bell and spigot.
 - 2. All cast iron pipe and fittings shall conform to Commercial Standards CS188-66.
 - 3. Joints shall be firmly packed with oakum and filled with molten lead not less than 1" deep. Lead shall be run in one pouring and shall be caulked tight.

Contractor may elect to substitute neoprene rubber gasket in place of oakum and lead.
 - 4. All piping and fittings not buried shall be Tyler cast iron, no hub, Cisp Standard 301-72 bitumastic coated.

5. All 2" waste piping from sink trap to under floor cast iron and all waste piping, 1-1/2" size and smaller, not buried shall be type "L" hard drawn copper tubing with drainage fittings made up with 50-50 solder. All exposed piping or tubing in finished areas shall be chrome plated. All chrome trim with wrench marks shall be removed and new trim installed.
6. Buried vent piping shall be as specified for Soil and Waste above.
7. Vent piping not buried shall be Schedule 40 PVC pipe and fittings with solvent joints. Contractor may elect to substitute no-hub pipe fittings.

B. Domestic Water Piping

1. All hot and cold water piping above finish floor (not buried) shall be hard-drawn type "L" copper tube with cast or wrought fittings.
 2. Piping and fittings shall be soldered with Silverbrite 100 lead-free solder from Engelhard Corporation, Mansfield, Massachusetts. Solder shall have nominal composition of 95.5 tin/4 copper/0.5 silver and be lead antimony and zinc free. Solder shall conform with the Safe Water Drinking Act and Amendments. Solder shall be listed by ASTM B-32, IAPMO (UPC), and BOCA.
 3. All buried cold water piping shall be type "K" soft copper tubing.
 4. All buried hot water piping shall be run in Schedule 40 PVC sleeve or trenches. Do not direct bury hot water piping.
 5. All exposed water piping, in finished areas shall be chrome plated I.P.S. copper or brass pipe or tubing and fittings. Valves shall also be chrome plated brass or bronze. Any chrome trim with wrench marks shall be removed and new trim installed.
 6. Type of tubing shall be stamped or printed on each length by Manufacturer.
- C. All piping penetrating a fire rated wall or floor shall be cast iron pipe or copper tubing as per Life Cycle Code #101.

2.2 VALVES

A. General

1. Valves shall be provided as shown and as required to make the installation and its apparatus complete in operation; locate to permit easy operation, replacement and repair.
2. All valves must be so constructed that they may be repacked under pressure while open.
3. Globe valves shall be installed in all lines where regulation is required.
4. Check valves shall be installed in all lines where flow may reverse from intended direction.
5. Valves shall have name and/or trademark of manufacturer as well as working pressure stamped or cast on valve body.
6. Valves shall comply with Manufacturer's Standards Society (MSS) specifications and be so listed.

B. Quality

All valves shall be by one manufacturer and by one of those listed. The following list is provided as a means of identifying quality and type required.

1. Gate valves 2-1/2" in size and larger shall be iron body, bronze trimmed, OS&Y, solid wedge, bolted bonnet, flanged ends and rated for 125# WSP, 200# WOG: Valves shall be:

Milwaukee F-2885
Stockham G-623
NIBCO F-617-0
2. Gate valves 2" in size and smaller shall have bronze bodies, rising stem, solid wedge, union bonnet and rated for 150# WSP, 300# WOG:

Solder End

Screwed End

Milwaukee 1169	1151
Stockham B-124	B-120
NIBCO S-134	T-134

3. Globe valves 2-1/2" in size and larger shall have iron bodies, bronze trim, OS&Y, solid disc, bolted bonnet, gland packed, flanged ends and rated for 125# WSP, 200# WOG:

Milwaukee F-2981
 Stockham G-512
 NIBCO F-718-B

4. Globe valves 2" and smaller shall have bronze bodies, union bonnet, renewable composition disc for the service intended, and rated for 150# WSP, 300# WOG:

<u>Solder End</u>	<u>Screwed End</u>
Milwaukee 1590-T	590-T
Stockham B-24-T	B-22-T
NIBCO S-235-Y	T-235-y

5. Check valves 2-1/2" and larger shall be horizontal swing type with iron body, bronze trim, flanged ends and rated for 125# WSP, 200# WOG:

Milwaukee F-2974
 Stockham G-931
 NIBCO F-918-B

6. Check valves 2" and smaller shall be horizontal swing type with bronze body, Teflon disc and rated for 125# WSP, 200# WO4G:

<u>Solder End</u>	<u>Screwed End</u>
Milwaukee 1509-T	509-T
Stockham B-310-T	B-320-T
NIBCO S-413-Y	T-413-Y

7. Drain valves shall be Ball valves as described above, except to have standard hose threads on one end with hose cap and chain. Valves shall be:

<u>Solder End</u>	<u>Screwed End</u>
Milwaukee BA-150-H	BA-100-H
Apollo 78-200	78-100
Watts ---	---

8. Gas service valves 2-1/2" and larger shall be lubricated plug type with iron bodies, lubricated iron plug, flanged ends and wrench operated and rated for 175# WOG. Valves shall be:

Rockwell	143
Walworth	1797-F
Powell	2201

Provide one (1) valve wrench for each size valve and turn over wrenches to Owner's Representative

9. Gas service valves 2" and smaller shall be butterfly type with bronze body, stainless steel stem and disc with Viton seal, AGA approved and UL Listed. Supply with "T" or lever handle as approved by local gas supplier.

Milwaukee BB-2-100

2.3 PIPE SLEEVES AND ESCUTCHEONS

A. Sleeves

1. Contractor shall set sleeves for all piping penetrating walls and floors. Sleeves through masonry shall be steel pipe sleeves two sizes larger than pipe. Piping passing through walls other than masonry shall be provided with #24 gauge galvanized steel tubes with wired or hemmed edges.
2. Sleeves set in concrete floors shall finish flush with underside, but extend minimum of 1 inch above finish floor. Weld clips to sleeves for support in concrete pre-cast planks of a size which will be covered by concrete topping. Sleeves set in partitions shall finish flush with each side.
3. Space between sleeves and pipes shall be sealed to make smoke and water tight with 3M Brand Fire Barrier Caulk CP25 or Putty 303.
4. Masonry sleeves shall be Schedule 40 steel pipe.

B. Escutcheons

Where piping passes through finish walls, floors, ceilings and partitions, provide and set two piece nickel plated steel floor and ceiling plates.

2.4 HANGERS AND SUPPORTS

A. General

1. All hangers and supports shall be especially manufactured for that purpose, and shall be the pattern, design and capacity required for location of use.
2. Piping specified shall not be supported from piping of other trades.
3. All steel hangers shall be factory painted.
4. Hangers shall be heavy duty steel adjustable clevis type, plain for steel, cast iron and plastic pipe and copper plated for copper tubing equal to Carpenter & Paterson Inc., Fig. 100 (Fig. 100CT copper plated).
5. Hangers shall go outside of insulation for cold water piping.
6. Exposed vertical risers 3/4 inch and smaller shall be supported at 6 foot intervals between floor and ceiling with split ring type hangers; copper plated for copper tubing equal to Carpenter & Paterson Inc., Fig. 81 (Fig. 81CT copper plated).
7. Piping suspended from walls and partitions shall be supported by steel support bracket with adjustable clips equal to Carpenter & Paterson Inc., Fig. 69. All attachments to bar joists shall be from top chord.

B. Hanger Rods & Attachments

1. Hanger rods shall be cadmium plated all thread rod. Rod size shall be 3/8 inch for piping 2 inch and under; 1/2 inch for 2 1/2" to 6"; 5/8 inch over 6".
2. Provide lag points with rod couplings for fastening to wood, toggle bolts in concrete blocks and compound anchor shields and bolts in poured concrete.
3. Provide toggle bolts with rod couplings for fastening in pre-cast concrete plank decks.
4. Provide and install angle iron supports for pipe hangers in locations as required. Angle iron supports shall be adequate size for span and piping or equipment.
5. Hot and cold water piping at each fixture shall be securely fastened in wall with split ring type hanger fastened to studs within wall.

2.5 EXPANSION LOOPS AND ANCHORS

Provide expansion loops on hot water supply and circulating return lines where required to control expansion. Provide rigid anchors where required. Anchors shall be bolted collars held by angular braces in direction of piping. Provide guides on each side of all expansion joints.

2.6 DRAINAGE SPECIALTIES

A. Traps

1. Traps of material and design as approved by the State shall be furnished and installed at all fixtures and appliances. Trap each fixture separately, keeping all trap screws below water line; vent each trap. Make off-sets in vent piping with 45 degree angle fittings when possible. Pitch horizontal vents toward waste lines, group vents and take through roof as shown. All traps, at fixtures and appliances shall be provided with accessible clean outs.
2. All exposed traps under sinks and lavatories, and all piping and fittings shall be chrome-plated.

B. Cleanouts

Provide cleanouts for soil and waste piping where shown on the drawings and as required by code.

1. Floor Cleanouts

All floor cleanouts in concrete or tile shall be flush with finish floor, round adjustable tops, vandal proof, bronze plug and gasket seal, bronze top, flashing flange with flange device, inside caulk. Units shall be Smith Fig. 4026-F-C-U or equal by Zurn, Fig. Z-1405-C-NB or Wade, Fig. W-6010-5-72-118. Units in carpeted areas shall be provided with carpet markers.

2. Wall Cleanouts

All wall cleanouts shall be "tee" fittings with bronze slotted plug with lead seal, stainless steel cover with vandal proof screw, Smith Fig. 4531-U, Zurn Z-1455-1 or Wade W-8460-R-5. All cleanouts shall be "tee" fittings with bronze slotted plug with lead seal, stainless steel cover with vandal proof screw, Smith Fig. 4531-U, Zurn Z-1455-1 or Wade W-8460-R-5.

3. Flashing

Flash each floor clean out with 4 lb. sheet lead extending 24" beyond perimeter of clean out and lock into clamping collar.

C. Roof Drain

Cast iron body, combined flashing collar and gravel stop, bronze dome, under deck clamp, extension, sump receiver, Smith 1010-E-R-C, Josam 21500-3-10, Zurn Z-100-E-R-C, or Wade W-3010 with bronze dome and sump.

D. Floor Drains

All floor drains shall be complete and each provided with flashing flange and flange device.

FD-1

Cast iron body flashing collar, sediment bucket, nickel bronze, 7" diameter adjustable strainer head, inside caulk: Smith 2010-A-B or equal by Josam, Zurn or Wade.

2.7 WALL HYDRANTS

Nickel bronze face, exposed, mounted, all bronze casing and interior parts, integral backflow preventer, anti-siphon, non-freeze, key lock and 3/4" hose connection, Zurn Z-1310 Ecolotrol, Wade W-8620 Enviro/Gard, Smith 5609-NB-Line Gard.

2.8 SHOCK ABSORBERS

All piping shall be protected from water hammer or shock by approved shock absorbing devices. Shock protection shall be provided where shown on drawings. Units to be as manufactured by Smith, Josam or Zurn, P.D.I. approved and size A", "B", or "C" as indicated on the drawings.

2.9 INSULATION

Insulate plumbing equipment per Section 15250, "Mechanical Insulation and Condensate Protection".

2.10 THERMOMETER

Units to be equivalent to Trerice No. BX9 series, adjustable angle with 30° to 180° range except 30° to 200° at dishwasher.

2.11 PRESSURE GAUGE

Furnish and install pressure gauges with gauge cocks on piping where shown on drawings. The dial range shall be such that the normal pressure shall be approximately mid-way of dial. Gauges shall be Terice No. 600 or equivalent by Weiss or Nurnburg, 4-1/2" dial size, cast aluminum case, with brass "T" handle cocks and No. 872 bronze pressure snubbers on water units.

