

# DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

## CITY OF PORTLAND

Please Read  
Application And  
Notes, If Any,  
Attached

BUILDING INSPECTION

PERMIT

Permit Number: 080884

This is to certify that CHARTER WESTGATE LLC/Zachau Construction, Inc.has permission to Vacant Space for future retail tenant - for renovationsAT 1372 CONGRESS ST

PERMIT ISSUED

JUL 31 2008

191 B019001

provided that the person or persons who accept this permit shall comply with all of the provisions of the Statutes of the City and of the Ordinances of the City of Portland regulating the construction, maintenance and use of buildings and structures, and of the application on file in this department.

Apply to Public Works for street line and grade if nature of work requires such information.

Notification of inspection must be given and when permission procured before this building or part thereof is laid or otherwise closed-in. 24 HOUR NOTICE REQUIRED.

A certificate of occupancy must be procured by owner before this building or part thereof is occupied.

## OTHER REQUIRED APPROVALS

Fire Dept. Craig Cruz

Health Dept. \_\_\_\_\_

Appeal Board \_\_\_\_\_

Other \_\_\_\_\_

Department Name

Thomas M. Mally 7/31/08  
Director - Building & Inspection Services

PENALTY FOR REMOVING THIS CARD

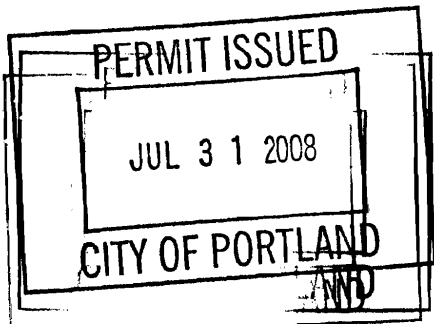
# City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No: 08-0884	Issue Date:	CBL: 191 B019001
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Location of Construction: 1372 CONGRESS ST	Owner Name: CHARTER WESTGATE LLC	Owner Address: 800 WESTCHESTER AVE STE S-63	Phone:
Business Name:	Contractor Name: Zachau Construction, Inc.	Contractor Address: PO Box 1185 US Route One Freeport	Phone: 2078659925
Lessee/Buyer's Name	Phone:	Permit Type: Alterations - Commercial	Zone: B-2

Past Use: Vacant Space Units 11 & 12	Proposed Use: Vacant Space - Vacant Space for future retail tenant - interior renovations	Permit Fee: \$1,595.00	Cost of Work: \$150,000.00	CEO District: 3
Proposed Project Description: Vacant Space for future retail tenant - interior renovations		FIRE DEPT: <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied See Conditions		
		INSPECTION: Use Group: M Type II IBC 2003		
		Signature: Greg Cass Signature: Jim 7/31/08 PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.) Action: <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Signature: Date:		

Permit Taken By: Idobson	Date Applied For: 06/26/2008	<b>Zoning Approval</b>		
1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.  2. Building permits do not include plumbing, septic or electrical work.  3. Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work..		Special Zone or Reviews <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan Maj <input type="checkbox"/> Minor <input type="checkbox"/> MM <input type="checkbox"/> Denied Date: 6/27/08	Zoning Appeal <input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied Date:	Historic Preservation <input checked="" type="checkbox"/> Not in District or Landmark <input type="checkbox"/> Does Not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Date:
				
		<b>CERTIFICATION</b> I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.		

SIGNATURE OF APPLICANT

ADDRESS

DATE

PHONE

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE

DATE

PHONE

**City of Portland, Maine - Building or Use Permit**

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

<b>Permit No:</b>	<b>Date Applied For:</b>	<b>CBL:</b>
08-0884	06/26/2008	191 B019001

<b>Location of Construction:</b> 1372 CONGRESS ST	<b>Owner Name:</b> CHARTER WESTGATE LLC	<b>Owner Address:</b> 800 WESTCHESTER AVE STE S-63	<b>Phone:</b>
<b>Business Name:</b>	<b>Contractor Name:</b> Zachau Construction, Inc.	<b>Contractor Address:</b> PO Box 1185 US Route One Freeport	<b>Phone</b> (207) 865-9925
<b>Lessee/Buyer's Name</b>	<b>Phone:</b>	<b>Permit Type:</b> Alterations - Commercial	

<b>Proposed Use:</b> Vacant Space - Vacant Space for future retail tenant - interior renovations	<b>Proposed Project Description:</b> Vacant Space for future retail tenant - interior renovations
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**Dept:** Zoning      **Status:** Approved with Conditions      **Reviewer:** Marge Schmuckal      **Approval Date:** 06/27/2008  
**Note:**      **Ok to Issue:** ☒

- 1) Separate permits shall be required for any new signage.
- 2) This permit is being approved on the basis of plans submitted. Any deviations shall require a separate approval before starting that work.

**Dept:** Building      **Status:** Approved with Conditions      **Reviewer:** Tom Markley      **Approval Date:** 07/31/2008  
**Note:**      **Ok to Issue:** ☒

- 1) Separate permits are required for any electrical, plumbing, or HVAC systems. Separate plans may need to be submitted for approval as a part of this process.
- 2) Application approval based upon information provided by applicant. Any deviation from approved plans requires separate review and approval prior to work.

**Dept:** Fire      **Status:** Approved with Conditions      **Reviewer:** Capt Greg Cass      **Approval Date:** 07/22/2008  
**Note:**      **Ok to Issue:** ☒

- 1) Separation " Mercantile from Industrial" requires a 2 hr. Fire rated separation
- 2) Non- combustible construction of this structure requires all construction to be Non-combustable.
- 3) Walls in structure are to be labeled according to fire resistance rating.  
IE; 1 hr. / 2 hr. / smokeproof.
- 4) Emergency lights are required to be tested at the electrical panel.
- 5) Emergency lights and exit signs are required
- 6) The Fire alarm and Sprinkler systems shall be reviewed by a licensed contractor[s] for code compliance.  
Compliance letters are required.
- 7) Installation of a Fire Alarm system requires a Knox Box to be installed per city ordinance

**Comments:**

7/22/2008-ldobson: This permit # was originally 080763 Deleted from system Routed back to marge and Cpt Cass for approvals Units 11& 12 Permit deleted from system re - entered

**City of Portland, Maine - Building or Use Permit Application**

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

<b>Permit No:</b> 08-0763		<b>Issue Date:</b>		<b>CBL:</b> J91 B019001	
<b>Location of Construction:</b> 1372 CONGRESS ST Unit 11 C12		<b>Owner Name:</b> CHARTER WESTGATE LLC		<b>Owner Address:</b> 800 WESTCHESTER AVE STE S-63	
<b>Business Name:</b>		<b>Contractor Name:</b> Zachau Construction, Inc.		<b>Contractor Address:</b> PO Box 1185 US Route One Freeport	
<b>Lessee/Buyer's Name</b>		<b>Phone:</b>		<b>Phone:</b> 2078659925	
<b>Past Use:</b> Retail - Black Bear Medical		<b>Proposed Use:</b> Vacant Space - Vacant space for future retail tenant - interior renovations		<b>Permit Type:</b> Alterations - Commercial	
<b>Proposed Project Description:</b> Vacant space for future retail tenant - interior renovations		<b>Permit Fee:</b> \$1,595.00		<b>Cost of Work:</b> \$150,000.00	
		<b>CEO District:</b> 3		<b>Zone:</b> B-2	
		<b>FIRE DEPT:</b> Approved Denied See Conditions		<b>INSPECTION:</b> Use Group: Type:	
		<b>Signature:</b> Greg Cass		<b>Signature:</b>	
		<b>PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)</b>			
		<b>Action:</b> <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied			
		<b>Signature:</b> <b>Date:</b>			
<b>Permit Taken By:</b> ldobson		<b>Date Applied For:</b> 06/26/2008		<b>Zoning Approval</b>	
<ol style="list-style-type: none"><li>This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.</li><li>Building permits do not include plumbing, septic or electrical work.</li><li>Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work..</li></ol>		<b>Special Zone or Reviews</b>		<b>Zoning Appeal</b>	
		<input type="checkbox"/> Shoreland <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan		<input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied	
		<b>Historic Preservation</b> <input checked="" type="checkbox"/> Not in District or Landmark <input type="checkbox"/> Does Not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied			
		<b>Date:</b> 6/27/08		<b>Date:</b>	

**CERTIFICATION**

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT

ADDRESS

DATE

PHONE

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE

DATE

PHONE

## BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

to schedule your inspections as agreed upon

Permits expire in 6 months, if the project is not started or ceases for 6 months.

The Owner or their designee is required to notify the inspections office for the following inspections and provide adequate notice. Notice must be called in 48-72 hours in advance in order to schedule an inspection:

By initializing at each inspection time, you are agreeing that you understand the inspection procedure and additional fees from a "Stop Work Order" and "Stop Work Order Release" will be incurred if the procedure is not followed as stated below.

A Pre-construction Meeting will take place upon receipt of your building permit.

  X   Framing/Rough Plumbing/Electrical: Prior to Any Insulating or drywalling

  X   Final/Certificate of Occupancy: Prior to any occupancy of the structure or use.  
NOTE: There is a \$75.00 fee per inspection at this point.

Certificate of Occupancy is not required for certain projects. Your inspector can advise you if your project requires a Certificate of Occupancy. All projects DO require a final inspection.

If any of the inspections do not occur, the project cannot go on to the next phase, REGARDLESS OF THE NOTICE OR CIRCUMSTANCES.

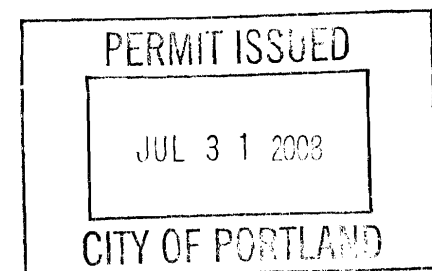
**CERIFICATE OF OCCUPANICES MUST BE ISSUED AND PAID FOR, BEFORE THE SPACE MAY BE OCCUPIED.**

  X    
Signature of Applicant/Designee

\_\_\_\_\_  
Date

Thomas H. Mander  
Signature of Inspections Official

7/31/08  
Date



# Memorandum

## Department of Planning and Development

### Planning Division

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**To:** Phil DiPierro, Development Review Coordinator  
Assessors Office  
Leslie Kaynor, Department of Public Services  
Mike Farmer, Department of Public Services  
Todd Merkle, Department of Public Services  
Jeff Tarling, Department of Public Services  
Marge Schmuckal- Zoning Administrator

**From:** Molly Casto, Planning Division

**Date:** July 24, 2008

**Re:** Westgate Shopping Center- 1354-1422 Congress Street  
Distribution of Final Plans  
Application #: 2008-0027  
CBL: 191 B019001

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Attached are the final approved plans for the Westgate Shopping Center. Please note the following:

- (1) The Planning Board approved the project subject to the following condition of approval:

*Once a tenant for the restaurant has been identified, the applicant must submit final site plans and elevation drawings for the proposed development of Lot 3 for review and approval by the Planning Board prior to the issuance of a building permit. As part of the site plan review, the applicant shall submit information relating to Section 14-183 (a) (6) of the City Code demonstrating that the proposal for Lot 3 complies with zoning requirements, as determined by the City Zoning Administrator.*

The attached final plans have lot 3 shaded out and the above condition of approval printed on the plan. The applicant has submitted an application for a site plan amendment for lot 3 to address the above condition. Once the Board has approved the revised layout of lot 3, approved plans for those changes will be distributed separately. The amended site plan for Lot 3 is listed in Urban Insight under application # 2008-0113.

- (2) The existing conditions plan and boundary survey, as contained in the electronic CAD files on the CD have been updated to tie into the vertical datum of NGVD 1929 and to the Maine State Plane Coordinate System (2-zone projection), West Zone using the NAD 1983 (HARN) Datum and the U.S. Survey Foot as the unit of measure.

Feel free to contact me if you have any questions.



# General Building Permit Application

If you or the property owner owes real estate or personal property taxes or user charges on any property within the City, payment arrangements must be made before permits of any kind are accepted.

Location/Address of Construction: <u>1372 CONGRESS ST, WESTGATE SHOPPING CENTER</u>		
Total Square Footage of Proposed Structure/Area <u>1860</u>		Square Footage of Lot
Tax Assessor's Chart, Block & Lot Chart#      Block#      Lot# <u>191</u> <u>B</u> <u>19</u>	Applicant * <u>must</u> be owner, Lessee or Buyer* Name <u>CHARITZ REALTY &amp; DEVELOPMENT CORP</u> Address <u>800 WESTCLIFF AVE, SUITE 5-632</u> City, State & Zip <u>RYE BROOK, NY 10573</u> (914)-701-4002	Telephone: <u>(914)-701-4002</u>
Lessee/DBA (If Applicable)	Owner (if different from Applicant) Name Address City, State & Zip	Cost Of Work: \$ <u>150,000</u> C of O Fee: \$ <u>75</u> Total Fee: \$
Current legal use (i.e. single family) <u>VACANT Black bear medical</u> If vacant, what was the previous use? <u>RETAIL</u> Proposed Specific use: <u>FUTURE RETAIL</u> Is property part of a subdivision? <u>NO</u> If yes, please name Project description: <u>Vanilla spec - sheet walls, bathroom air handler for future retail space, no finishes, ceilings etc.</u>		
Contractor's name: <u>ZACHARY CONSTRUCTION INC</u> Address: <u>P.O. Box 1, 1185 U.S. Route 1</u> City, State & Zip <u>FREEPORT, ME 04032</u> Telephone: <u>865-9925</u> Who should we contact when the permit is ready: <u>Bruce Hukanne</u> Telephone: <u>807-8973</u> Mailing address: <u>P.O. Box 1, FREEPORT, ME 04032</u>		

Please submit all of the information outlined on the applicable Checklist. Failure to do so will result in the automatic denial of your permit.

In order to be sure the City fully understands the full scope of the project, the Planning and Development Department may request additional information prior to the issuance of a permit. For further information or to download copies of this form and other applications visit the Inspections Division on-line at [www.portlandmaine.gov](http://www.portlandmaine.gov), or stop by the Inspections Division office, room 315 City Hall or call 874-8703.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce provisions of the codes applicable to this permit.

