

URBAN ENGINEERING  
LAND DEVELOPMENT  
PUBLIC WORKS

# STORM WATER REPORT

**DATE**

July 2, 2010

**REVISED**

September 20, 2010

May 6, 2011

## Blanchet House of Hospitality

421 NW 3<sup>rd</sup> Avenue  
Portland, OR 97209

2010-178319-000-00-CO

RECEIVED  
MAY 19 2011

BDS  
DOCUMENT SERVICES

10-178319 CO

**PREPARED FOR.**

Central City Concern  
232 NW 6<sup>th</sup> Ave  
Portland, OR 97209  
Contact Sean Hubert  
P (503) 200-3892

"I hereby certify that this Stormwater Management Report for Blanchet House of Hospitality has been prepared by me or under my supervision and meets minimum standards of the City of Portland and normal standards of engineering practice. I hereby acknowledge and agree that the jurisdiction does not and will not assume liability for the sufficiency, suitability, or performance of drainage facilities designed by me."



EXPIRES 6-30-2012

**PREPARED BY**

MGH Associates, Inc  
104 West 9th Street  
Suite 207  
Vancouver, WA 98660  
P (360) 750-0399

PLANNING & ENGINEERING



BLANCHET HOUSE OF HOSPITALITY

# Table of Contents

Project Overview and Description	2
Vicinity Map	3
Methodology	4-5
Analysis	5
Engineering Conclusions	5

## APPENDICES

Appendix A	Stormwater Facility Details / Exhibits	A
	<ul style="list-style-type: none"><li>• Utility Plan</li><li>• Watershed Map</li><li>• Flow Control Riser/Overflow Detail</li></ul>	
Appendix B	Calculations	B
	<ul style="list-style-type: none"><li>• Rainwater Harvesting Calculations</li><li>• HydroCAD Water Quantity Calculations</li></ul>	
Appendix C	Associated Reports	D
	<ul style="list-style-type: none"><li>• Memo Rainwater Collection System on Stormwater PAE Consulting Engineers (May 5, 2011)</li><li>• Report of Geotechnical Engineering Services GeoDesign (January 26, 2010)</li></ul>	
Appendix D	Operations & Maintenance Plan	D
	<ul style="list-style-type: none"><li>• Operations &amp; Maintenance Plan</li></ul>	

## **Project Overview and Description**

The Blanchet House of Hospitality project site is located in Portland, Oregon on the corner of NW Glisan Street and NW 3<sup>rd</sup> Avenue. The property address is 421 NW 3<sup>rd</sup> Avenue and includes Tax Lots 1N1E34CA 300. The project site is 9,500 sf in size. (See Vicinity Map, page 2)

The site is zoned Central Commercial (CX) with a design (d) overlay. The site is bordered by commercial on all sides.

This project is new construction of a three-story building. The new building will include group living for up to 76 residents and a "soup kitchen" for low-income and homeless individuals.

The project site lies in the Tanner Subwatershed within the Willamette Watershed. See Watershed Map (Appendix A).

This project will obtain the following permits/approvals/registrations:

- Design Review (LU)
- Building Permit (BDS)
- Public Street Improvements (PBOT)

The existing site is completely covered with a one-story building.



## **Methodology**

This project is required to provide stormwater management and disposal in accordance with the 2008 Portland Stormwater Management Manual (SWMM) for the site. This includes provisions for both detention (quantity control) and pollution reduction (quality control) of stormwater runoff from all constructed impervious areas.

Stormwater systems must be designed to discharge stormwater in accordance with the SWMM Disposal Hierarchy (SWMM, Exhibit 1-2) that requires all facilities discharge to the highest technically feasible disposal method, which are ranked as follows:

- Category 1 On-site infiltration with surface infiltration facility
- Category 2 On-site infiltration with a private drywell or soakage trench
- Category 3 Off-site flow to drainage way, river, or storm-only pipe
- Category 4 Off-site flow to combined sewer

The proposed building covers the entire site (9,500 square feet). A portion of this area will have an ecoroof (2,600 square feet). The runoff from the ecoroof will be routed directly to the public 18" combined sewer in NW Glisan. All runoff from the remaining roof (6,900 square feet) will be piped to a rainwater harvesting tank with a volume of 67,811 gallons. The rainwater will be used to flush all the toilets and urinals in the building.

PAE Consulting Engineers have estimated the demand for the building, see memo in appendix C. The Blanchet House will have 76 permanent residents and will serve approximately 700 meals per day. We have used the demand that was calculated along with rainfall data that was compiled from NOAA downtown precipitation records to model the rainwater harvesting tank. A 90% efficiency coefficient was used with the rainfall data to calculate the volume of water that is routed to the rainwater harvesting tank. See calculation results in appendix B.

Monthly rainfall from 1871 to 2008 was used to model the rainwater harvesting system. Overflow from the tank occurred in 61 out of 138 years. Because overflow conditions are possible we added a flow control device to the overflow from the tank. The 25-year storm was modeled with a full tank and it was determined that a 1.8" orifice would limit the overflow rate to the 10-year pre-developed peak runoff rate. See Flow Control Riser/Overflow detail in appendix A.

Water quality requirements are 70% TSS removal for 90% of the average annual rainfall. The average annual rainfall according to NOAA is 37.07". The smallest rainfall year with overflow is 1976 with 28.58 inches of rainfall. With this data we can assume that all rainfall is harvested for rainfall years smaller than 28.58 inches. Our rainwater harvesting tank will provide 100% TSS removal from 77% of the average annual rainfall which meets the water quality requirements. On another note, the water quality storm that is most concerning is the small storm occurring in the summer months or after numerous days without rain. This storm event, which carries more sediment and oils, will not overflow from the tank.

The soil at this site does not allow for on-site infiltration and there is no storm only pipe available. Therefore, Category 4 will ultimately be the resulting method of stormwater disposal during the years where there is overflow. All runoff from the ecoroof will also connect to the combined sewer system in NW Glisan.

## Analysis

A spreadsheet was used to calculate the monthly volume of water in the tank and it is based on the monthly rainfall data from NOAA and the daily water demand for the building urinals and water closets calculated by PAE Consulting Engineers.

Table 1 – Catchment Areas and Facility Table

Catchment/ Facility ID	Source (roof, road, etc )	Imper. Area (sf)	Ownership (private/ public)	Facility Type/ Function	Facility Size	CN #
A	Roof	6,900	Private	Rainwater Harvesting	67,811 gallons	N/A
B	Roof	N/A	Private	Ecoroof	2,600 sf	N/A

Table 2 – Rainwater Harvesting Data

Catchment Area	6,900	sf
Daily Demand	435.88	gallons
Yearly Demand	159,098	gallons
Tank Size	67,811	gallons

Table 3 – Water Quantity Data

Pre-developed CN	79	(Woods/grass comb , Good, HSG D)
10year Pre-developed Flow Rate	0.052	cfs
25year Post-developed Flow Rate	0.145	cfs (without flow control riser)
25year Post-developed Flow Rate	0.051	cfs (with flow control riser)

According to the calculations there will be no overflow from the tank during the majority of years which exceeds any requirements in the stormwater management manual. In the event of overflow, we have implemented measures to meet the stormwater management manual.

## Engineering Conclusions

Rainwater harvesting and ecoroof technology have been utilized to provide a stormwater management system that will meet the 2008 Portland Stormwater Management Manual. All stormwater released from the site will be connected to the combined sewer system in NW Glisan after treatment.

## **Appendix A**

### **Stormwater Facility Details / Exhibits**

- Utility Plan
- Watershed Map
- Flow Control Riser/Overflow Detail

1500 West 5th Street, Vancouver, WA 98660  
 Phone: (509) 465-1234  
 Fax: (509) 465-1234  
 www.mgh.com

**DOMESTIC WATER SERVICE**

**REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) REQUIRED.**  
 MUST BE INSTALLED AT LEAST 12" ABOVE FINISHED GRADE.

BACKFLOW ASSEMBLY(S) TO BE INSTALLED AT THE POINT WHERE THE WATER SERVICE ENTERS THE PROPERTY. IF APPROVED TO BE INSTALLED INSIDE OF BUILDING, ASSEMBLIES MUST BE INSTALLED AT THE POINT WHERE SERVICE ENTERS, BETWEEN ONE AND FIVE FEET ABOVE THE FLOOR. ALTERNATE LOCATIONS MUST BE APPROVED BY WATER QUALITY INSPECTORS, BUREAU OF WATER WORKS. (503-823-7479).

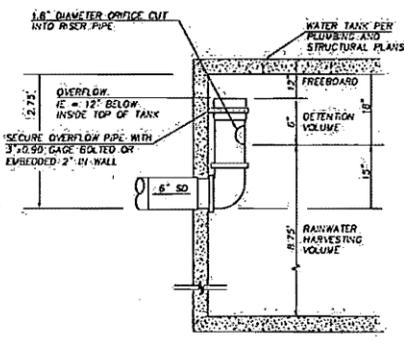
BACKFLOW ASSEMBLY MUST BE INSTALLED PRIOR TO ANY BRANCHES IN THE DOMESTIC PLUMBING SYSTEM.

INSTALLATION OF A BACKFLOW ASSEMBLY MAY ALLOW THERMAL EXPANSION TO OCCUR. INSTALLER RESPONSIBILITY TO MAKE PROVISIONS FOR THERMAL EXPANSION.

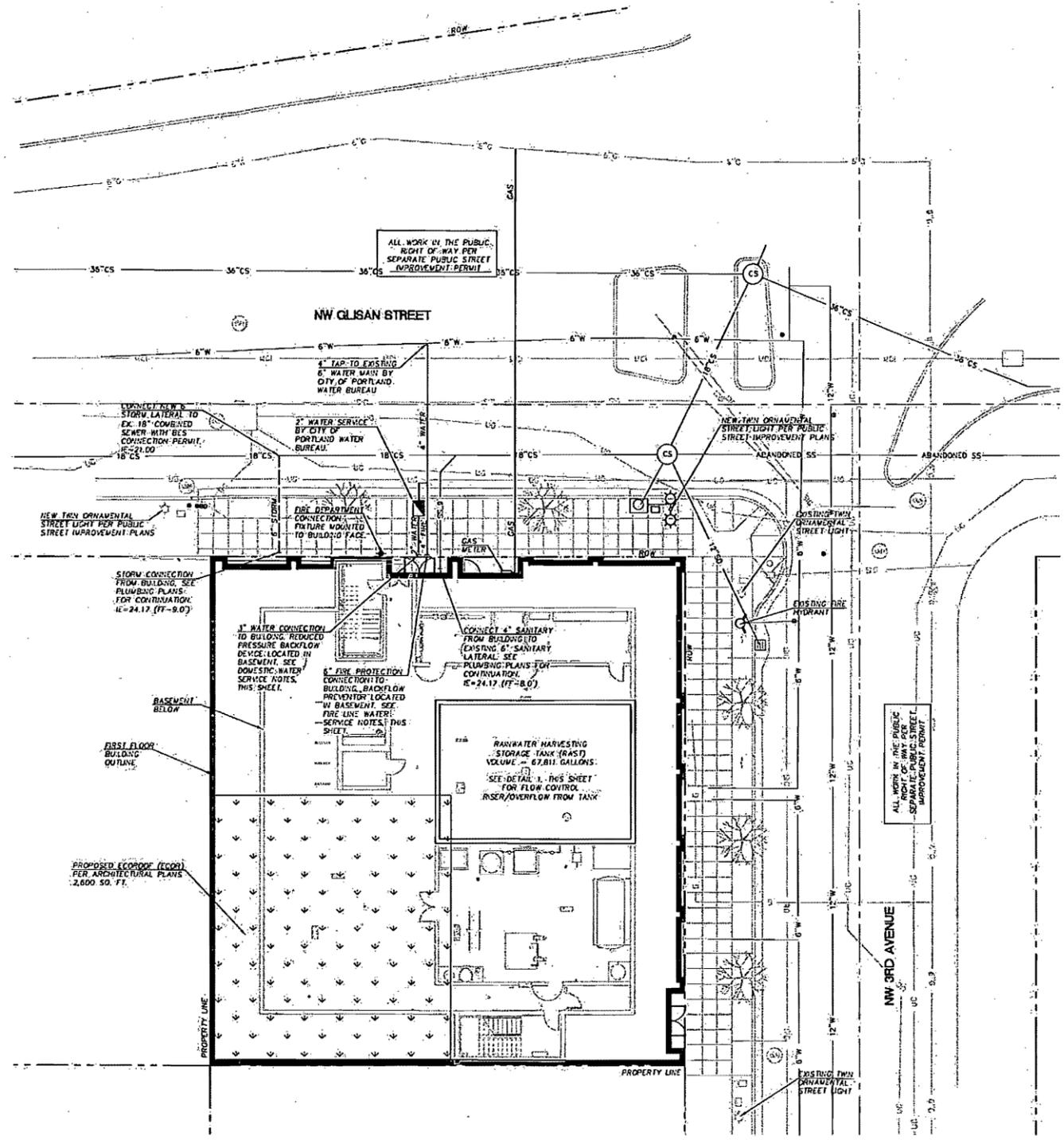
**FIRE LINE WATER SERVICE**

**REDUCED PRESSURE DETECTOR ASSEMBLY (RPDA) REQUIRED.**

BACKFLOW ASSEMBLY(S) TO BE INSTALLED AT THE POINT WHERE THE WATER SERVICE ENTERS THE PROPERTY. IF APPROVED TO BE INSTALLED INSIDE OF BUILDING, ASSEMBLIES MUST BE INSTALLED AT THE POINT WHERE SERVICE ENTERS, BETWEEN ONE AND FIVE FEET ABOVE THE FLOOR. ALTERNATE LOCATIONS MUST BE APPROVED BY WATER QUALITY INSPECTORS, BUREAU OF WATER WORKS. (503-823-7479).



1 FLOW CONTROL RISER / OVERFLOW  
NTS



**SERA**

ARCHITECTURE  
 URBAN DESIGN + PLANNING  
 INTERIOR DESIGN

333 SW 8th Street  
 Portland, OR 97204  
 Phone: (503) 441-3377  
 Fax: (503) 441-3378  
 www.sera.com

PLANNING & ENGINEERING

**MCH**

100 West 5th Street  
 Vancouver, WA 98660  
 Phone: (509) 465-1234  
 Fax: (509) 465-1234  
 www.mgh.com

**BLANCHET HOUSE OF HOSPITALITY**

401 NW 3RD AVE  
 PORTLAND, OR 97209

PREPARED BY: [Name]  
 DATE: 15 MAY 2011  
 PROJECT NO: 081241

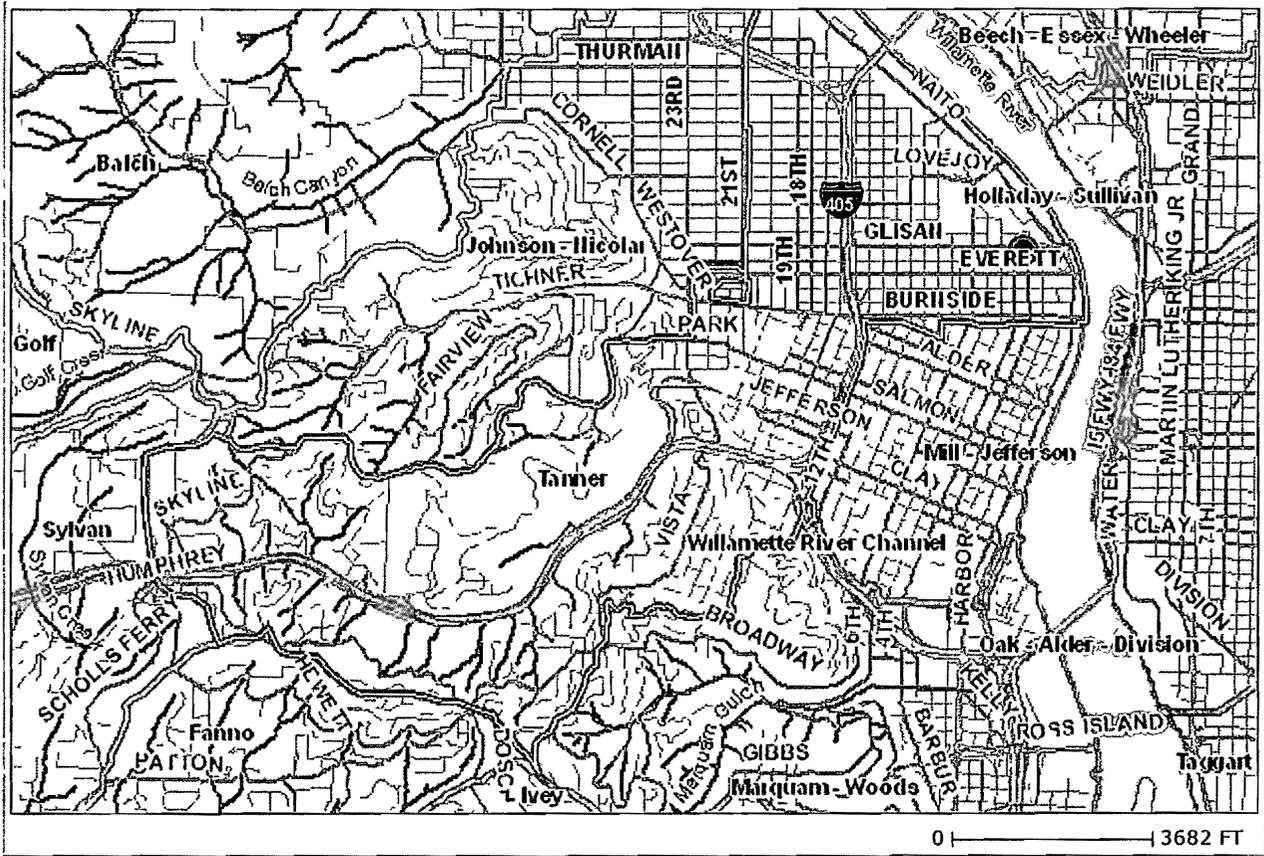
UTILITY PLAN  
**C301** BID SET

# PortlandMaps [New Search](#) | [Mapping](#) | [Advanced](#) | [Google Earth](#) | [Help](#) | [PortlandOnline](#)

**NO ADDRESS AVAILABLE - OLD TOWN/CHINATOWN - PORTLAND** [Explorer](#) | [Property](#) | [Maps](#) | [Projects](#) | [Crime](#) | [Census](#) | [Transportation](#)

[Summary](#) | [Elevation](#) | [Hazard](#) | [Natural Resources](#) | [Photo](#) | [Property](#) | [Water](#) | [Sewer](#) | [Tax Map](#) | [UGB](#) | [Watershed](#) | [Zip Code](#) | [Fire](#) | [Zoning](#)

<b>Watershed Information</b>	
Watershed	Willamette
Area	
More Information	<a href="http://www.portlandonline.com/bes/watershed/Willamette">http://www.portlandonline.com/bes/watershed/Willamette</a>
0  -----  4.8 MI	
Subwatershed	Tanner
Area	



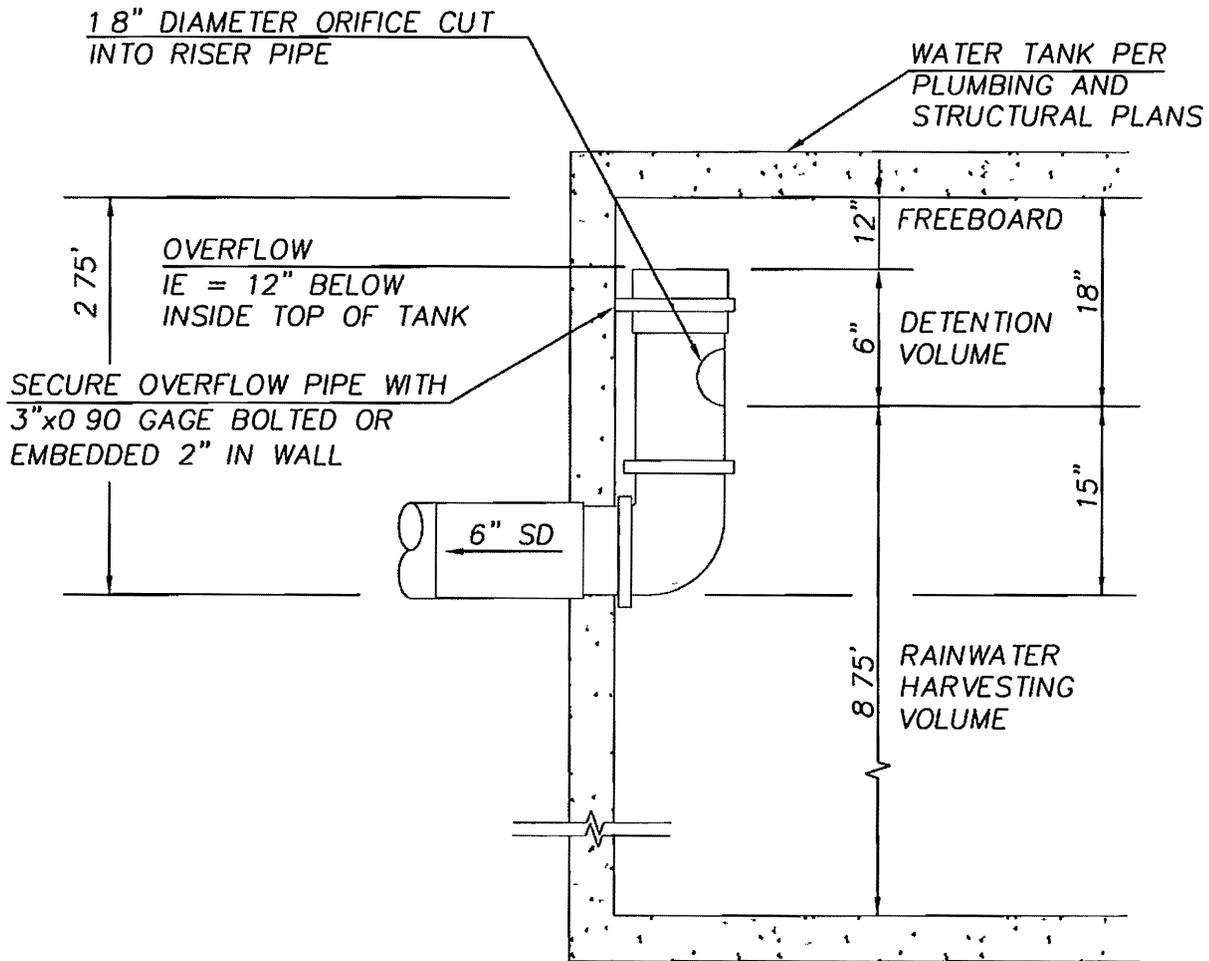
City of Portland, Corporate GIS

7/1/2010

THE GIS APPLICATIONS ACCESSED THROUGH THIS WEB SITE PROVIDE A VISUAL DISPLAY OF DATA FOR YOUR CONVENIENCE. A VERY REASONABLE EFFORT HAS BEEN MADE TO ASSURE THE ACCURACY OF THE MAPS AND ASSOCIATED DATA. THE CITY OF PORTLAND MAKES NO WARRANTY, REPRESENTATION OR GUARANTEE AS TO THE CONTENT, SUFFICIENT ACCURACY, TIMELINESS OR COMPLETENESS OF ANY OF THE DATA PROVIDED HEREIN. THE USER OF THESE APPLICATIONS SHOULD NOT RELY ON THE DATA PROVIDED HEREIN FOR ANY REASON. THE CITY OF PORTLAND EXPLICITLY DISCLAIMS ANY REPRESENTATIONS AND WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE CITY OF PORTLAND SHALL ASSUME NO LIABILITY FOR ANY ERRORS, OMISSIONS, OR INACCURACIES IN THE INFORMATION PROVIDED REGARDLESS OF HOW CAUSED. THE CITY OF PORTLAND SHALL ASSUME NO LIABILITY FOR ANY DECISIONS MADE OR ACTIONS TAKEN OR NOT TAKEN BY THE USER OF THE APPLICATIONS IN RELIANCE UPON ANY INFORMATION OR DATA FURNISHED HEREUNDER. FOR UPDATED INFORMATION ABOUT THE MAP DATA ON PORTLANDMAPS PLEASE REFER TO CITY OF PORTLAND'S METADATA. FOR QUESTIONS ABOUT ASSESSMENT INFORMATION PLEASE CONTACT THE COUNTY ASSESSORS OFFICE IN YOUR COUNTY.