2.12 BACKFLOW PREVENTER

- A. Provide and install all necessary components to provide protection against potentially hazardous backflow or back siphonage and the contamination of the potable water system at the required GMP demand.
- B. Unit shall be health hazard area Class III reduced pressure type.
 - 1. 3/4" thru 2" size - Hersey/Beeco Aergap Model #FDR-2.
- C. Unit shall be UL, USC, ASSE, 1APMD and AWWA approved.
- D. Provide drain funnel where required and testing equipment.
- E. Provide pressure gauge on each side of unit.
- F. Unit shall meet State of Maine and Water Department Model Cross-Connection Control Program, 1980.

2.13 PLUMBING FIXTURES

A. General

This Contractor shall furnish and install all plumbing fixtures shown on the drawings and as hereinafter scheduled. Fixtures and fittings hereinafter listed are generally based on American Standard Products. An equal type and quality of fixture as manufactured by Kohler Manufacturing Company are acceptable. Exact count of fixtures shall agree with architectural drawings.

- B. All fixtures to be white vitreous china where not otherwise specified.
- C. All exposed stops, risers to faucets, traps, piping and fittings under lavatories and sinks shall be chrome-plated. All concealed may be brass or copper. Acid resisting where required.

NOTE: ALL PIPING DROPS TO FIXTURES SHALL BE ANCHORED SOLID TO WALL WITH A STEEL SUPPORT BRACKET WITH ADJUSTABLE CLIP, ESPECIALLY PIPING TO FLUSH VALVES.

Water Closet WC-1

A/S #2124.700, "Cadet" water saver toilet, 14-1/4" high free standing, siphon action, vitreous china, close coupled tank with liner, cover, bolt caps, loose key stop with flexible tube riser, cast escutcheon.

Church #9500C, black elongated, heavy duty, solid plastic open front seat with concealed checks.

Water Closet (Handicapped) WC-2

A/S #2124.700, "Cadet" water saver toilet, 14-1/4" high free standing, siphon action, vitreous china, close coupled tank with liner, cover, bolt caps, loose key stop with flexible tube riser, cast escutcheon.

Church #9500C, black elongated, heavy duty, solid plastic open front seat with concealed checks.

Lavatory L-1

A/S 0476 Series Aqualyn, white vitreous china counter top lavatory, front overflow, faucet ledge and mounting kit. Counter by Others.

A/S Reliant+ 2385 Series with ceramic disc valve cartridge with adjustable hot water limit safety stop. Water way shall be isolated from contact with any material containing lead. Provide aerator with 2.2 GPM flow restrictor, indexed metal handle and vandal resistant spray grid drain.

McGuire chrome plated angle supply with 3/8" O.D. x 12" flexible riser, 1/2" nominal copper sweat key stop, 5" extension tube and bell escutcheons.

McGuire Semi-Cast adjustable P-Trap, 1-1/4" x 1-1/4", cleanout plug, tubing to wall with cast escutcheon for maximum clearance under lavatory.

Lavatory (Handicapped) L-2

A/S 0356 Series Lucerne, 20 x 18", vitreous china lavatory with integral back and front overflow for concealed arms.

A/S Reliant+ 2385 Series with ceramic disc valve cartridge with adjustable hot water limit safety stop. Water way shall be isolated from contact with any material containing lead. Provide aerator with 2.2 GPM flow restrictor, indexed metal handle and vandal resistant spray grid drain.

McGuire chrome plated angle supply with 3/8" O.D. x 12" flexible riser, 1/2" nominal copper sweat key stop, 5" extension tube and bell escutcheons.

McGuire Semi-Cast adjustable P-Trap, 1-1/4" x 1-1/4", cleanout plug, tubing to wall with cast escutcheon for maximum clearance under lavatory.

Insulate hot water and drain piping with ADA approved TRUEBRO Lavguard under lavatory for protection of legs.

Kitchen Sink KS-1

Elkay LRAD-3321 Series double bowl, 18 gauge, self-rim stainless steel with 3 hole faucet drilling, 33"L x 21-1/4"W x 6 1/2"D. 3-1/2" Drain outlet. LK-35 Duo Strainer.

Low Lead double faucet, gooseneck spout with aerator, wing handles, Micracore units, coupling nuts.

McGuire Series. chrome plated angle supply with 3/8" O.D. x 12" flexible riser, 1/2" nominal copper sweat key stop, 5" extension tube and bell escutcheons.

McGuire Semi-Cast adjustable P-Trap, 1-1/4" x 1-1/4", cleanout plug, tubing to wall with cast escutcheon for maximum clearance under lavatory.

Drinking Fountain DF-1

Halsey-Taylor HAC, barrier-free cooler, less refrigeration. Front push bar, stainless steel and meeting ADA requirements.

Mop Basin

Mop basin shall be molded stone or pre-cast terrazzo, as manufactured by Fiat Products or equal. Molding shall be done in matched metal dies under heat and pressure resulting in one piece homogeneous product. Size of unit shall be 24" x 24"x 12" high. Fiat Model #TSB-100. Unit shall have 12" high walls with not less than 2" wide shoulders.

Drain body shall be cast brass, chrome plated, complete with cast brass lock nut and gaskets. A combination dome strainer and lint basket made from #302, 16 gauge stainless steel attached with tamper proof screws shall be included. The drain body shall provide for a lead caulked joint to be 3" I.P.S.

Provide and install the following items: Stainless steel guard. Service faucet with vacuum breaker; integral stops and wall brace plate #8300-AA. 30" Hose with 3/4" coupling at one end; Plate #832-AA. Silicone sealant #833-AA.

Traps and Stops

All exposed piping, traps, stops and risers to faucets shall be chrome plated. All concealed may be rough brass or copper. Acid resisting traps where required.

2.14 GAS FIRED DOMESTIC HOT WATER HEATER

- A. Direct vent with sealed combustion with insulation, temperature control, factory installed T&P relief valve, AGA certified unit; 35 gallon storage, 30 GPH at 90F temperature rise, 30,000 BTUH input natural gas. Unit shall have 8 year tank warrantee.
- B. Provide vent kit accessories.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

- A. Inspection
 - 1. Prior to all work of this section, carefully inspect installed work of all other trades and verify that all such work is complete to the point where this installation may commence.
 - 2. Verify that plumbing may be installed in strict accordance with all pertinent codes and regulations and approved Shop Drawings.

B. Discrepancies

1. In event of discrepancy, immediately notify Architect.
2. Do not proceed with installation in areas of discrepancy until such discrepancies have been fully resolved.

3.2 INSTALLATION OF PIPING AND EQUIPMENT

A. General

1. Install all piping promptly, capping or plugging all open ends and making pipe generally level and plumb, free from traps, and in a manner to conserve space for other work.
2. Provide uniform pitch of at least 1/8 or 1/4 inch per foot for all horizontal waste and soil piping within the building; pitch all vents for proper drainage; install vent piping with each bend 45 degrees minimum from the horizontal, wherever structural conditions will permit.
3. Inspect each piece of pipe, tubing, fittings, and equipment for defects and obstructions; promptly remove all defective material from the jobs site.
4. Install pipes to clear all beams and obstructions. Do not cut into or reduce the size of load carrying members without the approval of the Architect.
5. Back vent all fixtures. Increase vents one size before going thru roof up to and including 3" size.
6. All risers and off-sets shall be substantially supported.
7. Pipe hangers shall be placed as follows: Bell and spigot pipe, 5'-0" (at hub), steel piping except air piping 10'-0"; copper tubing and air piping; 1/2" at 6'-0", 3/4" and 1" at 8'-0"; 1-1/4" and larger at 10'-0".
8. Arrange all piping to maintain required grade and pitch to lines to prevent vibration. Expansion loops to anchors shall be provided where shown on drawings.
9. Make all changes in pipe size with reducing fittings.
10. All low points in water piping shall be drained with 1/2" gate valve with hose nipple and metal cap.

11. No piping shall be installed in such a manner to permit back-siphonage or flow of any liquid in water piping under any conditions.
12. No water piping shall be installed outside of building or in an exterior wall unless adequate provisions are made to protect such pipe from freezing.

B. Joints and Connections

1. Smoothly ream all cut pipe; cut all threads straight and true; apply best quality Teflon tape to all male pipe threads but not to inside the fittings; use graphite on all clean out plugs. DO NOT use Teflon tape on gas piping.
2. Pack all joints in cast iron soil and waste pipe and fittings using oakum and securing with one inch deep lead caulking, fully and properly caulked and smoothly finished.
3. Smoothly ream all cut P.V.C. pipe. Clean and use solvent for fitting connection and in strict accordance with the manufacturer's recommendations.
4. Make all joints in copper water tube with Silvabrite 100 lead-free solder applied in strict accordance with the manufacturer's recommendations.
5. Make all joints in copper gas tube with Silvabrite 100 lead-free applied in strict accordance with the manufacturer's recommendations.

3.3 STERILIZATION OF PIPES

After preliminary purging of the system, chlorinate the new potable water system in accordance with the current recommendations of the American Water Works Association, and in accordance with all pertinent codes and regulations.

Chlorinate only when the building is unoccupied.

A. Flushing

1. Upon completion of the sterilization, thoroughly flush the entire potable water system.
2. When sterilization and flushing are complete, sample shall be collected from the end of longest main, or at any other location selected by Architect, and water analysis test provided. Test must prove the water acceptable or additional disinfecting of system performed. A copy of test report shall be submitted to Architect.

3.4 CLOSING IN UNINSPECTED WORK

A. General

Do not cover up or enclose work until it has been properly and completely inspected and approved.

B. Noncompliance

Should any work be covered up or enclosed prior to all required inspections and approvals, uncover the work as required and after it has been completely inspected and approved, make all repairs and replacements with such materials as necessary to the approval of Architect and at no additional cost to Owner.

3.5 TESTING

Tests shall be applied to plumbing installation as required by codes and where as directed by Architect, and in all cases before work is covered by earth fill or pipe covering.

A. Piping

1. Sanitary systems shall be securely stopped, except at highest point above roof, and the entire system filled with water to point of overflow. All leaks shall be repaired. Cracked pipes and fitting shall be removed and replaced. No doping of soil pipe or fittings will be allowed.
2. New hot water, cold water, and gas piping shall be subjected to a hydrostatic pressure test of 150 psi and shall be repaired and repeated until work is tight.

3.6 CLEANING

- A. Prior to acceptance of buildings, thoroughly clean all exposed portions of plumbing installation, removing all labels and all traces of foreign substance, using only a cleaning solution approved by manufacturer of plumbing item, being careful to avoid all damage to finished surfaces.
- B. Clean out all strainers and aerators, and adjust or replace washers, cartridges, etc., to prevent leaks at faucets, stops, shower valves, and pop-up drains.

3.7 IDENTIFICATION

See Section 15100, "Mechanical General Requirements".

END OF SECTION 15400

SECTION 15488

NATURAL GAS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections apply to work of this section.

- 1.2 Provide piping materials and factory fabricated piping products of sizes, types, pressure ratings, and capacities as indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide materials and products complying with NFPA 54 where applicable. Base pressure rating on natural gas system maximum design pressures. Provide sizes and types matching piping and equipment connections; provide fittings of materials which match pipe materials used in natural gas systems. Where more than one type of materials or products are indicated, selection is Installer's option.

1.3 QUALITY COMPLIANCE

ANSI Compliance: Comply with applicable provisions of ANSI B31.2.

NFPA Compliance: Comply with applicable provisions of NFPA 54.

Utility Compliance: Comply with requirements of Northern Utilities, Inc.

Submittal: Submit manufacturer's technical product data, assembly type shop drawings, ladder type wiring diagrams differentiating between portions of wiring that are factory installed and portions to be field installed, and maintenance data.

Trenching and Backfill: Not work of this section.

PART 2 - PRODUCTS

2.1 GAS SERVICE PIPING

- A. All Pipe Sizes: Black steel pipe; Schedule 40; wrought-steel butt welding fittings.

- B. Wrapping: Machine wrap pipe using 50% overlap wrap, with polyvinyl chloride tape. Hand wrap fittings using 100% overlap wrap extending 6" beyond fitting onto wrapped pipe.