Signature: [Signature] Date: 6/24/08

This is not a permit; you may not commence ANY work until the permit is issued

JUN 26 2008



# Certificate of Design Application

From Designer:

DANIEL R. ELLINGSON

Date:

6-24-08

Job Name:

WESTGATE SHOPPING CENTER - FRONT RETAIL

Address of Construction:

~~1349~~ CONGRESS ST.  
1372

## 2003 International Building Code

Construction project was designed to the building code criteria listed below:

Building Code & Year IBC 2003 Use Group Classification (s) MERCANTILE GROUP M

Type of Construction 2N

Will the Structure have a Fire suppression system in Accordance with Section 903.3.1 of the 2003 IRC YES

Is the Structure mixed use? YES If yes, separated or non separated or non separated (section 302.3) \_\_\_\_\_

Supervisory alarm System? YES Geotechnical/Soils report required? (See Section 1802.2) NO

### Structural Design Calculations

N/A Submitted for all structural members (106.1 – 106.11)

(EXISTING STRUCTURE)  
Design Loads on Construction Documents (1603)

Uniformly distributed floor live loads (7603.11, 1807)

Floor Area Use	Loads Shown
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

### Wind loads (1603.1.4, 1609)

- \_\_\_\_\_ Design option utilized (1609.1.1, 1609.6)
- \_\_\_\_\_ Basic wind speed (1809.3)
- \_\_\_\_\_ Building category and wind importance Factor,  $I_w$  (table 1604.5, 1609.5)
- \_\_\_\_\_ Wind exposure category (1609.4)
- \_\_\_\_\_ Internal pressure coefficient (ASCE 7)
- \_\_\_\_\_ Component and cladding pressures (1609.1.1, 1609.6.2.2)
- \_\_\_\_\_ Main force wind pressures (7603.1.1, 1609.6.2.1)

### Earth design data (1603.1.5, 1614-1623)

- \_\_\_\_\_ Design option utilized (1614.1)
- \_\_\_\_\_ Seismic use group ("Category")
- \_\_\_\_\_ Spectral response coefficients,  $S_D$  &  $S_{D1}$  (1615.1)
- \_\_\_\_\_ Site class (1615.1.5)

- \_\_\_\_\_ Live load reduction
- \_\_\_\_\_ Roof live loads (1603.1.2, 1607.11)
- \_\_\_\_\_ Roof snow loads (1603.7.3, 1608)
- \_\_\_\_\_ Ground snow load,  $P_g$  (1608.2)
- \_\_\_\_\_ If  $P_g > 10$  psf, flat-roof snow load  $P_f$
- \_\_\_\_\_ If  $P_g > 10$  psf, snow exposure factor,  $C_e$
- \_\_\_\_\_ If  $P_g > 10$  psf, snow load importance factor,  $I_s$
- \_\_\_\_\_ Roof thermal factor,  $C_t$  (1608.4)
- \_\_\_\_\_ Sloped roof snowload,  $P_s$  (1608.4)
- \_\_\_\_\_ Seismic design category (1616.3)
- \_\_\_\_\_ Basic seismic force resisting system (1617.6.2)
- \_\_\_\_\_ Response modification coefficient,  $R$  and deflection amplification factor  $C_d$  (1617.6.2)
- \_\_\_\_\_ Analysis procedure (1616.6, 1617.5)
- \_\_\_\_\_ Design base shear (1617.4, 1617.5.1)

### Flood loads (1803.1.6, 1612)

- \_\_\_\_\_ Flood Hazard area (1612.3)
- \_\_\_\_\_ Elevation of structure

### Other loads

- \_\_\_\_\_ Concentrated loads (1607.4)
- \_\_\_\_\_ Partition loads (1607.5)
- \_\_\_\_\_ Misc. loads (Table 1607.8, 1607.6.1, 1607.7, 1607.12, 1607.13, 1610, 1611, 2404)





## Certificate of Design

Date: 6.24.08

From: DAN ELLINGSON

These plans and / or specifications covering construction work on:

WESTGATE SHOPPING CENTER - FRONT RETAIL

Have been designed and drawn up by the undersigned, a Maine registered Architect / Engineer according to the *2003 International Building Code* and local amendments.

Signature: 

Title: ARCHITECT

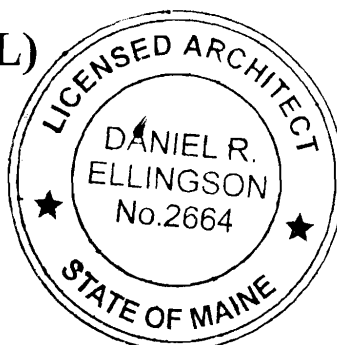
Firm: HARRIMAN

Address: AUBURN BUSINESS PARK

46 HARRIMAN DR., AUBURN, ME  
04210

Phone: 784 5100

(SEAL)



For more information or to download this form and other permit applications visit the Inspections Division on our website at [www.portlandmaine.gov](http://www.portlandmaine.gov)



## Accessibility Building Code Certificate

Designer:

DAN ELLINGSON

Address of Project:

1372 CONGRESS ST.

Nature of Project:

INTERIOR REMODEL OF FUTURE RETAIL SPACE "I"  
IN WESTGATE SHOPPING CENTER

The technical submissions covering the proposed construction work as described above have been designed in compliance with applicable referenced standards found in the Maine Human Rights Law and Federal Americans with Disability Act. Residential Buildings with 4 units or more must conform to the Federal Fair Housing Accessibility Standards. Please provide proof of compliance if applicable.

Signature:

[Handwritten Signature]

Title:

ARCHITECT

Firm:

HARRIMAN

Address:

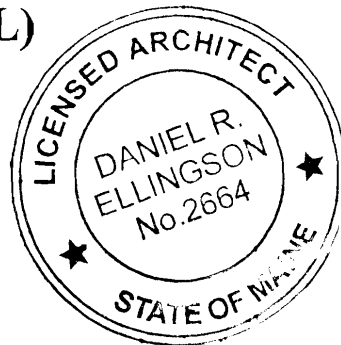
AUBURN BUSINESS PARK

46 HARRIMAN DR., AUBURN, ME  
04210

Phone:

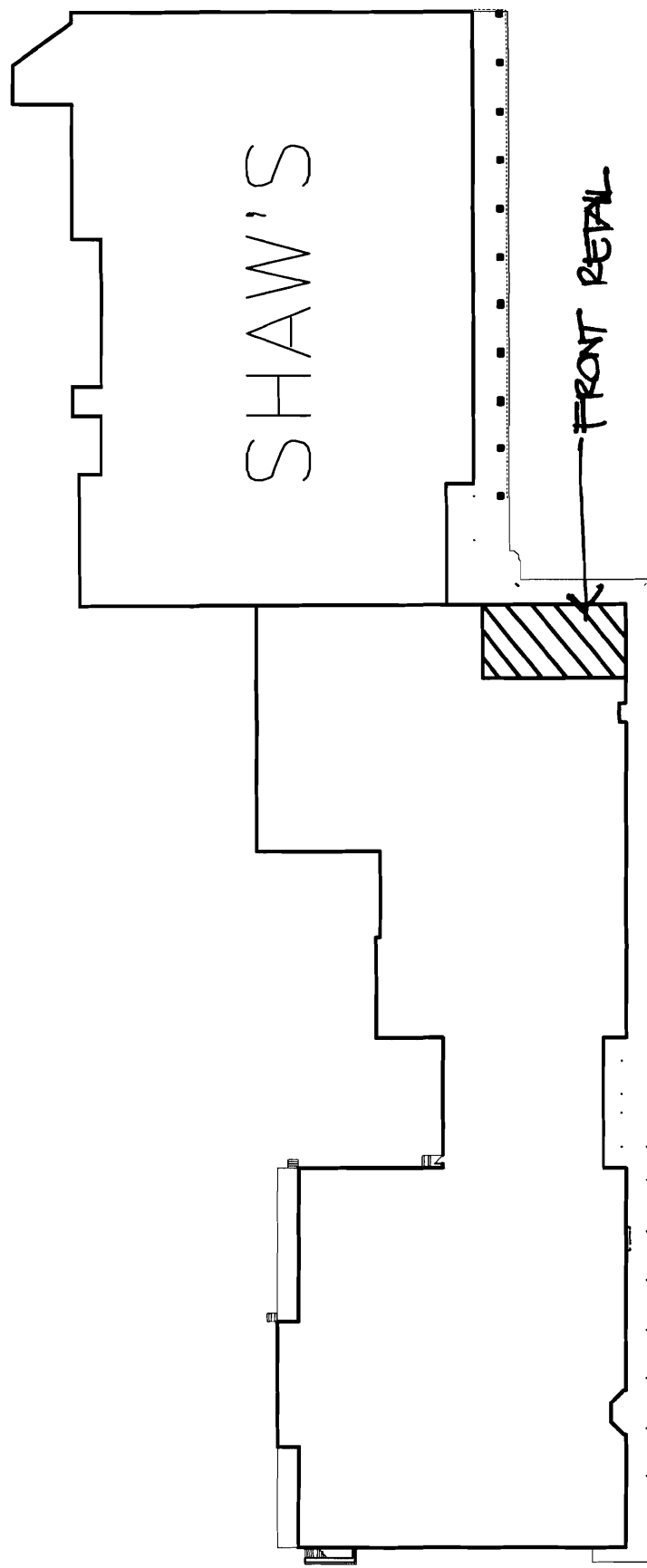
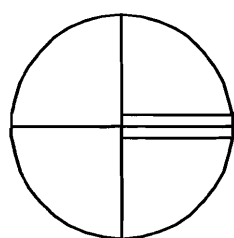
784 5100

(SEAL)



For more information or to download this form and other permit applications visit the Inspections Division on our website at [www.portlandmaine.gov](http://www.portlandmaine.gov)

Key Plan



# **WESTGATE SHOPPING CENTER FRONT RETAIL**

**ISSUED FOR CONSTRUCTION  
6/10/08**

## SYMBOLS USED AS ABBREVIATIONS

L ---- ANGLE  
C ---- CENTER LINE  
P ---- PLATE  
D ---- DIAMETER  
CH ---- CHANNEL  
S ---- SQUARE

## ABBREVIATIONS

ABT ABOUT  
ACB ABOVE CEILING BELOW  
AFF ABOVE FINISH FLOOR  
AFG ABOVE FINISH GRADE  
AD ACCESS DOOR  
AP ACCESS PANEL  
AC ACOUSTICAL  
AL ACOUSTICAL LINING  
ACT ACOUSTICAL TILE  
AGJ ADJUSTABLE  
A/C AIR CONDITIONING  
ALT ALTERNATE  
AL ALUMINUM  
AB ANCHOR BOLT  
APX APPROXIMATE  
ARCH ARCHITECT (URAL)  
  
BOD BACKRAFT DAMPER  
BJ BAR JOIST  
BSMT BASEMENT  
BSP BASE PLATE  
BP BEARING PLATE  
BM BENCH MARK  
BIT BITUMINOUS  
BLKG BLOCKING  
BD BOARD  
BOT BOTTOM  
BOF BOTTOM OF FOOTING  
B/W BOTTOM OF WALL  
BTU BRITISH THERMAL UNIT  
BLDG BUILDING  
  
CAB CABINET  
CUH CABINET UNIT HEATER  
CPT CARPET (ED)  
CI CAST IRON  
CB CATCHBASIN  
CLG CEILING  
CD CEILING DIFFUSER  
CG CEILING GRILLE  
CHT CEILING HEIGHT  
CEM CEMENT (MOUS)  
CM CENTIMETER (S)  
CER CERAMIC  
CT CERAMIC TILE  
CHBD CHALKBOARD  
CHWG CHILLED WATER SUPPLY  
CO CLEANOUT  
CLO CLOSET  
CW COLD WATER  
COL COLUMN  
CONC CONCRETE  
CMU CONCRETE MASONRY UNIT  
CR CONDENSATE RETURN  
CONN CONNECT  
CONST CONSTRUCTION  
CONT CONTINUE (OUS)  
CONTR CONTRACT (OR)  
CJT CONTROL JOINT  
CV CONNECTOR  
CORR CORRUGATED  
CMP CORRUGATED METAL PIPE  
CFM CUBIC FEET PER MIN.  
CF CUBIC FEET  
CY CUBIC YARD  
CULV CULVERT  
  
DL DEAD LOAD  
DMT DEMOUNTABLE  
DTL DETAIL  
DAG DIAGONAL  
DIA DIAMETER  
DIM DIMENSION  
DIV DIVISION  
DG DOOR GRILLE  
DH DOUBLE HUNG  
DF DOUGLAS FIR  
DN DOWN  
DWG DRAWING  
DF DRINKING FOUNTAIN  
DW DUCT WRAP  
  
ES EACH SIDE  
E EAST  
EIFS EXTERIOR INSULATED FINISH SYSTEM  
ELEC ELECTRIC (AL)  
EM ELECTRIC MANHOLE  
EP ELECTRIC PANEL  
EWC ELECTRIC WATER COOLER  
EL ELEVATION (S)  
EQ EQUAL  
EST ESTIMATE  
EF EXHAUST FAN  
ER EXHAUST REGISTER  
EXG EXISTING  
EB EXPANSION BOLT  
EXP EXPANSION  
EJ EXPANSION JOINT  
EXT EXTERIOR  
  
FOC FACE OF CONCRETE  
FOS FACE OF STUD  
FS FAR SIDE  
FIN FINISH (ED)  
FL FINISH LENGTH  
FA FIRE ALARM  
FD FIRE DAMPER  
FE FIRE EXTINGUISHER  
FHS FIRE HOSE STATION  
FLG FLASHING  
FC FLEXIBLE CONNECTION  
FLR FLOOR (ING)  
FCO FLOOR CLEANOUT  
FD FLOOR DRAIN  
FRR FLOOR RETURN REGISTER  
FTG FOOTING  
FD FOUNDATION DRAIN  
FAI FRESH AIR INTAKE  
FY MINIMUM YIELD STRESS (KSI)  
  