[Address](#) | [Mapping](#) | [Advanced](#) | [Google Earth](#) | [Help](#) | [About](#)

PortlandMaps © 2010 City of Portland, Oregon



1

**FLOW CONTROL RISER / OVERFLOW**

NTS

## **Appendix B**

### **Calculations**

- Rainwater Harvesting Calculations
- HydroCAD Water Quantity Calculations

Roof Area = 6,900 square feet  
 Tank Size = 67,811 gallons  
 Demand = 435.88 gallons/day  
 Capture Efficiency = 90%

year	rainfall (inches)	overflow (gallons)
1871	45.55	-
1872	46.90	2,969
1873	50.52	37,393
1874	46.17	3,025
1875	60.10	58,111
1876	54.94	63,681
1877	58.30	56,475
1878	47.70	57,779
1879	62.22	52,882
1880	51.87	44,202
1881	57.05	55,873
1882	67.24	101,190
1883	51.45	65,103
1884	38.31	-
1885	39.59	-
1886	38.80	-
1887	54.17	24,999
1888	38.76	8,253
1889	31.76	-
1890	40.38	13,734
1891	47.41	-
1892	33.58	-
1893	39.03	-
1894	39.32	6,340
1895	30.76	-
1896	44.13	-
1897	43.01	-
1898	33.90	2,628
1899	42.21	-
1900	38.22	-
1901	41.05	-
1902	50.15	-
1903	35.62	-
1904	46.37	21,933
1905	34.10	-
1906	43.29	-
1907	42.89	-
1908	34.37	-
1909	43.75	-

year	rainfall (inches)	overflow (gallons)
1910	38.65	-
1911	33.28	-
1912	43.47	-
1913	36.30	-
1914	36.67	-
1915	41.30	-
1916	45.77	37,390
1917	40.50	-
1918	31.50	-
1919	45.70	-
1920	41.17	-
1921	43.21	-
1922	38.76	-
1923	32.81	-
1924	31.22	-
1925	31.36	-
1926	41.17	-
1927	45.78	9,905
1928	34.69	-
1929	26.34	-
1930	27.18	-
1931	42.68	-
1932	39.98	-
1933	52.85	15,491
1934	45.98	18,889
1935	29.19	6,835
1936	34.34	-
1937	56.92	11,964
1938	36.27	35,520
1939	30.75	-
1940	40.82	-
1941	38.94	-
1942	47.54	5,196
1943	38.16	28,901
1944	27.12	-
1945	47.67	-
1946	41.88	-
1947	38.93	-
1948	53.05	10,380

X SPREADSHEET HAS BEEN SENT DIRECTLY TO BES STAFF FOR REVIEW

Roof Area = 6,900 square feet  
 Tank Size = 67,811 gallons  
 Demand = 435.88 gallons/day  
 Capture Efficiency = 90%

year	rainfall (inches)	overflow (gallons)
1949	36.07	22,013
1950	57.38	21,533
1951	45.17	35,017
1952	28.83	-
1953	54.02	181
1954	46.57	36,970
1955	50.24	20,449
1956	43.21	54,179
1957	38.46	-
1958	42.19	-
1959	41.60	-
1960	44.38	-
1961	49.74	34,945
1962	38.97	-
1963	43.64	-
1964	49.17	22,034
1965	37.65	13,005
1966	45.34	4,756
1967	38.97	10,031
1968	59.99	41,853
1969	45.97	30,103
1970	52.64	43,974
1971	53.60	40,967
1972	47.56	41,605
1973	47.32	7,477
1974	44.86	39,546
1975	45.92	12,734
1976	28.58	6,659
1977	39.87	-
1978	34.63	-
1979	36.21	-
1980	46.94	-
1981	41.11	-
1982	50.22	16,411
1983	54.78	47,257
1984	44.44	12,364
1985	29.05	-
1986	37.31	-
1987	35.17	-

year	rainfall (inches)	overflow (gallons)
1988	35.76	-
1989	35.19	-
1990	40.88	-
1991	39.32	-
1992	34.64	-
1993	33.72	-
1994	43.30	-
1995	54.00	31,208
1996	72.71	122,365
1997	48.91	36,805
1998	54.55	48,627
1999	52.60	61,534
2000	34.57	8,243
2001	34.75	-
2002	40.51	773
2003	45.88	7,585
2004	31.52	-
2005	42.95	-
2006	47.65	6,509
2007	33.89	-
2008	36.89	-

**Subcatchment 3S: Pre-Developed**

Runoff = 0.052 cfs @ 7.99 hrs, Volume= 856 cf, Depth= 1.49"

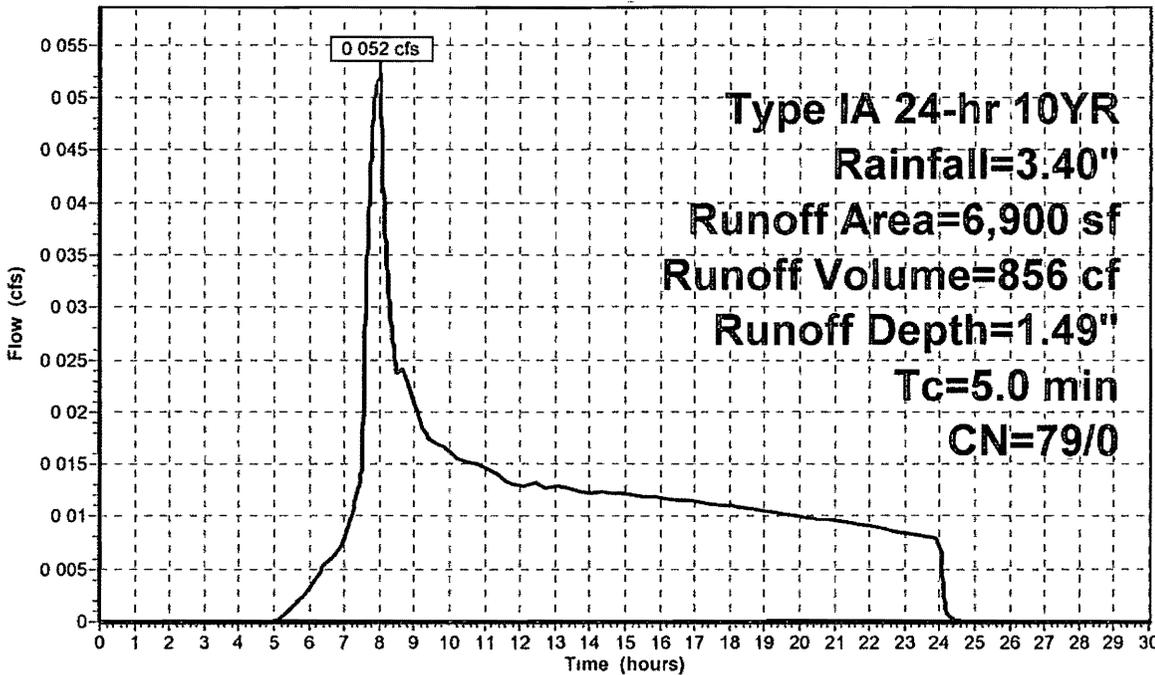
Runoff by SBUH method, Split Pervious/Imperv , Time Span= 0.00-30.00 hrs, dt= 0.01 hrs  
 Type IA 24-hr 10YR Rainfall=3.40"

Area (sf)	CN	Description
6,900	79	Woods/grass comb , Good, HSG D
6,900	79	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 3S: Pre-Developed**

Hydrograph



**Pond 2P: Rainwater Harvesting Tank**

Inflow Area = 6,900 sf, Inflow Depth = 3.67" for 25YR event  
 Inflow = 0.145 cfs @ 7.88 hrs, Volume= 2,108 cf  
 Outflow = 0.051 cfs @ 8.78 hrs, Volume= 2,101 cf, Atten= 65%, Lag= 54.0 min  
 Primary = 0.051 cfs @ 8.78 hrs, Volume= 2,101 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs  
 Peak Elev= 100.43' @ 8.78 hrs Surf Area= 1,036 sf Storage= 449 cf

Plug-Flow detention time= 126.1 min calculated for 2,101 cf (100% of inflow)  
 Center-of-Mass det time= 123.9 min ( 784.1 - 660.1 )

Volume	Invert	Avail Storage	Storage Description
#1	100.00'	10,619 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

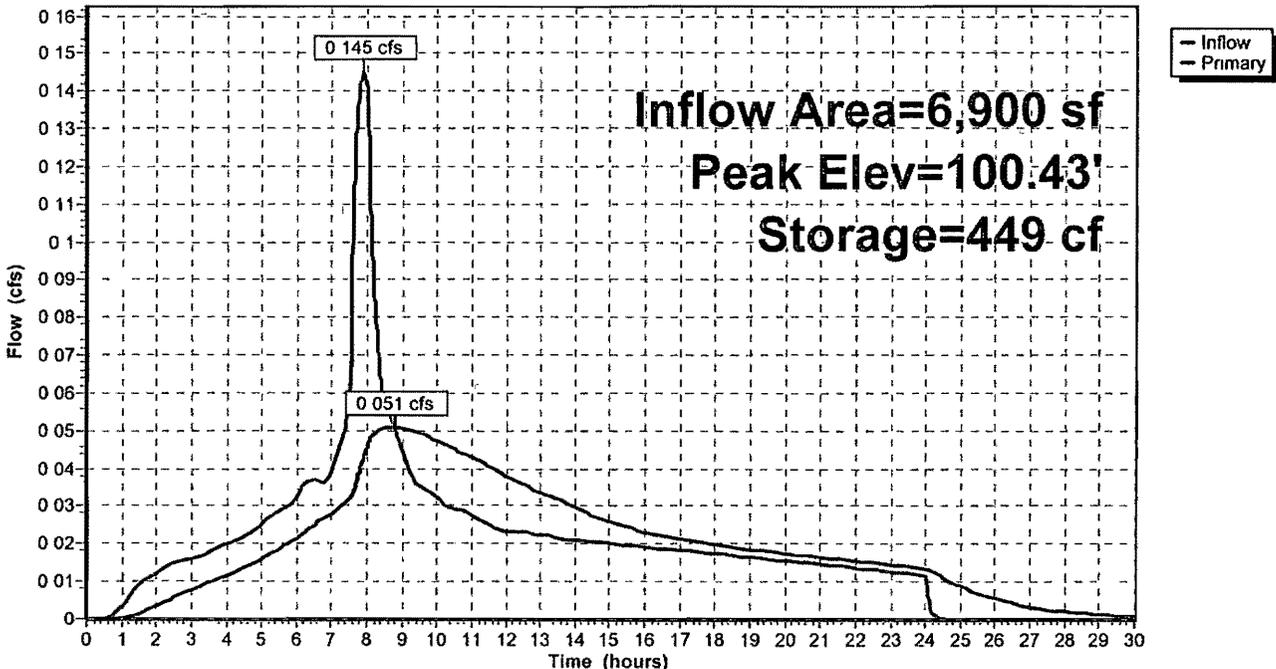
Elevation (feet)	Surf Area (sq-ft)	Inc Store (cubic-feet)	Cum Store (cubic-feet)
100.00	1,036	0	0
110.25	1,036	10,619	10,619

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	1.8" Vert Orifice/Grate C= 0.600

Primary OutFlow Max=0.051 cfs @ 8.78 hrs HW=100.43' (Free Discharge)  
 1=Orifice/Grate (Orifice Controls 0.051 cfs @ 2.88 fps)

**Pond 2P: Rainwater Harvesting Tank**

Hydrograph



## **Appendix C**

### **Associated Reports**

- Memo Rainwater Collection System on Stormwater - PAE Consulting Engineers (May 5, 2011)
- Report of Geotechnical Engineering Services - GeoDesign (January 29, 2010)



## PAE CONSULTING ENGINEERS, INC.

### MEMO (V2.0)

**Date:** May 5, 2011  
**Project Name:** Blanchet House of Hospitality  
**Project No.:** 08-1082  
**To:** Joshua Lupkin  
**From:** Jeff Becksfort  
**Subject:** Rainwater Collection System on Stormwater  
**Distribution:** Martha Williams (MGH), PAE File

---

This purpose of this memo is to summarize the anticipated impact of the rainwater system on building storm water for the Blanchet House of Hospitality (BHH)

#### Project Summary:

The BHH is a charitable organization whose mission is to provide food and temporary housing to those in need. The current mission houses 29 men and is currently at full capacity with a lengthy waiting list. The food service operation serves 600-800 meals a day, six days per week. The new BHH building will house 76 men and continue to serve 600-800 meals per day.

The BHH has two separate roof systems. All of the rain water from the approximately 6,900 ft<sup>2</sup> upper roof will be directed to a 67,800 gallon storage tank. The collected rainwater will serve all of the buildings flush valves. The lower roof will be an approximately 2,600 ft<sup>2</sup> green roof with a separate storm drain system directed to the city storm water system. It is anticipated that for an average year all of the rainwater falling on the upper roof of the Blanchet House will be used inside the building. A summary of the calculations is provided below.

#### Calculation Summary:

This project could harvest approximately 159,000 gallons of rain water annually from the ~6,900 square foot roof area. Note that water will not be collected from the green roof. It is anticipated that annual flush valve demand will exceed the harvestable rainwater. The table below summarizes the annual estimated flush valve usage.

The estimated flush valve usage is based on daily usage by the 76 residents living in the building (all men) using the 0.5 gallon per flush urinals six (6) times per day and the 1.28 gallon per flush water closets one (1) time per day. There will also be approximately 700 guests per day being served a meal. The bathrooms serving guests are provided only with water closets (no urinals). It is estimated that 15% of guests (or 105) use the water closet during their visit. Usages were based primarily on LEED & EPA of 2005 standards and historical usage estimates - not actual statistics.

808 SW Third Ave. Suite 300  
Portland Oregon 97204 2426  
P 503 226 2921 F 503 226 2930  
www.paeengineers.com

inspire interpret integrate



**M E M O - D R A F T**

Blanchet House of Hospitality

Page 2

A two year rainwater model was also used to analyze the estimated water usage compared to the estimated rainwater collection. Based on the model a storage tank of 40,000 gallons will have enough capacity to prevent overflow of the tank. The current design includes a 67,800 gallon collection tank.

Usage Calculations	
Urinal Uses/Day	6
Water Closet Uses/Day	1
Residential Daily Use for Flush Valves	321
Dining Guest Water Closet Uses/Day Usage Factor	15%
Dining Guest Daily Water Use for Flush Valves	134
Residential Annual Use for Flush Valves	117,165
Dining Guest Annual Water Use for Flush Valves	41,933
Total Annual Water Use for Flush Valves	159,098

Notes

- 1 Calculation assumes 76 permanent residents
- 2 Calculation assumes 700 guests per day

Stormwater Management Facilities

Private Operations  
and  
Maintenance Plan

Blanchet House of  
Hospitality

Prepared by MGH Associates, Inc  
104 West 9<sup>TH</sup> Street, Suite 207  
Vancouver, WA 98660  
(P) 306-750-0399

May 5, 2011

## I. DESCRIPTION

Water quality and detention requirements are met with an ecoroof and rainwater harvesting. Runoff from the ecoroof and stormwater released from the rainwater harvesting tank will be discharged to the public combined sewer system.

**FACILITY DESCRIPTION TABLE**

Facility Name	Type	Facility Description
ECOR	Eco-Roof	A lightweight vegetated roof system consisting of waterproof material, growing medium and specially selected plants.
RWST	Rainwater Storage Tank	Accessible underground concrete vault with a flow control riser connected to the overflow pipe. The flow control riser has a small hole drilled in it to control the flow rate during the 25-year storm.

## II. INSPECTION/MAINTENANCE SCHEDULE

All facilities must be inspected at least

- Quarterly for the first 2 years
- Twice a year thereafter
- Within 48 hours of major rainfall event (more than 2 in of rain over a 24-hour period)

## III. INSPECTION/MAINTENANCE PROCEDURES

### Piped Storm System

- Repair/seal cracks. Replace when repair is insufficient.
- Gutter and rain drains shall be cleaned biannually.

### Rainwater Storage Tank

- Remove sediment when accumulation reaches 6" at the bottom of the tank. Cleaning of these facilities requires professional assistance. A vacuum truck must be used to clean and remove sediment and debris.
- DO NOT enter the storage tank. It is defined by OSHA as a confined space and requires proper certification to enter.
- Inspect and repair flow control riser if system not functioning as designed.
- Maintain piping to and from tank per building maintenance specifications.

### Ecoroof

- Remove sediment and debris to prevent clogged drains
- Dead or stressed vegetation shall be removed from the facilities. Replant with vegetation approved for use on the original planting plan. Irrigate and mulch as needed.
- Fill, hand tamp or lightly compact and plant vegetation to disperse flow if soils are eroding and forming gullies
- DO NOT use fertilizers, herbicides, or pesticides in the facilities
- Rake or amend to restore filtration or flow if crusting or shrinking medium occurs
- Repair tears or perforations in waterproof membrane per manufacturer's specifications

### Vectors (Mosquitoes & Rodents)

- Insects and rodents shall not be harbored in any part of the storm system. Pest control measures shall be taken when insects/rodents are found to be present. Standing water and food sources shall be prevented.

### General Maintenance

- Check monthly for trash and debris accumulating on the site
- Check for unusual or unpleasant smells. This could indicate natural plant decay, algae, a sewage spill, a gasoline leak, etc.
- Ensure solid waste containers are closed

### Spill Response

Spill prevention measures shall be exercised when handling substances that can contaminate stormwater. Virtually all sites, including residential and commercial, present dangers from spills. It is important to exercise caution when handling substances that can contaminate stormwater. Activities that pose the chance of hazardous materials spills shall not take place near collection facilities.

- The proper authority and the property owner shall be contacted immediately if a spill is observed
- A spill kit shall be kept near spill-prone operations and refreshed annually
- Employees shall be trained on spill control measures
- Shut-off valves shall be tested quarterly
- Release of pollutants shall be corrected within 12 hours

#### **IV. RESPONSIBILITY**

The facilities are to be maintained by the property owner. A copy of this operations and maintenance plan should be located on site.

#### **V. INSPECTION AND MAINTENANCE LOG**

Record date, description, and contractor (if applicable) for all inspections and any maintenance or repairs performed. Keep work orders and invoices on file and make available upon request of the City inspector.

Rainwater Harvesting Tank Tank level shall be monitored. If tank is full and large storm event is expected operator should release 20,000 gallons (approximately 1/3 tank). This will prevent the tank from overflowing during a large storm event.

Sediment Dewater and dispose of sediment properly. Keep a log of the amount of sediment collected and the date of the removal.

Pollution Prevention All sites shall implement best management practices to prevent hazardous or solid wastes or excess oil and sediment from contaminating stormwater. Contact Spill Prevention & Citizens Response at 503-823-7180 for immediate assistance responding to spills. Record time/date, weather and site conditions if site activities contaminate stormwater.

Vectors (Mosquitoes & Rodents) Stormwater facilities shall not harbor mosquitoes or rates that pose a threat to public health or that undermine the facility structure. Monitor standing water for small wiggling sticks perpendicular to the water's surface. Note holes/burrows in and around facilities. Call Washington County Vector Control at 503-864-2904 for immediate assistance to eradicate vectors. Record time/date, weather, and sit conditions when vector activity is observed.

# SAMPLE LOG FORM

Date \_\_\_\_\_ Time \_\_\_\_\_ Initial \_\_\_\_\_

Work preformed by \_\_\_\_\_

Work preformed \_\_\_\_\_

Details \_\_\_\_\_

\_\_\_\_\_

Date \_\_\_\_\_ Time \_\_\_\_\_ Initial \_\_\_\_\_

Work preformed by \_\_\_\_\_

Work preformed \_\_\_\_\_

Details \_\_\_\_\_

\_\_\_\_\_

Date \_\_\_\_\_ Time \_\_\_\_\_ Initial \_\_\_\_\_

Work preformed by \_\_\_\_\_

Work preformed \_\_\_\_\_

Details \_\_\_\_\_

\_\_\_\_\_

Date \_\_\_\_\_ Time \_\_\_\_\_ Initial \_\_\_\_\_

Work preformed by \_\_\_\_\_

Work preformed \_\_\_\_\_

Details \_\_\_\_\_

\_\_\_\_\_

1. This drawing shall be read in conjunction with the project description and specifications. 2. All work shall be in accordance with the applicable codes and standards. 3. The contractor shall be responsible for obtaining all necessary permits. 4. The contractor shall be responsible for coordinating all utility work. 5. The contractor shall be responsible for protecting all existing utilities. 6. The contractor shall be responsible for maintaining access to all adjacent properties. 7. The contractor shall be responsible for maintaining traffic flow during construction. 8. The contractor shall be responsible for maintaining site safety. 9. The contractor shall be responsible for maintaining site cleanliness. 10. The contractor shall be responsible for maintaining site security. 11. The contractor shall be responsible for maintaining site access. 12. The contractor shall be responsible for maintaining site drainage. 13. The contractor shall be responsible for maintaining site erosion control. 14. The contractor shall be responsible for maintaining site sediment control. 15. The contractor shall be responsible for maintaining site water quality. 16. The contractor shall be responsible for maintaining site air quality. 17. The contractor shall be responsible for maintaining site noise control. 18. The contractor shall be responsible for maintaining site safety. 19. The contractor shall be responsible for maintaining site security. 20. The contractor shall be responsible for maintaining site access.

**DOMESTIC WATER SERVICE**

**REDUCED PRESSURE BACKFLOW ASSEMBLY (RPA) REQUIRED.**  
 MUST BE INSTALLED AT LEAST 12" ABOVE FINISHED GRADE.

BACKFLOW ASSEMBLY(S) TO BE INSTALLED AT THE POINT WHERE THE WATER SERVICE ENTERS THE PROPERTY. IF APPROVED TO BE INSTALLED INSIDE OF BUILDING, ASSEMBLY(S) MUST BE INSTALLED AT THE POINT WHERE SERVICE ENTERS, BETWEEN ONE AND FIVE FEET ABOVE THE FLOOR. ALTERNATE LOCATIONS MUST BE APPROVED BY WATER QUALITY INSPECTORS, BUREAU OF WATER WORKS (503-823-7479).

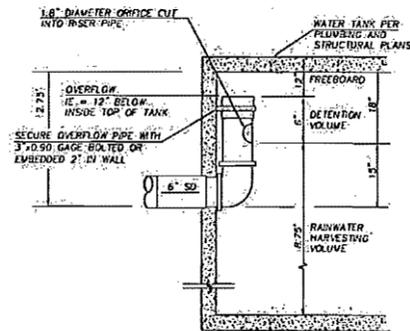
BACKFLOW ASSEMBLY MUST BE INSTALLED PRIOR TO ANY BRANCHES IN THE DOMESTIC PLUMBING SYSTEM.

INSTALLATION OF A BACKFLOW ASSEMBLY MAY ALLOW THERMAL EXPANSION TO OCCUR. INSTALLER RESPONSIBILITY TO MAKE PROVISIONS FOR THERMAL EXPANSION.

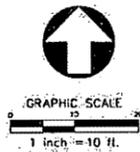
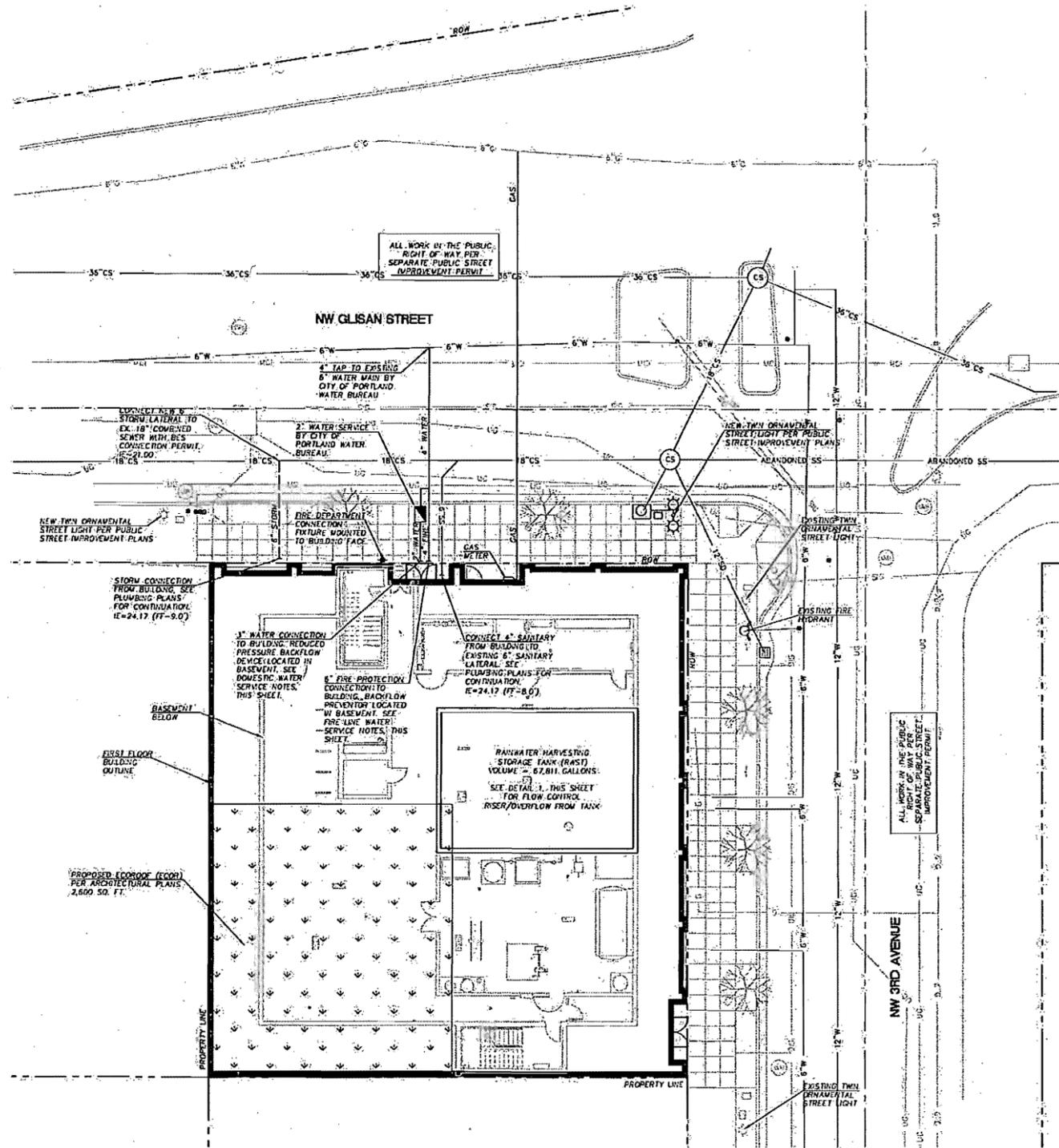
**FIRE LINE WATER SERVICE**

**REDUCED PRESSURE DETECTOR ASSEMBLY (RPDA) REQUIRED.**

BACKFLOW ASSEMBLY(S) TO BE INSTALLED AT THE POINT WHERE THE WATER SERVICE ENTERS THE PROPERTY. IF APPROVED TO BE INSTALLED INSIDE OF BUILDING, ASSEMBLY(S) MUST BE INSTALLED AT THE POINT WHERE SERVICE ENTERS, BETWEEN ONE AND FIVE FEET ABOVE THE FLOOR. ALTERNATE LOCATIONS MUST BE APPROVED BY WATER QUALITY INSPECTORS, BUREAU OF WATER WORKS (503-823-7479).



**1 FLOW CONTROL RISER / OVERFLOW**  
 NTS



**SERA**

ARCHITECTURE  
 URBAN DESIGN + PLANNING  
 INTERIOR DESIGN

303 NW 10th Avenue  
 4250 NE Oregon Street  
 1, 363 448 3775  
 1, 503 448 3775  
 1, 503 448 3775  
 1, 503 448 3775

PLANNING & ENGINEERING

**MCH**

104 West 20th Street  
 Portland, OR 97209  
 Phone: 503.255.1000  
 Fax: 503.255.1003  
 www.mchinc.com

**BLANCHET HOUSE OF HOSPITALITY**

BHH  
 425 NW 9th Ave  
 PORTLAND, OR 97209

DEVELOPER:  
 ISSUE DATE: 18 MAY 2011  
 REVISED DATE: 04/11/11

UTILITY PLAN  
**C301** BID SET

2

**SUMMARY**

<b>Project</b>	1 Project Name	<b>Blanchet House of Hospitality</b>		
	2 Project Address	<b>421 NW 3rd Ave</b>		
	3 City/Town	<b>Portland</b>	5 County	Multnomah
	4 Building, Gross Area (ft2)	<b>35,000</b>	6 No of Floors	<b>5</b>
	7 Construction Site Elevation Above 2,000 ft?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		

**Attached Forms and Worksheets**

Check boxes to indicate attached forms and worksheets

Chapter	Type	ID	Description	Attach
<b>Building Envelope</b>	Form	3a	Building Envelope - General	<input checked="" type="checkbox"/>
		3b	Prescriptive Path - All Climate Zones	<input checked="" type="checkbox"/>
			* CodeComp Report for Simplified Trade-off	<input type="checkbox"/>
			* Floppy disc with <b>occ</b> CodeComp file	<input type="checkbox"/>
<i>* In lieu of 3b</i>				
	Worksheet	3a	Wall U-factor	<input type="checkbox"/>
		3b	Roof U-factor	<input type="checkbox"/>
		3c	Floor U-factor	<input type="checkbox"/>
		3d	Window/Skylight Schedule	<input checked="" type="checkbox"/>
<b>Systems</b>	Form	4a	Systems - General	<input checked="" type="checkbox"/>
		4b	Complex Systems	<input checked="" type="checkbox"/>
	Worksheet	4a	Unitary Air Conditioners - Air Cooled	<input checked="" type="checkbox"/>
		4b	Unitary Air Cond - Water & Evap Cooled	<input type="checkbox"/>
		4c	Unitary Heat Pump - Air Cooled	<input type="checkbox"/>
		4d	Unitary Heat Pump - Water Cooled	<input type="checkbox"/>
		4e	Packaged Terminal A C - Air Cooled	<input type="checkbox"/>
		4f	Packaged Terminal Heat Pump - Air Cooled	<input type="checkbox"/>
		4g	Water Chilling Pkgs - Water & Air Cooled	<input type="checkbox"/>
		4h	Heat Rejection Equipment	<input type="checkbox"/>
		4i	Boiler - Gas-Fired and Oil-Fired	<input checked="" type="checkbox"/>
		4j	Furnace & Unit Heaters - Gas and Oil-Fired	<input type="checkbox"/>
		4k	Simultaneous Heating and Cooling	<input checked="" type="checkbox"/>
		4l	Air Transport Energy	<input checked="" type="checkbox"/>
		4m	Natural Ventilation	<input type="checkbox"/>
<b>Lighting</b>	Form	5a	Lighting - General	<input checked="" type="checkbox"/>
		5b	Interior Lighting Power - Tenant Method	<input checked="" type="checkbox"/>
		5c	Int Ltng Power - Space-by-Space Method	<input type="checkbox"/>
	Worksheet	5a	Lighting Schedule	<input checked="" type="checkbox"/>
		5b	Interior Lighting Power	<input checked="" type="checkbox"/>

**RECEIVED**  
 SEP 29 2010  
 BDS  
 DOCUMENT SERVICES

10-178319-00

**Applicant**

7 Name	<b>Jeff Becksfort</b>	10 Telephone	503-542-0563
8 Company	<b>PAE Engineers</b>	11 Date	09/22/10
9 Signature			

**Attached Documentation**

No of Pages	Description of Documentation
<b>6</b>	<b>SPD Lighting Forms</b>
<b>14</b>	<b>HVAC Forms</b>
<b>10</b>	<b>Envelope Forms</b>
<b>19</b>	<b>HVAC Cut Sheets</b>

# BUILDING ENVELOPE - GENERAL

Check all boxes that apply

### Exceptions

Discussion of qualifying exceptions in instructions section

### Plans/Specs

Show compliance by including a drawing sheet, detail number, specification section and/or subparagraph

#### 1 Exceptions (Section 1312)

- No Envelope Components** The building plans do not call for new or altered building envelope components, e g , walls, floors or roof/ceilings
- A Non-conditioned Building** The proposed structure has no spaces heated or cooled by an HVAC system
- Exception** All new or altered building envelope components do not comply with the requirements, Section 1312, but qualify for Exception  1  2  3  4  5

Portions of the building that qualify

The plans/specs show compliance in the following locations

#### 2 Air Leakage (Section 1312 1 1)

- Complies** Plans require penetrations in building envelope are sealed and windows and doors are caulked, gasketed or weatherstripped
- The plans/specs show compliance in the following locations