2.2 BUILDING DISTRIBUTION PIPINGS

- A. Pipe Size 2" and Smaller: Black steel pipe; Schedule 40; malleable-iron threaded fittings.
- B. Pipe Size 2-1/2" and Larger: Black steel pipe; Schedule 40; wrought-steel butt welding fittings.

2.3 PIPING SPECIALTIES

- A. Escutcheon Plates: Install on each pipe penetration exposed to view in occupied spaces.
- B. Sheet-Metal Pipe Sleeves: Install on each pipe penetration through interior partitions and ceilings.
- C. Cast-Iron Pipe Sleeves: Install on each pipe penetration through exterior walls or footings, both above and below grade.
- D. Steel Pipe Sleeves: Install on each pipe penetration except as otherwise indicated.
- E. Sleeve Seals: Install in sleeves in foundation walls below grade and in exterior walls; either caulked lead and oakum or modular mechanical rubber link seals.

2.4 SUPPORTS AND ANCHORS

- A. General: Provide factory fabricated supports and anchors complying with MSS SP-69. Install, complying with MSS SP-89.
- B. Gas Cocks:
 - 1. Gas service valves 2-1/2" and larger shall be lubricated plug type with iron bodies, lubricated iron plug, flanged ends and wrench operated and rated for 175# WOG. Valves shall be:

Rockwell 143
Walworth 1797-F
Powell 2201

(Provide one (1) valve wrench for each size valve and turn over wrenches to Owner's Representative)

2. Gas service valves 2" and smaller shall be butterfly type with bronze body, stainless steel stem and disc with Viton seal, AGA approved and UL Listed. Supply with "T" or lever handle as approved by local gas supplier. Valves shall be:

Milwaukee BB-2-100

- C. Install at connection to gas train for each gas-fired equipment item; on branches and risers as indicated.

PART 3 - EXECUTION

3.1 GENERAL

- A. No person other than an authorized employee of Northern Utilities, Inc., shall repair, alter, or make connections to a gas pipe upstream of the meter or restore gas service to the premises.
- B. Gas meters should be installed within five feet (5') of the service entrance to a building and at least three feet (3') distance from any electrical, switching gear, transformers or outlets.
- C. The Installer is responsible for his own work, including proper sizing, proper materials, supports and testing.
- D. Piping Certificate, Form 1-79 PAL, available from Northern Utilities, Inc., must be submitted to Northern Utilities, inc., before gas service will be activated to any location where:
 1. a new piping system is installed
 2. addition or repairs to an existing piping system are made
 3. a piping system has been exposed to fire
 4. new appliance is installed

3.2 GAS SERVICE

- A. General: Arrange with Northern Utilities, Inc., to provide gas service to indicated location with shutoff at terminus. Consult with Utility as to extent of it's work, costs, fees and permits involved. Pay such costs and fees; obtain permits.
- B. Extend service pipe from Northern Utilities, Inc., terminus to inside building wall under Utilities' direction.
- C. Mechanical Contractor shall provide shutoff outside building downstream of gas meter where indicated. Gas service valve box with cover on upstream side of meter shall be by Northern Utilities.

3.3 EQUIPMENT CONNECTIONS

- A. General: Connect gas piping to each gas-fired equipment item with drip leg and shutoff gas cock. Comply with equipment manufacturer's instructions.
- B. Provide shutoff in gas service pipe at entry in building. Extend pipe to gas meter location indicated. Provide parts and accessories required by Utility to connect meter.

3.4 PIPING TESTS

- A. Test natural gas piping in accordance with NFPA 54 and Northern Utilities, Inc.

3.5 PIPING INSTALLATION

- 1. Install natural gas piping in accordance with applicable codes and Northern Utilities, Inc., requirements.
- 2. Use sealants on metal gas piping threads which are chemically resistant to natural gas. Use sealants sparingly, and apply to only male threads of metal joints. Pipe joint compound shall be used on all threaded joints.
- 3. Remove cutting and threading burrs before assembling piping.
- 4. Do not install defective piping or fittings. Do not use pipe with threads which are chipped, stripped or damaged.
- 5. Plug each gas outlet, including valves with threaded plug or cap immediately after installation and retain until continuing piping or equipment connections are completed.

6. Ground gas piping electrically and continuously within project, and bond tightly to grounding connection.
7. Install drip-legs in gas piping at each riser at point where it is joined to horizontal run of pipe and where required by code or regulation.
8. Install "Tee" fitting with bottom outlet plugged or capped at bottom of pipe risers.
9. Use dielectric unions where dissimilar metals are joined together.
10. Install piping with 1/64" per foot (1/8%) downward slope in direction of flow.
11. Install piping parallel to other piping, but maintain minimum of 12" clearance between gas piping and steam or hot water piping above 180°F. (93°C); between any gas piping and any other hot surface such as breaching.
12. No supply run to be smaller than 3/4" ID.
13. All material to be new and unused when piping is to be concealed.
14. Metallic pipe and fitting threads shall be taper threads and shall comply with the standard for pipe threads. General purpose (inch) ANSI/ASME B 1.20.1.
15. When installing gas piping which is to be concealed, the following shall not be used: Unions, tubing, fittings, threads, right and left couplings, bushings and swing joints made by combinations of fittings. Only elbows, tees and screw couplings are approved for use in concealed piping.
16. Piping passing through concrete, brick, concrete block, walls or floor is to be sleeved or protected from corrosion.
17. Piping in floors is to be protected from corrosion.
18. Piping underground, beneath buildings is prohibited.
19. Piping is not to be embedded in concrete floor.
20. Drop pieces are to be run full size to the appliance. Any reduction in the pipe size is to be done as close to the appliance as possible.

21. Prohibited Locations: Gas piping inside a building shall not be run in or through a circulating air duct, clothes chute, chimney or gas vent, ventilating duct, dumb waiter, elevator shafts or underneath buildings.
22. When any other fuel gas is to be interconnected with the natural gas system, Northern Utilities, Inc., should be contacted to advise the proper method.
23. Prohibited Concealed Piping:
 - a. Concealed gas piping shall not be located in solid partitions (concrete or cinder block). Tubing shall not be run in hollow walls or partitions unless protected against physical damage.
 - b. Concealed gas piping shall not be run horizontally through hollow walls or partitions.
 - c. Valves, cocks or any shutoff devices shall not be installed in concealed gas piping.

3.6 APPLIANCE INSTALLATION

- A. All appliances will be installed in accordance with manufacturer's recommendations. The recommendations will appear on name plate or on separate instructions which accompany the appliance. This information will list minimum clearance to combustible material and other information required for proper installation.
- B. A separate shutoff will be installed in an accessible location at each appliance.

3.7 TESTING

- A. Every new or enlarged system of gas piping must be tested and the proper completed form submitted to Northern Utilities, Inc., (Piping Certificate 1-79 PAL) before gas will be turned on.
- B. Testing for Tightness: (NFPA 54, Page 33 - 4.1.2 (A.) OXYGEN SHALL NOT BE USED AS A TESTING MEDIUM. Note: A proper test cannot be made with appliances connected. This could also result in expensive damage to the controls on the appliance. Gas meter must also be isolated from section being tested, as pressure back against meter will cause extensive internal damage.

- C. Test Pressure: Minimum test pressure for low pressure delivery in concealed gas piping systems (below 1/4 psi) shall be no less than 25 psig for a time period of one hour. Minimum test pressure for high pressure delivery systems (above 1/4 psi) shall be no less than 65 psig for one hour for piping under 2". 100 psi for piping above 2" or where pipe is welded. During pressure test, all joints shall be tested with a soap and water solution. Any leaks found will be repaired and system again tested.
- D. After successful pressure test, piping shall be connected to meter and the appliance connected to piping system.
- E. All outlets including those with shutoff valve, shall be closed gas-tight with plug or cap if threaded. Any pipe left temporarily shall be plugged or capped gas-tight. If flanged, a blind flange and proper gasket shall be installed.

3.8 NOTICE

Northern Utilities, Inc., responsibility for gas piping in any installation is limited to pipe and fittings which comprise service entering installation up to and including outlet connections of the meter or meter bar. All meters shall be installed within five feet of service entrance. Where special requirements prohibit installation of meters within five feet (5') of service entrance, Northern Utilities, Inc., shall be contacted to obtain authorization to proceed with an alternate meter piping configuration under requirements specified by the Company.

3.9 PAINTING

Paint entire gas piping system with rust inhibiting paint equal to Rustoleum in color approved by Architect. Take precautions to avoid painting of adjacent finished surfaces and equipment. Do not paint meters, valves and control devices.

END OF SECTION 15488

SECTION 15530

REFRIGERANT PIPING AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and supplementary conditions and Division-1 Specification Sections apply to work of this section.

1.2 DESCRIPTION OF WORK

A. General

Provide and install refrigerant piping system shown on drawings and specified in this section. Work of this section includes complete operating charge of refrigerant for each system.

B. Work not included and specified elsewhere

1. Pipe Insulation: Section 15250, "Mechanical Insulation and Condensation".
2. Testing, Adjusting and Balancing: Section 15880, "Testing and Adjusting Work".
3. HVAC Terminal Units: Section 15772, "Split System HVAC (5 Tons or Less)".

1.3 QUALITY OF COMPLIANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of refrigerant piping products of types, materials, and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Installer's Qualifications: Firm with at least 3 years of successful installation experience on projects with refrigerant piping work similar to that required for project.

- C. Codes and Standards:
 - 1. ANSI Compliance: Fabricate and install refrigerant piping in accordance with ANSI B31.5, "refrigeration Piping", and extend applicable lower pressure limits to pressures below 15 psig.
 - 2. ASHRAE Compliance: Fabricate and install refrigerant piping in accordance with ASHRAE 15, "Safety Code for Mechanical Refrigeration".
- D. Submittal
 - 1. Product Data: Submit manufacturer's technical product data and installation instructions for refrigerant piping materials and products. See Section 15100, "Mechanical General Requirements".

PART 2 - PRODUCTS

2.1 PIPING

- A. General: Provide piping materials and factory-fabricated piping products of sizes, types, pressure ratings, temperature ratings, and capacities as indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide materials and products complying with ANSI B31.5 Code for Refrigeration Piping where applicable, base pressure rating on refrigerant piping system and maximum design pressures. Provide sizes and types matching piping and equipment connections; provide fittings of materials which match pipe materials used in refrigerant piping systems. Where more than one type of materials or products are indicated, selection is Installer's option.
- B. Tube Size 4-1/8" and Smaller: Copper tube; Type ACR, hard-drawn temper; wrought-copper, solder-joint fittings; soldered joints.
- C. Soldered Joints: Solder Joints using silver-lead solder, ASTM B 32, Grade 96 TS.
- D. Braze Joints: Braze joints using American Welding Society (AWS) classification BCup-4 for brazing filler metal.

2.2 PIPE SUPPORTS

- A. Adjustable steel clevises, adjustable roller hangers, and adjustable pipe roll stands for horizontal piping hangers and supports.
- B. Two-bolt riser clamps for vertical piping supports.

- C. Concrete inserts, C-clamps, and steel brackets for building attachment.
- D. Protection shields for insulated piping support in hangers.
- E. Copper flashing for piping penetrations.