GA GAGE, GAUGE  
GPM GALLONS PER MINUTE  
GALV GALVANIZED  
GV GATE VALVE  
GC GENERAL CONTRACT (OR)  
GL GLASS  
GB GRAB BAR  
GPDW GYPSUM DRY WALL  
  
H HARDENER  
HTG HEATING  
HVAC HEATING-VENTILATING-AIR CONDITIONING  
HT HEIGHT  
HPS HIGH PRESSURE STEAM  
HM HOLLOW METAL  
HORIZ HORIZONTAL  
HB HOSE BIB  
HD HUB DRAIN  
HTW HOT TEMPERATURE WATER  
HW HOT WATER  
HYD HYDRANT  
  
ID INSIDE DIAMETER  
INS INSULATE (D) (ON)  
INT INTERIOR  
INV INVERT  
IPS IRON PIPE SIZE  
  
JC JANITOR'S CLOSET  
JT JOINT  
  
K KIPS  
KSI KIPS PER SQUARE INCH  
KIT KITCHEN

LAB LABORATORY  
LAM LAMINATE (D)  
LAV (L) LAVATORY  
LF LAWN FAUCET  
LTH LIGHTING  
LD LINEAR DIFFUSER  
LE LINEAR DUCT  
LF LINEAL FEET  
LTL LINTEL  
LVE LIVE LOAD  
LS LONG  
LPS LOW PRESSURE STEAM  
LTW LOW TEMPERATURE STEAM  
LW LIMIT OF WORK  
LB (S) POUNDS  
  
MH MANHOLE  
MD MANUAL DAMPER  
MFR MANUFACTURE (R)  
MAS MASONRY  
MO MASONRY OPENING  
MAX MAXIMUM  
MECH MECHANICAL  
MED MEDIUM  
MET METAL  
MT METAL THRESHOLD  
M METER (S)  
MM MILLIMETER (S)  
MIN MINIMUM  
MISC MISCELLANEOUS  
NR NIP RECEPTOR  
MTD MOUNTED  
MD MOTORIZED DAMPER  
MBH 1000 BRITISH THERMAL UNIT  
  
NS NEAR SIDE  
NC NORMALLY CLOSED  
NO NORMALLY OPEN  
N NORTH  
NA NOT APPLICABLE  
NIC NOT IN CONTRACT  
NTS NOT TO SCALE  
No NUMBER  
  
OFF OFFICE  
OC ON CENTER (S)  
OED OPEN END DUCT  
OPG OPENING  
OPP OPPOSITE  
OPH OPPOSITE HAND  
OD OUTSIDE DIAMETER  
OH OVERHEAD  
  
PNT PAINT (ED)  
PNL PANEL  
PAR PARALLEL  
PTH PARTITION  
PLAM PLASTIC LAMINATE  
P PLATE  
PLUMB PLUMBING  
PWO PLYWOOD  
PT POINT  
PP POINT TO POINT  
PWG POLISHED WIRE GLASS  
PVC POLYVINYL CHLORIDE  
PSF POUNDS PER SQUARE FOOT  
PSI POUNDS PER SQUARE INCH  
PFM PREFINISHED  
PL PROPERTY LINE  
P PUMP  
  
QT QUARRY TILE  
  
RAD RADIATION  
RAD RADIUS  
REF REFERENCE  
REFR REFRIGERATOR  
RA RETURN AIR  
RG RETURN GRILLE  
RR RETURN REGISTER  
REV REVISION (S)  
ROW RIGHT OF WAY  
R RISER  
RD ROOF DRAIN  
RL ROOF LEADER  
RM ROOM  
RO ROUGH OPENING  
RB RUBBER BASE  
  
S SANITARY  
SEC SECTION  
SSK SERVICE SINK  
SHT SHEET  
SM SIMILAR  
SK SINK  
SMOKE DAMPER  
S SOIL  
SMU SOLID MASONRY UNIT  
S SOUTH  
SPF SPRUCE PINE FIR  
SPEC SPECIFICATION (S)  
SQ SQUARE  
SS STAINLESS STEEL  
STD STANDARD  
STEAM  
STL STEEL  
STOR STORAGE  
SD STORM DRAIN  
SDMH STORM DRAIN MANHOLE  
SA SUPPLY AIR  
SF SUPPLY FAN  
SG SUPPLY GRILLE  
SR SUPPLY REGISTER  
SYM SYMMETRY (ICAL)  
SYS SYSTEM  
  
TKBD TACKBOARD  
TEL TELEPHONE  
TV TELEVISION  
TB TEST BORING  
TP TEST PIT  
T-STAT THERMOSTAT  
THK THICK (NESS)  
TPTN TOILET PARTITION  
T&G TONGUE & GROOVE  
TOS TOP OF CONCRETE  
TOP TOP OF FOOTING  
TOS TOP OF STEEL  
TL TOTAL LOAD  
TD TRANSFER DUCT  
TG TRANSFER GRILLE  
T TREAD  
TD TRENCH DRAIN  
TYP TYPICAL  
  
UD UNDERDRAIN  
UGD UNDERGROUND DUCTWORK  
UH UNIT HEATER  
UNO UNLESS NOTED OTHERWISE  
UR URINAL  
UV UNIT VENTILATOR  
  
VAV VARIABLE AIR VOLUME  
V VENT  
VTR VENT THRU ROOF  
VERT VERTICAL  
VB VINYL BASE  
VCT VINYL COMPOSITION TILE  
VF VINYL FABRIC  
VD VOLUME DAMPER  
  
WCO WALL CLEANOUT  
WG WALL GRILLE  
WH WALL HUNG  
WR WALL REGISTER  
WC WATER CLOSET  
WCH WATER CLOSET HANDICAP  
WWF WELDED WIRE FABRIC  
W WEST, WIDTH, WIDE  
WIN WINDOW  
W/ WITH  
WO WITHOUT  
WD WOOD  
WP WORKING POINT

## PLAN - SECTION

BLOCK TITLE :

INDICATES SECTION  
NUMBER

TITLE	
SCALE	REF. NUMBERS

INDICATES WHICH SE



BUILDING SECTION



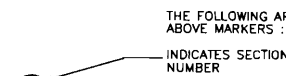
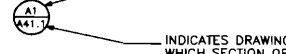
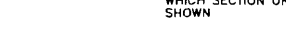
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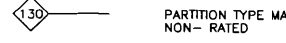
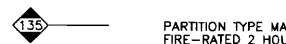
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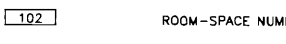
DETAIL

THE FOLLOWING AF  
ABOVE MARKERS :INDICATES SECTION  
NUMBERINDICATES DRAWING  
WHICH SECTION OF  
SHOWN

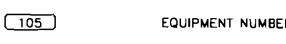
COLUMN REFERENCE

PARTITION TYPE MA  
NON - RATEDPARTITION TYPE MA  
FIRE-RATED 1 HOLPARTITION TYPE MA  
FIRE-RATED 2 HOL

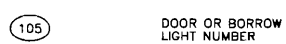
INTERIOR ELEVATION



ROOM-SPACE NUM



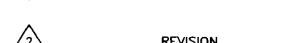
EQUIPMENT NUMBE

DOOR OR BORROW  
LIGHT NUMBER

WINDOW TYPE



LEVEL LINE



REVISION

PROJECT NORTH  
(MAGNETIC NORTH /  
ON PLOT SITE PLAN

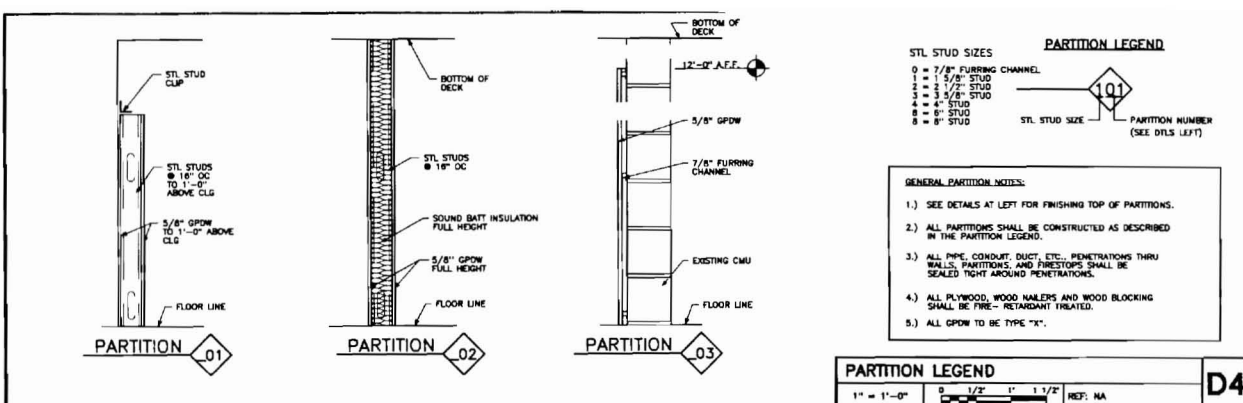
## CONTRACT DRAWING ABBREVIATIONS

NO SCALE REF: NA

## GRAPHIC SYMBOLS LEGEND

NO SCALE REF: NA





ROOM F						
AREA	ROOM NO.	ROOM NAME	FLOOR	BASE	NORTH	
	100	TENANT #1	EXP CONC			GPOW PRIMED
	101	TOILET ROOM #1	VCT	4" VINYL		GPOW PRIMED
	102	TOILET ROOM #2	VCT	4" VINYL		GPOW PRIMED
	103	CORRIDOR	EXP CONC			GPOW PRIMED
	104	TENANT #2	EXP CONC			GPOW PRIMED
	105	TOILET ROOM #3	VCT	4" VINYL		GPOW PRIMED
	106	TOILET ROOM #4	VCT	4" VINYL		GPOW PRIMED

DOOR AND						
AREA	No.	SIZE	MAT	TYPE	GLASS	LOUVER
	101	3'-0" 7'-0" 1 3/4"	WOOD	F		
	102	3'-0" 7'-0" 1 3/4"	WOOD	F		
	103	3'-0" 7'-0" 1 3/4"	HM	F		
	104	3'-0" 7'-0" 1 3/4"	HM	F		
	105	3'-0" 7'-0" 1 3/4"	WOOD	F		
	106	3'-0" 7'-0" 1 3/4"	WOOD	F		
	107	14'-0" 7'-0" 1 3/4"	AL	SG	TEMP	
	108	9'-8" 7'-0" 1 3/4"	AL	SG	TEMP	

**DOOR HARDWARE:**

HARDWARE SET #1 - DOORS NO. 101, 102, 105, 106

1 - LOCKSET (PRIVATE LOCK)