#### 3 Suspended Ceiling (Section 1312 1 2 1)

- Complies** Building plans do not show suspended ceilings used to separate conditioned space from unconditioned space No exceptions permitted

#### 4 Recessed Light Fixtures (Section 1312 1 2 2)

- Complies** The building plans do not show recessed light fixtures installed in ceilings separating conditioned spaces from unconditioned spaces
- Exception** The building plans require that fixtures installed in direct contact with insulation be insulation coverage (IC) rated The plans/specs show compliance in the following locations

#### 5 Moisture Control (Section 1312 1 4)

- Complies** A one-perm vapor retarder is installed on the warm side (in winter) of all exterior floors, walls and ceilings, and a ground cover installed in the crawl space of both new and existing buildings where insulation is installed
- The plans/specs show compliance in the following locations

- Exception** All new or altered building envelope components do not comply with the vapor retarder requirements of the code, but qualify for an exception Note applicable exception Section 1312 1 4, Exception  1  2
- Portions of the building that comply

### Climate Zones

#### 6 Climate Zones

- Zone 1** - A building site is in Climate Zone 1 if its elevation is less than 3000 feet above sea level and it is in one of the following counties Benton, Columbia, Clackamas, Clatsop, Coos, Curry, Douglas, Jackson, Josephine, Lane, Lincoln, Linn, Marion, Multnomah, Polk, Tillamook, Yamhill, or Washington
- Zone 2** - Building sites not in Zone 1, or where construction site elevation is 3000 feet or higher in Zone 1, are in Zone 2



**PRESCRIPTIVE PATH**

**Part 1 of 4**

**CLIMATE  
ZONE 1**

**Glazing Percent Calculation**

See instruction section for a discussion of glazing percent calculation

	Window Area (total rough frame ft <sup>2</sup> )		Exterior Wall Area (gross ft <sup>2</sup> )		Glazing %	Maximum Glazing Fraction Complies
Conditioned Space	5,225	-	18,370	X 100 =	28.4%	Yes
Semi-Conditioned Space		-		X 100 =		Yes
Conditioned Mechanical Penthouse		-		X 100 =		Yes

**Windows**

From Work sheet 3d place the highest Overall Window U factor and highest Center of Glass SC Or check minimum assembly and identify window

Window (from Worksheet 3d)	Max U-Factor <sup>1</sup>	Minimum Assembly
CIG-2	0.250	<input type="checkbox"/>
U-Value Complies	Yes	
Required Minimum Assembly (Fixed Windows)	N/A	
Required Minimum Assembly (Operable Windows and Curtainwall)	N/A	

Window (from Worksheet 3d)	Shading Coefficient <sup>2</sup>	Minimum Assembly
CIG-1	0.280	<input type="checkbox"/>
SC Complies	Yes	
Required Minimum Assembly	N/A	

The plans/specs show window compliance in the following locations

08 52 13 2 2

**Notes**

<sup>1</sup> From Worksheet 3d place the highest Overall Window U factor or check (Minimum Assembly) See Window Requirements in table on the following page for specific MA requirements Excel version will automatically insert minimum assembly requirements or greatest U value from Worksheet 3d

<sup>2</sup> From Worksheet 3d place the highest center of glass shading coefficient (SC) for glass or check MA (Minimum Assembly) See Window Requirements in following table for specific MA requirements Excel version will automatically insert minimum assembly requirements or greatest SC from Worksheet 3d Shading Coefficient (SC) can be calculated from Solar Heat Gain Coefficient using the equation SC = SHGC - 0.87 Manufacturers data may also be used to document SC

**Walls**

See instructions for a discussion of wall requirements

Wall / Insulation Type	R-Value Insulation Only		U-Factor <sup>3</sup>
Masonry or concrete w/cont exterior insulation	20 (c 1)	or	
Frame (wood or metal framing)	20 (c 1)	or	
		or	

**Below-Grade Walls**

See instructions for a discussion of requirements

Below-Grade Walls	R-Value Insulation Only (Min R 7.5)		U-Factor <sup>3</sup> (Max 0.11)
None for conditioned spaces		or	

**Notes**

<sup>3</sup> Submit Worksheet 3a for each calculated assembly U-factor



**PRESCRIPTIVE PATH**

**Part 3 of 4**

**Roofs/  
Ceilings**

See instructions for a discussion of roofs/ceilings

Roof / Ceiling <sup>11</sup>	R-Value Insulation Only (Min R 19)	U-Factor <sup>12</sup> (Max 0.050)
Vegetative Roof Over Kitchen	20	or

**Notes**

- <sup>11</sup> Write in a short description for assembly with the lowest insulation R value or the highest assembly U factor
- <sup>12</sup> Submit Worksheet 3b for each calculated roof/ceiling assembly U factor

**Skylights**

Includes glazed smoke vents

See instructions for a discussion of skylights

	Skylight Area (total rough frame ft <sup>2</sup> )	Roof Area (gross ft <sup>2</sup> )	Skylight % <sup>13</sup>	Maximum Skylight Fraction Complies
Conditioned Space	99	9,256	X 100 = 1.1%	Yes
Semi-Conditioned Space	NA	NA	X 100 =	N/A
Conditioned Mechanical Penthouse	NA	NA	X 100 =	N/A

Skylight Area (total rough frame ft<sup>2</sup>)
Roof/Ceiling Area (gross ft<sup>2</sup>)
Skylight Percent<sup>13</sup>

**Skylights**

From Worksheet 3d place highest Overall Vertical U factor and highest Center of Glass SC

Skylights (from Worksheet 3d)	Max U-Factor <sup>14</sup>	Minimum Assembly
#N/A	-	<input type="checkbox"/>
U-Value Complies	Yes	
Required Minimum Assembly	N/A	

Skylights (from Worksheet 3d)	Shading Coefficient <sup>15</sup>	Minimum Assembly
#N/A	-	N/A
SC Complies	Yes	
Required Minimum Assembly	N/A (must use SC)	

The plans/specs show window compliance in the following locations

08 80 00 2 2

**Code Requirements**

Compliance Option	Thermal Performance Overall Vertical U Factor	Shading Coefficient Center of Glass SC
Performance	U 1.230 for overall assembly in overhead plane	SC 0.47 center of glass
Min Assembly (MA)	Double glazed 0.5 inch airspace	N/A

**Notes**

- <sup>13</sup> Skylight percentage area is based on total skylight and smoke vent rough frame area divided by total conditioned roof area. Percentage must not exceed 6 percent of total roof/ceiling area in conditioned building space. The Simplified Trade off Approach must be used if glazing fraction exceeds allowable percentages.
- <sup>14</sup> From Worksheet 3d place the highest Overall Vertical U factor or write in MA (Minimum Assembly). See Skylight Requirements in table above for specific MA requirements.
- <sup>15</sup> From Worksheet 3e place the highest center of glass shading coefficient (SC) for glass. See Skylight Requirements in table above for specific MA requirements. Shading Coefficient (SC) can be calculated from the Solar Heat Gain Coefficient using the equation SC = SHGC - 0.87. Manufacturers data may also be used to document SC.



**PRESCRIPTIVE PATH**

**Part 4 of 4**

**Floors**

See instructions for a discussion of floors

Floors over Unconditioned Spaces <sup>16</sup>		R-Value Insulation Only	U-Factor
Floor Over Basement	11	or	

Heated Concrete Slab Edge		R-Value Insulation Only
None		

**Heated Slab-on-Grade (Section 1312 1 2 4)**

- Complies** Building plans show insulation extending downward from the top of the slab a minimum distance of 24 inches or downward and under the slab for a combined minimum distance of 24 inches or to the bottom of the thickened edge of the of slabs used as a foundation

The plans/specs show compliance in the following locations

Architectural Details

**Notes**

<sup>16</sup> Write in a short description for assembly with the lowest insulation R value or the highest assembly U factor

<sup>17</sup> Submit Worksheet 3c for each calculated floor assembly U factor

<sup>18</sup> Write in a short description for Heated Slab which has heat integrated into slab such as hydronic heat If more than one floor type enter the lowest insulation R value or the highest component U factor of any floor

**Code Requirements**

Component	Compliance Options	
	Min R-Value Insulation Only	Max U-Factor
Floor over Unconditioned Spaces	11	or 0.070

Component	Climate Zone	
	Climate Zone 1	Climate Zone 2
Heated Concrete Slab Edge, Min R-Value	7.5	or 10.0

**Doors**

See instructions for a discussion of doors

Doors <sup>19</sup>		R-Value Insulation Only	U-Factor Center of Panel
opaque with leaf width greater than 4		(Min R 5)	(Max 0.20)
None		or	

**Notes**

<sup>19</sup> Write in a short description for Doors If more than one door type enter the lowest insulation R value or the highest center of panel U factor of any door The following doors are exempt from door and window U factor and shading coefficient requirement







# SYSTEMS - GENERAL

## Applicability

Discussion of qualifying exceptions on page 4-25

## Plans/Specs

Show compliance by including a drawing sheet, detail number, specification section and subparagraph

### 1. Applicability (Section 1317)

Is this form required?

**Form Required** Complete form if a new HVAC system is being installed, or components of an existing HVAC system are being replaced (I e , equipment, controls, ductwork, and insulation )

**Exception** The building or part of the building qualifies for an exception from HVAC code requirements Applicable code exception is Section 1317 1 Portions of the building that qualify

Area  Exception  1  2  3

Area  Exception  1  2  3

Area  Exception  1  2  3

**Form Not Required** This project does not contain work required to comply with code

### 2. Simple or Complex Systems (Section 1317.9 or 1317.10)

**Simple System** Building contains only Simple HVAC System(s) Complete this form (4a) and equipment efficiency worksheets as required Form 4b is not required

**Complex System** Project includes a Complex System Complete this form (4a), form 4b and equipment efficiency worksheets as required

### 3. Equipment Performance (Section 1317.5)

**No New HVAC Equipment** The building plans do not call for new electrical HVAC equipment, combustion heating equipment, or heat-operated cooling equipment

**Complies** All new HVAC equipment have efficiencies not less than those required by code The following equipment efficiency worksheets are attached

- 4a  4b  4c  4d  4e  4f  4g  4h  4i  4j

### 4. Duct Insulation and Sealing (Sections 1317.7 & 1317.8)

**No Ducts** The building plans and specifications do not call for new HVAC ducts or plenums

**Complies** The plans and specifications call for all air-handling ducts and plenums to be insulated and sealed as required by Sections 1317 7 & 1317 8

### 5. Distribution Transformers (Section 1316.1)

**No Distribution Transformers** The plans/specs do not call for new distribution transformers

**Complies** All new distribution transformers comply with efficiency, testing, and labeling requirements of Section 1316 1 1

**Exception** The project qualifies for an exception per Section 1316 1 1, Exception

- 1  2  3  4  5  6  7  8  9  10  11  12  13  14

Attach relevant documentation for appropriate exception The plans/specs show compliance in the following locations



**SYSTEMS - GENERAL****6. HVAC Controls (Section 1317.4)****6.1 System Thermostat/Zone Controls (Section 1317.4.1)**

- Complies** All new HVAC systems include at least one temperature control device responding to temperatures within the zones
- Exception** HVAC system qualifies for an exception from zone control requirements  
The applicable code exception is Section 1317 4 2, Exception  1  2

Portions of the building that qualify

The plans/specs show compliance in the following locations

**6.2 Off-hour Controls - Auto Setback or Shutdown (Section 1317.4.3)**

- Complies** Systems must have **at least one** of the following features
- Control Setback Complies** Each system is equipped with automatic control capable of reducing energy through control setback during periods of non-use or alternate use of spaces
- Equipment Shutdown Complies** Each system is equipped with controls capable of reducing energy use through automatic shutdown during periods of non-use or alternate use of spaces  
HVAC systems with equipment shutdown are equipped with at least one of the following
- Programmable controls (1317 4 3 1 (1))
  - Occupant sensor (1317 4 3 1 (2))
  - Interlocked to a security system (1317 4 3 1 (3))
  - Manually activated timers with 2-hour operation max (1317 4 3 1 (4))
- Exception** The building qualifies for an exception to the requirement for automatic setback or shutdown controls The applicable code exception is Section 1317 4 3  
Exception  1  2

The plans/specs show compliance in the following locations

**6.3 Control Capabilities (Sec. 1317.4.2 1)**

- Complies** Zone thermostats are capable of being set to the temperatures described in Sec 1317 4 2 1 Where used to control both heating and cooling, zone controls shall be capable of providing a temperature range or deadband of at least 5 degrees F within which the supply of heating and cooling energy to the zone is shut off or reduced to a minimum
- Exception** The building qualifies for an exception to the deadband requirements  
The applicable code exception is Section 1317 4 2 1 Exception  1  2

Portions of the building that qualify

The plans/specs show compliance in the following locations

**6.4 Optimum Start Controls (Section 1317.4.3.2)**

- Complies** Separate HVAC systems have controls capable of varying start-up time of system to just meet temperature set point at time of occupancy
- Exception** HVAC systems have a design supply air capacity not exceeding 10,000 cfm  
The plans/specs show compliance in the following locations

**6.5 Heat Pump Controls (Section 1317.4.4)**

- No Heat Pump** The plans/specs do not call for a new heat pump
- Complies** All new heat pumps equipped with supplementary heaters are controlled to minimize the use of supplemental heat as defined in Section 1317 4 4

The plans/specs show compliance in the following locations



**SYSTEMS - GENERAL**

**7. Economizer Cooling (Section 1317.3)**

- No Cooling** The building plans do not call for a new fan system with mechanical cooling
- Complies** Each new fan system has an air economizer capable of modulating outside-air and return-air dampers to provide up to 100 percent of the design supply air as outside air
- Exception** At least one new fan system qualifies for an exception. The applicable code exception is Section 1317.3, Exception  1  2  3  4  5  6  7

If Exception 3 is selected complete the following

(a) Total cooling capacity of exempt units (Btu/hr)

(b) Total installed building cooling capacity (Btu/hr)

- Complies** Sum of exempt units rated at less than 54,000 Btu/hr is <240,000 Btu/hr or a/b

Unit Identifier of exempt units

The plans/specs show compliance in the following locations

**8. Economizer Pressure Relief & Integration (Section 1317.3.1 and 1317.3.2)**

- No Economizers Required** Project does not contain a new fan system requiring economizers
- Overpressurization Complies** The drawings specifically identify a pressure relief mechanism for each fan system that will relieve the extra air introduced by the economizer
- Integration Complies** Economizer is capable of providing partial cooling even when additional mechanical cooling is required to meet the remainder of the cooling load
- Exception** The applicable exception is Section 1317.3.2, Exception  1  2

The plans/specs show compliance in the following locations

**9. Hot Gas Bypass (Section 1317.5)**

- No Hot Gas Bypass**
- Complies** See allowable amount of hot gas bypass as a percentage of total cooling capacity in table below

Unit ID	Rated Cooling Capacity	Hot Gas Bypass Capacity

Allowable Hot Gas Bypass	
Rated Cooling Capacity	Max Hot Gas Bypass
≤240,000 Btu/hr	50%
>240,000 Btu/hr	25%

- Exception** Unitary packaged system with cooling capacity no greater than 90,000 Btu/h



**SYSTEMS - GENERAL**

**10. Shutoff Dampers (1317.4.3.3)**

- Not Required** Shutoff dampers are not required on this project
- Complies** Each outdoor air supply & exhaust system shall be equipped with motorized dampers
- Exception** The building qualifies for an exception to the motorized damper requirement. The applicable code exception is Section 1317.4.3.3 Exception  1  2  3  4  5  6

The plans/specs show compliance in the following locations

237000 & 230900

**10.1. Shutoff Damper Controls (Section 1317.4.3.3.1)**

- Complies** Outdoor air supply and exhaust systems shall be provided dampers that automatically shut when systems or spaces served are not in use or during building warm-up, cooldown, or setback
- Complies** Stair and shaft vents are capable of being automatically closed during normal building operation and interlocked to open as required by fire and smoke detection systems

The plans/specs show compliance in the following locations

230993

**10.2. Motorized Damper Leakage (1317.4.3.3.2)**

- Complies** Motorized outdoor air supply and exhaust air dampers have a maximum leakage rate of 4 cfm/ft<sup>2</sup> at 1.0 in w g when tested in accordance with AMCA Standard 500-1998
- Exception** Packaged HVAC equipment may have maximum leakage rate of 20 cfm/ft<sup>2</sup> at 1.0 in w g when tested in accordance with AMCA Standard 500-1998

The plans/specs show compliance in the following locations

233300 (2 2)

**11. Piping Insulation (Section 1314)**

- No New Piping** The building plans and specifications do not call for new piping serving a heating or cooling system or part of a circulating service water heating system
- Complies** All new piping serving a heating or cooling system or part of a circulating service water heating system complies with the requirements of the Code, Section 1314.1
- Exception** New piping qualifies for exception Section 1314.1, Exception  1  2

**12. Occupancy Ventilation**

- Complies** Mechanical ventilation systems provide the required amount of ventilation is indicated in plans/specifications as specified in Chapter 4 of the Oregon Mechanical Specialty Code
- Complies** Natural ventilation systems provide required amount of ventilation as certified by a registered architect or engineer as specified by Section 1203.4.1, Exception Attach worksheet 4m

The plans/specs show compliance in the following locations

M002

The plans/specs show compliance on the following pages



**SYSTEMS - GENERAL**

**13. High Occupancy Ventilation (Section 1317.2.2)**

- Complies** HVAC systems with ventilation air capacities of 1,500 CFM or greater that serve areas having an average occupant load of 20 square feet per person or less from Table 1004 1 2 have a means to automatically reduce outside air intake

Identify applicable systems

HRU-1

Plans/specs indicate where equipment (i.e. carbon dioxide sensor) and sequence is specified

230993

- Exception** HVAC systems are equipped with an energy recovery device with at least 50% recovery effectiveness
- No High Occupancy Systems** Project does not contain an HVAC system as described above

**14. Exhaust Air Heat Recovery (Section 1318.3)**

- Not Regulated** HVAC system does not have 1) design supply air cap of  $\geq 10,000$  cfm, and 2) min outside air supply  $\geq 70\%$ , and 3) at least 1 exhaust fan rated at 75% of min outside air

- Complies** Heat recovery system increases outside air temperature by 20°F (Climate Zone 1) or 30°F (Zone 2) and has provision to provide bypass during air economizer mode

- Exception** An HVAC system qualifies for an exception to this requirement Applicable exception from Section 1318 3 Ex  1  2  3  4  5  6  7

The plans/specs show compliance in the following locations

**15. Large Volume Fan Systems (Section 1318.4.2.4)**

- Not Regulated** The building plans or specifications do not call for systems over 15,000 CFM that serve a single zone and function for the purpose of temperature control

- Complies** Fan systems are equipped with variable frequency drive or two speed motor to reduce airflow as required by Section 1318 4 2 3

The plans/specs show compliance in the following locations

**16. Variable Speed Drives (Section 1317.10.3.1)**

- Not Regulated** The building plans or specifications do not call for fan and pump motors 10 horsepower and greater that serve variable-flow air or liquid systems

- Complies** All fan and pump motors 10 hp and greater which serve variable-flow air or liquid systems are controlled by a variable-speed drive

- Exception** The building qualifies for an exception to the variable-speed drive requirement

Portions of the building that qualify

Applicable code exception is Section 1317 10 3 1, Exception

The plans/specs show compliance in the following locations

**17. Service Water Heating (Sec. 1315)**

- No New Water Heating** The building plans and specifications do not call for new water heaters, hot water storage tanks or service hot water distribution systems

- Complies** All new water heaters, hot water storage tanks or service hot water distribution systems comply with the requirements of the Section 1315

- Exception** The applicable code exception is Section

Exception

Portions of the building that qualify

The plans/specs show compliance in the following locations

P002



**SYSTEMS - GENERAL****18. Swimming Pools, Spas and Hot Tubs (Section 1315.5)**

- No New Pools** The building plans and specifications do not call for new, swimming pools, spas or hot tubs
- On/Off Controls Complies** Spa and hot tub heaters are equipped with a readily accessible ON/OFF switch as required by Section 1315 5 1
- Ventilation Controls Complies** Pool ventilation system is controlled based on humidity
- Cover Complies** All heated pools, hot tubs and spas are equipped with a cover
- Heat Recovery Complies** Pools, Spas, and hot tubs, over 200 ft<sup>2</sup> utilize recovered heat as required by Section 1315 5 3
- Exception** Heat recovery is not necessary as pool is heated by renewable energy or waste heat recovery sources capable of providing at least 70 percent of the heating energy required over an operating season

**19. Fume Hoods (Section 1317.2.1.)**

- No Fume Hoods** The building plans do not call for fume hood systems that have a total exhaust rate greater than 15,000 cfm
- Complies** Fume hood systems have **at least one** of the following features
- Variable air volume hood exhaust and room supply systems capable of reducing exhaust and makeup air volume to 50% or less of design values
  - Direct makeup (auxiliary) air supply equal to at least 75% of the exhaust rate, heated no warmer than 2° F below room set point, cooled no cooler than 3° F above room set point, no humidification added, and no simultaneous heating and cooling used for dehumidification control
  - Heat recovery systems to precondition makeup air from fume hood exhaust in accordance with 1318 3 - Exhaust Air Energy Recovery, without using any exception

The plans/specs show compliance in the following locations

**20. Parking Garage Ventilation (Section 1317.2.3)**

- No Enclosed Garages** The building plans and specifications do not call for enclosed Group S-2 parking garages with a ventilation exhaust rate greater than 30,000 CFM
- Complies** The plans and specifications call for carbon monoxide sensing devices as required by Section 1317 2 3
- Exception** Open parking garages

**21. Kitchen Hoods (Section 1317.11)**

- Not Regulated** The plans/specs do not call for any new kitchen hoods with exhaust capacity greater than 5,000 cfm each
- Complies** All new kitchen hoods with a total exhaust capacity greater than 5,000 cfm have at least 50 percent of the required makeup air, (a) unheated or heated to no more than 60°F, and (b) uncooled or evaporatively cooled

The plans/specs show compliance in the following locations

**22. Outside Heating Systems (Section 1317.12)**

- No Outside Heating Systems** The plans/specs do not call for new permanently installed heating systems outside the building
- Complies** All new permanently installed outside heating systems are radiant gas fired systems controlled by an occupancy sensor or timer switch as required by Section 1317 12



### COMPLEX HVAC SYSTEMS

**Applicability**

Discussion of qualifying exceptions in instructions section

**Fan Motor Energy**

See Section 1318.4.2 for maximum horsepower allowed

**1. Simple or Complex Systems (Section 1317.9, 1317.10 and 1318)**

**Note** This form is required for complex systems only. If your plans qualify as a simple system as defined by the code, this form is not required

**2. Air Transport Energy (Section 1318.4.2)**

- Not Regulated** Each HVAC system does not have total fan nameplate horsepower of 7.5 HP or greater (include sum of all supply, return, & exhaust fans operating at design conditions)
- Brake Horsepower Complies** The energy demand of all HVAC fan systems meets code requirements. Complete and attach Worksheet 4I
- Nameplate Horsepower Complies** Selected fan motors have nameplate ratings no larger than is allowed by Section 1318.4.2.3 (Complete Worksheet 4L)
- Exception** Section 1318.4.2, Exception  1  2  3  4

Portions of the building that qualify

The plans/specs show compliance in the following locations

Sheet M002

**Cooling Tower Fans**

**3. Cooling Tower Fans (Section 1317.5.4.1)**

- No Cooling Tower** There is no cooling tower in this project
- Complies** Cooling tower fans have control devices that vary flow by controlling leaving fluid temperature or condenser temperature/pressure of the heat rejection device

The plans/specs show compliance in the following locations

**4. Simultaneous Heating and Cooling (Section 1318.2.1)**

- No Cooling** The building HVAC system has no cooling
- Complies** Controls prevent reheating, recooling or mixing of mechanically heated and mechanically cooled air
- Exception** Code exception is Section 1318.2.1, Exception  1  2  3  4  5  
If exception 1 is used, complete and attach Worksheet 4k

Portions of the building that qualify

First Floor Meeting Room, Office, Nursing Office

The plans/specs show compliance in the following locations

M002, M099

**5. Electric Motor Efficiency (Section 1317.10.3 & Table 13-T)**

- Not Regulated** There are no NEMA Design A&B squirrel cage, T-frame induction, permanently wired polyphase motors of one horsepower or more which serve built up HVAC
- Complies** The efficiency of all regulated motors meets code requirements
- Exception** Section 1317.10.3, Exception  1  2

Portions of the building that qualify

The plans/specs show compliance in the following locations

23050

**Exceptions**

Discussion of qualifying exceptions in instructions section

**6. VAV System Static Pressure Reset Controls (Section 1318.2.3)**

- Not Regulated** The building plans or specifications do not call for a VAV system controlled by a static pressure sensor or direct digital control of individual zone boxes
- Complies** The system static pressure set point automatically resets to the lowest point possible while still providing the required air flow to the zones with the greatest demand
- Exception** Section 1318.2.3, Exception

The plans/specs show compliance in the following locations

230993



### COMPLEX HVAC SYSTEMS

#### 7. VAV Terminal Units (Section 1317.4.2.1)

- Not Regulated** Project does not contain VAV terminal units
- Complies** VAV terminal units are programmed to operate at the minimum airflow setting without addition of reheat when the zone temperature is within the set deadband Complete Worksheet 4k
- Exception** Section 1317 4 2 1 Exception  1  2  
The plans/specs show compliance in the following locations M002 (worksheet 4k)

#### 8 Supply-Air Temperature Reset Controls (Section 1318 2.5)

- Not Regulated** The building plans or specifications do not call for multiple zone HVAC systems
- Complies** Multiple zone HVAC systems include controls that automatically reset the supply-air temperatures in response to building loads or outside air temperature
- Exception** The building qualifies for an exception to the supply-air reset controls requirement Applicable code exception is Section 1318 2 5, Exception  1  2  3  
Portions of the building that qualify   
The plans/specs show compliance in the following locations

#### 9 Chilled and Hot Water Temperature Reset Controls (Section 1318 2.4)

- Not Regulated** The building plans or specifications do not call for chilled or hot water systems with a design capacity exceeding 300,000 Btu/hr
- Complies** Chilled and hot water systems include controls that automatically reset supply water temperatures by representative building loads or by outside air temperature
- Exception** Section 1318 2 4, Exception  1  2  
Portions of the building that qualify   
The plans/specs show compliance in the following locations 2390993

#### 10. Separate Air Distribution Systems (Section 1318 2.7)

- Not Regulated** The building plans or specifications do not call for zones with special process temperature or humidity requirements
- Complies** Separate air distribution systems serve zones with special process temperature or humidity requirements from those zones serving only comfort conditions, or supplementary control provisions are included so primary systems are specifically controlled for comfort purposes only
- Exception** Section 1318 2 7, Exception  1  2  
Identify zones with special process requirements   
The plans/specs show compliance in the following locations

#### 11. Zone Isolation Controls (Section 1318.2 6)

- Not Regulated** Building plans or specifications do not call for HVAC systems serving multiple occupancies or floors with  $\geq 240,000$  Btu/hr cooling capacity, or  $\geq 300,000$  Btu/hr heating capacity
- Complies** HVAC systems serving multiple occupancies or floors with  $\geq 240,000$  Btu/hr cooling capacity, or  $\geq 300,000$  Btu/hr heating capacity are equipped with isolation devices capable of automatically shutting off supply air to and from each isolated area Each isolated area is controlled independently and satisfies temperature setback (Section 1317 4 2) and optimum start control requirements Central fan system air volume is reduced through fan speed reduction  
The plans/specs show compliance in the following locations



**COMPLEX HVAC SYSTEMS****12. Humidity Controls (Section 1318.2.2)**

- No Moisture Added to Building** The building plans do not call for means to add moisture to maintain specific humidity levels
- Complies** All new humidity control systems equipped with a humidistat when required All humidifier preheating devices have an automatic valve to shut off preheat when humidification

The plans/specs show compliance in the following locations

**13. Hydronic System Controls (Section 1318.2.8)**

- No Hydronic System** The building plans or specifications do not call for a new hydronic system
- Complies** The hydronic system complies as follows

**13.1 Variable Flow Controls (Section 1318.2.8.4)**

- System does not have a 10 hp or greater motor
- Complies** System has controls capable of varying pump flow

The plans/specs show compliance in the following locations

**13.2 Three-Pipe System (Section 1318.2.8.1)**

- System does not have a common return system (a three-pipe system) for both hot water and chilled water