2.3 REFRIGERANT SPECIALTIES

- A. Globe Shutoff Valves: Forged brass, packed, back seating, winged seal cap, 300°F (149°C) temperature rating, 500 psi working pressure.
- B. Check Valves: Forged brass, accessible internal parts, soft synthetic seat, fully guided brass piston and stainless steel spring, 250°F (121°C) temperature rating, 500 psi working pressure.
- C. 2-Way Solenoid Valves: Forged brass, designed to conform to ARI 760; normally closed, teflon valve seat, NEMA 1 solenoid enclosure, 24 volt, 60 Hz., UL-Listed, 1/2" conduit adapter, 250°F (121°C) temperature rating, 400 psi working pressure.
- D. Moisture-Liquid Indicators: Forged brass, single port, removable cap, polished optical glass, solder connections, UL-Listed, 200°F (93°C) temperature rating, 500 psi working pressure.
- E. Refrigerant Filter-Driers: Steel shell, ceramic fired desiccant core, solder connections, UL-Listed, 500 psi working pressure.
- F. Refrigerant Filter-Driers: Corrosion-resistant steel shell, steel flange ring and spring, wrought copper fittings, ductile iron cover plate with steel cap screws, replaceable filter-drier core, 500 psi working pressure.
- G. Evaporator Pressure Regulators: Provide corrosion-resistant, spring loaded, stainless steel springs, pressure operated, evaporator pressure regulator, in size and working pressure.
- H. Refrigerant Discharge Line Mufflers: Provide discharge line mufflers as recommended by equipment manufacturer for use in service indicated, UL-Listed.
- I. Acceptable Manufacturers
 - 1. ALCO
 - 2. Henry Valve Company
 - 3. Sporlan Valve Company

PART 3 - EXECUTION

3.1 GENERAL

Examine areas and conditions under which refrigerant piping systems materials and products are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 INSTALLING REFRIGERANT PIPING

Install refrigerant piping with 1/4" per foot (1%) downward slope in direction of coil return to compressor. Provide oil traps and double risers where indicated, and where required to provide oil return.

3.3 CLEANING REFRIGERANT PIPING

Clean refrigerant piping by swabbing with dry lintless (linen) cloth, followed by refrigerant oil soaked swab. Remove excess oil by swabbing with cloth soaked in high flash point petroleum solvent, squeezed dry.

3.4 BLEED DRY REFRIGERANT PIPING

Bleed dry nitrogen through refrigerant piping during brazing operations.

3.5 VALVES

Install refrigerant valves where indicated, and in accordance with manufacturer's instructions. Remove accessible internal parts before soldering or brazing; replace after joints are completed.

3.6 SOLENOID VALVES

Install in refrigerant piping as indicated with stem pointing upwards.

3.7 CONNECTIONS

Connect refrigerant piping to mechanical equipment as indicated, and comply with equipment manufacturer's instructions where not otherwise indicated.

3.8 LEAK TESTING

- A. Refrigerant Piping Leak Test: Prior to initial operation, clean and test refrigerant piping in accordance with ANSI B31.5, "Refrigeration Piping".

Perform initial test with dry nitrogen, using soap solution to test all joints. Perform final test with 27" vacuum, and then 200 psi using halide torch. System must be entirely leak-free.

- B. Repair or replace refrigerant piping as required to eliminate leaks, and retest as specified to demonstrate compliance.

3.9 DEHYDRATION AND CHARGING SYSTEM

- A. Install core in filter dryer after leak test, but before evacuation.
- B. Evacuate refrigerant system with vacuum pump, until temperature of 35°F (2°C) is indicated on vacuum dehydration indicator.
- C. During evacuation apply heat to pockets, elbows, and low spots in piping.
- D. Maintain vacuum on system for minimum of 5 hours after closing valve between vacuum pump and system.
- E. Break vacuum with refrigerant gas, allow pressure to build up to 2 psi.
- F. Complete charging of system, using new filter dryer core in charging line. Provide full operating charge.

3.10 IDENTIFICATION

See Section 15100, "Mechanical General Requirements".

END OF SECTION 15530

SECTION 15772

SPLIT SYSTEM HVAC UNITS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections apply to work of this section.

1.2 SCOPE

Provide Split System type HVAC units as indicated, designed for roof and consisting of compressor, condenser, evaporator coil, condenser and evaporator fans, refrigeration and temperature controls, filters, and dampers. Provide capacities and electrical characteristics as scheduled.

1.3 QUALITY COMPLIANCE

- A. ARI Compliance: Test and rate split system units in accordance with ARI 210; sound test and rate unit in accordance with ARI 270 and provide Certified Ratings Seal.
- B. AGA Compliance: Furnaces shall be AGA certified.
- B. ASHRAE Compliance: Construct refrigerating system in accordance with ASHRAE 15. Provide EER not less than prescribed by ASHRAE 90A.
- C. UL Compliance: Provide split system units which is designed, manufactured, and tested in accordance with UL requirements. Unit shall have UL label.
- D. Submittal: Submit manufacturer's technical product data, assembly-type shop drawings, wiring diagrams, and maintenance data per Section 15100, "Mechanical General Requirements".
- E. Special Project Warranty: Extend warranty to 5-years for compressor and coil.
- F. Space Availability: Indoor and outdoor sections of units must fit within space made available for them as shown on drawings. Space available as shown are maximum including accessories.

- G. Manufacturers: Indoor and outdoor units shall be by same manufacturer and one of the following:

York Heating and Air Conditioning
The Trane Company
Carrier Corporation
McQuay Group

PART 2 - PRODUCTS

2.1 WARM AIR FURNACE

- A. Casing: Provide upflow condensing type furnace suitable for natural gas operation. Unit casing shall be constructed of galvanized steel with 1/2 inch thick neoprene-coated fiberglass insulation on all interior surfaces. Provide access panels to components, filters and electrical components. Provide primary and secondary drain connections external to casing. Casing shall have enamel finish in manufacturer's standard color. Provide low voltage terminal board or control box. Fan motor relay and transformer shall be factory mounted and wired internally.
- B. Evaporator: Evaporator coil shall be "A" frame type for mounting atop furnace as standard accessory. Coil shall have copper tube-aluminum fin type with refrigerant connections extended out through casing. Evaporator shall have drain pans internal refrigerant tubing and refrigerant flow controls (or thermal expansion valve) factory mounted. Evaporator shall be evacuated, dehydrated and charged with holding charge of nitrogen. Provide 24 Volt, 40 VA control transformer and cooling relay.
- C. Blower: Fan shall be forward curved, centrifugal fan with multispeed, direct drive motor.
- D. Filters: 1-inch permanent washable high velocity type.
- E. Vent Terminal Kit. Provide 3" dits including PVC piping.
- F. Combustion Air: Provide combustion air connections and PVC pipe to furnace per manufacturer's requirements and installation instructions.
- G. Return Air: Provide side filter rack and plenum.
- H. Unit manufacturer shall provide By-Pass Zone Control System including zone dampers, By-pass dampers and master control panel- see Section 15991, Automatic Temperature Controls.

2.2 OUTDOOR UNITS

- A. General: Furnish and install air cooled compressor-condenser units with heavy gauge steel cabinet finished with weather resistant paint in manufacturer's standard color. Unit shall have hermetic compressor with internal overload protection, off-cycle crankcase heaters and mounted on rubber pads. Compressor shall have internal high pressure relief valve. Electrical controls shall be weather protected.
- B. Condenser: Condenser shall be all aluminum construction, vertical air discharge and single speed condenser fan. Provide factory supplied liquid line filter drier, refrigerant charge and start capacitor and relay. Condenser fan shall have wire fan guard.
- C. Accessories:
 - 1. Compressor lockout thermostat with range 46°F to -10°F (adjustable)
 - 2. Low ambient protection for cooling down to 0°F outdoor ambient
 - 3. Timer to prevent compressor short cycling
 - 4. Low pressure switch

2.3 ELECTRONIC AIR CLEANER

Fully assembled heavy steel cabinet with glazed ceramic insulators, stainless steel contacts, solid state metal contactors and power supply, UL listing, 2.100 CFM rating and 120/60/1 power supply.

2.4 DUCT HUMIDIFIER

17.0 GPD capacity rating per ARI Standard 610-82, ABS plastic case, 6" Dia. bypass duct, float valve, manual bypass damper, 2 sets of media pads and transformer.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install split system indoor furnace and outdoor condensing units in accordance with manufacturer's installation instructions. Install unit plumb and level, firmly anchored in location indicated, and maintain manufacturer's recommended clearances.

- B. Support: Install unit on 6" thick concrete pads.
- C. Electrical Wiring: Install electrical devices furnished by manufacturer, but not specified to be factory-mounted. Furnish copy of manufacturer's wiring diagram submittal to Electrical Installer. Verify electrical wiring installation is in accordance with manufacturer's submittal and installation requirements of Division-16 sections. Do not proceed with equipment start-up until wiring installation is acceptable to Equipment Installer.
- D. Ductwork: Refer to Section 15841, "Low Pressure Ductwork and Accessories". Connect supply and return ducts to unit with flexible duct connections. Provide transitions to exactly match unit duct connection sizes.
- E. Start-up split system indoor and outdoor units in accordance with manufacturer's start-up instructions. Test controls and demonstrate compliance with requirements. Replace damaged or malfunctioning controls and equipment.

END OF SECTION 15772

SECTION 15841

LOW PRESSURE DUCTWORK AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and supplementary Conditions and Division-1 Specification sections apply to work of this section.

1.2 DESCRIPTION OF WORK

Extent of low pressure ductwork is indicated on drawings and in schedules, and by requirements of this section. Low pressure ductwork is defined as ductwork subjected to velocities of 2500 fpm or less, and operating pressure of 2" w.g. or less, positive or negative.

Types of low pressure ductwork required for project include the following:

Heating supply and return air systems
Fresh air supply systems
Mechanical exhaust systems
Gravity exhaust systems
Air relief systems

1.3 QUALITY COMPLIANCE

- A. SMACNA Standards: Comply with SMACNA "HVAC DUCT Construction Standards Metal and Flexible"; 1st Edition 1985.
- B. ASHRAE Standards: Comply with ASHRAE Handbook and Product Directory, 1988 Equipment Volume, Chapter 1 "Duct Construction", for fabrication and installation of low pressure ductwork.
- C. NFPA Compliance: Comply with the following as applicable:
 - 1. Standard HVAC supply, return, relief, transfer and exhaust ducts not itemized below:

NFPA 90A "Standard for the Installation of Air Conditioning and Ventilating Systems", 1985 Edition.

2. Dust, Stock and Vapor Exhaust

NFPA 91-1983 "Standard for the Installation of Blower and Exhaust Systems for Dust, Stock and Vapor Removal or Conveying".

D. Submittal

1. Product Data: Submit manufacturer's specifications on manufactured products and factory fabricated ductwork used for work of this section.
2. Shop Drawings: Submit dimensioned layouts of ductwork showing both the accurately scaled ductwork and its relation to space enclosure. Show modifications of indicated requirements made to conform to local shop practice, and how those modifications ensure that free area, materials, and rigidity are not reduced.
3. Provide submittal in accordance with Section 15100.

E. Dimensions

The size of ducts marked on the drawings will be adhered to as closely as possible. The right is reserved to vary duct sizes to accommodate structural conditions during progress of work with-out additional cost to Owners. Duct layout is schematic to indicate size and general arrangement only. All ducts shall be arranged to adjust to "field conditions". Sheet Metal Contractor shall coordinate work with Electrical Contractor and other trades.

PART 2 - PRODUCTS

2.1 DUCTS:

- A. Ducts shall be constructed of galvanized steel in accordance with the following table of duct sizes and latest ASHRAE Guide and Data Book unless otherwise shown on drawings.

<u>Standard Ducts</u>	<u>Dimensions of Longest Side</u>
	(inches)
	<u>Sheet Metal Gauge</u>
UP thru 12	26
13 - 39	24
31 - 54	22
55 - 84	20

B. Dampers and Splitters

All dampers and deflectors shall be a minimum of #22 gauge and stiffened as required. Splitter dampers shall be sized to perform control of air desired.

C. Flexible Connectors

Furnish and install flexible connections on air handling unit and exhaust fans. Connections shall be made from Ventglas neoprene coated glass fabric, as furnished by Ventfabrics, Inc., or equal.