3 - HINGES

HARDWARE SET #2 - DOORS NO. 103, 104

1 - EXIT DEVICE WITH EXTENSION LOCKSET

1 - CLOSER

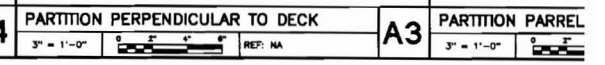
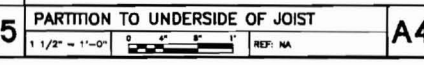
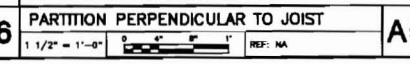
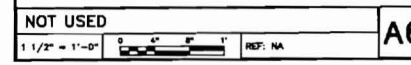
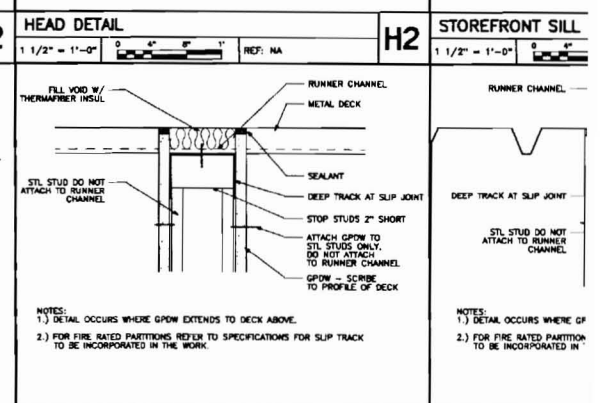
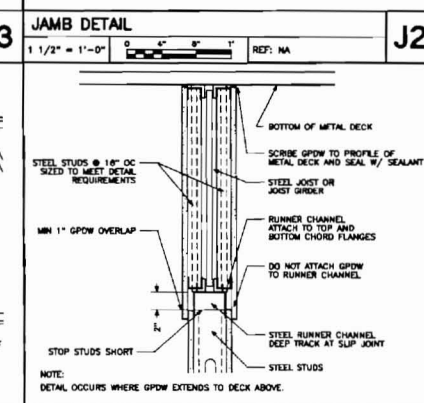
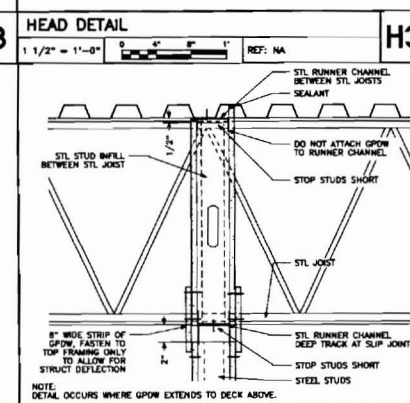
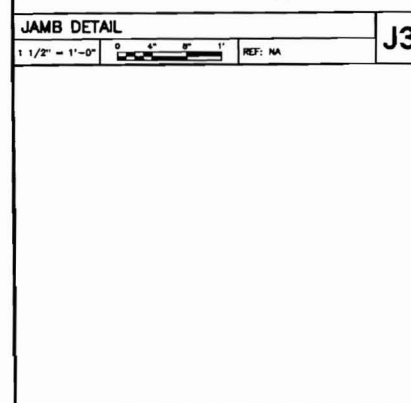
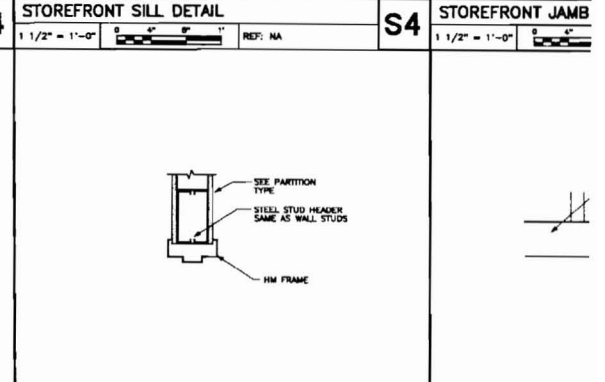
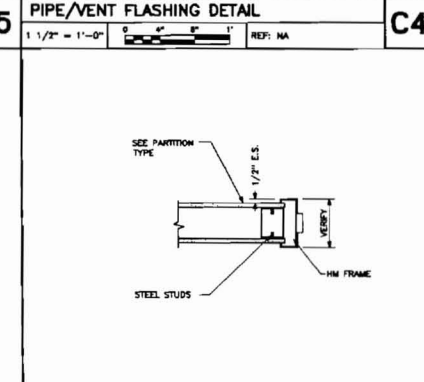
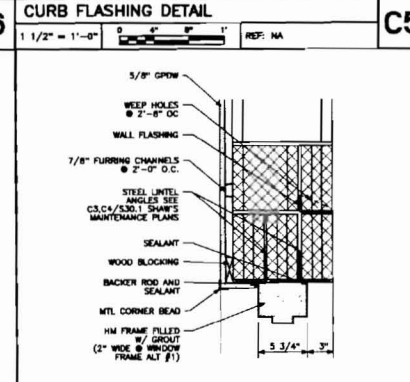
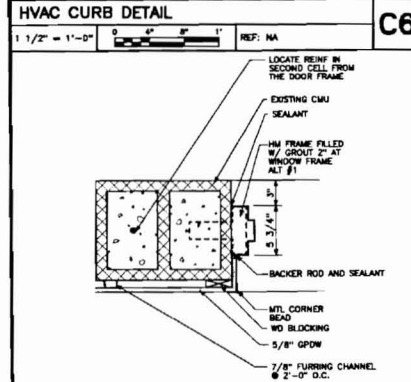
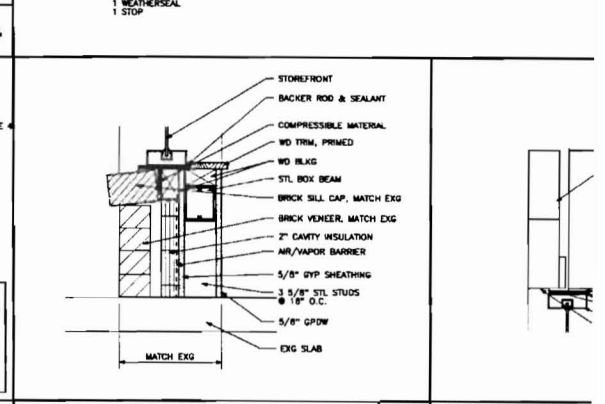
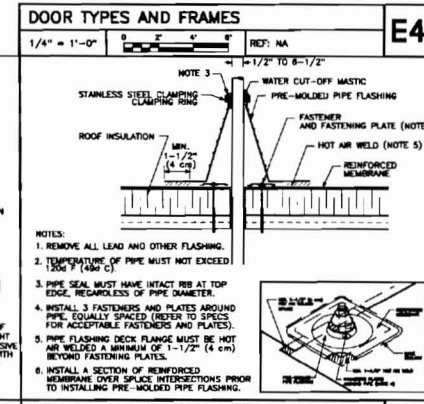
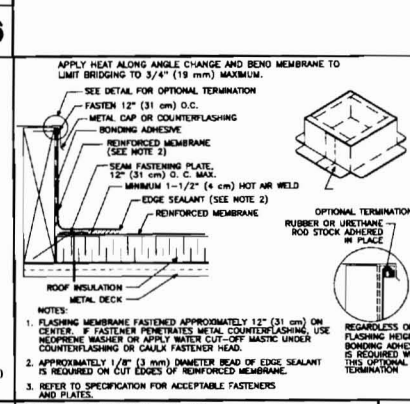
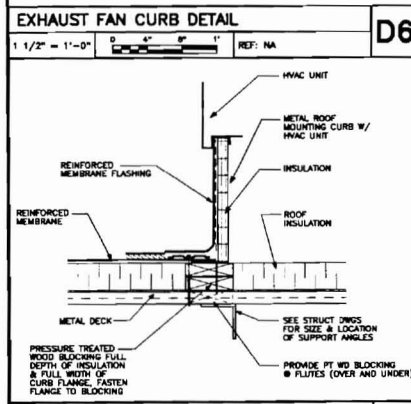
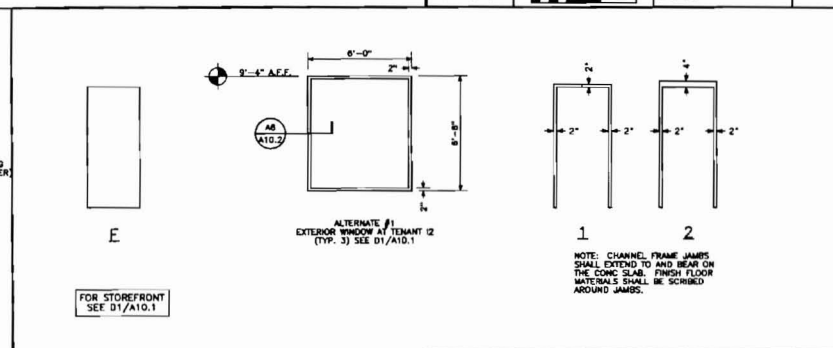
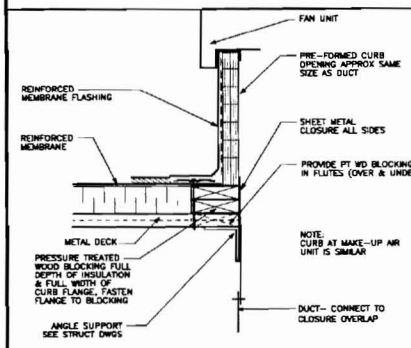
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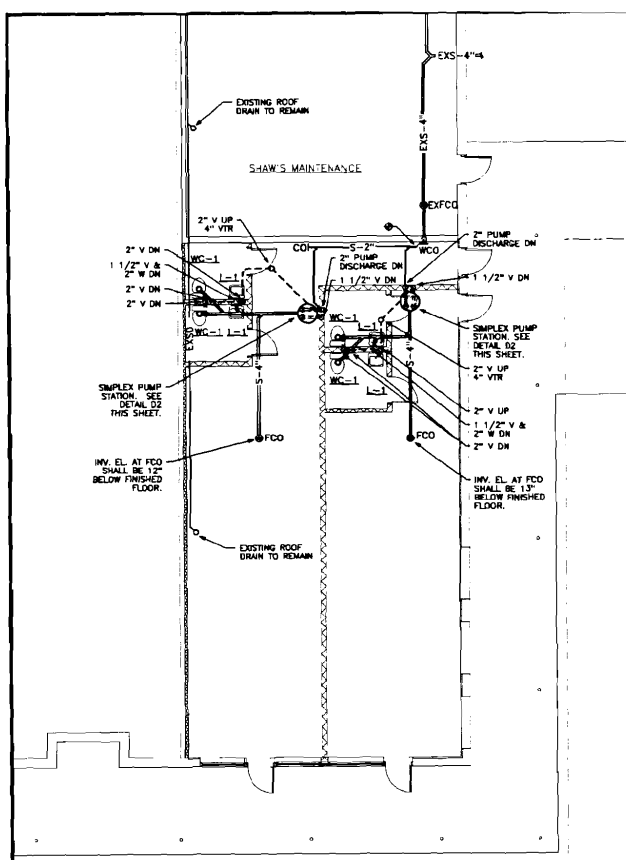
1 - WEATHERSEAL

1 - STOP

**NOTES:**

1. WOOD DOORS TO BE SOLID CORE PAINT GRAI
2. LOCKSETS/LATCHES TO BE SCHLAGE, FINISH TO BE DETERMINED.
3. ALUMINUM STOREFRONT AND FRAMING WATER BARRIER AS IT THERMAL FRAMING, VESTA NA SLOTT 3000 ON TUBULITE 14000 THERMAL FI
4. ACOUSTICAL CEILING TILE TO BE ANSTROM

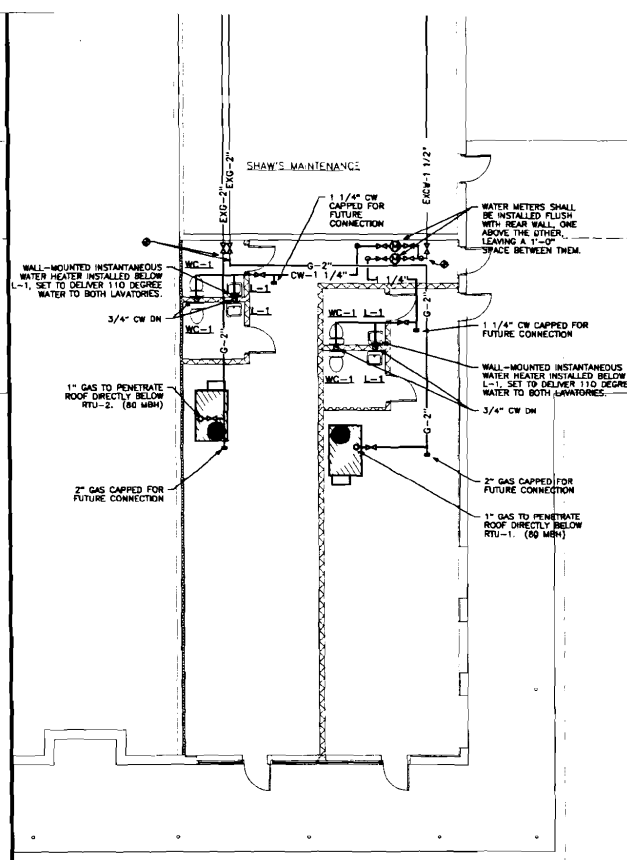




FLOOR PLAN DRAINAGE

1/8" = 1'-0" REF: NA

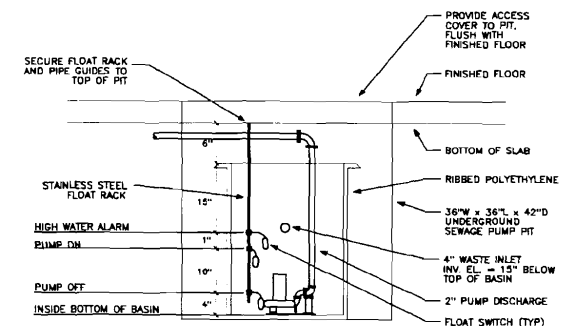
C4



FLOOR PLAN SUPPLY

1/8" = 1'-0" REF: NA

C3



SIMPLEX SEWAGE PUMP STATION DETAIL

NO SCALE REF: NA

PLUMBING FIXTURE INSTALLATION SCHEDULE

FIXTURE LABEL	DESCRIPTION	BRANCH SIZES				REMARKS	MTS TO
		VENT	WASTE	CW	HW		
WC-1	WATER CLOSET, WALL MOUNTED	2"	4"	1"	---	ADA COMPLIANT ELECTRONIC FLUSH VALVE	16'
L-1	LAVATORY	1-1/2"	1 1/2"	1/2"	1/2"	WALL MOUNTED ADA COMPLIANT	3'
INSTANTANEOUS WATER HEATER	TANKLESS, ELECTRIC	---	---	1/2"	1/2"		2'
PUMP STATION	SIMPLEX SEWAGE PUMP IN BASIN	1 1/2"	2"	---	---		TOP OF BASIN

NOT USED

NO SCALE

REF: NA

B4

NOT USED

NO SCALE

REF: NA

B3

NOT USED

NO SCALE

REF: NA

NOT USED

NO SCALE

REF: NA

A4

NOT USED

NO SCALE

REF: NA

A3

NOT USED

NO SCALE

REF: NA



## SECTION 15410

## PLUMBING - GENERAL PURPOSE

## PART 1 - GENERAL

## 1.01 SUMMARY

FURNISH ALL LABOR, EQUIPMENT, MATERIALS, AND TOOLS AND PERFORM ALL OPERATIONS IN CONNECTION WITH THE RENOVATIONS AND ADDITIONS TO THE PLUMBING SYSTEM. COMPLY WITH ALL CODES AND AUTHORITIES HAVING JURISDICTION. PREPARATION OF RECORD DRAWINGS AND OWNER'S MANUALS, GUARANTEES AND WARRANTIES, PROTECTION OF WORK AND QUALITY ASSURANCE OF WORKMANSHIP.

## A. SECTION INCLUDES:

1. ALL INSIDE SANITARY, COLD WATER, AND NATURAL GAS PIPING.
2. PLUMBING FIXTURES.
3. PROVIDE VALVES, FAUCETS, STRAINERS, TAILPIECES, TRAPS, ADAPTERS AND MAKE ALL TYPICAL CONNECTIONS TO FIXTURES AND EQUIPMENT PROVIDED EITHER BY THE OWNER OR UNDER OTHER SECTIONS OF THESE SPECIFICATIONS.
4. CLEANING, STERILIZING AND TESTING OF THE PIPING SYSTEMS AND ALL RELATED EQUIPMENT.

## B. RELATED SECTIONS:

1. DIVISION 9 - PAINTING.
2. SECTION 15010 - MECHANICAL GENERAL REQUIREMENTS.
3. SECTION 15190 - MECHANICAL IDENTIFICATION.
4. SECTION 15260 - PIPING INSULATION.
5. SECTION 15450 - PLUMBING EQUIPMENT.
6. DIVISION 18 - ELECTRIC.