**13.3 Two-Pipe Changeover System (Section 1318.2.8.2)**

- System is not a Two-Pipe Changeover System
- Complies** System is
- Designed to allow a deadband between changeover from one mode to the other of at least 15°F outside air temperature
  - Designed to operate and provided with controls that will allow operation in one mode for at least four hours before changing over to the other mode
  - Provided with reset controls that allow heating and cooling supply temperatures at the changeover point to be no more than 30°F apart

The plans/specs show compliance in the following locations

**13.4 Hydronic (Water Loop) Heat Pump System (Section 1318.2.8.3)**

- System is not a Hydronic (Water Loop) Heat Pump System
- Complies** Hydronic heat pumps connected to a common heat pump water loop with central devices for heat rejection (e.g., cooling tower) and heat addition (e.g., boiler) have the following
- Controls installed capable of providing a heat pump water supply temperature deadband of at least 20°F between initiation of heat rejection and heat addition by the central devices (e.g., tower and boiler)
  - Closed-circuit tower (fluid cooler) has either an automatic valve installed to bypass all but a minimal flow of water around the tower (for freeze protection), or low-leakage positive closure dampers
  - Open-circuit tower installed directly in the heat pump loop has an automatic valve installed to bypass all heat pump water flow around the tower. Open-circuit towers used in conjunction with a separate heat exchanger to isolate the tower from the heat pump loop are controlled by shutting down the circulation pump on the cooling tower loop
  - A two-position valve at each hydronic heat pump for hydronic systems having a total pump system power exceeding 10 hp

The plans/specs show compliance in the following locations





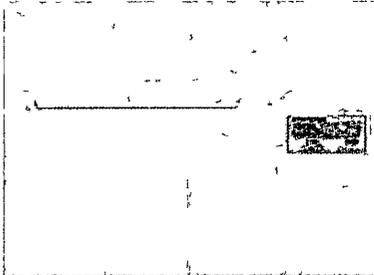




# ACCU-1&2

**Mitsubishi Electric & Electronics - HVAC Advanced Products Div**  
 3400 Lawrenceville Suwanee Road, Georgia 30024  
**Toll Free** 800-433-4822 • **Phone** 678-376-2900  
**E-Mail** [msmith@hvac.mea.com](mailto:msmith@hvac.mea.com) • **Web site** [www.mrslim.com](http://www.mrslim.com)

All Categories > Cooling Only Air Conditioners > Mr Slim P-Series - Air Conditioners > PKA/PUY Wall-mounted Air Conditioner Systems > Indoor Unit Item # PKA-A30KA



[larger image](#)

**Indoor Unit Item # PKA-A30KA, Wall-Mounted Air Conditioners - Wired Controller**

**The PKA (Cooling Only)**  
**12000 to 34200 Btu/h Capacity**

- INVERTER-driven compressor
- PKA-HAL/KAL use a wirelesshand-held controller
- Ideal for applications such as - Churches, classrooms, day care rooms,out buildings, guard houses and more

Test conditions are based on AHRI 210/240  
 Specifications are subject to change without notice  
 Limited warranty Seven-year warranty on compressor Five-year warranty on parts

[Specifications](#) [Indoor Unit](#) [Outdoor Unit](#) [Additional Information](#)

**Specifications**

<b>Outdoor Unit</b>	PUY-A30NKA PUY-A30NKA-BS (Seacoast Protection)
<b>Cooling Rated Capacity ?</b>	30000 Btu/hr
<b>Cooling Capacity Range ?</b>	12000-30000 Btu/hr
<b>Cooling Total Input ?</b>	4130 W
<b>Cooling Energy Efficiency ?</b>	15.5 SEER
<b>Cooling Moisture Removal ?</b>	8.1 Pints/h
<b>Cooling Sensible Heat Factor ?</b>	0.70
<b>Power Supply for 60Hz ?</b>	1-phase, 208/230 V
<b>Voltage Indoor - Outdoor S1-S2</b>	AC 208/230 V
<b>Voltage Indoor - Outdoor S2-S3</b>	DC24 V
<b>Voltage Indoor - Remote Controller</b>	DC12V Wired Type
<b>Remote Controller - Type</b>	Wired Controller
<b>Refrigerant - Type</b>	R410 A
<b>Refrigerant - Charge</b>	6.10 lb

<b>Refrigerant - Oil Type</b>	FV50S 28 fl oz
<b>Refrigerant Pipe Gas Side (Outside Diameter)</b>	5/8 in
<b>Refrigerant Pipe Liquid Side (Outside Diameter)</b>	3/8 in
<b>Refrigerant Pipe Height Difference (Max )</b>	100 ft
<b>Refrigerant Pipe Length (Max )</b>	165 ft
<b>Connection Method Indoor/Outdoor</b>	Flared/Flared

**Indoor Unit**

<b>Minimum Circuit Amps</b>	1 0 A
<b>Fan Motor</b>	0 36 FLA
<b>Fan - Motor Output</b>	56 W
<b>Airflow - Dry (Lo-Mid-Hi)</b>	635-705-775 ft <sup>3</sup> /min
<b>Airflow - Wet (Lo-Mid-Hi)</b>	570-635-700 ft <sup>3</sup> /min
<b>Sound Pressure Level (Lo-Mid-Hi)</b>	39-42-45 dBA
<b>External Finish Color</b>	Munsell No 1 0Y 9 2 / 0 2
<b>Height</b>	14-3/8 in
<b>Width</b>	46-1/16 in
<b>Depth</b>	11-5/8 in
<b>Weight</b>	46 lb
<b>Field Drainpipe Size - Inside Diameter</b>	5/8 in

**Outdoor Unit**

<b>Minimum Circuit Amps</b>	25 A
<b>Maximum Overcurrent Protection</b>	40 A
<b>Fan Motor</b>	0 75 FLA
<b>Fan - Motor Output</b>	75 W
<b>Compressor - Type</b>	DC Inverter-driven Twin Rotary
<b>Compressor Running Load Amps</b>	12 0 RLA
<b>Compressor Locked Rotor Amps</b>	17 5 LRA
<b>Airflow</b>	1940 ft <sup>3</sup> /min
<b>Refrigerant Control</b>	Linear Expansion Valve
<b>Sound Pressure Level</b>	48 dBA

(Cooling) ?	
External Finish Color	Munsell No 3Y 7 8 / 1 1
Height	37-1/8 in
Width	37-3/8 in
Depth	13 + 1-3/16 in
Weight	163 lb

**Additional Information**

**Ultimate Comfort Meets Ultimate Convenience**

Select from a wall-mounted, hard-wired controller(PKA-HA/KA) for ultimate comfort control  
 The set-temperature display is large and easy to read Using the 24-hour timer, you can get the unit operation to start and stop at specified times and to repeat daily And the convenient remote provides easy control of the Fan Speed as well as the col, heat, AUTO and Dry modes from anywhere in the room  
 The hand-held wireless remote controller is easier to use than most TV remotes for the PKA-HA(L)/KA(L)

**Lightweight, Easy-to-install Indoor Unit**

The smallest PKA unit measures about 36" wide, 11-1/2" tall and 9-3/4" deep It weighs just 29 lbs , is easily installed above windows or doorways, and can typically be installed by just two licensed installers in about half of a day And the PKA-Series models don't even require ductwork, only a small three-inch opening in the wall or ceiling, so they can be installed in some of the toughest spaces, even on brick and masonry walls

**Auto Vane Control**

With a simple press of the OFF button, the vane closes the air outlet for a clean presentation when not in use During operation, the vane can be adjusted with the remote controller to the perfect position to direct the airflow horizontally in cooling mode or towards the floor in heating mode, keeping room temperature even and comfortable



# ACCU-3

## 6 - 20 Ton Split System Unit Quick Reference

04/29/2010

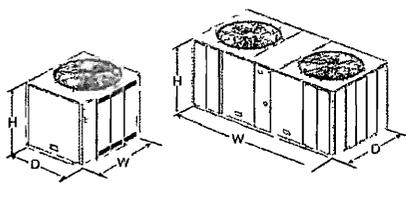
R-410A

Split System Schedule (Cooling)						
NOMINAL SIZE (Tons)	TWR Phases					
	6	7.5	10	12.5	15	20
<b>COOLING PERFORMANCE</b>						
SUPPLY AIR (CFM) <sup>(1)</sup>	2 000	3 000	4 000	5 000	6 000	8 000
Fan ESP	See fan table					
<b>AIR HANDLER</b>						
Model #	TWE090D	TWE090D	TWE120D/E/F	TWE150E	TWE180E/F	TWE240E/F
Elect. req. Air d/b/wb	80/67	80/67	80/67	80/67	80/67	80/67
Sens. Cap. (Mbh) <sup>(2)</sup> D/E/F	58.1	72.7	87.9 / 85.4 / 85.2	115.4	135.4 / 135.2	191.1 / 183.2
Total Cap. (Mbh) <sup>(2)</sup> D/E/F	76.5	94.8	124.0 / 122.8 / 123.8	154.0	185.3 / 185.1	263.1 / 254.5
Aux. Elec. Ht.	See Elect. Ht. Table					
SEER/EER <sup>(1)</sup>	1.2	11.2	11.2 / 11.2	11.0	11.0 / 11.0	10.0 / 10.0
WEIGHT (Net)	232	323	393	576	875	818
Filter(s)	(3) 16.25x1	(3) 16.25x1	(4) 16.25x1	(8) 15x20x2	(9) 15x20x2	(4) 16.25x2
<b>CONDENSING UNIT</b>						
Model #	TTA073D	TTA090D	TTA 20D/E/F	TTA150E	TTA180E/F	TTA240E/F
Electrical Data	See Elect. Data					
Weight (Net)	300	298	395 / 438 / 438	468	723 / 725	837 / 835
Line Size	1 1/8 / 1/2	1 3/8 / 5/8	1 3/8 / 1/2"	1 1/8 / 1/2	1 3/8 / 1/2"	1 3/8 / 5/8"
Refrigerant Charge R-410A	15.7	17.6	22.5 / 24.8 / 21.2	30.7	39 / 37.6	43.8 / 41.3

		Split Condensers							
Indoor	TWE061D	TWE061E	TWE090D	TWE090E	TWE120D	TWE120E	TWE150E	TWE180E	TWE240E
Outdoor	See note	See note	TTA073D	See Note	TTA090D	TTA120E	(2) TTA073D	TTA180E	(2) TTA120D
			TTA090D		TTA120D		TTA150E	TTA180F	(2) TTA120F
					TTA120F		(2) TTA090D	TTA180E	
								TTA240E	
								TTA240F	

Note: Contact LCU Product Support

### UNIT DIMENSIONAL DATA

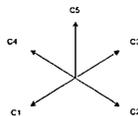


Model	H	W	D
TTA073 650	39 1/8	42 1/8	36
TTA120	39 1/8	52 1/8	40
TTA150	45 1/8	52 1/8	40
TTA180 240	45 1/8	95 1/2	45 7/8

Model	H	W	D
TWE061E	43 7/8	48 1/8	39 5/8
TWE090D	43 7/8	54 1/8	49 1/8
TWE120E	43 7/8	54 1/8	65 1/8
TWE180E	43 7/8	69 1/8	81 1/5
TWE240E	43 7/8	71 7/8	84 1/4

Model	C1	C2	C3	C4	C5
TTA	48	36 note	36 note	36 note	100"
TWE	Minimum of 2 sides must be accessible for service; those 2 sides must have a 24" clearance				

Note: Minimum clearance between adjacent units is 72"



### MODEL NUMBER DESCRIPTION

TTA	Split Cooling Outdoor Condenser
TWA	Split Heat Pump Outdoor Condenser
TWE	Split Indoor Air Handler

Outdoor (TTA) MCA & MOP Electrical Data						
Mod # <sup>(1)</sup>	Volt	Comp RLA	Cfan FLA	MCA	MOP	
TTA073D	208-230/3	22.4	3.1	31.1	40	
TTA073D	460/3	10.6	1.6	14.9	20	
TTA073D	380/60/3	11.3	2.7	16.6	20	
TTA073D	575/3	7.9	1.2	11.1	15	
TTA090D	208-230/3	25	3.1	34.4	45	
TTA090D	460/3	12.9	1.6	17.7	25	
TTA090D	380/60/3	14.3	2.7	20.6	25	
TTA090D	575/3	10.6	1.2	14.5	20	
TTA120D	208-230/3	30.1	5	42.6	60	
TTA120D	460/3	16.7	2.5	23.4	30	
TTA120D	380/60/3	19.8	3.4	28.2	35	
TTA120D	575/3	12.4	2	17.5	25	
TTA120E	208-230/3	16	5	41.0	45	
TTA120E	460/3	7.8	2.5	20.1	25	
TTA120E	380/60/3	10.4	3.4	28.9	30	
TTA120E	575/3	6	2	15.5	20	
TTA120F	208-230/3	17.6	5	44.6	50	
TTA120F	460/3	9.6	2.5	24.1	30	
TTA120F	575/3	6.1	2	15.7	20	
TTA150E	208-230/3	22.4	5	55.4	70	
TTA150E	460/3	10.9	2.5	28.8	30	
TTA150E	380/60/3	11.3	4	28.8	35	
TTA150E	575/3	8.6	2	21.4	25	
TTA180E	208-230/3	25	5	66.3	80	
TTA180E	460/3	12.2	2.5	32.5	40	
TTA180E	380/60/3	14.3	3.4	39.0	45	
TTA180E	575/3	9.6	2	25.6	30	
TTA180F	208-230/3	25	5	66.3	80	
TTA180F	460/3	12.2	2.5	32.5	40	
TTA180F	380/60/3	14.3	3.4	39.0	45	
TTA180F	575/3	9.9	2	26.3	30	
TTA240E	208-230/3	39.1	5	88	110	
TTA240E	460/3	18.6	2.5	46.9	60	
TTA240E	380/60/3	23.1	3.4	68.8	70	
TTA240E	575/3	15.4	2	38.7	45	
TTA240F	208-230/3	39.1	5	98.0	110	
TTA240F	460/3	19.8	2.5	49.5	60	
TTA240F	575/3	23.1	3.4	58.8	70	
TTA240F	208-230/3	15.8	2	39.6	45	

### Notes

(a) ARI Rated CFM

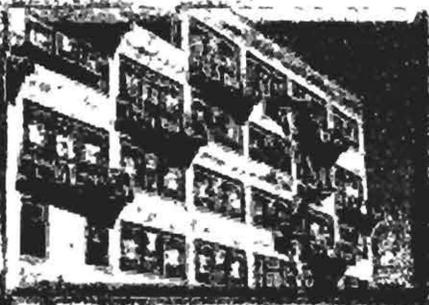
(b) Cooling performance is rated at 80/67/95

(c) All units listed until 29 3-phase voltage

(d) TTA120E line size 1 1/8" / 1/2"

TTA240F / 180F line size 1 5/8" / 5/8"

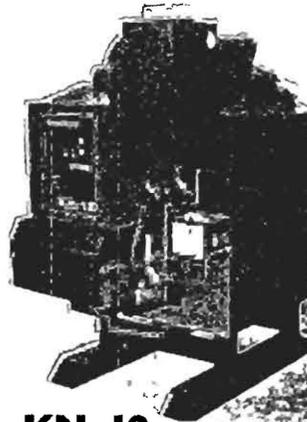
# Boiler - 1&2



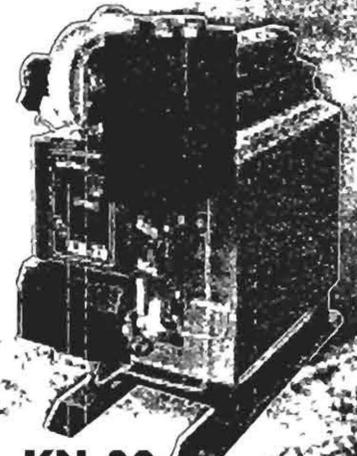
**GAS-FIRED  
DIRECT VENT  
CAST IRON  
BOILERS**



**KN-6**  
600 MBH



**KN-10**  
1,000 MBH



**KN-20**  
1,999 MBH

**KN-SERIES**  
*HydroTherm*<sup>®</sup>

# Boiler - 1 & 2

## KN-Series Boiler System Technology At Work.

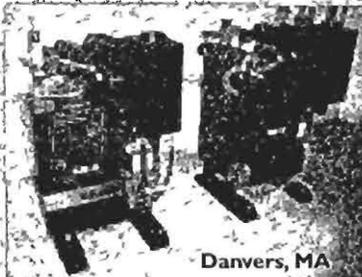
The Flatley Company, one of New England's leading real estate development and manage-



ment firms, operates more than a dozen corporate office facilities in the Greater Boston area including One Corporate

Place in Danvers, Massachusetts.

When the original boiler in the Danvers facility showed signs of aging and became unreliable, Flatley



Danvers, MA

selected two KN-6 boilers as replacements.

The KN-6 boilers were compatible with the existing heat pump system, featured condensing technology for up to 99% efficiency and fit into the small 12 x 12 foot boiler room due to their compact footprint. Most importantly, the new boilers were much better suited for the application and low water temperature in the existing system.

The installation provides an estimated 15% to 20% higher efficiency rating than the old boiler, resulting in significant potential fuel savings.



KN-Series boilers by HydroTherm may just be the biggest break-through in heating technology since fire itself.

Think that's an overstatement? Consider this... the KN-Series combines high 99% efficiency and small footprint of modern low mass boilers with the long life and reliability of cast iron boilers. The KN-Series features a self-adaptive design that is tolerant of changing conditions to meet 'real world' heating environments. And speaking of the environment, 'green' technology provides low CO<sub>2</sub> and NO<sub>x</sub> emissions to reduce greenhouse gases.

All while offering more of the features that engineers, contractors and building owners are looking for - compact footprint, direct vent, full modulation, high turndown ratios, ease of installation and quiet, dependable operation.

# Boiler - 1&2

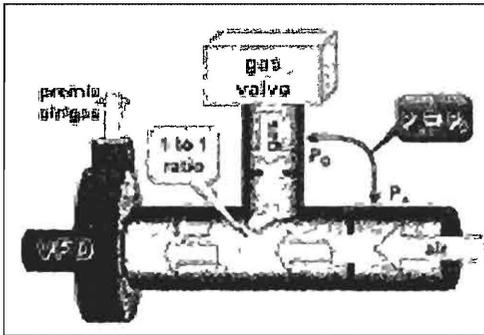
## KN-SERIES FEATURES

### High performance and tolerance

KN-Series boilers are designed to burn clean and efficient under all operating conditions. Tru-Flow™ air-fuel coupled control ensures the proper fuel-air mixture at all firing rates. The combustion air is constantly measured to fine-tune the fuel gas flow through the gas valve.

KN-Series boilers have no inlet water temperature limitations.

Not only are KN-Series boilers up to 99% efficient, they also have extremely low dB levels during ignition and operating cycles.



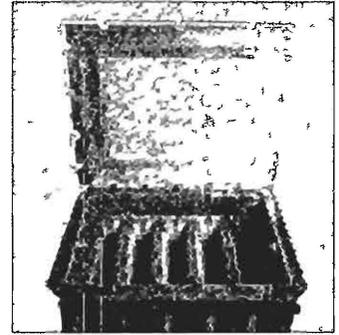
Tru-Flow™ control is inherently clean burning

### Ease of installation and maintenance

KN-Series boilers reduce installed cost and time-consuming maintenance. Units feature small footprints and fit through standard doorways. Down-fire design offers easy accessibility to all components. The CO<sub>2</sub> level is controlled with a single Allen Key adjustment. Models come factory packaged with only terminal connections required.



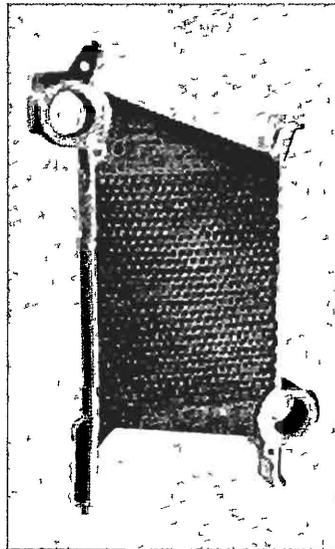
UV detector and igniter in a single assembly



Easy access to metal mesh burner and heat exchanger

### Rugged 'real world' reliability

Reliability is ensured with a single assembly UV detector and spark igniter that is pre-aligned requiring no field adjustments. A one-piece, metal-mesh burner is corrosion-resistant with rugged cast aluminum enclosure. The thru-burner pilot assures reliable ignition. The cast iron heat exchanger accepts a wide range of water flows with 1/5 the energy density and 5 times the wall thickness of copper boilers. Graphite water port connectors provide long service life and dependability.



Rugged, precision machined cast iron sections

### Efficient, 'green' heating machine



Environmentally-responsible KN-Series boilers, designed with extremely low NO<sub>x</sub> and CO<sub>2</sub> emissions, help reduce greenhouse gases that adversely affect climate change – without reducing operational efficiency and performance. The cast iron

sections of KN-Series boilers are fully recyclable and made from 90% post-consumer, recycled material. Along with cast iron piping, specifying engineers can achieve points toward LEED qualification of a green building by specifying KN-Series boilers.

KN-Series boilers allow architects and mechanical engineers to design the most efficient, lowest energy consumption system while imposing minimal limitations to that design and reducing the threat to our environment. All KN-Series boilers meet SCAQMD Rule 1146.2 standards.



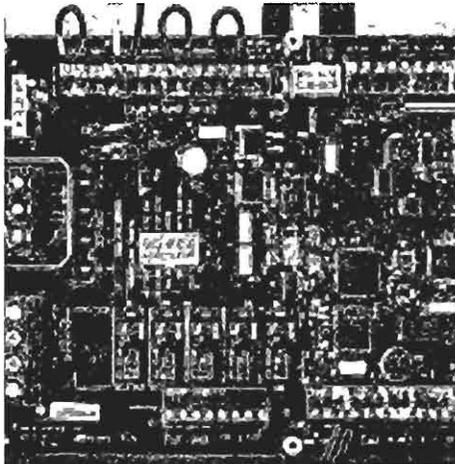
# Boiler - 1&2 CONTROL TECHNOLOGY

## 'On Board' control integrated with Building Management Systems

HeatNet controls are built into each KN-Series boiler to enhance efficiency and provide constant communication with the Building Management System (BMS) 'On board' in every KN boiler HeatNet eliminates the need for bulky, wall-mounted control panels HeatNet maximizes operating efficiency and turndown rates to create substantial energy savings for KN-Series boiler plants The control provides flexible operation in a variety of set-up configurations – as a stand-alone boiler, a boiler in a Master/Member network using HeatNet

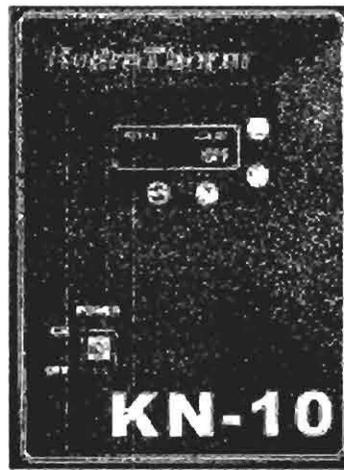
communications control, featuring four (4) temperature sensor inputs outside air, supply (outlet) temperature, return (inlet) temperature and header temperature HeatNet is fully compatible with Modbus Building Management System (BMS) protocol

An optional 'ProtoCessor' board can also be installed for compatibility with BACNET and LONWORKS BMS protocols with no redesign of the HeatNet control

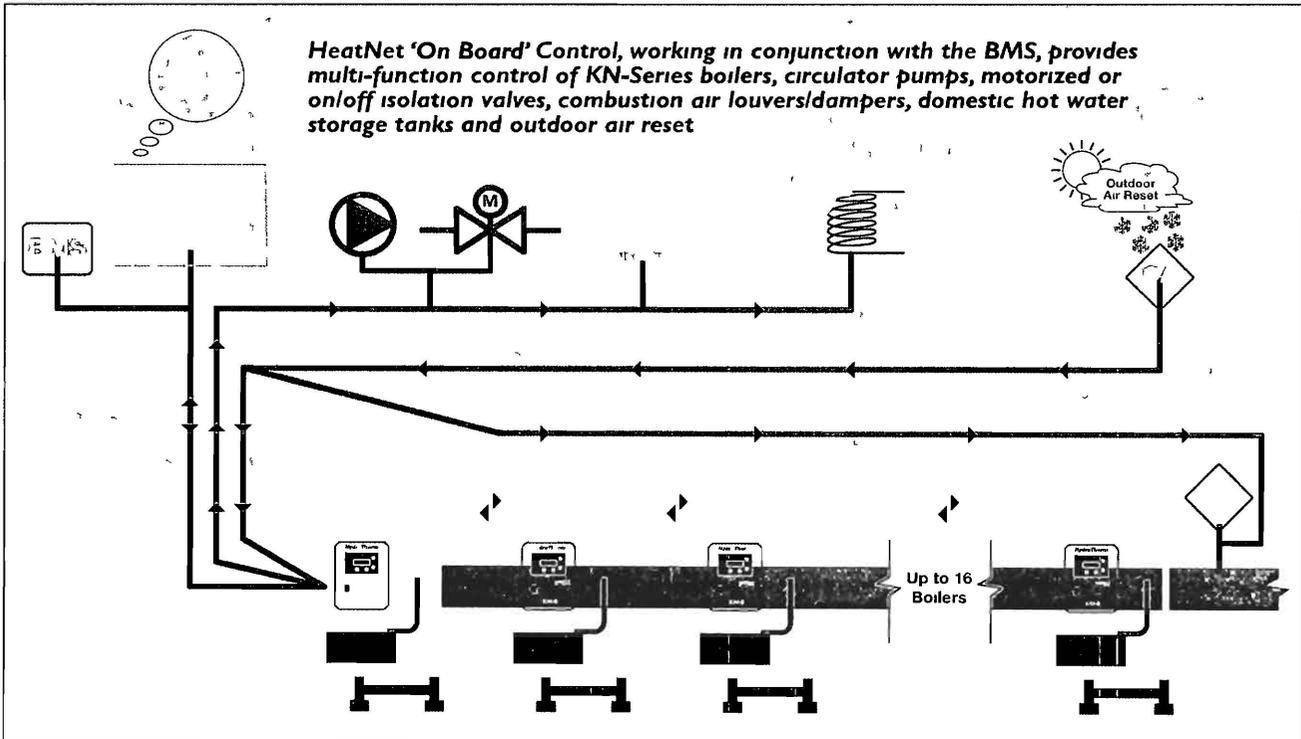


protocol, or as a member in a system for up to 16 boilers

HeatNet provides a higher level of control precision repeatability and feedback with digital



**HeatNet 'On Board' Control, working in conjunction with the BMS, provides multi-function control of KN-Series boilers, circulator pumps, motorized or on/off isolation valves, combustion air louvers/dampers, domestic hot water storage tanks and outdoor air reset**



# Boiler - 1&2

## KN-SERIES KN-6

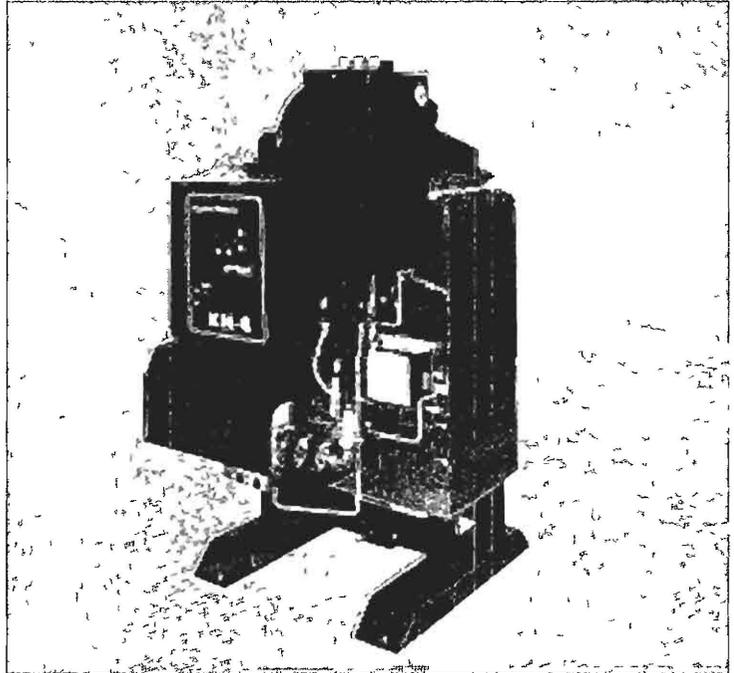
### A UNIQUE FAMILY OF BOILERS PROVIDING TOLERANCE, RELIABILITY, EASE OF INSTALLATION AND SERVICE.