D. Diffusers, Registers and Grilles

1. Grilles and/or registers shall be installed at all air supply, return and exhaust openings as shown. The following list is based on Price model numbers to establish standard of quality. Equal units by other manufacturers are acceptable. All units shall be steel and provided with white baked enamel finish and countersunk screw holes. Mounting screws shall be oval head type with head painted to match finish.
2. Return Registers Type C: Model 635DAL aluminum with stationary blades set on 1/2" centers and at 35 degree angle. Provide opposed blade damper, 1" surface mount border.
3. Exhaust Grilles Type D: Furnished by Ceiling Fan Manufacturer.
4. Ceiling Diffusers Type A: Round cone, round neck ceiling diffusers Model RCDA with fully adjustable discharge positions and combination damper, extractor and straightening grid.
5. Wall Supply Register Type B: Double deflection, aluminum register, 1 1/4" flat surface mount with front blades parallel to long dimension, Price Model 620 DAL.

E. Louver Sleeve

Provide galvanized sleeve through outside wall. Pitch bottom of sleeve to drain louver and intake duct.

F. Sealant

All ducts are to be sealed, including outside air intakes with water based, non-combustible sealant equal to multipurpose sealant by Transcontinental Limited.

G. Duct Lining

No duct lining is required.

H. Duct Access Doors

Hinged insulated access doors with seals shall be provided in ducts where indicated on drawings, or as required. Units shall be provided at each fire damper unless accessible through grilles and as shown on drawings. Doors equal Ruskin ADH-1.

I. Motor Operated Damper

Motor operated control damper mounted in duct shall be provided by Temperature Control Contractor, but installed by this Contractor.

J. Manual Dampers

Manual dampers with smallest dimension larger than 5 shall be opposed blade steel, 18 gauge construction, and provided with locking quadrant. Unit shall be equal to Ruskin type MD35.

K. Flexible Duct

Provide and install where shown on drawings, wire reinforced aluminum foil flexible duct. Duct shall be for a positive working pressure of 2 w.g. positive pressure as manufactured by General Flex Type LT, or approved equal. Duct internal diameter shall be same size as diffuser served.

L. Spin-in-Fittings

Provide and install spin-in duct fittings complete with 45° air scoop and manual damper, ATCO MSI-6, or approved equal. Provide insulation guard for units in lined duct. Units shall be same size as diffusers served.

M. Louver

Provide louver equal to Ruskin Model ELF-6375D.

PART 3 - EXECUTION

3.1 GENERAL

Assemble and install ductwork in accordance with recognized industry practices to achieve air tight (5% leakage) and noiseless (no objectional noise) systems, and capable of performing each indicated service. Install each run with minimum of joints. Align ductwork accurately at connections, within 1/8" misalignment tolerance and with internal surfaces smooth. Support ducts rigidly with suitable ties, braces, hangers and anchors of type which will hold ducts true-to-shape and to prevent buckling.

3.2 SEALING DUCT

After installation to seal class recommended in SMACNA "HVAC Duct Standards - 1st Edition 1985". Use sealant described in Paragraph 2.1 (F) of this section. All joints in sheetmetal ducts shall be made airtight, and all branches and turns shall be made with long radius elbows and fittings. If long radius elbows are not used, elbows shall be provided with fixed double wall turning vanes designed to reduce resistance of the elbow to equivalent of a long radius elbow with throat radius not less than duct width.

3.3 LOCATION OF DUCT

- A. Locate ductwork runs, except as indicated otherwise, vertically and horizontally and avoid diagonal runs wherever possible. Locate runs as indicated by diagrams, details and notations or if not otherwise indicated, run ductwork in shortest route which does not obstruct usable space or block access for servicing building and its equipment. Hold ducts close to walls overhead construction, columns, and other structural and permanent enclosure elements of building. Limit clearance to 1/2" where furring is shown for enclosure or concealment of ducts, but allow for insulation thickness, if any. Where possible, locate insulated ductwork for 1" clearance outside of insulation. Wherever possible in finished and occupied spaces, conceal ductwork from view by locating mechanical shafts, hollow wall construction or above suspended ceilings. Do not encase horizontal runs in solid partitions except as specifically shown. Coordinate layout with suspended ceiling, lighting layouts and similar finished work.
- B. Electrical Equipment Spaces: Do not run ductwork through transformer vaults and electrical equipment spaces and enclosures.
- C. Where ducts pass through interior partitions and exterior walls, conceal space between construction opening and duct or duct-plus-insulation with sheet metal flanges of same gauge as duct. Overlap opening on 4 sides by at least 1-1 1/2".

- D. Coordinate duct installations with installation of accessories, dampers, coil frames, equipment, controls and other associated work of ductwork system.
- E. Support ductwork in manner complying with SMACNA "HVAC Duct Standards - 1st Edition 1985" hangers and supports section.

3.4 CLEANING AND PROTECTION

- A. Clean ductwork internally of dust and debris, unit by unit as it is installed. Clean external surfaces of foreign substances which might cause corrosive deterioration of metal or, where ductwork is to be painted, might interfere with painting or cause paint deterioration.
- B. Strip protective paper from stainless ductwork surfaces, and repair finish wherever it has been damaged.
- C. Temporary Closure: At ends of ducts which are not connected to equipment or air distribution devices at time of ductwork installation, provide temporary closure of polyethylene film or other covering which will prevent entrance of dust and debris until such time connections are to be completed.

3.5 BALANCING

Not work of this section. Refer to section, "Testing, Adjusting and Balancing" for air distribution balancing of low pressure ductwork. Seal any leaks in ductwork that become apparent in balancing process.

END OF SECTION 15841

SECTION 15860

FANS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

General Provisions of Contract, including General and Supplementary Conditions and General Requirements (if any) apply to work specified in this section.

1.2 DESCRIPTION OF WORK

A. Work Included

Furnish and install fans required for work of this section. Provide products of sizes, ratings and characteristics indicated in this section and on drawings.

B. Related work not included in this section and specified elsewhere:

1. Ductwork and Louvers: Section 15841, "Low Pressure Ductwork and Accessories".
2. Kitchen Hoods: Section 15841, "Low Pressure Ductwork and Accessories".
3. Electrical: Section 15100, "Mechanical General Requirements" and Division 16.

1.3 QUALITY OF COMPLIANCE

A. Codes and Standards

1. AMCA Compliance: Provide fans bearing AMCA Certified Ratings Seal. Sound rate fans in accordance with AMCA 300 "Test Code for Sound Rating Air Moving Devices".
2. ASHRAE Compliance: Test and rate fans in accordance with ASHRAE 51 (AMCA 210) "Laboratory Methods of Testing Fans for Rating".
3. UL Compliance: Provide fan electrical components which have been listed and labeled by UL.

B. Submittal

1. Product Data: Submit manufacturer's technical product data for centrifugal fans, including specifications, capacity ratings, fan performance curves with operating point clearly indicated, gages and finishes of materials, dimensions, weights, accessories furnished, and installation instructions.
2. Shop Drawings: Submit assembly type shop drawings showing fan dimensions, required clearances, construction details, and field connection details.
3. Wiring Diagrams: Submit manufacturer's electrical requirements for power supply wiring to fan units. Submit manufacturer's ladder type wiring diagrams for interlock and control wiring. Clearly differentiate between portions of wiring that are factory installed and portions to be field installed.
4. Maintenance Data: Submit maintenance instructions, including lubrication instructions, motor and drive replacement and spare parts lists. Include this data, product data, shop drawings, and wiring diagrams in maintenance manuals in accordance with requirements of Section 15100, "Mechanical General Requirements".

C. Manufacturers

Fan model numbers indicated are based on ACME, with equal fans by Ilg, Cook and Penn are acceptable.

PART 2 - PRODUCTS

2.1 CEILING FANS

Ceiling fans shall be equal to ACME Model CCV Series ceiling and in-line type as shown. Fan shall be direct drive with integral thermal overload protected motors, centrifugal wheel, backdraft dampers and acoustically insulated housing. Provide solid state speed control and in-line adaptor plates (as needed). Unit shall be constructed to permit access to fan and motor without disturbing ductwork. Provide roof jacks with backdraft damper for each fan.

2.2 VIBRATION CONTROL

All fans shown with vibration isolators on drawings shall be provided with rubber-in-shear type unless otherwise indicated.

PART 3 - EXECUTION

- A. General: Install fans where indicated, in accordance with manufacturer's installation instructions, and with recognized industry practices to ensure that fans comply with requirements and serve intended purposes.
- B. Access: Provide access and service space around and over fans as indicated, but in no case less than that recommended by manufacturer.
- C. Test: Upon completion of installation of centrifugal fans, and after motor has been energized with normal power source, test equipment to demonstrate compliance with requirements. Where possible, field correct malfunctioning equipment, then re-test to demonstrate compliance. Replace equipment which cannot be satisfactorily corrected.

END OF SECTION 15860

SECTION 15880

TESTING AND ADJUSTING (T&A) WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

General Provisions of Contract, including General and supplementary conditions and General Requirements (if any) apply to work specified in this Section.

1.2 SCOPE

A. Applicable requirements of General and Supplementary Conditions, General Requirements and General Provisions apply to all work under this Section.

B. Work included:

1. Scope
2. General
3. T & A Preliminary Requirements
4. Supervision
5. T & A Procedures
6. T & A Instrumentation
7. Adjustment Tolerance
8. Drive Assemblies
9. Manual Volume Dampers
10. Hydronic Adjustments
11. Minimum Outside Air Quantities
12. Ceiling Access

13. T & A data forms
14. Guarantee
15. Final Requirements

1.3 GENERAL

- A. All reference to Contractor in this Section refers to Testing and Adjusting Contractor unless otherwise indicated.
- B. All Contractors shall be current members in good standing of AABC, NEBB or SMACNA, employing a minimum of one (1) certified T&A supervisor.
- C. Contractor is advised that area served by HVAC system are fully occupied on a daily basis, requiring continuous system operation during normal hours.
- D. Contractor shall keep dust, dirt and debris to absolute minimum and reinstall all removed ceiling tiles to original positions at end of each day, unless Owner has given permission to do otherwise.
- E. All T&A work shall be based on standard work day, unless Contractor chooses to work on a second shift basis at no additional cost to Owner. If Owner requests that work be done at other than standard time, T&A Contractor cost shall be adjusted accordingly.
- F. Contractor shall be solely responsible for protection and safeguarding work and shall provide protection against accidents, injury and damage to persons and property.
- G. Contractor shall begin work upon verbal notice to proceed and shall perform work to final completion.

1.4 T&A PRELIMINARY REQUIREMENTS

- A. Complete set of approved mechanical-equipment shop drawings shall be obtained from Mechanical Contractor.
- B. Complete set of as-built mechanical drawings shall be provided by Mechanical Contractor.

1.5 SUPERVISION

Certified T&A supervisor shall give personal supervision to all work performed by field technicians, one of whom shall serve as foreman and personal representative to the supervisor.

1.6 T&A INSTRUMENTATION

- A. Contractor shall provide all necessary instrumentation, tools, and ladders to complete work.
- B. Instrumentation shall be in accordance with AABC, NEBB or SMACNA requirements and shall be calibrated to accuracy standard demanded by these organizations. Copies of current calibration certificates shall be available to Engineer on request.
- C. Flow-measuring hoods (manufactured, not fabricated) will be acceptable for measurement of ceiling diffuser performance only.
- D. Contractor shall adjust equipment in accordance with capacities shown on drawings, with permissible tolerances as follows:

1.4 T&A PRELIMINARY REQUIREMENTS

- A. Complete set of approved mechanical-equipment shop drawing shall be obtained from Mechanical Contractor.
- B. Complete set of as-built mechanical drawings shall be provided by Mechanical Contractor.

1.5 SUPERVISION

Certified T&A supervisor shall give personal supervision to all work performed by field technicians, one of whom shall serve as foreman and personal representative of the supervisor.

1.6 T&A PROCEDURES

- A. All T&A work, whether air or hydronic, is to be performed in compliance with the Standard Procedure Manual published by the T&A organization affiliated with Contractor.