## 1.02 SUBMITTALS

## A. SHOP DRAWINGS

1. PREPARE AND SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ARCHITECTURAL SPECIFICATIONS, AND OBTAIN THE ARCHITECT'S APPROVAL BEFORE PROCEEDING WITH THE FABRICATION AND ERECTION.
2. SHOW PLANS, ELEVATIONS, DETAILS AND JOB CONDITIONS, RELATIONSHIP TO OTHER WORK, AND INDICATE FINISHES.
3. ALL FIXTURES OF THE SAME MATERIAL (CHINA, STAINLESS STEEL, FIBERGLASS ETC.) SHALL BE OF THE SAME MANUFACTURER. ALL SINK FAUCETS SHALL BE OF THE SAME MANUFACTURER. ALL CLEANOUTS AND CARRIERS SHALL BE OF THE SAME MANUFACTURER.
4. SHOP DRAWINGS AND CATALOG CUTS SHALL INDICATE SPECIFICATION SECTION AND PARAGRAPH REQUIRING EQUIPMENT SUBMITTED.
5. PLUMBING FIXTURES:
  - A. WATER HEATERS.
  - B. VALVES.
  - C. CLEANOUTS.

- B. SAMPLES: SUBMIT ALL SAMPLES AS REQUESTED BY THE ARCHITECT OF MATERIALS SPECIFIED HEREIN IN ACCORDANCE WITH REQUIREMENTS OF THE CONDITIONS OF CONTRACT, AND BEFORE ORDERING MATERIALS, OBTAIN WRITTEN APPROVAL FROM THE ARCHITECT.

- C. PRODUCT GUARANTEES AND WARRANTIES: PROVIDE MANUFACTURERS STANDARD GUARANTEE/WARRANTY FOR ALL PRODUCTS PROVIDED IN THIS SECTION.

## PART 2 - PRODUCTS

## 2.01 MANUFACTURERS

- ALL PRODUCT MODEL NUMBERS USED REFERENCE THE FIRST MANUFACTURER LISTED FOR THE APPROPRIATE ITEM.

## A. WATER CLOSETS: AMERICAN STANDARD, KOHLER OR BRIGGS.

## B. TOILET SEATS: CHURCH, BEIMS OR BENEKE.

## C. LAVATORIES: AMERICAN STANDARD OR KOHLER.

## D. FAUCETS:

1. LAVATORY: CHICAGO, T & S, SPEAKMAN.

## E. CLEANOUTS: ZURN, WATTS, WPA, JOMAX, OR J. R. SMITH.

## F. VALVES:

1. BALL: MILWAUKEE, APOLLO, NIBCO OR CRANE.
2. GATE: MILWAUKEE, NIBCO OR CRANE.
3. CHECK: MILWAUKEE, NIBCO OR CRANE.

## G. FIRE STOP SEALANT: SPECIAL FIRESTOP PRODUCTS OR EQUAL.

## H. TRAPS AND SUPPLIES:

1. L & MC: WOODRUE.

## 2.02 MATERIALS

## A. SOL, WASTE, AND VENT PIPING:

1. STANDARD WEIGHT CAST IRON, WITH SIZE, WEIGHT AND MANUFACTURER'S NAME ON EACH LENGTH AND FITTINGS, AND CONFORM TO ASTM ALL STANDARD SPECIFICATIONS. JOINTS ABOVE GROUND SHALL BE COMPRESSION GASKETS OR NO-HUB WITH STAINLESS STEEL COUPLINGS. JOINTS BELOW GROUND SHALL BE COMPRESSION GASKETS.
2. SCHEDULE 40 POLYVINYL CHLORIDE (PVC) WITH SOLVENT CEMENT JOINT. FITTINGS SHALL BE OF THE DRAINAGE PATTERN.
3. DOUBLE BRANCH DRAINAGE CONNECTIONS 2" AND SMALLER SHALL BE MADE WITH DOUBLE PIPE FITTINGS.

## B. COLD WATER PIPING:

1. ABOVE GROUND:
  - A. LESS THAN 3" SIZE: SHALL BE TYPE "L" HARD-DRAWN COPPER TUBING WITH WROUGHT COPPER, SOLDER-TYPE FITTINGS; IMMEDIATE EXPOSED PIPING AT FIXTURES SHALL BE 1/2" O.D. COPPER; IMMEDIATE EXPOSED FITTINGS, ALL FINISHED AND CHROME-PLATED, UNLESS OTHERWISE NOTED.
  - B. TAKE-OFFS MAY BE MADE IN COPPER PIPING USING THE "T-DRILL" METHOD WITH BRAZED JOINTS. CONNECTIONS SHALL BE CONSTRUCTED, PREPARED AND JOINED IN ACCORDANCE WITH ALL THE RECOMMENDATIONS OF THE TAPPING TOOL MANUFACTURER.
  - C. PROVIDE VACUUM BREAKERS WHERE REQUIRED BY CODES.
2. PRESSURIZED PLASTIC PIPING: SCHEDULE 40 PRESSURE RATED POLYVINYL CHLORIDE (PVC) WITH EITHER SOLVENT CEMENT OR THREADED JOINTS. FITTINGS SHALL BE OF THE PRESSURE PATTERN DESIGN.

## C. GAS PIPING SYSTEM:

1. PIPING SHALL BE SCHEDULE 40 BLACK STEEL, MALLEABLE IRON THREADED, LAY BAND BLACK FITTINGS OR WELDED FITTINGS AND JOINTS. ALL PIPING OF 1/2" PSIG OR MORE OR 4" IPS OR LARGER SHALL HAVE ALL WELDED FITTINGS WELDED TO IRON OR STEEL MALLEABLE UNIONS. PROVIDE SHUT-OFFS AT EACH PIECE OF EQUIPMENT. PROVIDE DRAIN POCKETS AT RISERS AND LOW POINTS. GAS PIPING SHALL BE INSTALLED IN ACCORDANCE WITH NFPA BULLETTIN NO. 34 AND NO. 58.
2. CLEANSOUTS:
  - A. CLEANSOUTS SHALL BE INSTALLED FOR DRAINAGE PIPING AT BASE OF RISERS, AT CHANGES IN DIRECTION, WHERE SHOWN, AND AS REQUIRED BY CODE. ALL CLEANSOUTS SHALL BE FURNISHED WITH BRONZE PLUGS.
  - B. AT THE COMPLETION OF THE WORK, REMOVE SEALING COVERS, FLUSH LINES AND GREASE THREADS.
  - C. RESIDENT TILE FLOORS: #2X-1404 ROUND TOP, RECESS FOR TILE.
  - D. WALL: #2-1444-BP, CAST IRON FERRULE, PLUG, WITH ROUND STAINLESS STEEL ACCESS COVER WITH VARI-LOK PROOF SCREW.
  - E. ALL OTHERS: 2X-1404 ROUND NICKEL BRONZE TOP.

## D. VALVES AND FITTINGS: PROVIDE VALVES FOR COMPLETE OPERATION AND DRAINAGE.

1. PROVIDE ACCESSIBLE STANDARDIZATION VALVES WHERE WATER BRANCHES CONNECT TO MAINS. PROVIDE DRAIN VALVES AT THE LOW POINTS.
2. GATE: BRONZE BODY, SOLID BRONZE WEDGE DISC, NON-RISING STEM AND THREADED BOWEN, 200 PSI WOG FOR SHUT-OFFS ONLY.
  - A. THREADED ENDS: #105.
  - B. SWEAT ENDS: #105.
3. BALL: BRONZE BODY, BLOWOUT-PROOF STAINLESS STEEL STEM, STAINLESS STEEL BALL, TEPON SEATS, STAINLESS STEEL LEVER HANDLE WITH VINYL GRIP, RATED FOR 800 PSI WOG. USE FOR SHUT-OFFS OR BALANCING.
  - A. THREADED ENDS: #8A-1005.
  - B. SWEAT ENDS: #8A-1005.
4. CHECK: BRONZE BODY AND DISC, 200 PSI WOG, BUNA-N SEAL.
  - A. THREADED ENDS: #8-500.
  - B. SWEAT ENDS: #1509.

## E. DELECTRIC FITTINGS: PROVIDE DELECTRIC FITTINGS WHEREVER DISSIMILAR METAL MATERIALS ARE TO BE JOINED. FITTINGS SHALL BE NOT LESS THAN 175 PSI RATED AND HAVE A MAXIMUM TEMPERATURE RATING OF NOT LESS THAN 200 F.

## H. HANGERS (INDIVIDUAL):

1. ALL HANGERS SHALL BE OF THE ADJUSTABLE CLEVIS TYPE WITH SHIELDS FOR PLASTIC PIPING AND ALL INSULATED PIPING. VERTICAL PIPE CLAMPS FOR COPPER PIPING SHALL BE COPPER, BRONZE OR BRONZE PLATED CONSTRUCTION; ALL OTHER VERTICAL CLAMPS AND ALL HORIZONTAL PIPE HANGERS SHALL BE ALL STEEL CONSTRUCTION.
2. ALL PIPING BELOW GROUND SHALL BE CONTINUOUSLY SUPPORTED ON UNDISTURBED BEARING SOIL OR ON ENGINEERED COMPACTED FILL.
3. HORIZONTAL ABOVE GROUND PIPING SHALL BE SUPPORTED AS FOLLOWS:
  - A. CAST IRON: AT EVERY JOINT UP TO EVERY 10'-0" FOR SINGLE LENGTH OF PIPE LONGER THAN 2'-0" PROVIDE ONE HANGER FOR EACH LENGTH OF PIPE UP TO EVERY 10'-0". LOCATE HANGERS WITHIN 1'-0" OF A HUB OR A JOINT. PROVIDE A HANGER FOR EACH BRANCH TAKE-OFF WITHIN 1'-0" OF THE CONNECTING MAIN.

## B. COPPER:

1. 1/2" - 1 1/4" IPS: EVERY 8'-0".
2. 1 1/2" - 2" IPS: EVERY 10'-0".

## C. STEEL:

1. 1/4" - 1 1/2" IPS: EVERY 8'-0".
2. 1 1/2" - 2" IPS: EVERY 10'-0".

## D. P.V.C.:

1. 1/2" - 1 1/4" IPS: EVERY 8'-0".
2. 1 1/2" - 2" IPS: EVERY 10'-0".

## E. VERTICAL ABOVE GROUND PIPING SHALL BE SUPPORTED AS FOLLOWS:

1. CAST IRON: AT EVERY JOINT AND AT THE BASE OF EVERY STACK.
2. COPPER: 1/2" - 1 1/4" IPS: EVERY 8'-0".
3. STEEL: 1/2" - 1 1/2" IPS: EVERY 8'-0".
4. P.V.C.: 1/2" - 1 1/2" IPS: EVERY 8'-0".
5. 1 1/2" - 2" IPS: EVERY 10'-0".

## F. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

## G. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

## H. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

## I. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

## J. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

## K. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

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## N. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

## O. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

## P. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

## Q. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

## R. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

## S. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

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## V. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

## W. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

## X. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

## Y. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

## Z. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

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## II. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

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## LL. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

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## III. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

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## JJJJJ. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

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## MMMMM. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

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## QQQQQ. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

## RRRRR. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

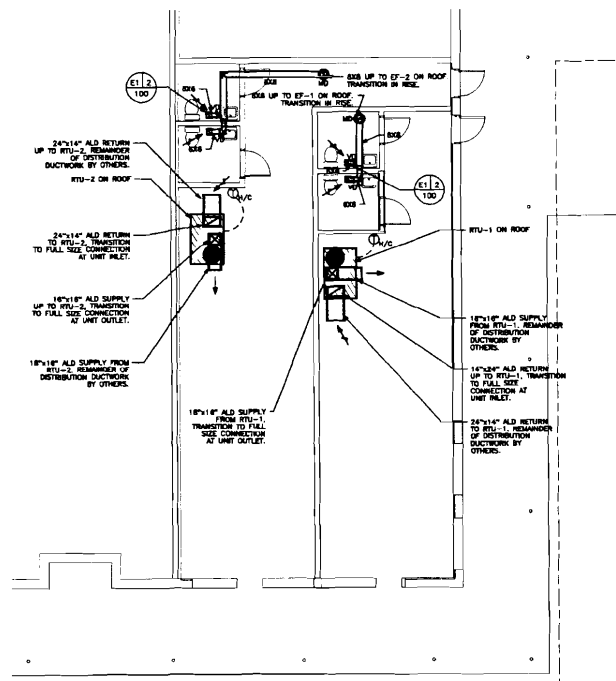
## SSSSS. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

## TTTTT. PROVIDE HANGERS WITHIN 1'-0" OF EACH FLOOR LEVEL.

PACKAGED ROOFTOP HVAC UNIT (RTU)																		
UNIT #	SERVICE	NOMINAL TONS	MANUFACTURER	MODEL	FAN SECTION					HEATING SECTION					EVAPORATOR			
					SUPPLY CFM	MINIMUM OUTDOOR CFM	EXT. S.P.	TOTAL S.P.	BPM	HP	ELECTRICAL	MINIMUM CIRCUIT CAPACITY	MOCP	HP/WT (BTU/Hr)		OUTPUT (BTU/Hr)	GAS	ENTERING AIR CONDITIONS (T DB / F WB)
RTU-1	TENANT SPACE 1	4	TRANE	YH05A3	1800	300	0.80	0.92	1082	1	208-230/1/60	21.2	30	80,000	84,000	NATURAL	77.4/84.4	57.09/55.45
RTU-2	TENANT SPACE 2	4	TRANE	YH05A3	1800	300	0.80	0.92	1082	1	208-230/1/60	21.2	30	80,000	84,000	NATURAL	78.4/85.1	57.71/56.07

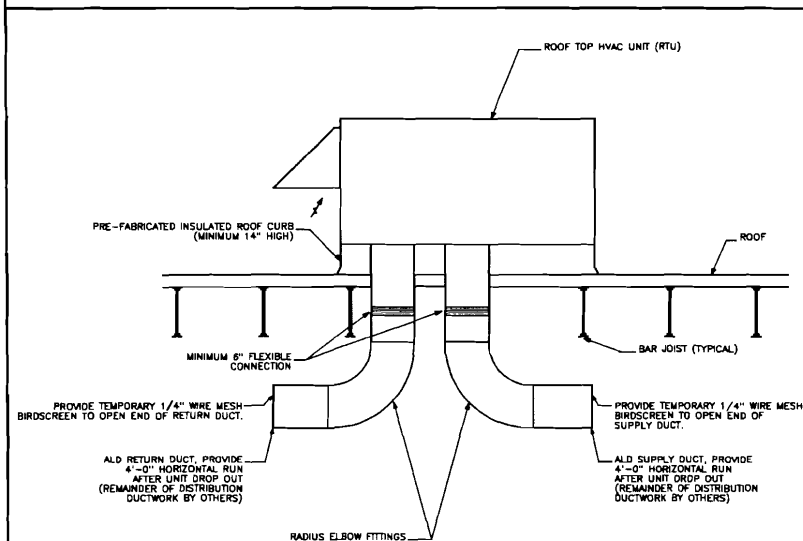
NOTES: 1. PROVIDE 14" ROOF CURB, POWER EXHAUST, DRY, DETHAWING ECONOMIZER, UNIT OUTDOOR AIR INTAKE AND EXHAUST HOODS, UNIT CONTROLS, UNIT DISCONNECT, INTERFACE WITH SPACE Htg/Cldg THERMOSTAT, EXHAUST DAMPERS.