KN-Series boilers are ideal for commercial or large residential applications including apartment complexes, institutional buildings, office buildings schools, buildings with radiant heating systems, water source heat pumps and snow melt Units adapt to changes in operating environments while retaining high combustion efficiency with a minimum of moving parts Extremely tolerant design allows application flexibility to a large range of closed loop systems

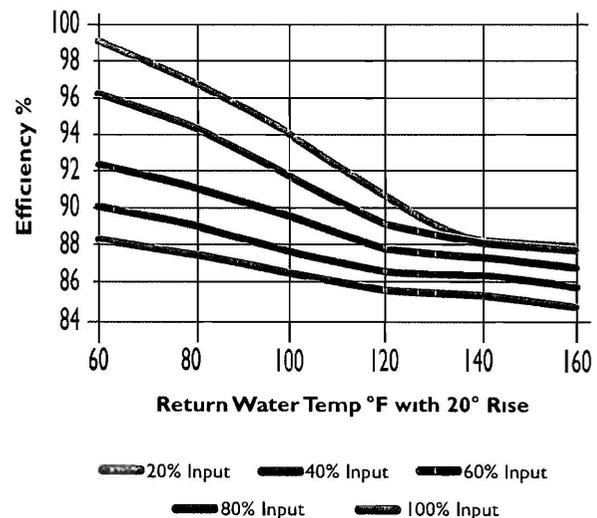
- High efficiency – up to 99%
- 5:1 continuous turndown
- Environmentally-friendly – low emissions for CO<sub>2</sub> NO<sub>x</sub> and sound
- Compact footprint to accommodate smaller mechanical rooms
- Cast iron heat exchanger accepts 10:1 range of water flows
- 100 PSI maximum working pressure
- Maximum load matching in modular applications with boilers installed in banks
- 21-year thermal shock warranty
- On-Board HeatNet™ control technology eliminates wall-mounted control panels
- Self-contained, proven spark igniter system with air-cooled UV sensing requires no field adjustments
- Tru-Flow™, air-fuel coupled control provides constant clean combustion at all firing rates and vent conditions

### KN-6 boiler provides 600 MBH capacity



### KN-6, 10, 20 EFFICIENCY

(Gama BTS 2000 Method)

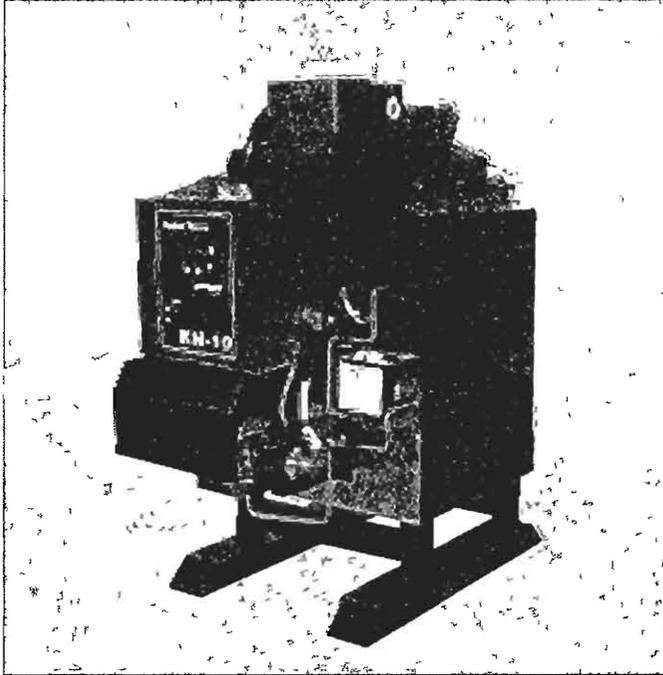


# KN-10

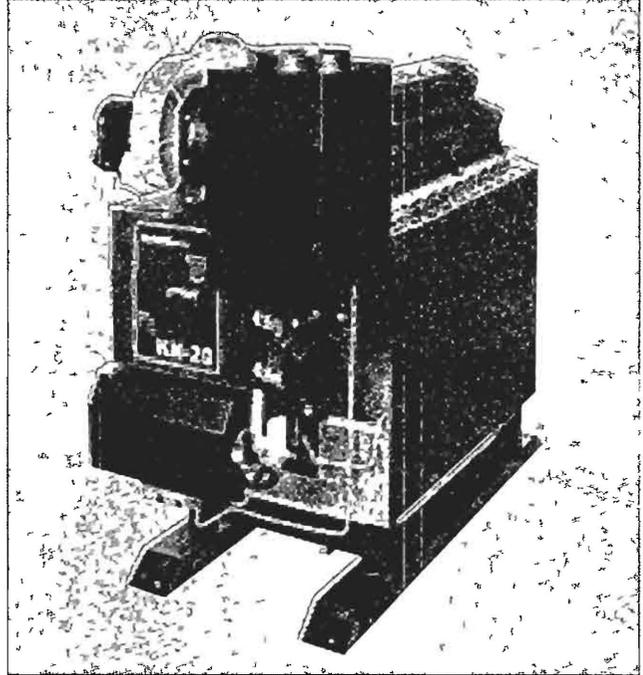
# Boiler - 1&2

# KN-20

**KN-10 boiler provides 1000 MBH capacity**



**KN-20 boiler provides 1999 MBH capacity**



## KN SERIES SPECIFICATIONS

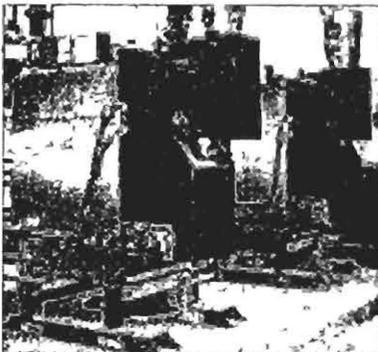
Model	Input MBH	Gross Output MBH	Gas Pressure (WC)	Voltage	Flow GPM		Temp Rise (°F)		Vent Length (Equiv Ft.)		Air Inlet Length (Equiv Ft.)		Water Volume (Gal)	Flue Dia.	Current FLA (Amps)	Boiler HP
					Min	Max	Min	Max	Min	Max	Min	Max				
KN-6	600	528 <sup>k</sup>	2"	120VAC/60Hz/1Ph	10 <sup>*k</sup>	100	20	100	6	80	0	80	9.5	5"	5	16
KN-10	1,000	880 <sup>f</sup>	2"	120VAC/60Hz/1Ph	15 <sup>**k</sup>	150	20	100	6	80	0	80	14	6"	8	26
KN-20	1 999	1760 <sup>k</sup>	2"	208/230VAC/60Hz/1Ph <sup>***</sup>	30 <sup>++</sup>	300	20	100	6	80	0	80	26	9"	11	53

<sup>k</sup> See efficiency graph

<sup>\*\*k</sup> At 100% Input

<sup>\*\*\*</sup> With neutral wire

Unbalanced Flue Limitations Negative flue pressure -0.2" W C (all models)



KN-Series boilers are ideal for schools and institutional buildings



NYC MEA

# Boiler - 1&2

## KN-SERIES DIMENSIONS

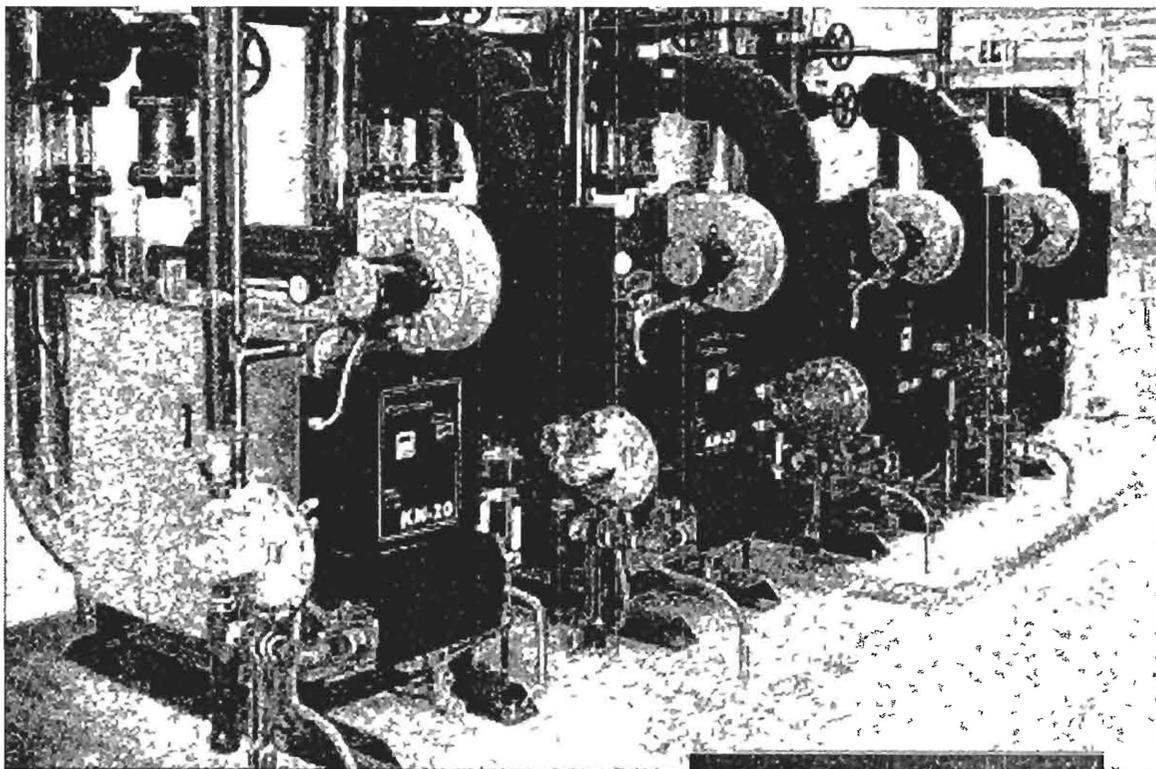
KN-6 DIMENSIONS		
Height	Width	Length
53 1/8"	29 1/2"	36 3/4"
Supply Top	Return Top	Vent Size
3"	3"	5"

KN-10 DIMENSIONS		
Height	Width	Length
52 5/8"	29 3/8"	43 5/8"
Supply Top	Return Top	Vent Size
3"	3"	6"

KN-20 DIMENSIONS		
Height	Width	Length
57 5/8"	28 7/8"	66"
Supply Top	Return Top	Vent Size
3"	3"	9"

Note: Dimensions are approximate and should not be used to rough in equipment

**“It is unlikely that any other boiler will consume substantially less energy than a KN boiler.”**



### KN-Series boiler installation at 'green' research center

KN-Series boilers are installed at the Barrow Observatory approximately 8 km east of Point Barrow, Alaska. The facility hosts a number of environmental scientists researching global warming. Shown above are four KN-20 boilers in a modular format for maximum load matching.



Point Barrow, Alaska

# HydroTherm®

A Product of  
**ADVANCED THERMAL HYDRONICS**

A MESTEK COMPANY

[www.hydrothermkn.com](http://www.hydrothermkn.com)

260 North Elm St, Westfield, MA 01085  
Tel (413) 564-5515 Fax (413) 568-9613  
7555 Tranmere Drive, Mississauga, ONT L5S 1L4 Canada  
Tel (905) 672-2991 Fax (905) 672-2883

In the interest of product improvement, we reserve the right to make changes without notice.

HKN-6

**ENGINEERING DATA**

Approx Fan Weight (lb)	Class	Max T Motor Frame Size	WR2 (lb-ft <sup>2</sup> )
110	III	254	2

**QEP Plenum Fan**

Tag HRU 1 Supply

**STANDARD CONSTRUCTION FEATURES**

HOUSING Heavy gauge, steel mounting frame with die formed flanges and welded corners • Inlet panel is heavy gauge steel with die formed flanges and welded corners • Structural parts are phosphatized and coated with Permatector  
WHEEL Fully welded, aluminum centrifugal wheel 12 bladed construction • Airfoil blade profile

**CONFIGURATION**

Arrangement	Rotation	Material Type
4	CW	Steel

**SELECTED OPTIONS & ACCESSORIES**

Permatector Coating on Steel Components  
Motor Service Factor of 1.15 or greater  
Class B Motor Insulation or Greater

**INSTALLATION**

Connection	Plenum Discharge
N/A	N/A

**MOTOR SPECS**

Size (hp)	RPM	V/C/P	Enclosure	Frame Size
5	3500	208/60/3	ODP	182

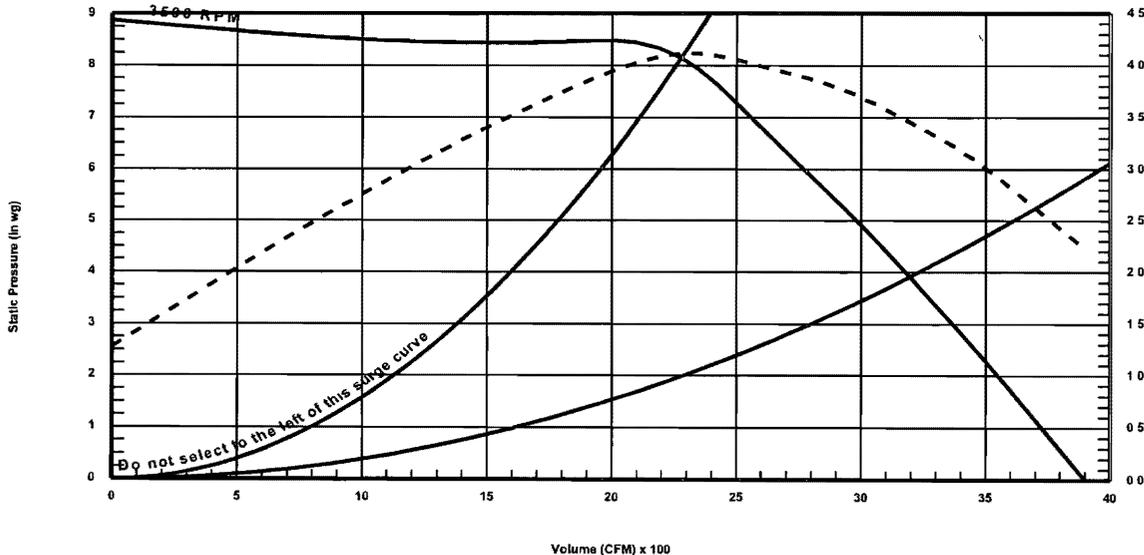
**PERFORMANCE** (Elevation ft = 0 Airstream Temperature F = 70, Start Up Temperature F = 70)

Qty	Model	Volume (CFM)	SP (in wg)	TS (ft/min)	OV (ft/min)	FRPM	Max Class FRPM	Operating Power (hp)	SE %
1	15-QEP-4-60-III	3,206	3.85	13,744.0	1,864.0	3,500	4,000	3.44	56

**SOUND**

Inlet / Outlet Sound Power by Octave Band								LwA	dBA
63	125	250	500	1000	2000	4000	8000		
91	90	88	94	92	89	86	84	96	85
92	91	85	88	84	81	80	78	89	78

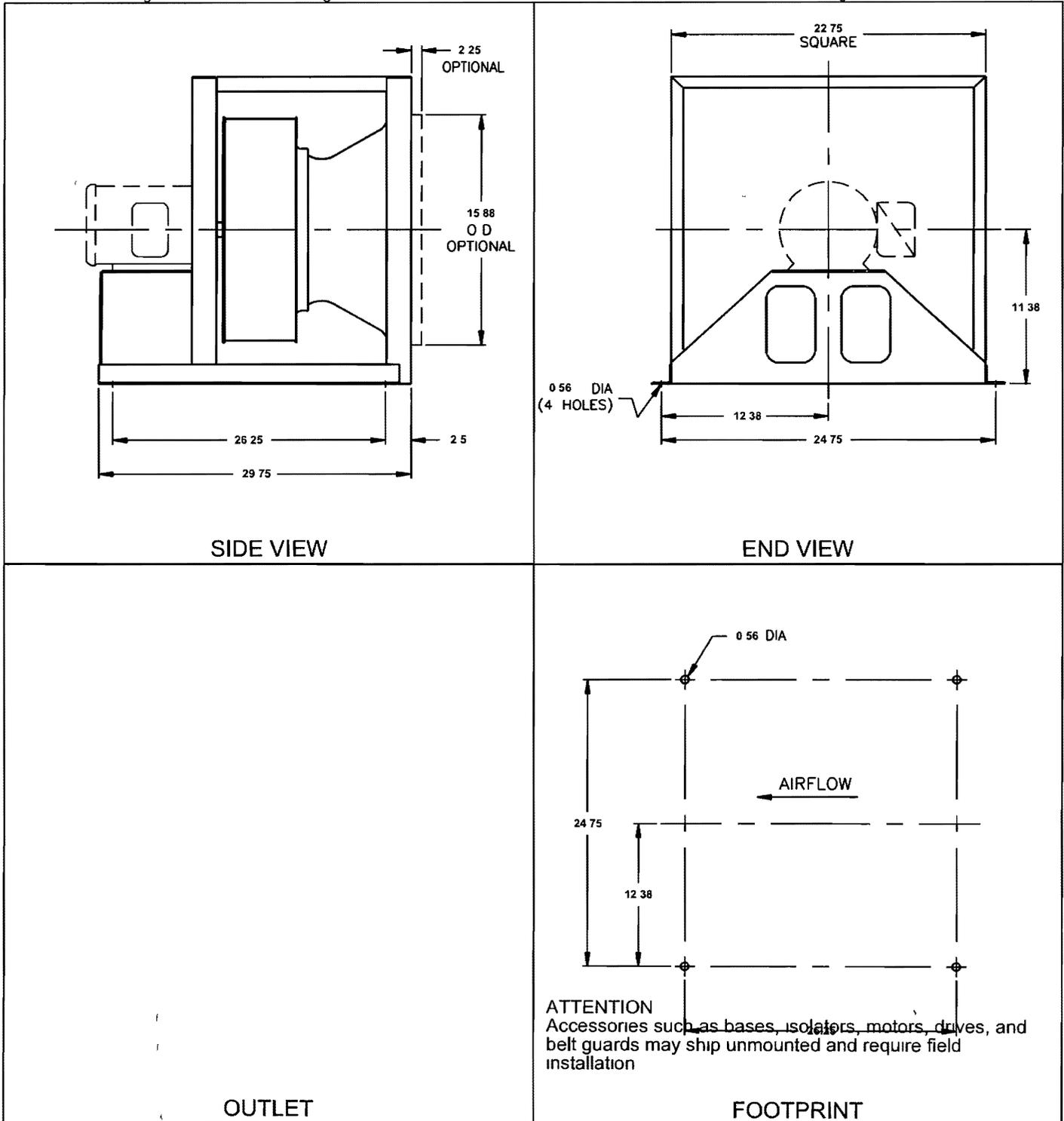
LwA - A weighted sound power level based on ANSI S14 dBA - A weighted sound pressure level based on 11.5 dB attenuation per octave band at 5.0 ft



Size 15  
Arrangement 4  
Class III

# QEP Plenum Fan

NOTES All dimensions shown are in units of inches  
Drawings are not to scale Drawings are of standard unit and do not include dimensions for accessories or design modifications



**ENGINEERING DATA**

Approx Fan Weight (lb)	Class	Max T Motor Frame Size	WR2 (lb-ft <sup>2</sup> )
270	I	254	19

**QEP Plenum Fan**

Tag HRU-1 Return  
**STANDARD CONSTRUCTION FEATURES**

\*\*Weight does NOT include motor drives or accessories

**HOUSING** Heavy gauge steel mounting frame with die formed flanges and welded corners • Inlet panel is heavy gauge steel with die formed flanges and welded corners • Structural parts are phosphatized and coated with Permatector  
**WHEEL** Fully welded, aluminum centrifugal wheel • 12 bladed construction • Airfoil blade profile

**CONFIGURATION**

Arrangement	Rotation	Material Type
4	CW	Steel

**SELECTED OPTIONS & ACCESSORIES**

Permatector Coating on Steel Components  
Motor Service Factor of 1.15 or greater  
Class B Motor Insulation or Greater  
High Efficiency Motor

**INSTALLATION**

Connection	Plenum Discharge
N/A	N/A

**MOTOR SPECS**

Size (hp)	RPM	V/C/P	Enclosure	Frame Size
2	1170	208/60/3	ODP	184

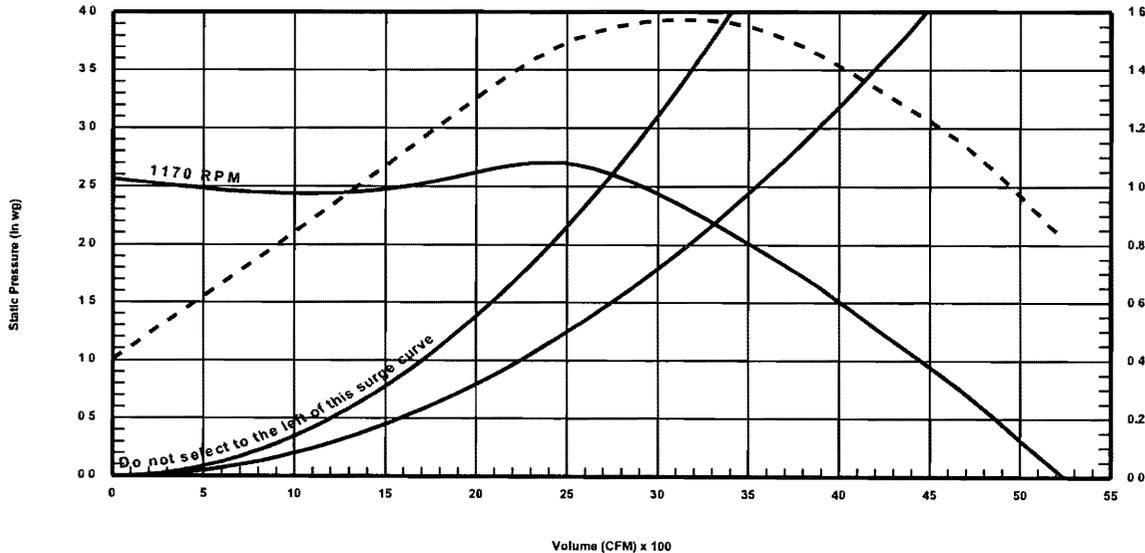
**PERFORMANCE** (Elevation ft = 0 Airstream Temperature F = 70, Start Up Temperature F = 70)

Qty	Model	Volume (CFM)	SP (in wg)	TS (ft/min)	OV (ft/min)	FRPM	Max Class FRPM	Operating Power (hp)	SE %
1	24-QEP-4-50-I	3 511	2	7 504 0	768 0	1 170	1 670	1 55	71

**SOUND**

Inlet / Outlet Sound Power by Octave Band								LwA	dBA
63	125	250	500	1000	2000	4000	8000		
78	84	89	83	79	75	68	65	85	74
74	82	89	75	71	69	63	59	82	71

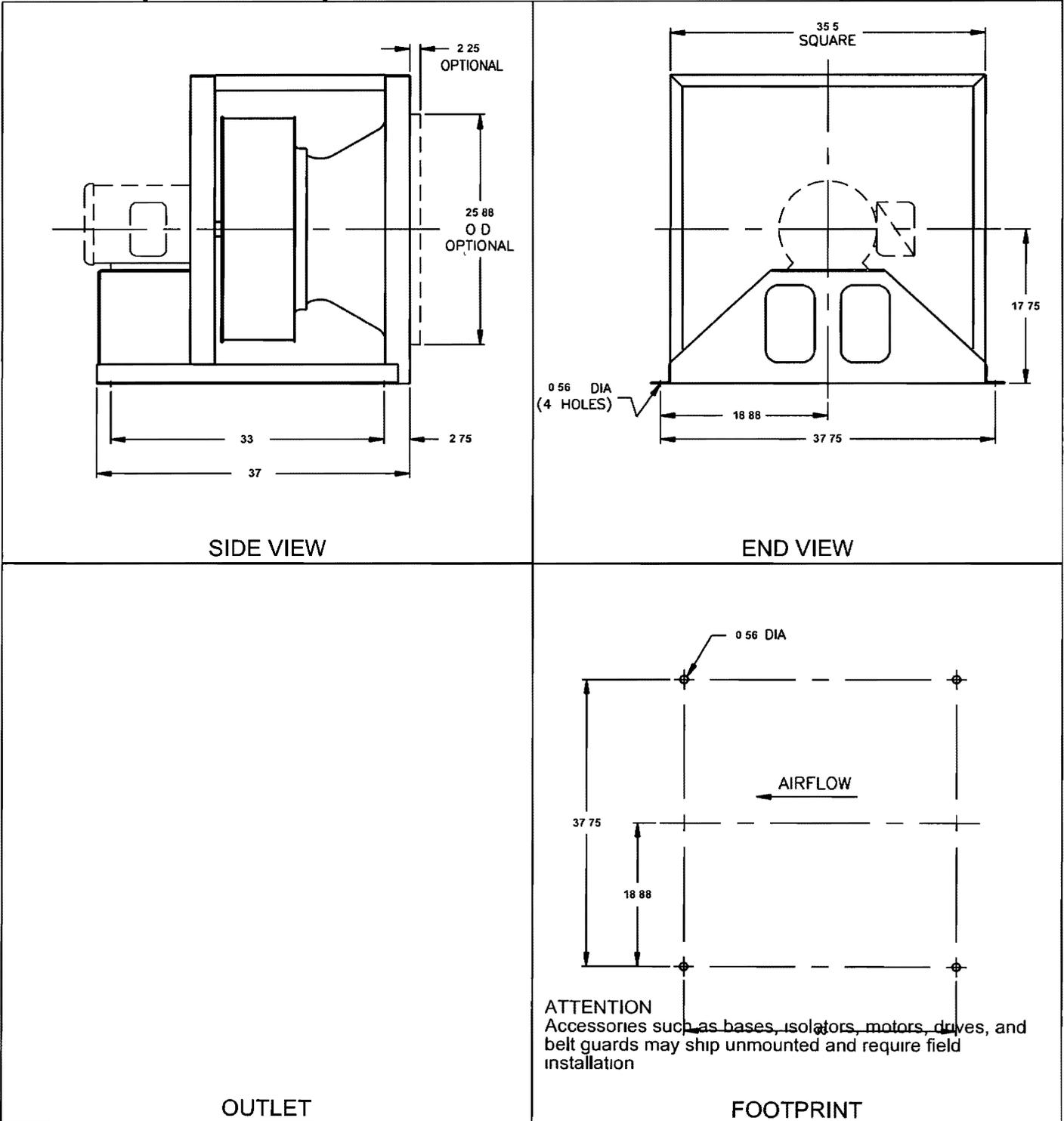
LwA - A weighted sound power level based on ANSI S14  
dBA - A weighted sound pressure level based on 11.5 dB attenuation per octave band at 50 ft



Size 24  
Arrangement 4  
Class I

# QEP Plenum Fan

NOTES All dimensions shown are in units of inches  
Drawings are not to scale Drawings are of standard unit and do not include dimensions for accessories or design modifications



**ENGINEERING DATA**

Approx Fan Weight (lb)	Class	Max T Motor Frame Size	WR2 (lb-ft <sup>2</sup> )
270	II	254	19

\*\*Weight does NOT include motor, drives, or accessories

**QEP Plenum Fan**

Tag HRU-2 Supply

**STANDARD CONSTRUCTION FEATURES**

HOUSING Heavy gauge, steel mounting frame with die formed flanges and welded corners • Inlet panel is heavy gauge steel with die formed flanges and welded corners • Structural parts are phosphatized and coated with Permatector  
WHEEL Fully welded, aluminum centrifugal wheel • 12 bladed construction • Airfoil blade profile

**CONFIGURATION**

Arrangement	Rotation	Material Type
4	CW	Steel

**SELECTED OPTIONS & ACCESSORIES**

Permatector Coating on Steel Components  
Motor Service Factor of 1.15 or greater  
Class B Motor Insulation or Greater