B. Contractor shall submit one (1) copy of Standard Procedure Manual to Engineer.

1.7 T&A INSTRUMENTATION

- A. Contractor shall provide all necessary instrumentation, tools and ladders to complete work.
- B. Instrumentation shall be in accordance with AABC, NEBB or SMACNA requirements and shall be calibrated to accuracy standards demanded by these organizations. Copies of current calibration certificates shall be available to Engineer on request.
- C. Flow-measuring hoods (manufactured, not fabricated) will be acceptable for measurement of ceiling diffuser performance only.
- D. Contractor shall assume full responsibility for safe keeping of all instrumentation during the course of work.

1.8 ADJUSTMENT TOLERANCE

A. Contractor shall adjust equipment in accordance with capacities shown on drawings, with permissible tolerances as follows:

Supply fans	+5% to 10%
Return/exhaust fans	+5% to 10%
Diffusers/supply grilles	0% to +10%
Return grilles	0% to -10%
Exhaust grilles	0% to -10%
Heating gpm	0% to -10%
Cooling gpm	0% to -10%

1.9 DRIVE ASSEMBLIES

In event that drive assemblies require change in belts and pulleys, or require increase in motor horsepower, Contractor shall:

1. Determine size of replacement equipment
2. Advise Mechanical Contractor of total installation cost
3. Request formal approval for increase in T&A Contract

4. Obtain and install replacement equipment, upon formal authorization from Engineer.

1.10 MANUAL VOLUME DAMPERS

- A. If additional manual volume dampers are required to achieve required system adjustments, Contractor shall notify Mechanical Contractor and Engineer of sizes required and location of each. Costs shall be extra to contract
- B. In all cases, air volumes shall be adjusted by means of manual dampers in ductwork, not by integral dampers in terminal outlets or inlets.
- C. Duct damper positions shall be marked with permanent-ink markers or black spray paint after final setting has been made.

1.11 HYDRONIC ADJUSTMENTS

- A. Contractor shall obtain specified gpm requirement through all circulating pumps, primary and secondary coils, unit heaters, heat exchanger and radiation by adjustment to specified pressure drop shown on equipment schedules.
- B. Measurement of inlet and outlet pressures shall be made with a needle-stem pressure gauge inserted in test plugs on each piece of equipment.
- C. Contractor shall adjust all gpm through flow-metering devices and include all flow-meter readings in final report.

1.12 MINIMUM OUTSIDE AIR QUANTITIES

- A. Minimum or fixed outside-air quantities shall be determined by measurement of outside/return/mixed-air temperatures, correlated to percentage of outside air (see the accompanying sample nomograph.)
- B. It is recommended that mixed-air temperature be taken in discharge ductwork, after isolating coils, to reduce potential for erroneous reading due to temperature stratification.

1.13 CEILING ACCESS

- A. Contractor shall be responsible for removal and reinstallation of ceiling tile and replacement of any tile damaged by T&A technicians in performing work.

- B. If access to ceiling space is impossible due to plaster or spline construction, cost of installing access panels shall be considered extra to T&A or Mechanical Contractor.

1.14 T&A DATA FORMS

- A. All field data pertaining to air and hydronic adjustments must be tabulated and submitted on standard forms of AABC, NEBB or SMACNA.
- B. T&A foreman shall sign and date each form in space provided and Supervisor's proof of certification shall accompany final report.

1.15 GUARANTEE

Contractor guarantees that all work was performed under supervision of a supervisor certified in accordance with AABC, NEBB or SMACNA standards and procedures.

1.16 FINAL REQUIREMENT

- A. For a period of one month following submittal of final T&A report, Contractor shall make such adjustments as may be deemed necessary by Owner or Engineer to achieve complete satisfaction in system operation.
- B. Contractor shall submit six (6) copies of certified report to Engineer for approval.

END OF SECTION 15880

SECTION 15991

AUTOMATIC TEMPERATURE CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and supplementary conditions and Division-1 Specification Sections apply to work of this section.

1.2 DESCRIPTION OF WORK

A. General

1. Furnish and install a complete system of electric/ electronic temperature controls.
2. Control system shall consist of Master System Controller (MSC) for each of four (4) ByPass Variable Air Volume (BPVAV) systems; together with control of exhaust fans, outdoor air damper and humidity.

B. Submittal Brochure

The following shall be submitted for approval:

- a. Control drawings with detailed wiring diagrams, including bill of material and description of operation for all systems.
- b. Panel layouts and name plate lists for all local and central panels.
- c. Damper schedules showing size, configuration, capacity and location of all equipment.
- d. Product data for all control system components.

C. Instruction and Adjustment

1. Upon completion of the project, the Temperature Control Contractor shall:
 - a. Adjust for use by Owner, all sensors, controllers, damper operators, and relays provided under this section.

- b. Furnish two (2) instruction manuals covering function and operation of control systems for use of the Owner's operating personnel. A competent technician shall be provided for instruction purposes.

D. Guarantee

Control system shall be guaranteed to be free from original defects in both material and workmanship for a period of one (1) year of normal use and service. This guarantee shall become effective starting the date Architect agrees Owner has begun to receive beneficial use of the system.

1.3 INCIDENTAL WORK BY OTHERS

The following incidental work shall be furnished by the designated Contractor under the supervision of the Temperature Control Contractor.

1. HVAC Contractor shall:
Furnish and install all necessary.
2. Sheet Metal Contractor shall:
 - a. Install all automatic dampers as well as Zone and By-Pass dampers.
 - b. Provide necessary blank-off plates required to install dampers that are smaller than duct size.
 - c. Provide access doors or other approved means of access through ducts for service to control equipment.
3. The General Contractor shall:
 - a. Provide all necessary cutting, patching, and painting.
 - b. Provide access doors or other approved means of access through ceilings and walls for service to control equipment.

1.4 WIRING

- A. All wiring for installation of temperature controls shall be by Temperature Control Contractor. Power wiring for equipment shall be by Electrical Contractor.
- B. All wiring shall comply with requirements of Electrical Section 16000 of the Specification.

PART 2 - PRODUCTS

2.1 BY-PASS VARIABLE AIR VOLUME (BPVAV) SYSTEM CONTROL

A. Master system controller (MSC) shall be configurable as heating controller with inputs and outputs required to control system including heating and cooling functions. Provide transformers. Input/Outputs for control of (4) zones of heating and cooling shall include:

1. By-pass damper control
2. Static pressure sensor
3. Supply air temperature sensor
4. Zone sensors
5. Zone controllers

B. Master system controller (MSC) shall scan unit control modules to determine deviations from set points, time of deviation, time from last changeover and number of unit control modules requiring heating or cooling. MSC shall select system heat/cool and stage of capacity. MSC shall monitor air temperature to ensure high and low temperature limits are maintained. System temperature control shall be maintained with relays to sequence furnace heating/cooling. Heating shall be in one stage. MSC shall monitor system air velocity to maintain air flow through system by modulating by-pass air damper. MSC shall monitor system air velocity to maintain air flow through system by modulating by-pass air damper.

C. Sequence of Operation:

System:

1. Unit controller shall monitor zone temperature against set point and varies damper position to meet zone set points. Airflow is limited by minimum and maximum position set points.
2. Unit controller shall be instructed by central system controller to operate as heating and cooling control damper.
3. As zone temperature reaches heating and cooling set point, controller controls air volume to heating or cooling minimum position set point. Minimum position set points shall be factory set, field adjustable and be separate from cooling minimum position set point.

2.2 OTHER CONTROLS

A. Exhaust Fans:

Fans shall operate from fan-light switches provided by Electrical Contractor.

B. Outside Air:

Separate time clock shall open or close motor operated damper in outside air duct according to occupied/unoccupied schedule.

2.3 HUMIDIFICATION

Humidistat shall energize duct humidifier to satisfy set point of 50% RH. Wire control so that humidifier is OFF during call for cooling or when furnace is idling.

END OF SECTION 15991

SECTION 16000

ELECTRICAL

PART 1 GENERAL

1.1 General Provisions

- A. General Provisions - All Contractors, Subcontractors and material suppliers shall be responsible for becoming fully informed of all specifications, procedures, etc., given in the General portion of these Specifications as well as all Addenda, any other divisions of the Specifications, and all drawings as they may affect the work of this Division or the coordination of this work with that of others.

1.2 Scope of Work

- A. The work described herein shall be interpreted as work to be done by the Electrical Subcontractor. Work to be performed by other trades will always be specifically referenced to a particular Contractor or Subcontractor.
- B. The work covered by this section consists of furnishing all labor, materials, equipment, supplies, fixtures, devices, etc., and in performing all operations including setting sleeves, channelling and chasing necessary for the installation of a complete wiring system, all in strict accordance with this section of the specifications and the accompanying drawings and subject to the terms and conditions of the contract and including but not restricted to the following:
 - (1) Underground secondary
 - (2) Underground telephone and TV
 - (3) Service equipment
 - (4) Panel and switches
 - (5) Fixtures and lamps
 - (6) Temporary light and power
 - (7) Wiring devices and plates
 - (8) Equipment connections
 - (9) Interior telephone conduit and outlets
 - (10) TV outlet, wiring and conduit system
 - (11) Fire alarm system

(12) Emergency lighting

(13) Exit lights

(14) Record plans of "As-Built" construction

C. Related work specified elsewhere. The following work is not included under the electrical section.

(1) Excavation and backfilling

(2) Payment for all energy for temporary light and power, including energy for testing.

(3) The concrete bases for light standards.

(4) All finish painting is included under the work of finish painting.

D. Other requirements of this section. The Electrical Subcontractor shall study the specifications of the other phases of the General Contract and all of its subdivisions. All electrical work and wiring material requirements, including unit supplied by others, but not motors of appliances which may be necessary therein, are to be considered as part of and required under the Electrical Subcontractor's specifications and contract, even though as such no mention or notations have been included in the Electrical Drawings or specifications, unless same shall have been specifically excluded as Electrical Subcontractor's requirements.

1.3 General

A. This Contractor shall furnish and install temporary wiring for use of all trades throughout the building as follows: a 20 amp-120 volt source shall be available at all areas of construction with a 50 ft. extension cord.

B. This Contractor shall furnish and install a temporary lighting system per OSHA and ANSI requirements. The minimum light level maintained during construction shall be 10 footcandles in all spaces/locations of the construction project when measured 12" above the floor or ground surface.

C. This Contractor is hereby advised to visit the proposed building site to acquaint himself with general conditions of the terrain. No concession will be made in favor of the Contractor for difficulties incurred as a result of failure to visit the site.

D. This Contractor shall coordinate his work with the progress of the building and other trades such that he shall complete his work as soon as conditions permit and so that interruptions of building functions will be at a minimum. Any overtime hours worked or additional costs incurred due to lack of or improper coordination with other trades or the Owners by this Contractor shall be assumed by this Contractor without any additional cost to the Owner.

E. Waste material shall be removed promptly from the premises. All material and equipment

stored on the premises shall be kept in a neat and orderly fashion. No material shall be stored where exposed to adverse weather conditions.

- F. This Contractor shall erect and maintain at all times necessary safeguards for the protection of life and property of Owners, workmen, staff, and public.
- G. After the interior wiring system installation is completed, and at such time as the Engineer or Owner may direct, the Contractor shall conduct an operating test for approval. The test shall be performed in the presence of the Owner, Engineer, or their authorized representative. The Contractor shall furnish all instruments and personnel required for the tests, and the Owner will furnish the necessary electric power.
- H. The Contractor shall guarantee in writing all workmanship, materials and equipment to be free from defects for period of one year from date of acceptance of the project, and shall make good any and all defects within that period without cost to the Owner.
- I. No change shall be made from the work, equipment or materials as called for by the Specification and the accompanying drawings, except on a written order of the Owner. When such changes reduce the Contractor's materials, labor, equipment or expense, the saving thus affected shall be used in full to reduce the contract price. No charge for extra work will be allowed unless such extra work has been authorized by a written order of the Owner, stating the change to be made for such work.