TAG	TYPE
R/E/TI	RETURN/EXHAUST TRANSFER CHILL
NOTES: 1. BACKED CHANNEL 2. BURDER TYPE 1 3. $1/2" \times 1/2" \times$	

 $1/8''-1'-0''$ 

REF: NA

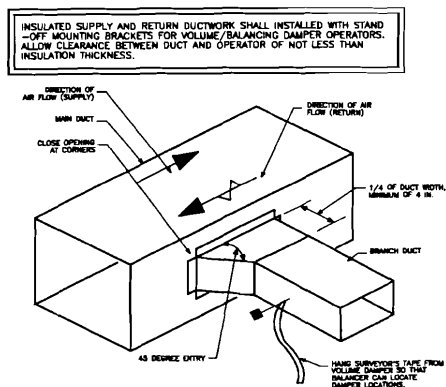
M5



NO SCALE

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M5

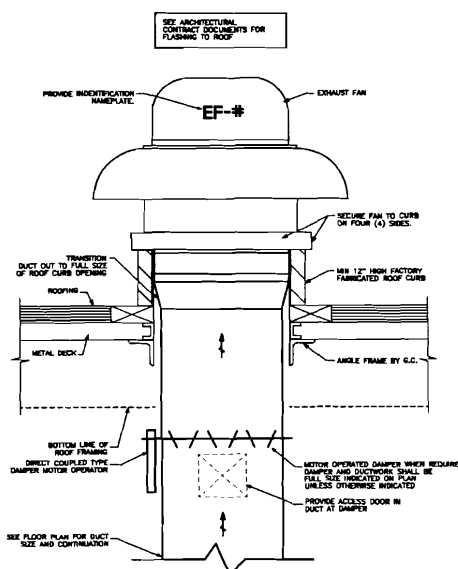


PLAN VIEW

NO SC

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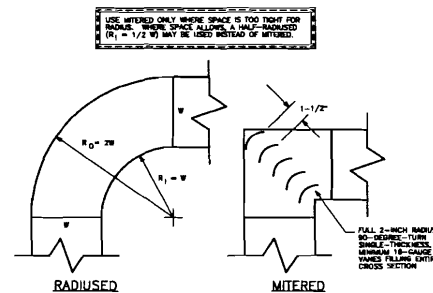
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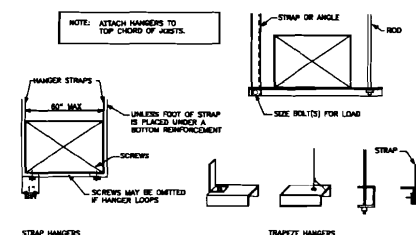
M4



NO SCALE

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B4



NO SCALE

REF: NA

M3

- [illegible]

MECHANICAL SPECIFICATIONS

SECTION 15010: GENERAL REQUIREMENTS

- 1.1 DRAWINGS
- A. THE GENERAL LOCATION OF THE APPARATUS AND THE DETAILS OF THE WORK ARE SHOWN ON THE DRAWINGS. EXACT LOCATIONS NOT INDICATED SHALL BE DETERMINED AT THE SITE AS THE WORK PROGRESSES AND SHALL BE SUBJECT TO THE ARCHITECT'S APPROVAL.
  - B. IT IS NOT INTENDED THAT THE DRAWINGS SHALL SHOW EVERY PIPE, FITTING OR APPLIANCE, BUT SHALL BE A REQUIREMENT TO FURNISH, WITHOUT ADDITIONAL EXPENSE, ALL MATERIAL AND LABOR NECESSARY TO COMPLETE THE SYSTEMS IN ACCORDANCE WITH THE DESIGN INTENT AND WITH THE HIGHEST POSSIBLE QUALITY AVAILABLE.
- 1.2 ELECTRIC WORK
- A. FURNISH AND INSTALL ALL MOTORS, CONTROLLERS, LIMIT SWITCHES AND ALL OTHER RELATED ITEMS FOR EQUIP. PROVIDED UNDER DIVISION 15. EXCEPT AS NOTED, ALL REQUIRED LINE SWITCHES, FUSED SWITCHES, AND ALL OTHER RELATED ITEMS AND ALL NECESSARY WIRING TO PROPERLY CONNECT ALL EQUIPMENT TO MOTORS AND SWITCHES SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 16, ELECTRIC.
  - B. PROVIDE COMPLETE WIRING SYSTEM FOR TEMPERATURE CONTROLS.
  - C. ALL WIRING SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE.
  - D. COORDINATE DUCT SMOKE DETECTOR/ROOFTOP UNIT FAN SHUT-DOWN WITH ELECTRICAL CONTRACTOR.
- 1.3 REQUIREMENTS
- A. ERECT EQUIPMENT ALIGNED, LEVEL AND ADJUSTED TO SATISFACTORY OPERATION, INSTALL SO THAT CONNECTING AND DISCONNECTING OF PIPING AND ACCESSORIES CAN BE MADE READILY AND SO THAT ALL PARTS ARE EASILY ACCESSIBLE FOR INSPECTIONS, OPERATION, MAINTENANCE AND REPAIR.
  - B. RESPONSIBILITY FOR CARE AND PROTECTION OF ALL MATERIAL AND MECH. WORK RESTS WITH THE CONTRACTOR AT ALL TIMES UNTIL THE PROJECT HAS BEEN COMPLETED, TESTED AND THE PROJECT ACCEPTED BY THE OWNER.
  - C. AFTER COMPLETION OF THE INSTALLATION WORK THE CONTRACTOR AND HIS SUBCONTRACTORS SHALL FURNISH NECESSARY MECHANICS OR ENGINEERS FOR THE ADJUSTMENT AND OPERATION OF THE PLANT, AND AT THE END THAT THE PLANT MAY BE PERFECTLY ADJUSTED AND TURNED OVER TO THE OWNER IN PERFECT WORKING ORDER. THE CONTRACTOR SHALL FURTHER INSTRUCT THE OWNER'S AUTHORIZED REPRESENTATIVE IN THE CARE AND OPERATION OF THE INSTALLATION, PROVIDING ALL REQUIRED FRAMED INSTRUCTION CHARTS AND DIRECTIONS.
  - D. AFTER THE ENTIRE INSTALLATION IS COMPLETED, READY FOR OPERATION, THE CONTRACTOR SHALL TEST AND BALANCE THE SYSTEM. THE OWNER SHALL PROVIDE ALL WATER AND ELECTRIC CURRENT FOR THE TEST. THE CONTRACTOR SHALL PROVIDE NECESSARY LABOR, TEST PUMP, GAUGES, METERS, OTHERS INSTRUMENTS AND MATERIALS. PROVIDE FINAL REPORT
  - E. THE CONTRACTOR SHALL, AFTER AWARD OF CONTRACT AND BEFORE INSTALLATION, SUBMIT FOR APPROVAL SHOP DRAWINGS, BULLETINS, PRODUCT DATA AND ALL OTHER RELATED ITEMS. SUBMITTAL SHALL INCLUDE ALL PHYSICAL DATA AND PERFORMANCE DATA REQUIRED TO VERIFY COMPLIANCE WITH THE CONTRACT DOCUMENTS.
  - F. FOR MAINTENANCE PURPOSES, PROVIDE APPROVED SHOP DRAWINGS, PARTS LIST, SPECIFICATIONS AND MFRG MAINTENANCE BULLETINS FOR EACH PIECE OF EQUIPMENT. PROVIDE NAME, ADDRESS AND TELEPHONE NUMBER OF THE MANUFACTURER'S REPRESENTATIVE AND SERVICE COMPANY FOR EACH PIECE OF EQUIPMENT.
  - G. REMOVE ALL DEBRIS FROM SITE DAILY. ALL MATERIAL AND PIECES OF EQUIPMENT SHALL BE TURNED OVER TO THE OWNER FREE OF ANY DUST AND DIRT, BOTH INSIDE AND OUT.
  - H. COORDINATE START-UP OF VARIOUS EQUIPMENT AND SYSTEMS. NOTIFY ARCHITECT/ENGINEER SEVEN DAYS PRIOR TO START-UP OF EACH ITEM. VERIFY THAT EACH PIECE OF EQUIP. OR SYSTEM HAS BEEN CHECKED FOR PROPER ROTATION CONTROL SEQUENCE OR OTHER CONDITION WHICH MAY CAUSE DAMAGE. VERIFY THAT WIRING AND SUPPORT COMPONENTS FOR EQUIPMENT ARE COMPLETE AND TESTED. EXECUTE START-UP UNDER SUPERVISION OF RESPONSIBLE MANUFACTURER'S REPRESENTATIVE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. SUBMIT A WRITTEN REPORT THAT EQUIPMENT OR SYSTEM HAS BEEN PROPERLY INSTALLED AND IS FUNCTIONING CORRECTLY.

SECTION 15140: SUPPORTS AND ANCHORS

- 1.1 PIPE HANGERS AND SUPPORTS
- A. MANUFACTURERS: 1. GRINNELL, 2. B-LINE.
  - B. CONFORM TO ASME B31.9, ASTM F708, MSS SP58, MSSSP69 AND MSS SP89.
  - C. HANGERS FOR PIPE SIZES 1/2" TO 1-1/2": MALLEABLE IRON, ADJUSTABLE SWWEL, SPLIT RING.
  - D. HANGERS FOR HOT PIPE SIZES 2" TO 4": CARBON STEEL, ADJUSTABLE, CLEVIS.
  - E. HANGERS FOR HOT PIPE SIZES 6" AND OVER: ADJUSTABLE STEEL YOKE, CAST IRON ROLL, DOUBLE HANGER.
  - F. HANGERS RODS: MILD STEEL THREADED BOTH ENDS, THREADED ONE END, OR CONTINUOUS THREADED.
- 1.2 INSERTS
- A. MANUFACTURER: 1. GRINNELL, 2. B-LINE.
  - B. INSERTS: MALLEABLE IRON CASE OF STEEL SHELL AND EXPANDER PLUG FOR THREADED CONNECTION WITH LATERAL ADJUSTMENT. TOP SLOT FOR REINFORCING RODS, LUGS FOR ATTACHING TO FORMS; SIZE INSERTS TO SUIT THREADED HANGER RODS.
- 1.3 EXECUTION
- A. PLACE HANGERS WITHIN 12" OF EACH HORIZONTAL ELBOW. USE HANGERS WITH 1-1/2" VERTICAL ADJUSTMENT DESIGN HANGERS FOR PIPE MOVEMENT WITHOUT DISENGAGEMENT OF SUPPORTED PIPE. DO NOT SUPPORT PIPES FROM OTHER PIPES OR EQUIPMENT. PIPE HANGERS ATTACHED TO BAR JOISTS SHALL BE ATTACHED TO TOP CHORDS. SIZE PIPE HANGERS TO ACCOMMODATE CONTINUOUS PIPING INSULATION. SUPPORT HORIZONTAL PIPING AS SCHEDULED BELOW:

PIPE SIZE	HANGER ROD MAX. HANGER SPACING	DIAMETER
1/2" TO 1-1/4"	6.5 FT	3/8"
2-1/2" TO 3"	10 FT	3/8"
4" TO 6"	10 FT	5/8"
8" TO 12"	14 FT	7/8"

SECTION 15190: MECHANICAL IDENTIFICATION

- 1.1 NAMEPLATES
- A. MANUFACTURER: SETON NAME PLATE COMPANY.
  - LAMINATED 3-LAYER PLASTIC WITH ENGRAVED BLACK LETTERS ON LIGHT CONTRASTING BACKGROUND COLOR.
- 1.2 TAGS
- A. MANUFACTURER PLASTIC TAGS: SETON NAME PLATE COMPANY.
  - LAMINATED 3-LAYER PLASTIC WITH ENGRAVED BLACK LETTERS ON LIGHT CONTRASTING BACKGROUND COLOR.
  - TAG SIZE MINIMUM 1-1/2" DIAMETER.
  - B. MANUFACTURER METAL TAGS: SETON NAME PLATE COMPANY.
  - BRASS WITH STAMPED LETTERS; TAG MINIMUM 1-1/2" DIAMETER WITH SMOOTH EDGES.
- 1.3 PIPE MARKERS
- A. MANUFACTURER PLASTIC PIPE MARKER: SETON NAME PLATE COMPANY.
  - FACTORY FABRICATED, FLEXIBLE, SEM-RIGID PLASTIC, PREFORMED TO FIT AROUND PIPE OR PIPE COVERING.
- 1.4 INSTALLATION
- A. INSTALL IDENTIFYING DEVICES AFTER COMPLETION OF COVERINGS. INSTALL TAGS USING CORROSIVE RESISTANT CHAIN. NUMBER TAGS CONSECUTIVELY BY LOCATION. IDENTIFY ALL ITEMS OF MECHANICAL EQUIPMENT SUCH AS AS PUMPS, BOILERS AND WATER HEATERS WITH PLASTIC NAMEPLATES. IDENTIFY VALVES IN MAIN AND BRANCH PIPING WITH METAL TAGS. IDENTIFY PIPES WITH PLASTIC PIPE MARKERS. IDENTIFY SERVICE AND FLOW DIRECTIONAL. PROVIDE VALVE TAG CHART. LOCATE IN MECHANICAL ROOM. COORDINATE TAGGING NOMENCLATURE WITH OWNER BEFORE ORDERING.