**INSTALLATION**

Connection	Plenum Discharge
N/A	N/A

**MOTOR SPECS**

Size (hp)	RPM	VIC/P	Enclosure	Frame Size
7 1/2	1770	208/60/3	ODP	213

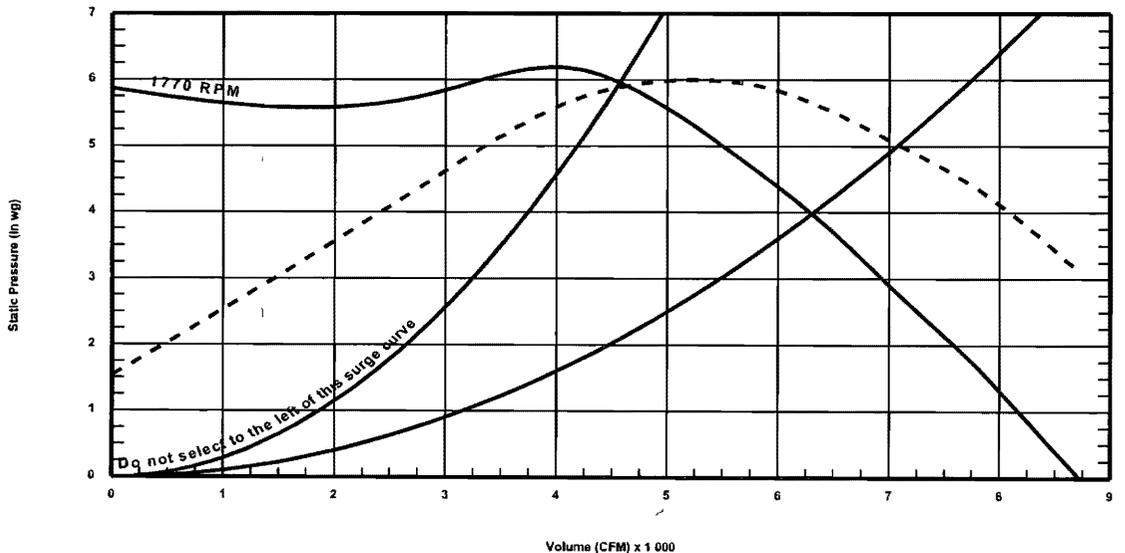
**PERFORMANCE** (Elevation ft = 0, Airstream Temperature F = 70, Start Up Temperature F = 70)

Qty	Model	Volume (CFM)	SP (in wg)	TS (ft/min)	OV (ft/min)	FRPM	Max Class FRPM	Operating Power (hp)	SE %
1	24-QEP-4-55-II	6 387	3 85	11 353 0	1 398 0	1,770	2 178	5 58	69

**SOUND**

Inlet / Outlet Sound Power by Octave Band								LwA	dBA
63	125	250	500	1000	2000	4000	8000		
85	88	95	95	92	86	80	76	96	85
81	84	93	90	83	80	75	72	90	79

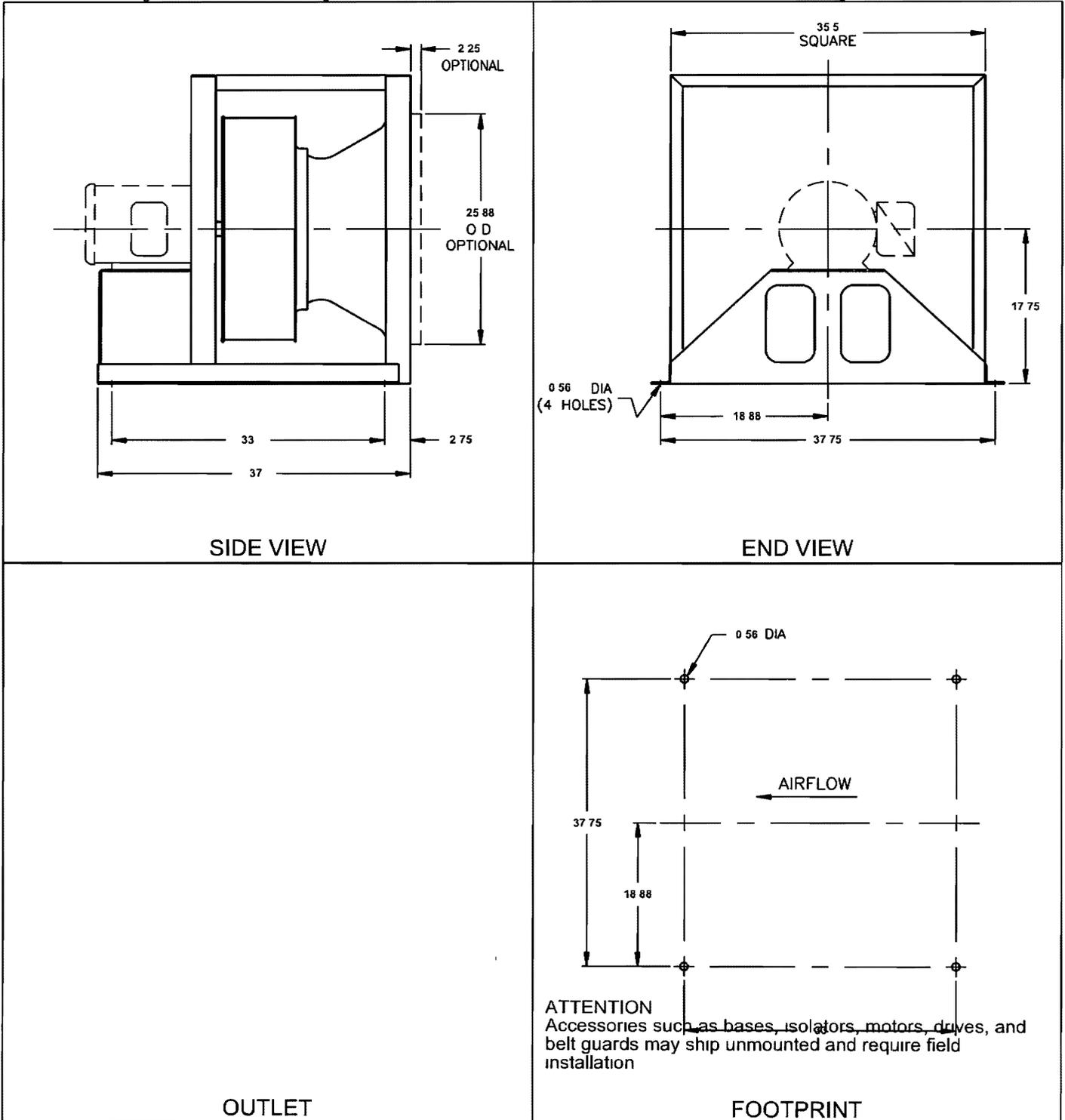
LwA - A weighted sound power level based on ANSI S14  
dBA - A weighted sound pressure level based on 11.5 dB attenuation per octave band at 5.0 ft



Size 24  
Arrangement 4  
Class II

# QEP Plenum Fan

NOTES All dimensions shown are in units of inches  
Drawings are not to scale Drawings are of standard unit and do not include dimensions for accessories or design modifications



**Mark HRU-2 Return**

**ENGINEERING DATA**

Approx Fan Weight (lb)	Class	Max T Motor Frame Size	WR2 (lb-ft <sup>2</sup> )
270	I	254	19

**QEP Plenum Fan**

Tag HRU-2 Return

**STANDARD CONSTRUCTION FEATURES**

**HOUSING** Heavy gauge steel mounting frame with die formed flanges and welded corners • Inlet panel is heavy gauge steel with die formed flanges and welded corners • Structural parts are phosphatized and coated with Permatector  
**WHEEL** Fully welded, aluminum centrifugal wheel • 12 bladed construction • Airfoil blade profile

**CONFIGURATION**

Arrangement	Rotation	Material Type
4	CW	Steel

**SELECTED OPTIONS & ACCESSORIES**

Permatector Coating on Steel Components  
 Motor Service Factor of 1.15 or greater  
 Class B Motor Insulation or Greater

**INSTALLATION**

Connection	Plenum Discharge
N/A	N/A

**MOTOR SPECS**

Size (hp)	RPM	V/C/P	Enclosure	Frame Size
2	1170	208/60/3	ODP	184

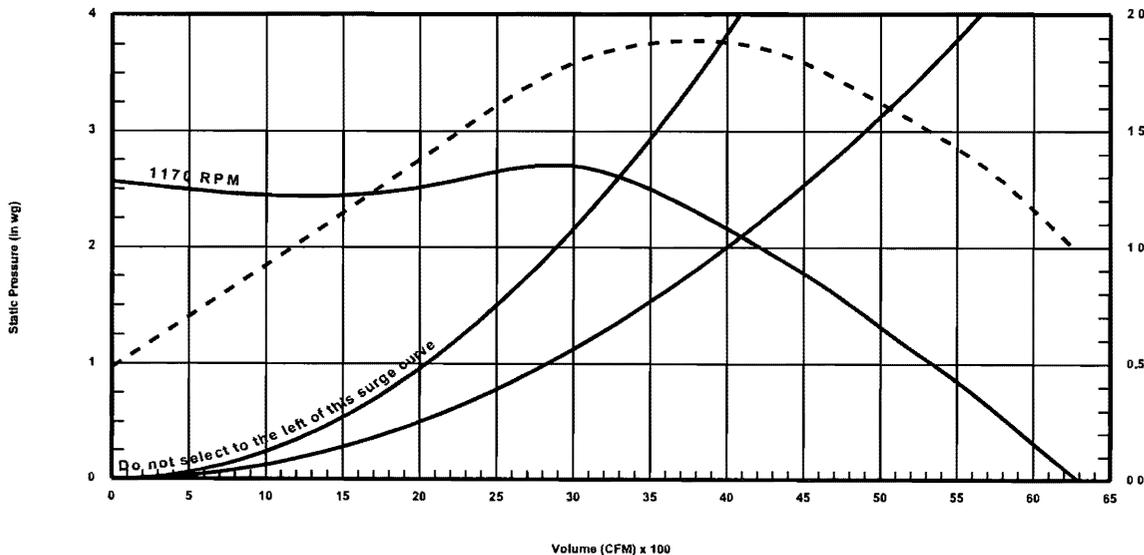
**PERFORMANCE** (Elevation ft = 0 Airstream Temperature F = 70 Start Up Temperature F = 70)

Qty	Model	Volume (CFM)	SP (in wg)	TS (ft/min)	OV (ft/min)	FRPM	Max Class FRPM	Operating Power (hp)	SE %
1	24-QEP-4-60-I	4,213	2	7 504 0	922 0	1,170	1,670	1.86	71

**SOUND**

Inlet / Outlet Sound Power by Octave Band								LwA	dBA
63	125	250	500	1000	2000	4000	8000		
78	84	89	83	79	75	68	65	85	74
74	82	89	75	71	69	63	59	82	71

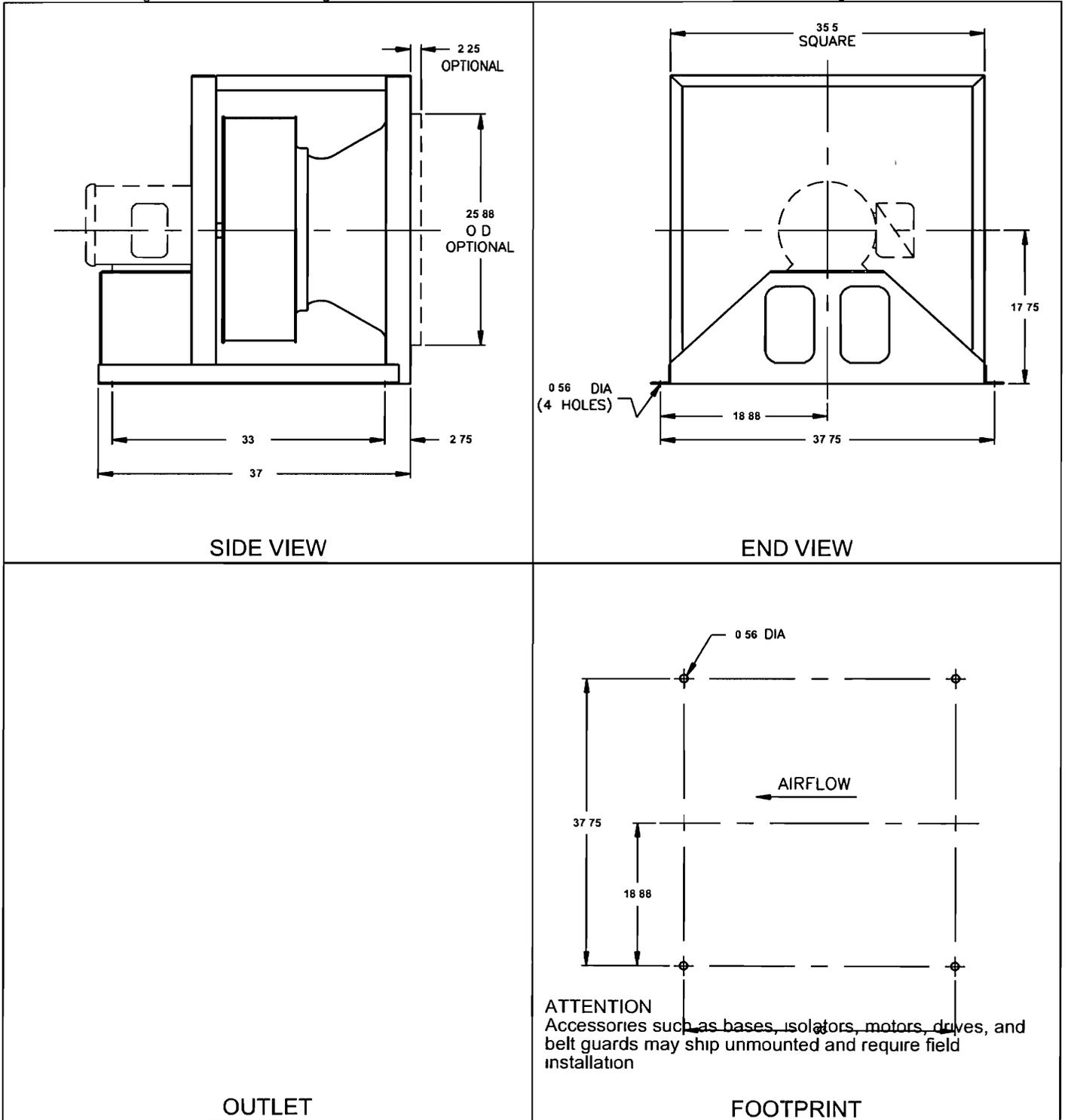
LwA - A weighted sound power level based on ANSI S14  
 dBA - A weighted sound pressure level based on 11.5 dB attenuation per octave band at 5.0 ft



Size 24  
Arrangement 4  
Class I

# QEP Plenum Fan

NOTES All dimensions shown are in units of inches  
Drawings are not to scale Drawings are of standard unit and do not include dimensions for accessories or design modifications



**LIGHTING - GENERAL****Exceptions**

Discussion of qualifying exceptions in instructions section

**Plans/Specs**

Show compliance by including a drawing sheet detail number and/or specification section and subparagraph

**1 Interior Exceptions (Section 1313 1)**

- No Interior Lighting** The building plans and specifications do not call for new or altered interior lighting  
Skip to item 5 Exterior building Lighting General below

- Exceptions 1** The building or part of the building qualifies for an exception from code lighting requirements Applicable code exception is number

2 Lighting equipment that qualifies for an exception in addition to general lighting and is separately controlled Applicable code exception is number

Areas of the building and equipment that qualify for any exceptions

**2 Local Shut-off controls (Section 1313 3 1 1)**

- Complies** At least one local shut off lighting control for every 2 000 square feet of lighted floor area and for all spaces enclosed by walls or ceiling height partitions

This control is detailed in the building plans on drawing number

- Exception** The building or part of the building qualifies for an exception

Applicable code exception is Section 1313 3 1 1, Exception

Portions of the building that qualify

E099 E101, E102, E103 E104

**3 Automatic Shutoff Controls (Section 1313 3 1 2)**

- Not Applicable** Office floor area is not over 2 000 square feet of contiguous office floor area or permitted space is not over 5 000 square feet No offices less than 300 square feet meeting or conference rooms or school classrooms

- Complies** All interior lighting systems are equipped with a separate automatic control to shut off lighting during unoccupied periods Offices less than 300 square feet meeting and conference rooms, and school classrooms are equipped with occupancy sensors that comply with Section 1313 3 1 2 1

Compliance details in plans/specs

- Exception** The building or part of the building qualifies for an exception

Applicable code exception is Section 1313 3 1 2, Exception

Portions of the building that qualify

E099, E101, E102 E103 E104

**4 Daylighting Controls (1313 3 1 3)**

- No classrooms or atriums with skylights or window to wall ratio greater than 50%**

- Complies** All classrooms and atriums with window to wall ratio greater than 50% and/or skylights are equipped with automatic daylight sensing controls as required by Section 1313 3 1 3 1 and Section 1313 3 1 3 2 The daylight sensors specified comply with Section 1313 3 1 3 3

Compliance details in plans/specs

E101

**Exterior Build-ing Lighting**

is lighting directed to illuminate the exterior of the building and adjacent walkways and loading areas with or without canopies

**Clock Switches**

shall be astronomic (seasonal correcting) type with separate programs for each day of the week and shall store energy to maintain timekeeping during power outages

**5 Exterior Lighting (Section 1313 5)**

- Complies** The plans do not call for use of incandescent or mercury vapor lamps for use on building exterior

- Exception** The building plans indicate luminaires with incandescent or mercury vapor lamps but are specified for use in or around swimming pools water features or other locations subject to requirements of Article 680 of the 2002 National Electrical Code

**6 Exterior and Canopy Lighting Controls (Section 1313 3 2)**

- Complies** The building plans and specifications include photoelectric and/or clock switches on all exterior lighting systems which are designed and programmed to extinguish lights when daylight is present, as required by Section 1313 3 2

**7 Connected Lighting Power (Section 1313 4)**

- Complies** The lighting power does not exceed the power allowance established in either the Tenant Space Method (Form 5b) or the Space by Space Method (Form 5c)

Tenant Space Method (Form 5b)

Space by Space Method (Form 5c)



**INTERIOR LIGHTING POWER - Tenant Space Method****Lighting Budget****Occupancy/  
Use Types**

See instructions for description of occupancy types

(a)	(b)	(c)	(d)
Tenant or Building Type (Table 13G)	Floor Area (sq ft)	Max Power Density (W/ft <sup>2</sup> )	Lighting Power Budget (W)
Multi Family		0.7	

**Lighting Power  
Budget**

1	<b>Total Interior Lighting Power Budget (Watts) for Building</b>		
---	--	--	--

**Track Lighting  
Power**

2	Total length of track lighting (ft)		
3	Line 2 multiplied by 50 Watts/ft		
4	Total amperage of circuit breaker(s) serving track lighting (amps)		
5	Voltage of circuit breaker serving track lighting (volts)		
6	Maximum wattage of track lighting (multiply line 4 by line 5)		
7	VA rating of the inline current limiter or the low voltage transformers		
8	Track Lighting Power (the lesser value of line 3, 6 or 7)		

**Building's Interior  
Lighting Power**

9	Total Interior Lighting Power from Worksheet 5b 1 (Sum of Column (m))	+	21,053
10	Total Adjusted Interior Lighting Power (line 8 + line 9)	=	21,053
11	Does Interior Lighting Design Meet Budget? Line 10 must be no greater than line 1		YES

**Exterior Canopy  
Parking Garage  
Lighting Power**

12	Do Exterior Canopies Meet Budget (Worksheets 5c)?		YES
13	Does Parking Garage Meet Budget (Worksheets 5c)?		N/A



**LIGHTING FIXTURE SCHEDULE (see Table 5c in instructions for default luminaire power)**

(a) Lum ID	(b) Luminaire			(c) Lamp		(d) Ballasts		(e) Luminaire Power (watts)	(f) Is Luminaire From Table 5c
	Type	Description	No.	Description	No.	Description			
F1	Fluorescent T8 4 foot	3 F32T8/30ES ELECT NO-79W	3	F32T8/30ES	1	Electronic Normal Output IS	79	YES	
F1D	Fluo escert T8 4 foot	3 F32T8/30ES ELECT NO-79W	3	F32T8/30ES	1	Electronic Normal Output IS	79	YES	
F1E	Fluo escert T8 4 foot	3 F32T8/30ES ELECT NO-79W	3	F32T8/30ES	1	Elect on c Normal Output IS	79	YES	
F2	Fluo escert T8 4 foot	2 F32T8 ELECT NO-62W	2	F32T8	1	Electronic Normal Output RS	62	YES	
F3	Fluorescent T8 4 foot	1 F32T8 ELECT NO-32W	1	F32T8	1	Electronic Normal Output RS	32	YES	
F4	Fluo escert T8 4 foot	1 F32T8 ELECT NO-32W	1	F32T8	1	Electronic Normal Output RS	32	YES	
F5	Fluo escert T8 4 foot	3 F32T8 ELECT NO-93W	3	F32T8	1	Electronic Normal Output RS	93	YES	
F5E	Fluo escert T8 4 foot	3 F32T8 ELECT NO-93W	3	F32T8	1	Electronic Normal Output RS	93	YES	
G1	Compact Fluo escert Triple	2 CFM 18W GX24q 2 ELECT 36W	2	CFM 18W GX24q 2	2	Electronic	36	YES	
G2	Compact Fluo escert Triple	1-CFTR26W GX24q 3-ELECT 28W	1	CFTR26W GX24q 3	1	Electronic	28	YES	
G3	12 Volt Tungsten Haloge Lamps	1 20 watt lamp EPS 23W	1	20 watt lamp	1	Electronic Power Supply	23	YES	
G4	Compact Fluo escert T ipk	1-CFTR26W GX24q 3-ELECT 28W	1	CFTR26W/GX24q 3	1	Electronic	28	YES	
R1	Compact Fluo escert T ipk	1-CFTR26W GX24q 3-ELECT 28W	1	CFTR26W/GX24q 3	1	Electronic	28	YES	
R2	Compact Fluo escert Triple	1-CFTR26W GX24q 3-ELECT 28W	1	CFTR26W/GX24q 3	1	Electronic	28	YES	
S1	Compact Fluo escert Triple	2-CFTR26W GX24q 3-ELECT 55W	2	CFTR26W/GX24q 3	1	Electronic	55	YES	
S2	Compact Fluorescent T ipk	1-CFTR26W GX24q 3-ELECT 28W	1	CFTR26W/GX24q 3	1	Electronic	28	YES	
S3	Fluo escert T8 4 foot	2 F32T8 ELECT NO-62W	2	F32T8	1	Electronic Normal Output RS	62	YES	
S4	Fluo escert T8 4 foot	4 F32T8 ELECT NO-114W	4	F32T8	1	Electronic Normal Output RS	114	YES	
S6	Compact Fluo escert T ipk	2-CFTR26W GX24q 3-ELECT 55W	2	CFTR26W/GX24q 3	1	Electronic	55	YES	
W1	Fluorescent T8 4 foot	2 F32T8 ELECT NO-62W	2	F32T8	1	Electronic Normal Output RS	62	YES	
B1	Compact Fluo escert T ipk	2-CFTR26W GX24q 3-ELECT 55W	2	CFTR26W/GX24q 3	1	Electronic	55	YES	
S1B	Fluorescent C cino	1 FC12T5HO-ELECT NO 55W	1	FC12T5HO	1	Electronic Normal Light RS	55	YES	
F1DE	Fluorescent T8 4 foot	3 F32T8 30ES ELECT NO 79W	3	F32T8/30ES	1	Electronic Normal Output IS	79	YES	

**INTERIOR LIGHTING POWER**

**Each room must be identified**  
Describe luminaires for each individual room in plans

For track lighting enter lineal feet in column column (g)

Column (k) enter sum of column (j) for each room only once at first entry for the room. See example in instructions.

(a)	Space by Space Method Only				(f)	(g)	(h)	(i)	(j)	(k)
	(b)	(c)	(d)	(e)						
Room ID (do not leave any blanks)	Area (ft <sup>2</sup> )	Space Type (Table 13 H) (enter space type only once per room)	Space Type LPD	Lighting Power Budget (b) x (d)	Lum ID from Worksheet 5a Column (a)	Quantity of Luminaires (or lineal ft for track lighting)	Luminaire Power (Watts)	Exempt Fixtures	Lighting Power (g) x (h)	Room Total Ltg Power
BASEMENT	6600				F2	4	62	<input type="checkbox"/>	248	248
					S2	1	28	<input type="checkbox"/>	28	
					S3	43	62	<input type="checkbox"/>	2 666	
1ST FLOOR	7500				F1	16	79	<input type="checkbox"/>	1 264	1 264
					F1D	14	79	<input type="checkbox"/>	1 106	
					F1E	5	79	<input type="checkbox"/>	395	
					F2	6	62	<input type="checkbox"/>	372	
					F3	1	32	<input type="checkbox"/>	32	
					F4	5	32	<input type="checkbox"/>	160	
					G2	6	28	<input type="checkbox"/>	168	
					R1	3	28	<input type="checkbox"/>	84	
					S3	15	62	<input type="checkbox"/>	930	
					S6	6	55	<input type="checkbox"/>	330	
					W1	6	62	<input type="checkbox"/>	372	
					B1	6	55	<input type="checkbox"/>	330	
					F1DE	7	79	<input type="checkbox"/>	553	
KITCHEN	1750				F5	17	93	<input type="checkbox"/>	1 581	1 581
					F5E	8	93	<input type="checkbox"/>	744	
2ND FLOOR	6750				F2	4	62	<input type="checkbox"/>	248	248
					F3	3	32	<input type="checkbox"/>	96	
					G3	3	23	<input type="checkbox"/>	69	
					G4	1	28	<input type="checkbox"/>	28	
					R1	13	28	<input type="checkbox"/>	364	
					R2	3	28	<input type="checkbox"/>	84	
					S1	14	55	<input type="checkbox"/>	770	
					S2	14	28	<input type="checkbox"/>	392	
					S3	5	62	<input type="checkbox"/>	310	
					S4	2	114	<input type="checkbox"/>	228	
					W1	7	62	<input type="checkbox"/>	434	
					S6	4	55	<input type="checkbox"/>	220	
					S1B	1	55	<input type="checkbox"/>	55	
3RD FLOOR	6750				F2	4	62	<input type="checkbox"/>	248	248
					F3	3	32	<input type="checkbox"/>	96	
					R1	13	28	<input type="checkbox"/>	364	
					R2	4	28	<input type="checkbox"/>	112	
					S1	14	55	<input type="checkbox"/>	770	
					S2	14	28	<input type="checkbox"/>	392	
					S3	4	62	<input type="checkbox"/>	248	
					S4	2	114	<input type="checkbox"/>	228	
					W1	8	62	<input type="checkbox"/>	496	
					F1	2	79	<input type="checkbox"/>	158	
					F1E	1	79	<input type="checkbox"/>	79	
	29 350	Worksheet 5b 1 Total Budget				Wksht 5b 1 Total Lighting Power (excluding exempt/track fixtures)				17 852

**Other Pages**  
List the additional worksheets necessary to catalog all luminaires in building

Total Number of Additional Worksheet 5b

Worksheet Number	(l) Lighting Power Budget Space by Space only (Total of column (e))	(m) Proposed Building Lighting Power (Total of column (k) excluding exempt/track)	(n) Area Sqft (not required for Tenant Method)
5b 1		17 852	29 350
5b 2		3 201	6 750
5b 3			
Sum of additional 5b worksheets			
Total Budget (of all worksheets)		21 053	36 100









*D-178322-WS*

*D-178319*

**FOR PERMIT FEE ESTIMATE ONLY**

**Building Permit Application**  
**City of Portland, Oregon - Bureau of Development Services**  
 1900 SW 4th Avenue, Portland, Oregon 97201 • 503 823 7310 • TTY 503-823 6868 • www.portlandoregon.gov/bds

Type of work	
<input checked="" type="checkbox"/> New construction	<input type="checkbox"/> Addition/alteration/replacement
<input type="checkbox"/> Demolition	<input type="checkbox"/> Other
Category of construction	
<input type="checkbox"/> 1 & 2 family dwelling	<input type="checkbox"/> Commercial/industrial
<input checked="" type="checkbox"/> Multifamily	<input type="checkbox"/> Accessory building
<input type="checkbox"/> Master builder	<input type="checkbox"/> Other
Job site information and location	
Job no	Job address 421 NW 3rd Avenue
City/State/ZIP Portland OR 97209	
Suite/bldg /apt no	Project name Blanchet House of Hospitality
Cross street/directions to job site NW Glisan	
Subdivision R140389	Lot no 5 & 8
Tax map/parcel no 3029	
Description of work	
The project consists of a new-build, 4 story, quarter-block development for the Blanchet House	
The building program consists of three stories of residential units over a ground floor "Soup Kitchen" serving low-income and homeless individuals	
<input type="checkbox"/> Reference RS / Combination	Permit no
Property owner	
<input checked="" type="checkbox"/> Property owner	<input type="checkbox"/> Tenant
Name Blanchet House of Hospitality c/o Rich Ulring	
Address 1513 SW Marlow Avenue	
City/State/ZIP Portland, OR 97255	
Phone 503-297-1729	FAX
Owner installation This installation is being made on property that I own which is not intended for sale lease rent or exchange	
Owner signature	Date
Contractor	
Business name	
Address	
City/State/ZIP	
Phone	FAX
CCB lic no	
Authorized signature	Date
Print name	Date
Applicant	
<input checked="" type="checkbox"/> Applicant	<input checked="" type="checkbox"/> Contact Person
Business name SERA Architects, Inc	
Contact name Joe Pinzone	
Address 338 NW 5th Avenue	
City/State/ZIP Portland, OR 97209	
Phone 503-445-7360	FAX 503-445-7395
E-mail joep@serapdx.com	
Authorized signature	Date
Print name Joe Pinzone	Date 09 21 10