1.4 Codes and Standards

- A. Unless otherwise indicated in writing by the Architect or Engineer, the materials furnished under this specification shall be the standard products of manufacturers regularly engaged in the production of such equipment and shall be the manufacturer's latest standard design and shall also conform to such standards as to their quality and fabrication as have been established by the following:
 - (1) National Electrical Code (current edition)
 - (2) State Department of Public Safety
 - (3) Standards of the Underwriter's Laboratories (UL)
 - (4) National Electric Safety Code, American National Standards Institute
 - (5) Institute of Electrical and Electronic Engineers (IEEE)
 - (6) National Electrical Manufacturer's Association (NEMA)
 - (7) American Society for Testing and Materials (ASTM)
 - (8) Local Codes

- B. Where the contract documents indicate more stringent requirements than the above codes and ordinances, the contract documents shall take precedence.
- C. The installation shall comply with all local laws applying to the electrical installation in effect with regulations or any other governmental body or agency having jurisdiction, and with the regulations of the National Electrical Code where such regulations do not conflict with those laws.
- D. This Contractor shall obtain and pay for all permits required by local ordinances. After completion of the work, this Contractor shall furnish to the Engineer, for the Owner, a certificate of final inspection and approval from the Inspection Bureau having jurisdiction.

1.5 Drawings

- A. The Contract drawings indicate the extent and schematic arrangement of the conduit and wiring systems. If any departure from the drawings are deemed necessary by the Contractor, details of such departures shall be submitted as soon as practical and within 30 days after award of contract, to the Engineer for approval. No such departures shall be made without the prior written approval of the Engineer.
- B. These specifications are accompanied by floor plans of the building showing the location of outlets, switch controls, devices, panels, service and feeder distribution, telephone outlets, power apparatus, and equipment. Schematic wiring diagrams, structure construction, working drawings, and certain details are also shown. The drawings, except the structure, are intended to indicate only diagrammatically the extent, general character and approximate locations of the work included. Work indicated but having minor details obviously omitted, shall be furnished complete to perform the function intended without additional cost to the Owners.
- C. The Architectural, Structural, and Mechanical Drawings should be followed and this section of the work fitted thereto. If any departures from the contract drawings are deemed necessary by this Contractor, details of such departures and the reasons therefore shall be submitted, as soon as practical and within 30 days after award of the contract, to the Engineer for approval. No departures shall be made without the prior written approval of the Engineer or his authorized agent.
- D. The drawings and these specifications are complementary each to the other and any items specified but not shown or vice versa shall be referred to the Engineer for clarification and shall consequently be furnished and installed as if both shown and specified.
- E. Record drawings of all changes to the contract plans shall be kept during construction, and one clean set of prints neatly marked in red ink shall be turned over to the Engineer upon completion of the project, for the Owner's use. Refer to Section 01700 - "Project Closeout", paragraph 1.07, for procedure for recording all changes.

1.6 Materials and Workmanship

- A. The materials and workmanship shall be the best of their kinds and in full accord with the most modern electrical construction. All materials shall be new.
- B. Defective equipment or equipment damaged in the course of installation or test shall be replaced or repaired in a manner meeting the approval of the Engineer.
- C. The contractor shall not assume that equipment, the manufacturer of which is not listed in these specifications and drawings, may be substituted for that specified. Any unlisted material must be approved by the engineer prior to bidding.
- D. In cases where equipment and materials are specifically specified, equal substitute material will be permitted only upon specific approval in writing by the Engineer before the installation is made or material ordered.
- E. This Contractor shall submit detailed shop drawings (cuts, brochures, drawings including custom schematics of systems, etc.) in sextuplets (6) within 30 days after award of Contract to the Engineer for review. Submittals to include but not be limited to the following:
 - (1) Panel
 - (2) Lighting fixtures and lamps
 - (3) Wiring devices including switches and receptacles
 - (4) Control devices
 - (5) Time clocks
 - (6) Disconnect switches, starters
 - (7) Fire alarm system
 - (8) Exit lights
 - (9) Emergency Lighting
- F. All shop drawings shall be submitted at one time and partial submittals forwarded from time to time will not be accepted.
- G. Corrections or comments made on the shop drawings during this review do not relieve the Contractor from compliance with the requirements of the drawings and specifications. This check is only for review of general conformance with the design concept of the project and general compliance with the information given in the contract documents. The Contractor is responsible for confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; and performing his work in a safe manner.

Furthermore, all shop drawings shall have the Contractor mark stating he has reviewed same for conformance to drawings and specifications, including all Addenda.

- H. Contractor shall prepare and attach to shop drawing submittal a Certificate of Compliance on contractor's letterhead using the form included below. If submittal drawings are bound as a brochure, then one (1) Certificate of Compliance may cover all items in the brochure; however, all variations must be listed with appropriate reference to items in the brochure.
- I. At the completion of the work, this Contractor shall turn over to the Engineer, for the Owner's use, three (3) sets of operating and maintenance instructions of all equipment. The Contractor shall explain and demonstrate the operation of each system to the Owner's representative.

1.7 Electrical Service System

- A. This Contractor shall coordinate with the local utility companies to provide the service entrances (electrical, CATV and telephone) as indicated and specified and so as to be in the best interests of the Owner.

(Contractor's Letterhead or Name, Address and Telephone No.)

CERTIFICATE OF COMPLIANCE
FOR SUBMITTALS

Project Name: _____

General Contractor: _____

Sub Contractor: _____

SECTION 16000

It is certified that material, equipment, etc., shown and marked in this submittal, shop drawing, catalog cut, etc., and proposed to be incorporated in this Contract, is in compliance with the contract drawings and specifications, can be installed in allocated space, and is approved for use and submitted for review.

Date: _____

Signature of Contractor (not vendor): _____

Print name: _____

Check one:

_____ This submission contains variations from contract documents. Each variation is described in detail (below or on attached sheet).

_____ This submission contains no variations from the Contract Documents.

PART 2 PRODUCTS

2.1 Raceways and Fitting

- A. Wiring in masonry walls and in steel stud walls shall be run in electrical metallic tubing. Concealed wiring in wood stud walls and above ceilings may be run in non-metallic sheathed cable. Wiring run in or under slab or below grade shall be run in either rigid steel conduit or PVC Schedule 40.
- B. All feeders to lighting and power panels shall be run in EMT above slab and conduit in or below slab.
- C. Elsewhere, EMT, MC or armored cable may be used. If cable is used, all wiring to other than lighting fixtures shall have a separate grounding wire within the MC sheath, i.e, the sheaths will not be considered as the ground (but must be grounded at each end).
- D. Connectors for EMT conduit shall be all steel.

2.2 Conductors

- A. A complete system of conductors shall be installed in the raceway systems. Line voltage branch circuit conductors shall be #12 AWG, copper, minimum except as otherwise note on the drawings.
- B. Conductors shall be thermoplastic insulated, Type THW, THWN, THHN or XHHW (where permissible).
- C. All reference to wire size is intended as copper wire. Aluminum may be used for #6AWG and larger if the capacity is made equal and the proper connectors are used. Where aluminum wire is used, install on each end of the wire, Square D Type CEP connectors. Install connectors with proper compression tool. Use anti-oxide paste on all aluminum wiring.

2.3 Electrical Service System

- A. Furnish and install secondary wire and conduits.
- B. The installation shall be in strict accordance with the standards of the utility company.
- C. The building secondary service shall be single phase, 3 wire 120/240V, underground from terminal pole to switch via meter.
- D. Provide underground telephone and TV conduit from terminal pole.

2.4 Electrical Entrance Equipment

- A. The Contractor shall provide service equipment panelboard of sufficient size to properly contain without crowding the equipment indicated thereon.
- B. Panelboards shall be constructed of wood, 3/4" minimum thickness set out from masonry or concrete walls on brackets. Panelboard and brackets shall be painted two coats of black enamel paint before any equipment is mounted thereon. All equipment shall be bolted thereon.

2.5 Grounding System

- A. The entire electrical installation shall be provided with a system ground connected to the water service entrance pipe, building steel and also connected to a 5/8" x 8'-0" ground rod. Installation shall be in accordance with N.E.C. requirements. See Tables 250-94(a) and 250-95 (N.E.C).
- B. Run a separate grounding wire to all outlets. Run a second, isolated ground wire to any and all isolated ground receptacles.
- C. Ground wire secured under conduit bushings or cable clamps will not be permitted.

2.6 Electrical Distribution System

- A. This Contractor shall furnish and install where indicated on the drawings, disconnect switches fused as required and of a size as indicated or required.
- B. Switches shall have NEMA rating as required, and be heavy duty type, Square D, Siemens, General Electric or Westinghouse.
- C. This Contractor shall furnish and install where indicated on the drawings, magnetic controllers of a size indicated or required unless otherwise specified. (See Equipment Connections).
- D. Controllers shall have NEMA rating as required, and be horsepower rated Square D, Siemens, General Electric or Westinghouse.
- E. Fuses shall be furnished and installed for all fused switches provided under this section, of a size as indicated or required. One complete set of spare fuses shall be delivered to the Owner for each type of switch requiring fuses.
- F. The Contractor shall furnish and install on each panel, disconnect switch and fire alarm panel a name plate of engraved plastic material inscribed with the purpose of the particular piece of equipment.
- G. Lighting panel shall be single phase, 3 wire, solid neutral for operation on 120/240 volt system, factory assembled with bolted type circuit breakers, Square D, Siemens, General Electric, Westinghouse or Cutler Hammer. Panels shall be for surface mounting, and with main breaker

as indicated on the panel schedule.

- H. Provide number of circuits, number of poles, ampere ratings, spare breakers, and spaces, all as indicated on the panel schedules.
- I. Cabinet boxes shall be constructed of zinc-coated sheet steel and shall conform to the requirements of Underwriters' Laboratories, Inc., Standard for cabinets and cutout boxes. Box shall be zinc-coated after fabrication. Trim shall have a baked-on primer coat and baked enamel finish. Each panel shall be fitted with hinged door having keyed combination lock and latch, and metal frame on inside with neatly typed directory, identifying each circuit, mounted under isinglass. Circuit breakers and directory shall be correspondingly identified. All panels shall be keyed alike.

2.7 Wiring Devices

- A. This Contractor shall furnish and install receptacles and switches equal to the following:
 - (1) Wall Switches: Leviton #CS120 series, Ivory. Hubbell, Pass & Seymour, Bryant or Arrowhart are acceptable.
 - (2) Duplex receptacles: Leviton #5362, Ivory. Hubbell, Pass & Seymour, Bryant or Arrowhart are acceptable.
 - (3) Ground fault receptacles: Leviton, 6898 with indicator light
 - (4) Switch and receptacle plates shall be ivory nylon, brown nylon, grey nylon (Rea), brush finish stainless steel.
- B. Provide devices and/or plates for all outlets whether specifically mentioned or not, including telephone and computer outlets.
- C. Range receptacle shall be Leviton, Arrowhart, Bryant or Pass & Seymour, rated 50A, 250V, 4 wire grounded type.

2.8 Lighting Fixtures

- A. This Contractor shall furnish, install and connect complete to the wiring system, ready for proper and satisfactory operation, all lighting fixtures shown. The number and type of lighting fixtures are as shown on the drawing, and as scheduled herein. The manufacturer's name and catalog numbers referred to are given for identification of type of fixtures desired for locations as indicated on the drawings. Fixtures of other manufacturers, similar in design and equal in operation, efficiency, utilization, quality and finish to the various units scheduled may be submitted as substitutes, provided cuts of units, together with all necessary and pertinent photometric and construction data and prices, showing either additional cost or saving to the Owner, are included with, but not as part of the bidding documents. This Contractor shall not assume that a fixture may be substituted or to show or include same in his bid.