SECTION 15260: PIPING INSULATION

- 1.1 PIPING INSULATION
- A. MANUFACTURER: 1. JOHNS MANVILLE, 2. OWENS CORNING, 3. CERTAINTED, 4. KNAUF, 4. ARMSTRONG.
  - LAMINATED 3-LAYER PLASTIC WITH ENGRAVED BLACK LETTERS ON LIGHT CONTRASTING BACKGROUND COLOR.
- 1.2 GLASS FIBER
- A. ASTM C547, RIGID MOLDED, NONCOMBUSTIBLE, K-VALUE 0.24 AT 75 F, WHITE KRAFT VAPOR BARRIER JACKET WITH GLASS FIBER YARN, BONDED TO ALUMINIZED FILM, MAX. MOISTURE ABSORPTION 0.2% BY VOLUME. VAPOR BARRIER LAP ADHESIVE COMPATIBLE WITH INSULATION.
- 1.3 ELASTOMERIC FOAM
- A. ASTM C534, FLEXIBLE, CELLULAR ELASTOMERIC, MOLDED OR SHEET, K-VALUE 0.27, MAX. SERVICE TEMPERATURE WITH GLASS FIBER YARN, BONDED TO ALUMINIZED FILM, MAX. MOISTURE ABSORPTION 0.2% BY VOLUME. VAPOR 220°F, WATERPROOF VAPOR BARRIER ADHESIVE, AIR DRIED COMPATIBLE WITH INSULATION.
- 1.4 JACKETS
- A. ASTM D1784, 1 PIECE MOLDED TYPE FITTING COVERS, OFF WHITE COLOR, 15 MIL THICKNESS, MAX. 150 F SERVICE TEMPERATURE, CONNECTIONS; BRUSHED ON WELDING ADHESIVE COMPATIBLE WITH INSULATION.

1.5 EXECUTION

- A. PIPING SYSTEMS REQUIRING INSULATION, TYPE OF INSULATION REQUIRED, AND INSULATION THICKNESS SHALL BE AS LISTED IN THE TABLE BELOW. INSULATE ALL FITTINGS, FLANGES, AND VALVES, EXCEPT VALVE STEMS, HAND WHEELS AND OPERATORS. USE FACTORY PRE-MOLDED, PRECUT INSULATION OF THE SAME THICKNESS AS USED ON ADJACENT PIPING.

SERVICE	INSULATION MATERIAL	VAPOR BARRIER REQUIRED	INSULATION WALL THICKNESS AT THE FOLLOWING NOMINAL PIPE DIAMETERS				
			1" AND LESS	1-1/4" - 2"	2-1/2" - 4"	5" - 6"	8" AND UP
DOMESTIC HOT WATER AND RECIRCULATING PIPING	ELASTOMERIC FOAM	NO	1"	1-1/2"	2"	2"	-
	GLASS FIBER	NO	1"	1-1/2"	2"	2"	-
DOMESTIC COLD WATER AND CONDENSATE PIPING	ELASTOMERIC FOAM	NO	1"	1"	1-1/2"	1-1/2"	1-1/2"
	GLASS FIBER	YES	1"	1"	1-1/2"	1-1/2"	1-1/2"

- B. INSTALL PER NAIMA AND MANUFACTURER'S INSTRUCTIONS. PIPE EXPOSED IN MECHANICAL ROOMS FINISH WITH PVC JACKET AND FITTING COVERS.
- C. INSULATED PIPES CONVEYING FLUIDS BELOW AMBIENT TEMPERATURE: INSULATE ENTIRE SYSTEM INCLUDING FITTINGS, VALVES, UNIONS, FLANGES AND STRAINERS. PROVIDE VAPOR BARRIER JACKET.
- D. GLASS FIBER INSULATED PIPES CONVEYING FLUIDS ABOVE 140 F: INSULATE ENTIRE SYSTEM INCLUDING FITTINGS, VALVES, UNIONS, FLANGES, STRAINERS AND EQUIPMENT. PROVIDE STANDARD JACKET.
- E. INSERTS AND SHIELDS: PROVIDE ON PIPES 2" AND LARGER. SHIELDS SHALL BE GALVANIZED. INSERTS SHALL BE MINIMUM 6" LONG, SAME THICKNESS AS INSULATION, HYDROUS CALCIUM SILICATE OR OTHER HEAVY DENSITY INSULATING MATERIAL.

SECTION 15290 - DUCTWORK INSULATION

PART 1 - PRODUCTS

1.1 MANUFACTURERS

- A. JOHNS MANVILLE.
- B. OWENS CORNING.
- C. CERTAINTED.
- D. KNAUF.

1.2 GLASS FIBER, FLEXIBLE

- A. INSULATION: 1-1/2 INCH THICK, ASTM C553; FLEXIBLE, NONCOMBUSTIBLE BLANKET.
- 1. "K" ("KSI") VALUE: ASTM C518, 0.27 AT 75F (0.39 AT 24C).
- 2. MAXIMUM SERVICE TEMPERATURE: 250F (121C) FACED AND 350F (176C) UNFACED.
- 3. MAXIMUM MOISTURE ABSORPTION: 0.20 BY VOLUME.

B. VAPOR BARRIER JACKET:

- 1. KRAFT PAPER WITH GLASS FIBER YARN AND BONDED TO ALUMINIZED FILM.
- 2. MOISTURE VAPOR TRANSMISSION: ASTM E96; 0.02 PERM.
- 3. SECURE WITH PRESSURE SENSITIVE TAPE.
- C. VAPOR BARRIER TAPE: KRAFT PAPER REINFORCED WITH GLASS FIBER YARN AND BONDED TO ALUMINIZED FILM, WITH PRESSURE SENSITIVE RUBBER BASED ADHESIVE.
- D. TIE WIRE: ANNEALED STEEL, 16 GAGE (1.5 MM).

1.3 GENERAL

- A. ALL INSULATION MATERIAL SHALL BE ASBESTOS FREE. NO FIBERS SHALL BE RELEASED FROM ANY MATERIAL WITH DIMENSIONS SIMILAR TO ASBEST OS FIBERS.

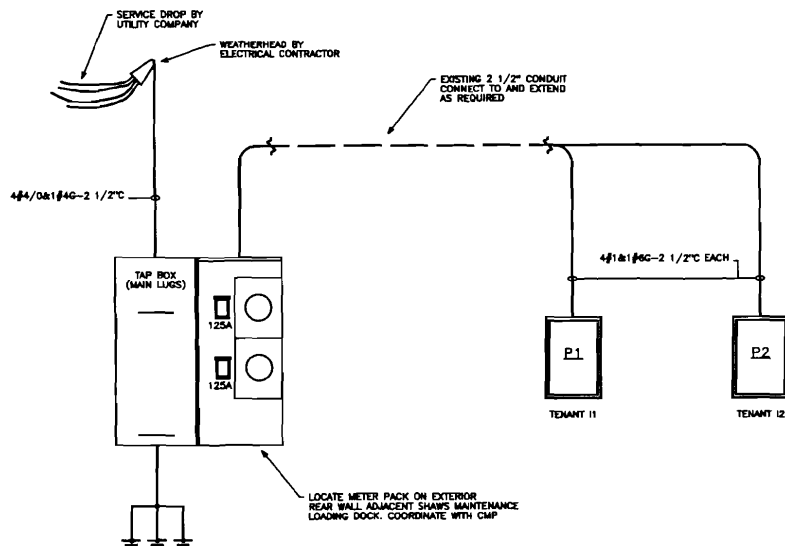
PART 2 - EXECUTION

2.1 EXAMINATION

- A. COORDINATION: VERIFICATION OF EXISTING CONDITIONS BEFORE STARTING WORK.
- B. VERIFY THAT DUCTWORK HAS BEEN TESTED BEFORE APPLYING INSULATION MATERIALS.
- C. VERIFY THAT SURFACES ARE CLEAN, FOREIGN MATERIAL REMOVED, AND DRY.

2.2 INSTALLATION

- A. QUALITY CONTROL: MANUFACTURER'S INSTRUCTIONS.
- B. INSTALL IN ACCORDANCE WITH NAIMA NATIONAL INSULATION STANDARDS.
- C. INSULATED DUCTWORK CONVEYING AIR BELOW AMBIENT TEMPERATURE:
  - 1. PROVIDE INSULATION WITH VAPOR BARRIER JACKETS.
  - 2. FINISH WITH TAPE AND VAPOR BARRIER JACKET.
  - 3. CONTINUE INSULATION THROUGH WALLS, SLEEVES, HANGERS, AND OTHER DUCT PENETRATIONS.
  - 4. INSULATE ENTIRE SYSTEM INCLUDING FITTINGS, JOINTS, FLANGES, FIRE DAMPERS, FLEXIBLE CONNECTIONS, AND EXPANSION JOINTS.
- D. INSULATED DUCTWORK CONVEYING AIR ABOVE AMBIENT TEMPERATURE:
  - 1. PROVIDE WITH OR WITHOUT STANDARD VAPOR BARRIER JACKET.
  - 2. INSULATE FITTINGS AND JOINTS. WHERE SERVICE ACCESS IS REQUIRED, BEVEL AND SEAL ENDS OF INSULATION.
- E. DUCTWORK EXPOSED BELOW 10 FEET (3 METERS) ABOVE FINISHED FLOOR IN MECHANICAL EQUIPMENT ROOMS OR BELOW 8 FEET (2.4 METERS) ABOVE FINISHED FLOOR IN FINISHED SPACES: FINISH WITH CANVAS JACKET SIZED FOR FINISH PAINTING.
- F. EXTERIOR APPLICATIONS: PROVIDE INSULATION WITH VAPOR BARRIER JACKET. COVER WITH CALKED ALUMINUM JACKET WITH SEAMS LOCATED ON BOTTOM SIDE OF HORIZONTAL DUCT SECTION.
- G. EXTERNAL DUCT INSULATION APPLICATION:
  - 1. SECURE INSULATION WITH VAPOR BARRIER WITH WIRES AND SEAL JACKET JOINTS WITH VAPOR BARRIER ADHESIVE OR TAPE TO MATCH JACKET.
  - 2. SECURE INSULATION WITHOUT VAPOR BARRIER WITH STAPLES, TAPE, OR WIRES.
  - 3. INSTALL WITHOUT SAG ON UNDERSIDE OF DUCTWORK. USE ADHESIVE OR MECHANICAL FASTENERS WHERE NECESSARY TO PREVENT SAGGING. LIFT DUCTWORK OFF TRAPEZE HANGERS AND INSERT SPACERS.
  - 4. SEAL VAPOR BARRIER PENETRATIONS BY MECHANICAL FASTENERS WITH VAPOR BARRIER ADHESIVE.
  - 5. STOP AND POINT INSULATION AROUND ACCESS DOORS AND DAMPER OPERATORS TO ALLOW OPERATION WITHOUT DISTURBING WRAPPING.
- H. ENSURE SURFACE IS CLEAN AND DRY PRIOR TO INSTALLATION. ENSURE INSULATION IS DRY BEFORE AND DURING APPLICATION. FINISH WITH SYSTEM AT OPERATING CONDITIONS.
- I. ENSURE INSULATION IS CONTINUOUS THROUGH INSIDE WALLS. PACK AROUND DUCTS WITH FIREPROOF SELF-SUPPORTING INSULATION MATERIAL, PROPERLY SEALED.
- J. FINISH INSULATION NEATLY AT HANGERS, SUPPORTS AND OTHER PROTRUSIONS.
- K. LOCATE INSULATION OR COVER SEAMS IN LEAST VISIBLE LOCATIONS.
- L. REPAIR SEPARATION OF JOINTS OR CRACKING OF INSULATION DUE TO THERMAL MOVEMENT OR POOR WORKMANSHIP.
- M. STANDING SEAMS, SUPPORTING ANGLES AND FLANGES ON ALL INSULATED DUCTWORK SHALL BE INSULATED WITH THICKNESS EQUAL TO THE DUCT AND ALL EDGES SHALL BE FINISHED AND VAPOR SEALED.
- N. MECHANICAL FASTENERS SHALL NOT BE RIVETED OR SCREWED TO THE DUCT AND SHALL NOT PENETRATE THE METALWORK.
- O. FOR SUPPLY OR RETURN DUCTWORK WHICH IS REQUIRED TO BE INSULATED, INSULATION SHALL BE CONTINUOUS AND SHALL INCLUDE THE INSULATING OF REGISTER, GRILLE AND DIFFUSER CONNECTION PLENUMS/BOOTS.



#### NOTES:

1. SEE DRAWING E00.1 FOR PANEL SCHEDULES AND REQUIREMENTS.
2. MODULAR METERING SHALL BE SQUARE D EZM SERIES, WITH 225A TAP BOX AND 225A METER SECTIONS. EACH METER SHALL HAVE 125A MAIN BREAKER.
3. COORDINATE ALL DETAILS AND REQUIREMENTS WITH CENTRAL MAINE POWER CO.