Office Use Only	
Permit no	
Date received	
By	

Required Data: One and Two Family Dwelling	
Permit fees* are based on the value of the work performed. Indicate the value (rounded to the nearest dollar) of all equipment, materials, labor, overhead, and the profit for the work indicated on this application.	
Valuation	
Number of bedrooms	
Number of bathrooms	
Total number of floors	
New dwelling area	square feet
Garage/carport area	square feet
Covered porch area	square feet
Deck area	square feet
Other structure area	square feet

Required Data: Commercial Use	
Permit fees* are based on the value of the work performed. Indicate the value (rounded to the nearest dollar) of all equipment, materials, labor, overhead, and the profit for the work indicated on this application.	
Valuation	\$9,000,000
Existing building area	- square feet
New building area	36,410 square feet
Number of stories	4
Type of construction	II-A
Occupancy groups	
Existing	-
New	R2, S1, A2

**Notice**

All contractors and subcontractors are required to be licensed with the Oregon Construction Contractors Board under ORS 701 and may be required to be licensed in the jurisdiction in which work is being performed. If the applicant is exempt from licensing, the following reasons apply:


Building Permit Fees*	
Please refer to fee schedule	
Fees due upon application	
Amount received	
Date received	

**This permit application expires if a permit is not obtained within 180 days after it has been accepted as complete.**

Fee methodology set by Tri County Building Industry Service Board

Contractor information can be faxed to 503-823-7693



RECEIVED

MAR 31 2011

BDS  
DOCUMENT SERVICES



December 1, 2010

Mr John Smith  
**SERA Architects**  
 338 NW 5<sup>th</sup> Avenue  
 Portland, OR 97209

RE Blanchet House of Hospitality  
 COP Permit # 10-178319-000-00-CO  
 Response to Structural Checksheet

Dear John

Please find below our responses to the plan check comments we received dated November 10, 2010, by Mike Walkiewicz

Item #	Drawing Location	Calculation Location	Action
1	S004 & S005	-	Please find attached special inspection form Sheets S004 and S005 have been modified, remove items that do not apply
2	S002	-	These items are noted as deferred in the Structural General Notes and project specifications Sheet S002 has been modified to remove "pre-stressed concrete members" since the P/T slabs fall under the "post-tensioned reinforcing" deferred submittal
3	A704 & 18/S601	-	This item is under design review and will be submitted in a response to follow
4	-	-	This item is under review by the owner and design team and will be submitted in a response to follow
5	13/S502	-	We have added a detail to show a vertical joint between the end of all CMU walls and the adjacent structure (columns or walls)
6	2/S601 & 1/S602	-	A slip connection has been provided at one end of each HSS
7	S102, S103, S104 & 19/S601	-	These HSS 6x4 are required to support the brick veneer since the window at the stair is not as wide as the opening in the slab The framing is detailed to accommodate seismic drift and avoid a vertical drift joint in the veneer at the stair We have also revised the plan notes for the punching shear detail reference to 8/S504
8	S102P	-	We have revised the sheet to match the calculations and clarified the stressing condition The design has been revised per item 9 below

Mr John Smith, SERA Architects  
 RE Blanchet House of Hospitality  
 COP Permit # 10-178319-000-00-CO  
 Response to Structural Checksheet

December 1, 2010

Page 2 of 2

Item #	Drawing Location	Calculation Location	Action
9	S102 & S102P	1 thru 29	We have revised level 2 so that the P/T slab is one monolithic pour with pour strips only at the southern shear wall core See revised calculations
10	-	-	This item is under review by the owner and design team and will be submitted in a response to follow
11	S105, S105S, S105A & 17/S601	-	A detail reference for 17/S601 has been added to the plan and the interaction of the HSS post with the wall framing has been clarified Mechanical unit weights have been added to the dimension plan with a reference from S105
12	S101 & A/S301	-	The extent of the wall has been changed to match the calculations A portion of the wall that was shown as concrete extending to the column at 2/H has been revised to be nonstructural CMU The boundary element at the east end of the north wall has been revised to align full height
13	S306 & S307	-	The elevations have been revised to clarify the stud sizes for the exterior walls and parapets
14	6/S401 & 5/S505	-	Details have been provided for column transitions
15	S306 & S307	-	The number of veneer anchors will be doubled within 10 feet of building corners
16	9/S701	-	Detail 9/S701 has been modified to clarify the embed spacing
17	7/S701	-	The detail has been revised to connect the top track to the HSS post using an angle clip each side of the post

Please do not hesitate to call me at (503) 227-3251 if you have any questions or comments

Sincerely,



Nick Saari, P E , S E  
 Associate

Attachments







CITY OF  
**PORTLAND, OREGON**  
 BUREAU OF ENVIRONMENTAL SERVICES  
 1900 SW 4TH AVE, SUITE 2100  
 Portland, OR 97201



**BES SOURCE CONTROL PLAN EXAMINATION CHECK SHEET** Application # **10-178319-000-00-CO**

Review Date **October 29, 2010**

IVR# **2993647**

To	APPLICANT	<b>JOHN SMITH SERA ARCHITECTS 338 NW 5TH AVE PORTLAND OR 97209</b>	Primary	503 445-7350
			Fax	503 445-7395
			E-Mail	johns@serapdx.com

From		<b>SOURCE CONTROL</b> Greg east	Phone	503 823-7577
------	--	------------------------------------	-------	--------------

**PROJECT INFORMATION**

Street Address	<b>310 NW GLISAN ST</b>
Description of Work	<b>4 story bldg on 1/4 block, 3 floors residential, 1st floor food service (soup kitchen serving low-income and homeless)</b>

The following are items that will need to be addressed prior to plan approval by the Bureau of Environmental Services. Approval of your plan for sanitary and storm management facilities by BES does not mean your building permit can be immediately issued, BES is only one of many bureaus that review your building plan.

Item #	Location on plans	Clarifications / Corrections Required
1	C201	Please submit a signed copy of form 4 in appendix D of the BES Stormwater Management Manual (SWMM) documenting how stormwater and groundwater will be handled. If discharge to the city combined sewer system please also submit Form 5. If onsite detention or infiltration will be used please indicate that on the erosion control sheet. The 2008 SWMM is available on the Internet at <a href="http://www.portlandonline.com/BES/index.cfm?c=47952">http://www.portlandonline.com/BES/index.cfm?c=47952</a>
2		Please submit Form 6 describing the type and style of water meter to be used on the water re-use system. Please coordinate placement and meter type with Chuck Schadt of the BES at 503-823-7856

To respond to this checksheet, come to Document Services (the second floor of 1900 SW Fourth Ave, hours 8:00 a.m. - 3:00 p.m. Tuesday through Friday) and update all four sets of the originally submitted drawings. To update the drawings, you may either replace the original sheets with new sheets, or edit the originally submitted sheets. (Specific instructions for updating plans are posted in Document Services.)

Please complete the attached Checksheet Response Form and include it with your re-submittal.

If you have specific questions concerning this Checksheet, please call the Source Control phone number listed above. To check the status of your project, please call 503 823-7000 and select option 4. Your Plan Review Status will be faxed to you, so please be ready to provide a fax number. If you don't have a fax number you may dial 503 823-7357 to request a Plan Review Status or visit Document Services.

You may receive separate Checksheets from other City agencies that will require separate responses.

FORM

4

Source Control  
DEWATERING FORM

Date 6/14/11

Building Permt Application # 10-178319-CO

All building permit applications for new construction, additions, or improvements that will perform below grade excavation or discharge groundwater, or perform ground-disturbing activities during the winter months (Oct-May) must complete and submit this form with the documents requested within this form

Site and Contact Information

Property Site Address 421 NW 3rd Avenue, Portland, OR 97209

Name of Responsible Party Fortis Construction, Inc

Responsible Party Phone (area code required) (503) 459-4477

Responsible Party Mailing Address 1705 SW Taylor St, Suite 200

City/State/Zip Portland, OR 97205

Name of Contractor (if different than responsible party) Greg Wimmer

Contractor Phone Number 503-459-4477 Contractor Email Address gregw@fortisconstruct.com

Discharge Information

- 1 Will there be temporary dewatering and discharges of groundwater (includes mixed groundwater & stormwater)?  
 Yes  No (If yes, applicant must fill out submeter application, and batch discharge application. Submit those applications with this form.)
- 2 Will there be permanent dewatering and discharges of groundwater?  Yes  No (If yes, applicant must complete a submeter application and long-term dewatering application, submit a recorded O&M plan, if applicable, and include with this form.)
- 3 Will there be stormwater only dewatering discharges during construction? (Applicable only if question 1 & 2 are answered NO)  
 Yes  No (If yes, fill out the batch discharge application and include it with this form. If no, sign this form and submit with building plans.)

Projected Discharge Rate (If the rate will change based on the depth of the excavation, list those depths with the projected rates)  
N/A

Maximum Discharge Rate (gpm) N/A

Duration of Discharge (dates from and to) from N/A to N/A

If site conditions change and a discharge offsite is needed, you must call 503 823-5320 or 503-823-7180

RECEIVED  
JUN 15 2011  
BDS  
DOCUMENT SERVICES

# 4 DEWATERING FORM

Intended Receiving System for the Discharge? (check the following relevant box)

City storm       City sanitary       City combined       Private storm

Private infiltration       Private UIC (drywell) - City UIC is prohibited

Other No Discharge - If required after excavation, Bonds will contact City of Portland.

If proposing discharge to a private system, please ensure that the Department of Environmental Quality (DEQ) has been notified  
BES may require correspondence from DEQ stating they have been informed of the proposed discharge

### Statement

By signing this form I acknowledge I am the responsible party for the above address and acknowledge that discharges off this site to a City conveyance system are regulated under City Code Chapters 17 39, 17 38, 17 36 and 17 34 By answering no to all three discharge questions, I certify there will be no channelized or pumped stormwater associated with construction activities or groundwater entering a City conveyance system on a permanent or temporary basis I am also aware that sewer volume charges or system development charges may apply per chapter 17 36 for this discharge If it is found there is an offsite discharge of either groundwater or stormwater as defined in this statement and the discharge has not been authorized, I am aware that penalties can be assessed per City Code Chapters 17 39 and 17 34 If site conditions change, and a discharge to a city system is needed, I will contact the city by calling 503-823-7122 or 503-823-7180 to obtain authorization to discharge

Signature \_\_\_\_\_

Printed Name \_\_\_\_\_

Grog Wimmer

Date Signed \_\_\_\_\_

6/14/11

*for official use only*

City Staff

Date Received \_\_\_\_\_

Received by \_\_\_\_\_

Approved Date \_\_\_\_\_

Approved by \_\_\_\_\_

Approved Receiving System \_\_\_\_\_

**FORM** Source Control  
**6 SUBMETER APPLICATION**  
**Construction and Groundwater Discharge**

Date of Request \_\_\_\_\_  
 Building Permit Number 10-178319-CO

**Project Information**

Project Name Blanchet House of Hospitality  
 Site Address 421 NW 3rd Avenue Portland Oregon Zip 97209  
 Contact Name Blanchet House of Hospitality c/o Rich Ulring  
 Company Address 1513 SW Marlow AVE City/State/Zip Portland, OR 97255  
 Mailing Address 1513 SW Marlow AVE City/State/Zip Portland, OR 97255  
 Telephone (include area code) 503-297-1729 Fax \_\_\_\_\_  
 Anticipated Construction Start Date July 1, 2011 End Date \_\_\_\_\_

Will ongoing dewatering activities occur onsite once construction is complete?  
 Yes (Complete Section 1 and 2, below)  No (Complete Section 1 only)

**Billing Information**

Have you opened a sewer account with Portland Utilities?  
 Yes Acct No \_\_\_\_\_  No (Contact the City of Portland, 503-823-7856 to set up an account)

**Section 1 - Contact Information During Construction**

Contact Person Rich Ulring  
 Company Name Blanchet House of Hospitality  
 Billing Address 1513 SW Marlow AVE  
 City/State/Zip Portland, OR 97255  
 Telephone 503-297-1729 Fax \_\_\_\_\_

**Section 2 - Contact Information Post-Construction**

Contact Person \_\_\_\_\_  
 Company Name \_\_\_\_\_  
 Billing Address \_\_\_\_\_  
 City/State/Zip \_\_\_\_\_  
 Telephone \_\_\_\_\_ Fax \_\_\_\_\_

**Meter Information**

City Code 17 36 050 - ALL meters shall register in cubic feet

Meter Serial Number	Meter Dials	Stationary Zeros	Install Read
No 1 <u>TBD (see attached)</u>	1 _____	1 _____	1 <u>0</u>
No 2 _____	2 _____	2 _____	2 _____

Applicant Signature Richard E. Ulring Date 6-13-11  
 Print Applicant Name RICHARD E. ULRING

*for official use only*

Date App Rec'd (Month/Date/Year) \_\_\_\_\_

Receiving Sewer Type  Sanitary/combined  Storm  
 Meter Type  Odometer  Digital

Reviewed By \_\_\_\_\_ Date \_\_\_\_\_

HORIZON

### Meter Registration

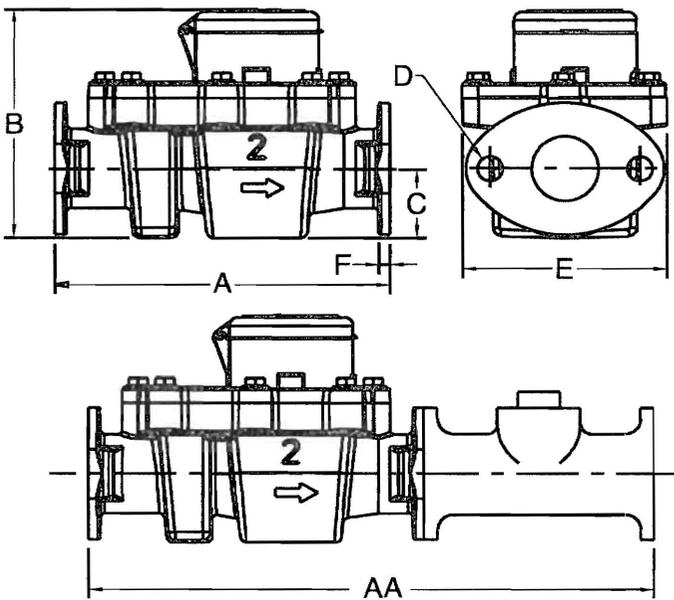
Meter Size	Initial Dial*	Capacity	Initial Dial*	Capacity
1-1/2"	100 Gallons	100 Million	10 Cubic Feet	10 Million
2"	100 Gallons	100 Million	10 Cubic Feet	10 Million

\*Registration equal to one full revolution of the sweep hand

### Flow Characteristics

Meter Size	Typical Low Flow (95% Min)	Typical Operating Range (100% ± 1.5%)	Maximum Continuous Operation	Maximum Intermittent Flow
1-1/2"	2 GPM	4 to 120 GPM	120 GPM	160 GPM
2"	2-1/2 GPM	4 to 160 GPM	160 GPM	200 GPM

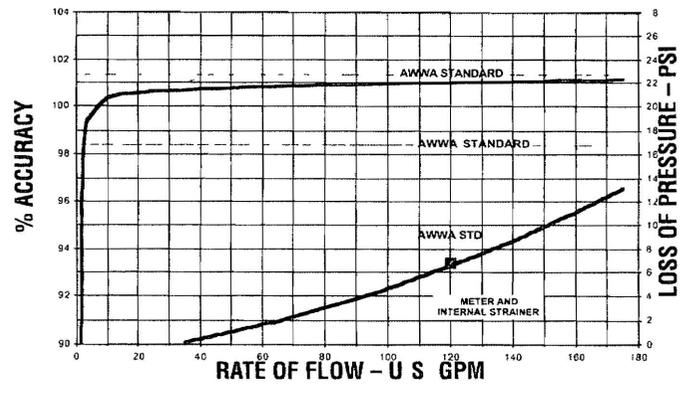
### Dimensions and Weights



Meter Size	1-1/2"	2"
<b>Dimension</b>		
A Compact Length	9	10
AA Standard Length	13	17
B Height	7-3/4	7-3/4
C Centerline	1-3/4	2-1/8
D Holes	3/4	3/4
E Width	6-1/8	6-1/8
F Flange	3/8	3/8
Net Weight Compact – LBS	22	23
Net Weight Standard – LBS	26.5	32

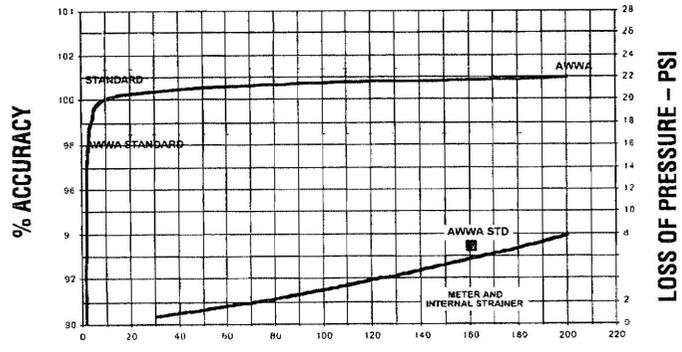
### Performance

1-1/2" HORIZON



### Performance

2" HORIZON



NOTE: Performance curves are typical only and NOT a guarantee of performance

# Model Horizon

## Horizontal Turbine Meters

Sizes 1-1/2" and 2"

Mueller SYSTEMS

### Features

**APPLICATIONS** For use in the measurement of potable water for applications where flow is consistently moderate to high. Designed for applications where accuracy is an essential part of maintaining revenue. The Horizon horizontal turbine meter is built to maintain accuracy over extended periods of use.

**CONFORMANCE TO STANDARDS** Horizon turbine meters have some of the widest flow ranges of any turbine meters on the market. All Horizon series turbine meters meet or exceed the latest performance and accuracy standards of AWWA C701. Maximum continuous flow rates may be exceeded by as much as 25% for intermittent periods.

**CONSTRUCTION** The Horizon consists of three basic parts, maincase, measuring insert, and register. Maincases are made of bronze. Measuring elements are thermoplastic with unique inlet and outlet straightening vanes.

To simplify maintenance, the Horizon is designed to allow quick, easy, in-line exchange of the measuring element without removing the maincase from the installation. Interchangeability of many parts within various sizes minimizes spare parts inventory and the Horizon comes standard with built-in strainer.

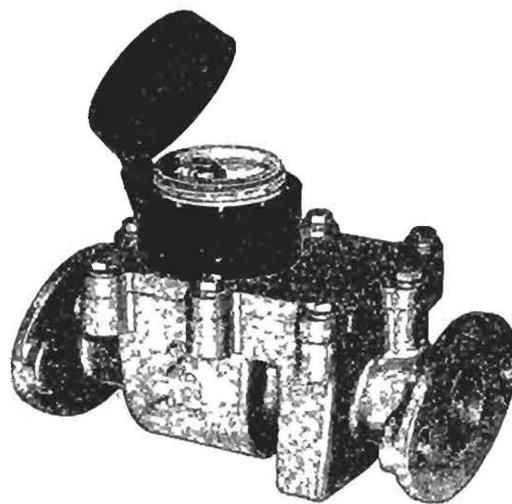
**REGISTER** Permanently sealed register has a unique seal and heat-treated glass to eliminate dirt, moisture infiltration and lens fogging. An integral tamper-proof locking feature is provided to prevent tampering of the register and calibration vane. The totalizing register has a straight-reading odometer type display, 360° test circle with center sweep hand and a low flow (leak) detector. Standard gearing is used, making registers interchangeable by size.

All Hersey Meter models have electronic meter reading systems available for increased reading efficiency (see Meter Reading Systems).

**OPERATION** Water flows straight through the measuring element where it turns a rotor at a rate in direct proportion to the quantity of water flowing through the meter. The straight-through design allows high volumes to flow with a minimum of head loss. Retro Thrust® design extends the life of the meter by dividing wear between two points: during low flow the tungsten carbide bearing in the rotor floats against a stainless steel shaft, during high flow a second tungsten carbide bearing gently moves back against another stainless steel shaft. During medium flow, the rotor floats between both tungsten carbide bearings with sapphire bushings providing radial support for the rotor.

**STRAINER & TEST PORT** Standard Built-in Strainer. Test port is optional with spool piece.

**CONNECTIONS** ANSI Class 150 Flanges. 1-1/2" NPT pipe threads on optional test outlet.



2" Horizontal Turbine Meter

### Materials and Specifications

MODEL DESIGNATION	HORIZON
SIZES	1-1/2", 2"
STANDARDS	Manufactured and tested to meet or exceed all applicable parts of ANSI/AWWA C701 class II Standard
SERVICE	Cold water measurement
NORMAL OPERATING FLOW RANGE	See Chart on following page
ACCURACY	See Chart on following page
PRESSURE LOSS	See Chart on following page
MAXIMUM WORKING PRESSURE	175 PSI
TEMPERATURE RANGE	33°F to 100°F water temperature
MEASURING ELEMENT	Stainless Steel and Thermoplastic
REGISTER TYPE	Straight reading, permanently sealed, magnetic drive with low flow indicator. Remote Readings units optional.
MATERIALS	Maincase - bronze UNS 84400, Casing bolts - Stainless steel ANSI B18, Rotor - Thermoplastic, Rotor radial bearing - Sapphire, Rotor thrust bearings - tungsten carbide, Rotor bearing pivots - Stainless steel ANSI B18, Magnet - rare earth/ceramic, Register box and lid - Thermoplastic or optional bronze, Standard strainer - Stainless steel, Spool piece with test outlet - bronze
INSTALLATION	Straight pipe requirements. Horizontal or Vertical. 5x inlet pipe diameter. 3x outlet pipe diameter.
METER CONNECTIONS	1-1/2" - 2" ANSI Class 150
OPTIONS	AMR/AMI Reading Systems

# Model Horizon

**Mueller** SYSTEMS

## Horizontal Turbine Meters

Sizes 3", 4", 6", 8", 10"

### Features

**APPLICATIONS** For use in the measurement of potable water for applications where flow is consistently moderate to high. Designed for applications where accuracy is an essential part of maintaining revenue. The Horizon horizontal turbine meter is built to maintain accuracy over extended periods of use.

**CONFORMANCE TO STANDARDS** Horizon turbine meters have some of the widest flow ranges of any turbine meters on the market. All Horizon series turbine meters meet or exceed the latest performance and accuracy standards of AWWA C701. Maximum continuous flow rates may be exceeded by as much as 25% for intermittent periods.

**CONSTRUCTION** The Horizon consists of three basic parts, maincase, measuring insert, and register. Maincases are made of bronze. Measuring elements are thermoplastic with unique inlet and outlet straightening vanes.

To simplify maintenance, the Horizon is designed to allow quick, easy, in-line exchange of the measuring element without removing the maincase from the installation. Interchangeability of many parts within various sizes minimizes spare parts inventory. Built-in test ports are standard for ease of field testing.

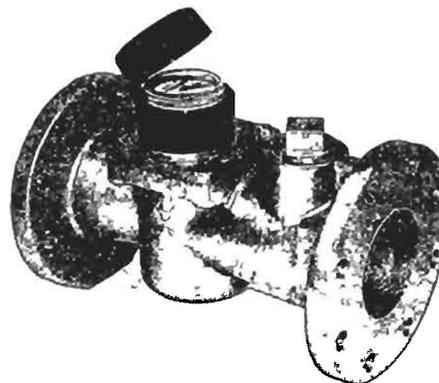
**REGISTER** Permanently sealed register has a unique seal and heat-treated glass to eliminate dirt, moisture infiltration and lens fogging. An integral tamper-proof locking feature is provided to resist tampering with the register or calibration vane. The totalizing register has a straight-reading odometer type display, a 360° test circle with center sweep hand and a low flow (leak) detector. Standard gearing is used, making registers interchangeable by size.

All Hersey Meter Models have electronic meter reading systems available for increased reading efficiency (see Meter Reading Systems.)

**OPERATION** Water flows straight through the measuring element where it turns a rotor at a rate in direct proportion to the quantity of water flowing through the meter. The straight-through design allows high volumes to flow with a minimum of head loss. Retro Thrust® design extends the life of the meter by dividing wear between two points: during low flow the tungsten carbide bearing in the rotor floats against a stainless steel shaft, during high flow a second tungsten carbide bearing gently moves back against another stainless steel shaft. During medium flow, the rotor floats between both tungsten carbide bearings with sapphire bushings providing radial support for the rotor.