- B. Each fixture shall be supplied with the necessary end caps, straps, supports, hangers, canopies, or other miscellaneous materials and devices to install them in a satisfactory manner and to conform to the architectural treatment in the areas in which they are to be installed. The Contractor shall consult all architectural and structural plans, etc., in order that he may familiarize himself with all necessary details for the various units to be installed throughout the project. Failure to do this will not relieve him of furnishing the necessary materials, etc., to perform the function intended for the lighting system as shown on the drawings.
- C. Furthermore, this contractor shall determine and coordinate the proper ceiling mounting apparatus (i.e., grid, flange, etc.) for all lighting fixtures. It shall be the responsibility of the contractor to modify any and all fixtures as listed in the Fixture Schedule such that the fixtures shall adapt to the ceiling.
- D. In general, all fixtures shall bear the Underwriters' Inspection Label, and be ETL certified. All fluorescent ballast shall be high power factor type and ETL certified under CBM. Ballasts shall be electronic type, Magnetec-Universal or approved equal, and compatible to the lamps.
- E. All fixtures shall have installed therein a lamp of wattage noted and as required for each unit. Fluorescent lamps shall be energy saving type (32 watt, Sylvania Octron T8 or G.E. Trimline, 3500K color temperature, or approved equal) and compatible with ballasts. Lamps installed in fixtures shall be orientated in the same direction for each area. Lamps shall be rated at 125 volts. All lamps shall be furnished by the Contractor. All incandescent lamps shall be extended life type.
- F. All PL or quad type lamps shall be four pin type with electronic ballasts.
- G. Recessed fixtures shall include thermal protection and shall so be identified as thermally protected.
- H. All fluorescent fixtures shall be rapid start type unless noted otherwise.
- I. This Contractor shall furnish and install exit lights where shown and as diagrammed on the drawings. Fixtures shall be surface mounted, wall or ceiling (as indicated), universal mount, self-contained, red LED, nickel-cadmium battery. Prescolite Lite Plate series, Atlite PNL series or approved equal. Provide single or double face and arrows, as indicated.
- J. This Contractor shall furnish and install exit lights where shown and as diagrammed on the drawings.
- K. This Contractor shall furnish and install where and as shown on the drawings, and as specified, complete and operating battery operated emergency lighting unit.
- L. Unit shall be equipped with pure lead batteries and 12 watt tungsten halogen lamps, similar to Lightalarm, Dynaray or Dual-lite.

2.9 Telephone System Conduit and Outlets

- A. Provide a telephone service and voice/data conduit and outlets as shown on the drawings and as herein specified.
- B. This Contractor shall verify the installation as drawn and specified with the Engineer before any work is started. Wire shall be submitted as a shop drawing.

2.10 Cable TV Distribution System

- A. This contractor shall start the work for the cable TV system at the utility pole. Furnish and install a 2 inch conduit from the utility pole to mechanical room. The cable TV company will run cable from the pole to the mechanical room.

2.11 Fire Alarm and Detection System

- A. This Contractor shall furnish and install a complete electrically supervised, closed circuit, zoned non-code system as described herein, and as shown on the drawings. It shall be a system with separate zones. There shall be lamp type annunciators (one for each zone) located at the annunciator panel and at the control cabinet. Each zone shall have common to it: manual, breakglass stations, horns, strobes, detectors, and annunciators. Zones shall be as shown on the drawings. Each annunciator shall include a phenolic name plate with a description of each zone (in addition to the zone numeral). The wording of this description shall be coordinated with the owner. The system shall be Edwards, FCI, Gamewell, Pyrotronics or Notifier.
- B. The audible and visual alarm shall be actuated at any manual station or by any thermal or smoke detector.
- C. The system shall be electrically supervised against opens and grounds. Opens and grounds shall cause a trouble bell to sound at the control panel until manually silenced by the trouble bell silencing switch at the control panel. The silencing switch shall be supervised by a pilot light on the door of the control cabinet. Zone disconnect switches shall be furnished in the control cabinet for each zone. The system shall operate from 120 volts. All devices comprising the system shall be listed by Underwriters' Laboratories, Inc.
- D. The Control panel shall be for such a system as specified in these specifications and drawings. It shall be surface mounted with the number of audible signal and station circuits as specified. Panel assembly shall be of the unit type construction, surface wired, and mounted on channels to permit removal and service by circuit function. The cabinet shall be steel, finished in a neutral gray enamel with prominent red enamel finished name plate identifying the cabinet as the fire alarm control. There shall be furnished a system trouble bell and trouble buzzer. Also furnished shall be a drill switch wired so as not to transmit an alarm exterior to the building system.
- E. All control devices, etc. shall be mounted in a single cabinet. Shop drawings shall include a custom schematic wiring diagram for the system.

- F. The remote annunciator panel shall include flush lamps. An additional lamp on the control cabinet and on the annunciator cabinet will identify the sprinkler tamper switch. Each annunciator shall include a phenolic name plate with a description of each zone (in addition to the zone numeral). The wording of this description shall be coordinated with the owner. It shall be recess mounted in weatherproof box.
- G. (1) Manual stations shall be non-code, recessed mounted, break-glass pull.
- (2) The thermal detectors shall be combination rate-of-rise and fixed temperature 136 degrees F., unless indicated as 190 degrees F.
- (3) Audible and visual signals shall be derived from recessed, grille type horns with strobe. Visual units shall be similar. Visual signals shall be strobes with a candela rating as shown on the drawings. Units shall be 80 inches AFF or 6 inches below the ceiling, whichever is lower.
- (4) Duct type smoke detectors shall include remote status indicators, and shall be furnished and wired under this section of the specifications, and shall be installed under the mechanical section. Fans associated with duct detectors shall be shutdown when the respective duct detector is activated. Location of remote indicators shall be below the ceiling and coordinated with the architect in the field. Indicators for units in two story spaces shall be located at the lower floor.
- H. The power source shall be backed up by a storage battery with trickle charger. This storage battery shall have enough capacity to let the system perform as with normal power source. Battery capacity calculations shall be submitted with the shop drawings.
- I. After completion of the fire alarm, the system shall be checked out by a factory authorized representative of the equipment. A certificate of completion and proper operation shall be presented to the Architect or Engineer.
- J. Furnish and install a six channel digital dialer compatible with the Owner's Security Company .

2.12 Equipment Connections

- A. The Mechanical Contractor shall furnish and erect all motors, etc., for the mechanical equipment.
- B. This Contractor shall furnish and wire all starters, relays, switches, disconnects, etc., and shall wire the air conditioning, air handling units, circulating pumps, exhaust fans, unit heaters, etc., as specified, indicated, or otherwise required with the heating equipment. Starters shall be H-O-A controlled. Furnish a green running light on all starters.
- C. This contractor shall wire to the heat trace system for the domestic hot water system. The system shall be connected to a 20 amp, two pole, GFI type circuit breaker. This contractor shall coordinate with the mechanical contractor for the exact location of the heat trace connection, and shall locate the circuit breaker in a convenient nearby panel.

- D. This contractor shall verify the locations of all mechanical equipment prior to wiring same.
- E. **This Contractor shall refer to the Mechanical Sections of this specification in order to more clearly define the work to be done under the Electrical Section. Furthermore, this Contractor shall be responsible for that work in the Mechanical Sections intended to be done under the Electrical Section.**
- F. Spare or empty conduit, including those for telephone, shall have a pull cord installed therein.

2.13 Time Clocks

- A. This Contractor shall furnish and install time clocks of the astronomical type where shown or indicated on the drawings. They shall be Intermatic, Tork, or approved equal.

PART 3 EXECUTION

3.14 Raceways and Fitting

- A. Outlets shall be installed in the locations shown on the drawings. The Contractor shall study the general building plans in relation to the spaces surrounding each outlet in order that his work may fit the other work required by these specifications.
- B. The locations given or designated on the Drawings for the outlets are subject to modifications. In the case of local wall switches to be set at or near doors, the definite location shall be as established on the side of the door opposite the hinge.
- C. The Contractor shall relocate outlets so that, when fixtures or other fittings are installed they will be symmetrically located according to room layout and will not interfere with other work or equipment. Cast metal or cadmium plated sheet steel boxes, of a class to satisfy the conditions for each outlet, shall be used. Boxes shall be installed in a rigid and satisfactory manner, either by wood screws on wood work, (wall mounted boxes in wood construction may be nailed) expansion shields on masonry, or machine screws on steel work. Fixture outlet boxes at ceilings shall be of the 4" octagonal concrete type. Fire alarm and telephone outlet boxes shall be not less than 4" square fitted with appropriate covers where necessary, to set flush mounted. One piece gang boxes not less than 2" deep shall be utilized where necessary.
- D. Pull boxes shall be constructed of code-gauge galvanized sheet metal of not less than the minimum size recommended by the National Electrical Code. Wiring runs through a common pull box shall be tagged to indicate clearly the respective electrical characteristics, circuit number, and panel designation.
- E. Conduit systems shall be installed in accordance with the applicable provisions of the National Electrical Code. Rigid steel conduit shall be zinc-coated. Electric metallic tubing shall be installed in accordance with provisions of the National Electrical Code.
- F. Conduits shall be kept at least 8 inches from parallel runs of flues, steam pipes or hot water pipes. Exposed runs of conduit shall have supports spaced not more than 6 feet apart and shall be installed with runs parallel or perpendicular to walls, structural members or intersections of vertical planes and ceilings, with right-angle turns consisting of cast-metal fittings of symmetrical bonds. Bends and offsets shall be avoided where possible, but where necessary, shall be made with an approved hickey or conduit-bending machine. The use of a pipe tee or vise for bending conduit will not be permitted. Conduit which has been crushed or deformed in any way shall not be installed. Expansion fittings or other approved devices shall be used to provide for expansion and contraction where conduit crosses expansion joints.
- G. Wooden plugs inserted in masonry or concrete shall not be used as a base to fasten conduit supports. Conduits shall be supported on approved types of galvanized wall brackets, ceiling trapeze, strap hangers, or pipe straps, secured by means of toggle bolts on hollow masonry units or expansion bolts in concrete or brick and machine screws on metal surfaces. Nails shall not be used as means of fastening boxes or conduits. Conduit risers exposed in wire shafts shall be supported at each floor level by means of approved U-clamp hangers.

- H. Conduit shall be installed in such manner as to insure against trouble from the collection of trapped condensation, and all runs of conduit shall be arranged so as to be devoid of traps wherever possible. The Contractor shall exercise the necessary precautions to prevent the lodgement of dirt, plaster, or trash in conduit, fittings, and boxes during the course of installation. A run of conduit which has become clogged shall be entirely freed of these accumulations, or shall be replaced.
- I. Conduit shall be securely fastened to all cast or sheet metal outlet, junction, and pull boxes with galvanized locknuts and bushings, care being observed to see that the full number of threads project through to permit the bushing to pull tight against the end of conduit, after which the locknut shall be made up sufficiently tight to draw the bushing onto firm electrical contact with the box.
- J. Conduit entering the building below grade shall have a waterproof seal to prevent moisture from entering.
- K. Spare or empty conduits, including those for telephone and computer, shall have a pull cord installed therein.

3.15 Conductors

- A. Home runs may be combined in one conduit, provided all connections are in accordance with National Electrical Code requirements, and the maximum unbalanced current in the neutral does not exceed the capacity of the conductor. Conductors shall be continuous from outlet to outlet, and no splices shall be made except within outlet of junction boxes. Junction boxes may be utilized wherever required or as shown on the drawings.
- B. Wire connectors, insulating material or solderless pressure connectors, properly taped, shall be utilized for all splices in wiring.

3.16 Equipment Connections

- A. Equipment connections shall be made with flexible metal conduit, liquid tight in damp or wet locations. Controllers for motor, disconnect switches and all control, protective, and signal devices for motor circuits shall be connected and left in operating condition. The number and size of conductors between motors and control or protective apparatus shall be as shown on the plans or recommended by the manufacturer of the apparatus. Where equipment is furnished and installed by other trades for connection to the electrical system, this Contractor shall make the connections and said connections shall conform to the National Electrical Code requirements.

--- END OF SECTION ---