#### RISER DIAGRAM

NO SCALE

REF: NA

A3

#### DIVISION 18 - ELECTRICAL

##### PART 1 - GENERAL

###### 1.1 SECTION INCLUDES

- A. BASIC ELECTRICAL REQUIREMENTS
- B. INTENT IS PROVIDE AND INSTALL ALL MATERIALS & LABOR TO IMPLEMENT THE DESIGN AS INTENDED FOR A COMPLETE WORKING ELECTRICAL SYSTEM, AS REQUIRED TO ACCOMMODATE THE ADDITIONS AND ALTERATIONS.
- C. CONFORM TO REQUIREMENTS OF THE LATEST EDITION OF ANSI/NFPA 70 NATIONAL ELECTRICAL CODE (N.E.C.).
- D. CONFORM TO REQUIREMENTS OF ALL LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS, PLUS LOCAL ELECTRIC UTILITY COMPANY'S RULES, AND THE FIRE UNDERWRITERS' REQUIREMENTS.
- E. FURNISH PRODUCTS LISTED AND CLASSIFIED BY UNDERWRITERS' LABORATORIES, INC. (U.L.) AS SUITABLE FOR PURPOSES SPECIFIED AND SHOWN.
- F. SECURE AND PAY FOR ALL PERMITS AND CERTIFICATES AS REQUIRED BY LOCAL, STATE, AND FEDERAL LAWS.
- G. REQUEST INSPECTIONS FROM AUTHORITY HAVING JURISDICTION.
- H. CIRCUITS SHALL BE BALANCED AND LOADS AND CAPACITIES SHALL BE IN ACCORDANCE WITH N.E.C. CRITERIA AND NATIONAL BOARD OF FIRE UNDERWRITERS.
- I. EXACT LOCATIONS OF ALL EQUIPMENT SHALL BE VERIFIED AT THE SITE, WITH THE OWNER AND ARCHITECT.
- J. THE ENTIRE ELECTRICAL SYSTEM SHALL BE PERMANENTLY AND EFFECTIVELY GROUNDED IN ACCORDANCE WITH CODE REQUIREMENTS.

###### 1.3 SEQUENCING AND SCHEDULING

- A. SCHEDULE AND COORDINATE ALL WORK WITH THE CONSTRUCTION MANAGER AND THE OWNER. DEMOLITION AND REMOVAL OF ELECTRICAL ITEMS ARE INCLUDED AS PART OF DIVISION 16.
- B. ARRANGE TO EXECUTE THE WORK AT SUCH TIMES AND IN SUCH LOCATIONS AS MAY BE REQUIRED TO PROVIDE UNINTERRUPTED SERVICES FOR THE BUILDING, OR ANY OF ITS SECTIONS. PROVIDE PHASED CONSTRUCTION TO ACCOMMODATE OWNER SATISFACTION.
- C. SERVICES INCLUDE BUT NOT LIMITED TO: POWER, LIGHTING, FIRE ALARM, TELEPHONE, AND LIFE SAFETY SYSTEMS AS REQUIRED TO MAINTAIN SAFE OCCUPANCY.
- D. IF NECESSARY, INSTALL TEMPORARY WORK TO PROVIDE FOR THIS CONDITION. AUTHORIZATION FOR INTERRUPTING SERVICES FOR ANY PORTIONS OF THE BUILDING SHALL BE OBTAINED, IN WRITING, FROM THE OWNER.
- E. COSTS FOR OVERTIME WORK AND TEMPORARY WORK SHALL BE INCLUDED IN THE BID.
- F. ALL EXISTING WIRING THAT IS DISCONNECTED AND IS INTENDED TO BE DISCONTINUED SHALL BE COMPLETELY REMOVED TO SOURCE. ALL EXISTING WIRING THAT IS DISTURBED BUT INTENDED TO REMAIN, SHALL BE REPEATED AND RECONNECTED AS REQUIRED.
- G. ALL ELECTRICAL ITEMS REMOVED SHALL BE RETURNED TO THE OWNER. AT THE OWNER'S OPTION, CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF REMAINING ITEMS NOT WANTED BY THE OWNER.

##### PART 2 - PRODUCTS

###### 2.1 DEVICES

- A. RECEPTACLES SHALL BE NEMA 5-20R. SWITCHES SHALL BE 277 VOLT RATED.
- B. ALL DEVICES SHALL BE SPECIFICATION GRADE (HUBBELL, ILLUMIN, 3M, GE, QP3000, etc.).
- C. AUTOMATIC WALL SWITCHES SHALL BE WATSTOPPER DW-200 SERIES OR EQUAL SET TO ENERGIZE LIGHTS AND EXHAUST FANS SIMULTANEOUSLY.

###### 2.2 WIRE AND CABLE

- A. #12 AND #10 AWG WIRING SHALL BE SOLID COPPER, THWN/THHN, COLOR CODED AS INDICATED BELOW. ALL WIRING #8 AWG AND ABOVE SHALL BE STRANDED COPPER, THWN/THHN, COLOR CODED AS INDICATED BELOW. MINIMUM SIZE #12 AWG. ALL CONDUCTORS SHALL BE IN CONDUIT AND SHALL BE PROPERLY SUPPORTED.
- B. WIRE COLOR CODE SHALL BE AS FOLLOWS:
 

WIRE COLOR CODE	120/208V	277/480V
PHASE A	BROWN	BROWN
PHASE B	ORANGE	ORANGE
PHASE C	YELLOW	YELLOW
NEUTRAL	GRAY	GRAY
GROUND	GREEN	GREEN

- C. DISCONNECT SWITCHES SHALL BE HEAVY DUTY TYPE, HORSE POWER RATED.

###### 2.3 PANELBOARDS

- A. ACCEPTABLE MANUFACTURERS: WESTINGHOUSE, I-T-E SIEMENS, GENERAL ELECTRIC, SQUARE D.

###### 2.4 BRANCH PANELBOARDS

- A. LIGHTING AND APPLIANCE BRANCH CIRCUIT PANELBOARDS: CIRCUIT BREAKER TYPE WITH MAINS AND CIRCUITS AS INDICATED ON THE DRAWINGS AND ALL DESIGNED FOR FLOOR WIRE, SOLID NEUTRAL, 60 CYCLE SERVICE RATED FOR 120/208 VOLT SERVICE AS SCHEDULED.
- B. ENCLOSURE: NEMA TYPE 1 EXCEPT AS NOTED. CODE GAUGE GALVANIZED STEEL BOXES AND ENAMELED STEEL FRONTS SIZED FOR #4 MINIMUM SIZE, TOP AND BOTTOM CUTTERS, OR GREATER AS REQUIRED BY NEC. COORDINATE TO ASSURE MINIMUM NATIONAL ELECTRICAL CODE SPACE REQUIREMENTS.
- C. BUS: COPPER RATINGS AS SCHEDULED ON DRAWINGS. PROVIDE SUBFED LUGS AS REQUIRED. LUGS DESIGNED FOR USE FOR BOTH COPPER AND ALUMINUM CONDUCTORS.
- D. NEUTRAL BAR: FULL SIZE INSULATED FROM THE CABINET AND PROVIDED WITH LUGS FOR EACH BRANCH CIRCUIT SPACE IN THE PANEL.
- E. BONDING STRAP SECURELY ATTACHED TO THE CABINET WITH LUGS AS REQUIRED TO RECEIVE THE BONDING CONDUCTORS.
- F. MINIMUM INTEGRATED SHORT CIRCUIT RATING: 10,000 AMPERES RMS SYMMETRICAL AT 240 VOLTS.
- G. MOLDED CASE CIRCUIT BREAKERS: TOGGLE TYPE THERMAL-MAGNETIC, QUICK-MAKE, QUICK-BREAK, WITH SILVER-PLATED CONTACTS, BOLT-IN TYPE, AND WITH COMMON TRIP FOR MULTIPLE CIRCUITS. BREAKERS SHALL HAVE A NOMINAL THICKNESS OF 1" PER POLE. PROVIDE CIRCUIT BREAKERS UL LISTED AS TYPE SWD FOR SWITCHING LIGHTING CIRCUITS.

###### 2.5 DUCT SMOKE DETECTORS

- A. DETECTORS SHALL BE STAND ALONE PHOTOELECTRIC TYPE LISTED BY UL PER UL268A WITH INTEGRAL FORM C NORMALLY OPEN AND NORMALLY CLOSED CONTACTS. SMOKE DETECTORS SHALL BE RATED FOR 120V AND BE COMPLETE WITH HOUSING, SAMPLING TUBES AND OTHER COMPONENTS AS REQUIRED FOR A COMPLETE INSTALLATION. COORDINATE SAMPLING TUBE SIZE AND LOCATION WITH DUCT.
- B. DETECTORS SENSITIVE SMOKE SHALL INITIATE CHANGE OF CONTACT STATE AS REQUIRED TO CONTROL RTU FAN SHUTDOWN RELAY.
- C. DETECTORS SHALL INTERFACE WITH REMOTE ALARM UNIT LOCATED AS INDICATED ON DRAWINGS. REMOTE ALARM UNIT SHALL BE CAPABLE OF VISUAL AND AUDIBLE INDICATION OF SMOKE DETECTOR ALARM AND TROUBLE CONDITIONS.
- D. COORDINATE LOCATION OF DUCT SMOKE DETECTORS WITH MECHANICAL CONTRACTOR.

###### 2.6 EMERGENCY & EXIT LIGHTING

- A. BATTERY UNITS SHALL BE 120V/12VDC, WITH CABINET OF MINIMUM #18 GAUGE STEEL OR HIGH IMPACT NYLON, THERMOPLASTIC, SEALED MAINTENANCE FREE, LEAD-CALCIUM BATTERY, AUTOMATIC SOLID STATE TRANSFER RELAY, HIGH OR LOW RATE CHARGING, AMPERE AND VOLT METERS, LAMP DISCONNECT AND TEST SWITCH. UNITS SHALL BE SIZED AS REQUIRED TO SERVE LOAD INDICATED ON DRAWINGS PLUS 25%, PROVIDE MOUNTING SHELF FOR ALL UNITS.
- B. UNIT MOUNTED AND REMOTE HEADS SHALL BE 12V-12WATT SEALED BEAM HALOGEN TYPE IN NYLON, HIGH IMPACT THERMOPLASTIC HOUSING.
- C. EXIT SIGNS SHALL BE LED SELF-CONTAINED BATTERY TYPE AS SCHEDULED.

###### 2.7 LIGHTING

- A. PROVIDE NEW FIXTURES AS REQUIRED AND AS INDICATED ON DRAWINGS. REFER TO THE LIGHTING FIXTURE SCHEDULE FOR FIXTURE SPECIFICATIONS.
- B. EACH LIGHTING OUTLET SHALL HAVE FIXTURES FURNISHED AND INSTALLED COMPLETE WITH SOCKETS, WIRING, BALLASTS, STEMS, HANGERS, FITTINGS, END PLATES, ETC. STEMS FOR FIXTURES SHALL BE CUT OR LENGTHENED TO GIVE MOUNTING HEIGHTS AS INDICATED AND REQUIRED.
- C. ALL LAMPS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. EACH FIXTURE SHALL HAVE A COMPLETE COMPLEMENT OF LAMPS AT THE TIME OF OWNER ACCEPTANCE OF BUILDING. WHERE INDICATED, FIXTURES SHALL BE FURNISHED WITH A SPECIFIC MANUFACTURER'S LAMPS.
- D. ALL FIXTURES SHALL BE APPROVED BY UNDERWRITERS' LABORATORIES, INC., AND BEAR UNDERWRITERS' LABELS.
- E. PROVIDE AND INSTALL SUPPORTS, ETC., AS REQUIRED FOR FIXTURE MOUNTING.
- F. FIXTURES SHALL BE AS INDICATED ON DRAWINGS.

##### PART 3 - EXECUTION

###### 3.1 WORKMANSHIP AND INSTALLATION

- A. EXECUTE ALL WORK IN A NEAT MANNER ACCEPTABLE TO THE LOCAL AND STATE ELECTRICAL INSPECTOR. FOLLOW MANUFACTURER'S INSTALLATION RECOMMENDATIONS.
- B. PERFORM ALL ELECTRICAL WORK BY LICENSED ELECTRICIANS WELL SKILLED IN THE TRADE AND SUPERVISED BY A MASTER ELECTRICIAN.

###### 3.2 INSTALLATION

- A. EACH PANEL SHALL HAVE AN ENGRAVED PHENOLIC NAMEPLATE AND A TYPED DIRECTORY SCHEDULE IDENTIFYING TYPE OF LOAD AND AREA SERVED.
- B. PROVIDE AND INSTALL BONDING CONDUCTOR TO EACH ELECTRICAL ITEM AND OTHERS AS INDICATED.
- C. ALL OUTLET AND SWITCH FACEPLATES SHALL BE SMOOTH NYLON.
- D. ALL WIRING SHALL BE CONCEALED.
- E. ALL WIRES SHALL BE RUN IN CONDUIT OR DUCT SYSTEM WITH BOTH ENDS TAGGED, MINIMUM CONDUIT SIZE SHALL BE 1/2" UNLESS INDICATED OTHERWISE.
- F. ALL WIRING TO LIGHTING FIXTURES SHALL BE IN CONDUIT EXCEPT DROPS TO FIXTURES, DROPS (WHIPS) TO LIGHT FIXTURES SHALL BE FLEXIBLE MC CABLE, MAXIMUM 8' LONG.
- G. ALL PENETRATIONS THROUGH WALLS SHALL BE SEALED. FIRE STOP SEALANTS SHALL BE USED TO MEET RATINGS OF WALLS BEING PENETRATED.
- H. OUTLET BOXES FOR ALL CONCEALED WORK SHALL BE MINIMUM 4" SQUARE, WITH RAISED COVERS AS REQUIRED TO EXTEND FLUSH TO FINISHED SURFACE.

###### 3.3 TESTING AND ADJUSTING

- A. THE INSTALLATION SHALL BE FREE FROM SHORT CIRCUITS AND IMPROPER GROUNDS. TEST IN THE PRESENCE OF THE ARCHITECTS OR THEIR REPRESENTATIVES.
- B. TEST ALL LIGHTING AND OUTLETS FOR PROPER OPERATION, INCLUDING ADJACENT SPACES TO ASSURE THAT THEY WERE NOT AFFECTED BY THE RENOVATIONS.
- C. TEST EACH SYSTEM FOR PROPER OPERATION AND MAKE ADJUSTMENTS AS REQUIRED TO SATISFY THE CONSTRUCTION MANAGER AND THE OWNER.

#### ELECTRICAL SPECIFICATIONS

NO SCALE

REF: NA

A2