**STRAINER** A separate optional strainer is recommended to protect the measuring element.

**CONNECTIONS** ANSI Class 150 Flanges on 3" through 10" sizes, 2" NPT pipe threads on test outlet.



4" Horizontal Turbine Meter

### Materials and Specifications

MODEL DESIGNATION	HORIZON
SIZES	3", 4", 6", 8", 10"
STANDARDS	Manufactured and tested to meet or exceed all applicable parts of ANSI/AWWA C701 class II Standard
SERVICE	Cold water measurement with flow in one direction
OPERATING FLOW RANGE	See Chart on following page
ACCURACY	See Chart on following page
PRESSURE LOSS	See Chart on following page
MAXIMUM WORKING PRESSURE	175 PSI
TEMPERATURE RANGE	33°F to 100°F water temperature
MEASURING ELEMENT	Stainless Steel and Thermoplastic
REGISTER TYPE	Straight reading, permanently sealed, magnetic drive with low flow indicator. Remote Readings units optional.
MATERIALS	Maincase – bronze UNSC84400, Casing bolts – Stainless steel ANSI B18, Rotor – Thermoplastic, Rotor radial bearing – Sapphire, Rotor thrust bearings – tungsten carbide, Rotor bearing pivots – Stainless steel ANSI B18, Magnet – rare earth/ceramic, Register box and lid – Thermoplastic or optional bronze
INSTALLATION	Straight pipe requirements. Horizontal or Vertical. 5x inlet pipe diameter. 3x outlet pipe diameter.
METER CONNECTIONS	3" – 10" ANSI Class 150
OPTIONS	AMR/AMI Reading Systems

### Meter Registration

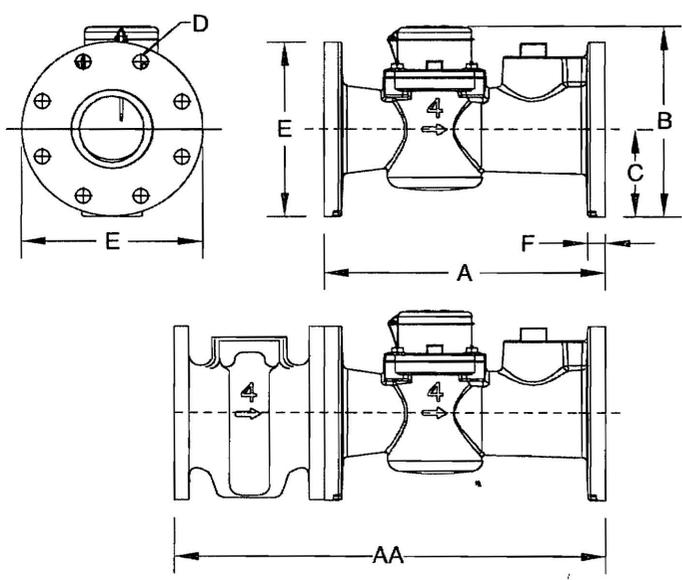
Meter Size	Initial Dial*	Capacity	Initial Dial*	Capacity
3"	100 Gallons	100 Million	10 Cubic Feet	10 Million
4"	100 Gallons	100 Million	10 Cubic Feet	10 Million
6"	1000 Gallons	1 Billion	100 Cubic Feet	100 Million
8"	1000 Gallons	1 Billion	100 Cubic Feet	100 Million
10"	1000 Gallons	1 Billion	100 Cubic Feet	100 Million

### Flow Characteristics

Meter Size	Typical Low Flow (95% Min )	Typical Operating Range (100% ± 1 5%)	Maximum Continuous Operation	Maximum Intermittent Flow
3"	3 GPM	6 to 600 GPM	600 GPM	750 GPM
4"	4 GPM	8 to 1000 GPM	1000 GPM	1250 GPM
6"	9 GPM	15 to 2000 GPM	2000 GPM	2600 GPM
8"	18 GPM	30 to 3500 GPM	3500 GPM	4400 GPM
10"	30 GPM	40 to 5500 GPM	5500 GPM	7000 GPM

\*Registration equal to one full revolution of the sweep hand

### Dimensions and Weights



Meter Size	3"	4"	6"	8"	10"
<b>Dimension</b>					
A	12"	14"	18"	20"	24"
AA	18"	21-1/2"	27"	30"	36"
B	10"	10-3/4"	13-1/2"	15-1/2"	18"
C	3-3/4"	4-1/2"	5-1/2"	6-3/4"	8"
D	3/4"	3/4"	7/8"	7/8"	1"
E	7-1/2"	9"	11"	13-1/2"	16"
F	3/4"	7/8"	7/8"	1-1/8"	1-3/16"
<b>Net weight</b>	38	50	100	130	210

Note Length AA is with standard strainer Weights are in pounds and are approximate

# Model Horizon

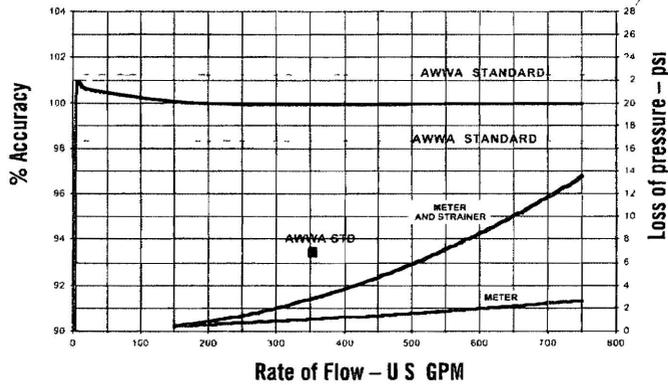
Horizontal Turbine Meters

Sizes 3", 4", 6", 8", 10"

**Mueller** SYSTEMS

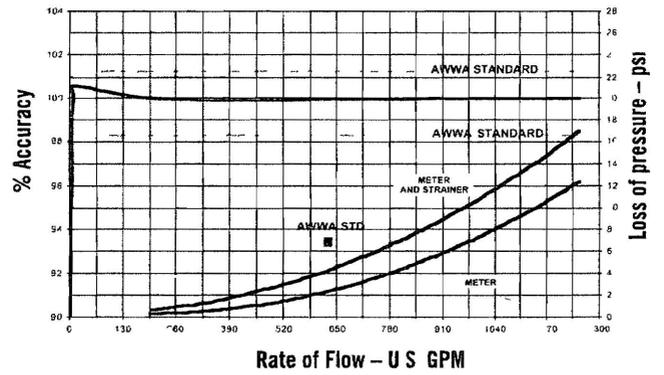
## Performance

3" Horizon

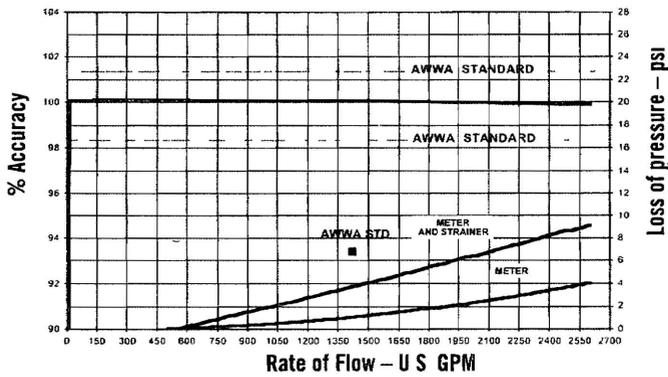


## Performance

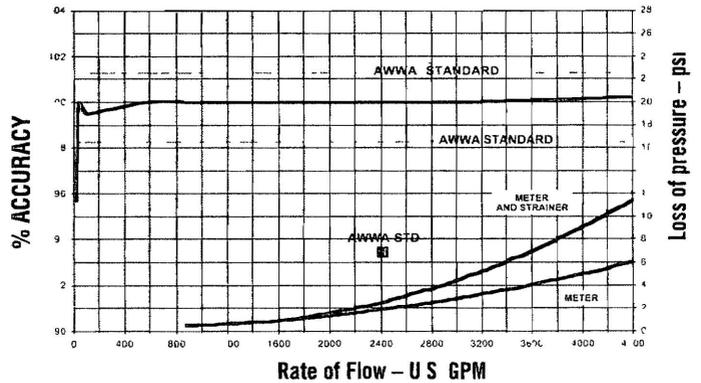
4" Horizon



6" Horizon



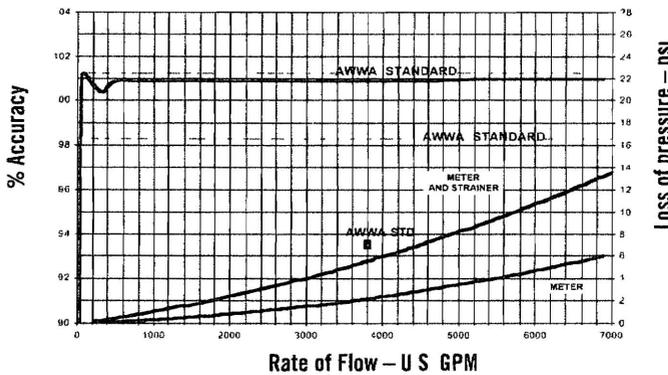
8" Horizon



\*Performance curves are typical only and not a guarantee of performance

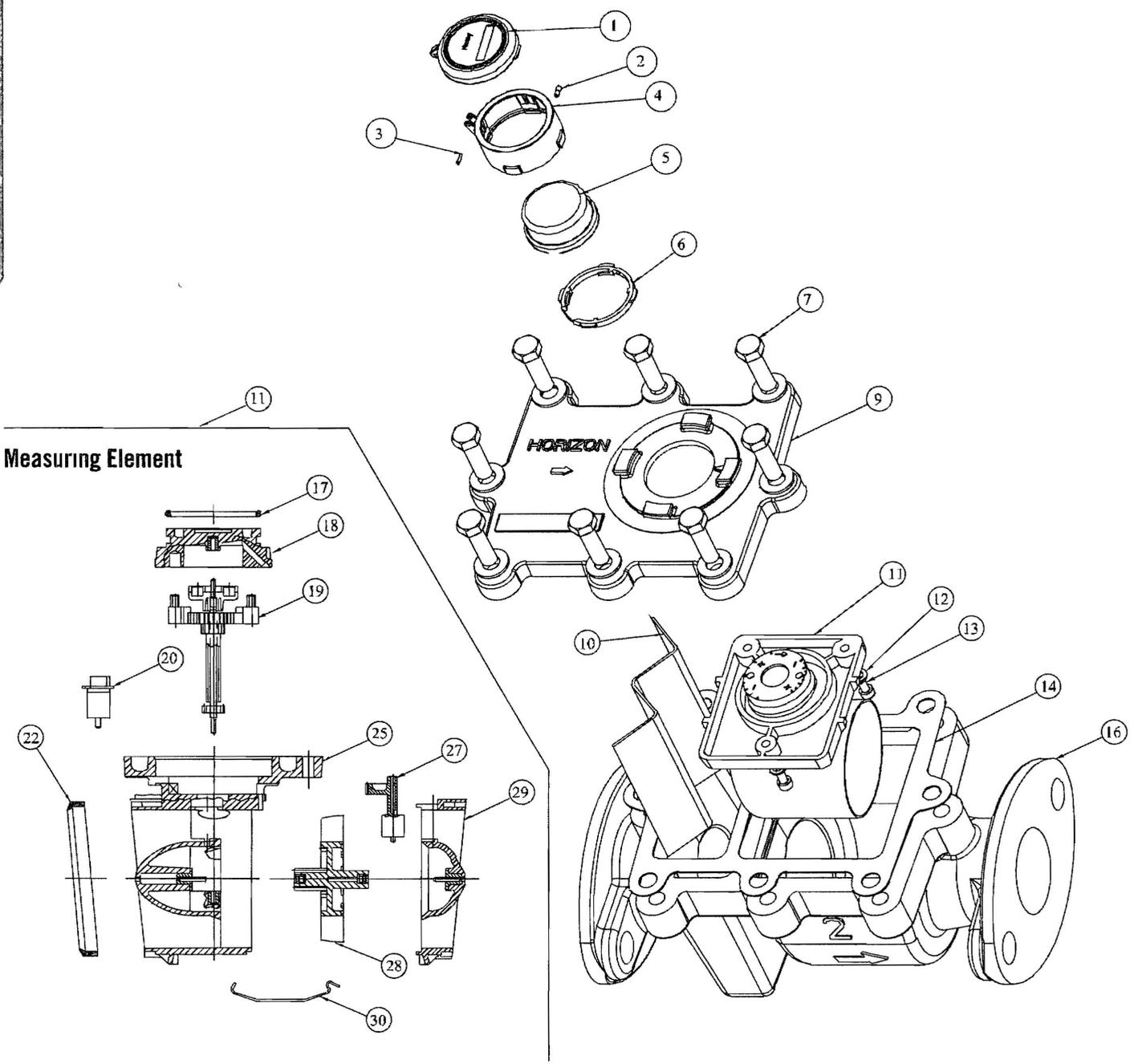
\*Performance curves are typical only and not a guarantee of performance

10" Horizon



\*Performance curves are typical only and not a guarantee of performance

HORIZON



# Model Horizon

**Mueller** SYSTEMS

Horizontal Turbine Meters Parts

Sizes 1-1/2" and 2"

Ref No	Description	1-1/2" Model	2" Model
1	Register Box Lid	(Plastic) 50381	50381
		(Brass) 50387	50387
2	Locking Pin	(Blue Color Plastic) A12658	A12658
		(Brass Color Plastic) A126581	A126581
3	Lid Pin	(Plastic) AS41122	AS41122
		(Brass Color) AS41123	AS41123
4	Register Housing Base	(Plastic) 50380	50380
		(Bronze) 50386	50386
5	Visual Register	(Gallon) D34141	D34151
		(Cubic Feet) D34142	D34152
	Translator Register*	(Gallon) D35671xxx	D35681xxx
		(Cubic Feet) D35672xxx	D35682xxx
Specify Electronic Reading Value 4, 5, or 6 Wheel			
5A	Spacer (not shown)	50382	50382
6	Register Housing Insert	C5770	C5770
7	Case Bolt	90065 (8)	90065 (8)
9	Top Case	D3401	D3401
10	Built-in Strainer	B8404	B8404
11	Complete Measuring Element	52600	52600
12	Measuring Element Washer	98155 (3)	98155 (3)
13	Measuring Element Screw	98476 (3)	98476 (3)
14	Case Gasket / O-Ring	52602	52602
15	Test Plug	59027	59009
16	Bottom Case	D3397	D3399
	Test Outlet / Spool with Plug	50783	50883

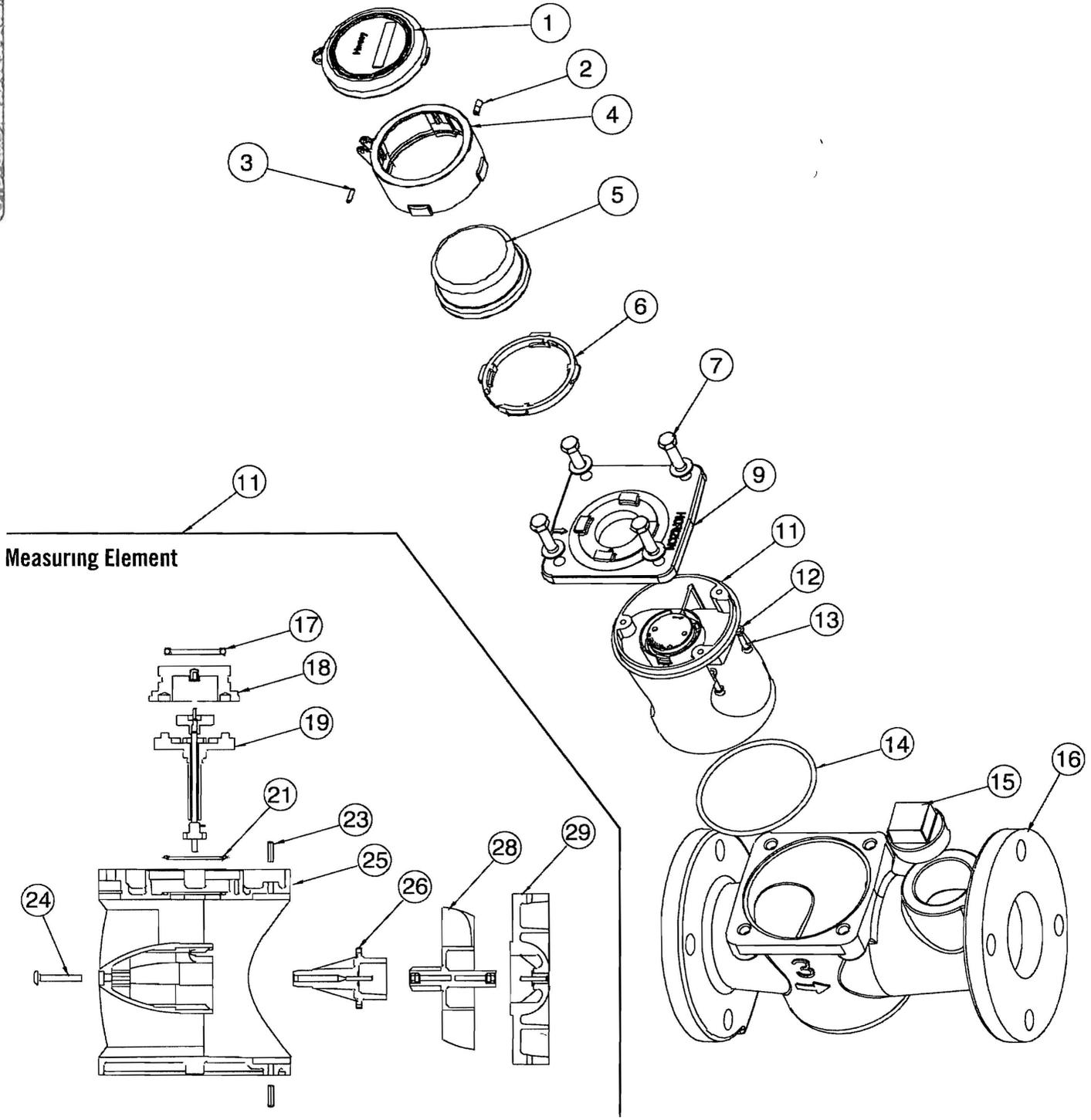
\*Call Mueller Systems Customer Service for appropriate Translator Register and AMR device part number

## Model Horizon Parts: Measuring Element

Ref No	Description	1-1/2" Model	2" Model
17	Seal Plate O-Ring	98333	98333
18	Seal Plate	52612	52612
19	Magnet Assembly	52613	52613
20	Inlet Adjusting Vane	52614	52614
21	Magnet Assembly O-Ring		
22	Inlet Hub Seal Ring	52616	52616
23	Hub Assembly Spiral Pin		
24	Inlet Bearing Assembly Screw		
25	Inlet Hub Assembly	52615	52615
26	Inlet Bearing Assembly		
27	Outlet Adjust Vane	52618	52618
28	Rotor Assembly	52617	52617
29	Outlet Hub Assembly	52619	52619
30	Hub Assembly Retaining Clip	52620 (3)	52620 (3)
31	Drop In Measuring Element (CF)	52610	52630
		(GAL) 52621	52640

Model Horizon

Model Horizon



# Model Horizon

**Mueller** SYSTEMS

Horizontal Turbine Meters Parts

Sizes 3", 4", 6", 8", 10"

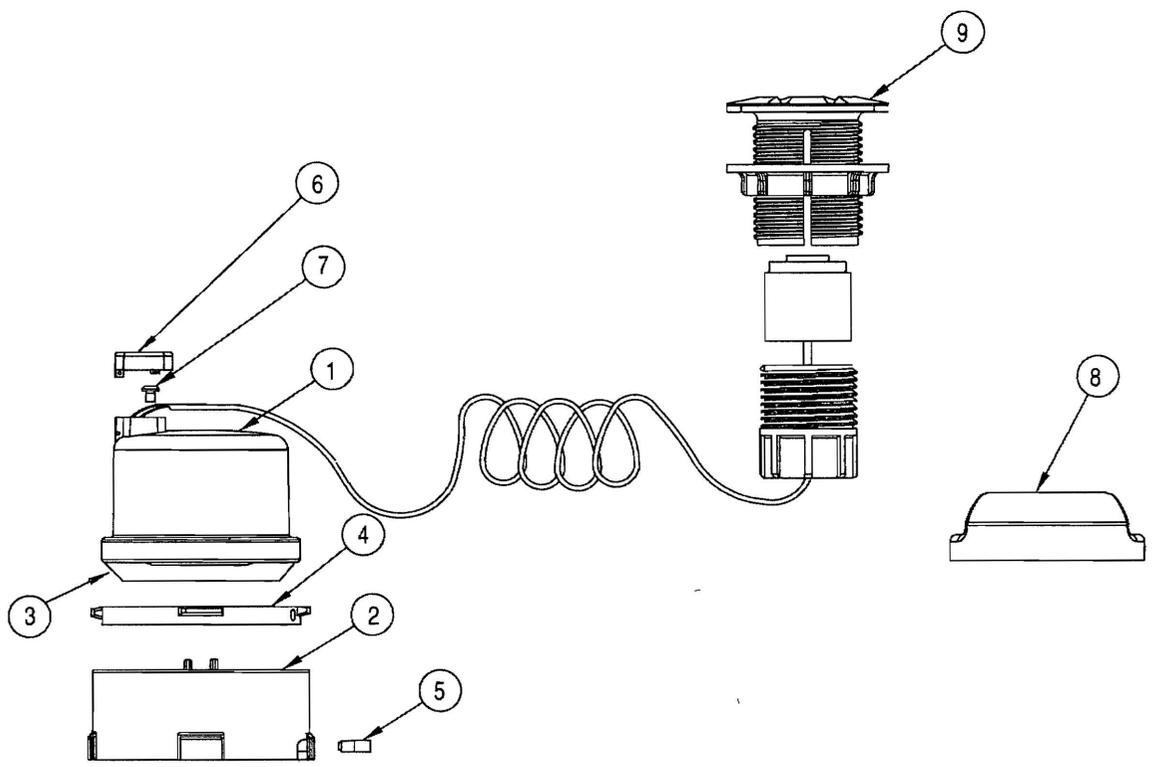
Ref No	Description	3" Model	4" Model	6" Model	8" Model	10" Model
1	Register Box Lid	(Plastic) 50381	50381	50381	50381	50381
		(Brass) 50387	50387	50387	50387	50387
2	Locking Pin	(Blue Color Plastic) A12658	A12658	A12658	A12658	A12658
		(Brass Color Plastic) A126581	A126581	A126581	A126581	A126581
3	Lid Pin	(Plastic) AS41122	AS41122	AS41122	AS41122	AS41122
		(Brass Color) AS41123	AS41123	AS41123	AS41123	AS41123
4	Register Housing Base	(Plastic) 50380	50380	50380	50380	50380
		(Bronze) 50386	50386	50386	50386	50386
5	Visual Register	(Gallon) D33901	D33911	D34161	D34171	D34181
		(Cubic Feet) D33902	D33912	D34162	D34172	D34182
		D35691xxx	D35701xxx	D35711xxx	D35721xxx	D35731xxx
		D35692xxx	D35702xxx	D35712xxx	D35722xxx	D35732xxx
5A	Spacer (not shown)	50382	50382	50382	50382	50382
6	Register Housing Insert	C5770	C5770	C5770	C5770	C5770
7	Case Bolt	90065 (8)	90065 (8)	90246 (8)	90246 (8)	90246 (8)
9	Top Case	D3389	D3389	D3407	D3407	D3407
10	Built-in Strainer					
11	Complete Measuring Element	54600	54600	56600	58600	59600
12	Measuring Element Washer	98155 (3)	98155 (3)	AS7561 (3)	AS7561 (3)	AS7561 (3)
13	Measuring Element Screw	98475 (3)	98475 (3)	98481 (3)	98481 (3)	98481 (3)
14	Case Gasket / O-Ring	54602	54602	98356	98356	98356
15	Test Plug	59010	59010	59010	59010	59010
16	Bottom Case	D3385	D3387	D3403	D3405	D3409
		Test Outlet / Spool with Plug				

\*Call Mueller Systems Customer Service for appropriate Translator Register and AMR device part number

## Model Horizon Parts: Measuring Element

Ref No	Description	3" Model	4" Model	6" Model	8" Model	10" Model
17	Seal Plate O-Ring	98333	98333	98333	98333	98333
18	Seal Plate	54612	54612	54612	54612	54612
19	Magnet Assembly	54613	54613	56613	58613	59613
20	Inlet Adjusting Vane					
21	Magnet Assembly O-Ring	98334	98334	98334	98334	98334
22	Inlet Hub Seal Ring					
23	Hub Assembly Spiral Pin	98375 (2)	98375 (2)	98375 (2)	98375 (2)	98375 (2)
24	Inlet Bearing Assembly Screw	99935	99935	99935	99935	99935
25	Inlet Hub Assembly	54615	54615	58615	58615	58615
26	Inlet Bearing Assembly	54621	54621	58621	58621	58621
27	Outlet Adjust Vane					
28	Rotor Assembly	54617	54617	58617	58617	59617
29	Outlet Hub Assembly	54619	54619	58619	58619	58619
30	Hub Assembly Retaining Clip					
31	Drop In Measuring Element	(CF) 54610	54630	56610	58610	59610
		(GAL) 54620	54640	56620	58620	59620

Model Horizon



Ref	Description	1-1/2" Horizon	2" Horizon	3" Horizon	3" HM	4" Horizon	6" Horizon	8" Horizon	10" Horizon
1	Translator Register Gallons* Cubic Feet* Specify Electronic Reading Value 4, 5, or 6 Wheel for 1-1/2" and 2" Translator Registers Only	D35671xxx D35672xxx	D35681xxx D35682xxx	D35691xxx D35692xxx	NA NA	D35701xxx D35702xxx	D35711xxx D35712xxx	D35721xxx D35722xxx	D35731xxx D35732xxx
2	Register Housing Base (Plastic)	50380	50380	50380	NA	50380	50380	50380	50380
3	Register Spacer	50382	50382	50382	NA	50382	50382	50382	50382
4	Register Housing Insert	C5770	C5770	C5770	NA	C5770	C5770	C5770	C5770
5	Register Locking Pin (Bronze Plastic)	A126581	A126581	A126581	NA	A126581	A126581	A126581	A126581
5	Register Locking Pin (Blue Color Plastic)	A12658	A12658	A12658	NA	A12658	A12658	A12658	A12658
6	Lens Terminal Cover	B8447	B8447	B8447	NA	B8447	B8447	B8447	B8447
7	Terminal Lug Screw	98197 (3)	98197 (3)	98197 (3)	NA	98197 (3)	98197 (3)	98197 (3)	98197 (3)
8	Wall Pad	T1234	T1234	T1234	NA	T1234	T1234	T1234	T1234
9	Pit Pad	T1240	T1240	T1240	NA	T1240	T1240	T1240	T1240
13	TrueRead (not shown)	C6551	C6551	C6551	NA	C6551	C6551	C6551	C6551
14	1,000' Spool of Wire	AS755	AS755	AS755	NA	AS755	AS755	AS755	AS755

\*Call Mueller Systems Customer Service for appropriate Translator Register and AMR device part number

**THERMAL INSULATION**

SECTION 07 21 00  
**RECEIVED**  
MAY 05 2011

**PART 1 GENERAL**

**BDS  
DOCUMENT SERVICES**

**1 1 SECTION INCLUDES**

- A Board insulation and integral vapor retarder, where occurs, at perimeter foundation wall and underside of floor slabs
- B Batt insulation for filling perimeter window and door shim spaces and crevices in exterior wall and roof
- C Vapor retarder sheet

**1 2 REFERENCE STANDARDS**

- A ASTM C 177 - Standard Test Method for Thermal Transmission Properties
- B ASTM C 612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation, 2004
- C ASTM C 665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing, 2006
- D ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials, 2008
- E ASTM E 136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C, 2004

**1 3 SUBMITTALS**

- A See Section 01 30 00 - Administrative Requirements, for submittal procedures
- B Product Data Provide data on product characteristics, performance criteria, and product limitations
- C LEED Submittals Complete LEED Checklist and Tracking Form, Section 01 33 00, and other data for the following LEED Credits Requirements and definitions are located in Section 01 35 15 and Section 01 60 00
  - 1 Credit MR 4 Recycled content for each product, post-consumer and post-industrial Product cost data
  - 2 Credit EQ 4 1 Manufacturers' product data for adhesives and sealants, including printed statement of VOC content
  - 3 Credit MR 5 List products that are extracted, harvested or recovered as well as manufactured within 500 straight-line miles of Project Site, or percent of regional material by weight Include address and distance of material source and product manufacture Product cost data
- D Manufacturer's Installation Instructions Include information on special environmental conditions required for installation and installation techniques
- E Manufacturer's Certificate Certify that products meet or exceed specified requirements

**PART 2 PRODUCTS**

**2 1 FIBER BOARD INSULATION MATERIALS**

- A Rigid Glass Fiber Board Insulation Rigid glass fiber, ASTM C 612, top surface coated with Foil-Scrim-Kraft vapor retarder
  - 1 Flame Spread Index 25 or less, when tested with facing in accordance with ASTM E 84
  - 2 Smoke Developed Index 50 or less, when tested with facing in accordance with ASTM E 84

SERA Architects Inc

PERMIT SET

NOTICE OF EXTENDED PAYMENT PROVISION The contract will allow the Owner to make payment within 25 days after the billing date or estimate is submitted

NOTICE OF ALTERNATE BILLING CYCLE The Contract will allow the Owner to require the submission of billings or estimates in billing cycles other than 30 day cycles Billings or estimates for the contract shall be submitted as follows One calendar month ending on the last day of the month

### THERMAL INSULATION

- 3 Board Edges Square
- 4 Thermal Conductivity (k factor) 0.22 per ASTM C 177, measured at 75°F (0.032 at 24°C) mean temperature
- 5 Combustibility Except for facing, if any, non-combustible when tested in accordance with ASTM E 136
- 6 Manufacturers
  - a Knauf Insulation [www.knaufinsulation.us](http://www.knaufinsulation.us)
  - b Johns Manville Corporation [www.jm.com](http://www.jm.com)
  - c Owens Corning Corp [www.owenscorning.com](http://www.owenscorning.com)
- 7 Substitutions See Section 01 60 00 - Product Requirements

#### 2 01 FOAM BOARD INSULATION MATERIALS

- B Extruded Polystyrene Board Insulation ASTM C 578, Type IV, Extruded polystyrene board with natural skin surfaces, with the following characteristics
- 1 Flame Spread Index 75 or less, when tested in accordance with ASTM E 84
  - 2 Smoke Developed Index 450 or less, when tested in accordance with ASTM E 84
  - 3 Board Size 48 x 96 inch
  - 4 Board Thickness 1-1/2 inches
  - 5 Board Edges Square
  - 6 Thermal Conductivity (k factor) at 25 degrees F 0.18
  - 7 Compressive Resistance 15 psi
  - 8 Manufacturers
    - a Basis of design Styrofoam Perimate, The Dow Chemical Company [www.dow.com](http://www.dow.com)
  - 9 Substitutions See Section 01 60 00 - Product Requirements

#### 2 3 BATT INSULATION MATERIALS

- A Where batt insulation is indicated, either glass fiber or mineral fiber batt insulation may be used, at Contractor's option except where Mineral Fiber Batt Insulation must be used for fire rated conditions
- B Glass Fiber Batt Insulation Flexible preformed batt or blanket, complying with ASTM C 665, friction fit
- 1 Flame Spread Index 25 or less, when tested in accordance with ASTM E 84
  - 2 Smoke Developed Index 450 or less, when tested in accordance with ASTM E 84
  - 3 Combustibility Non-combustible, when tested in accordance with ASTM E 136, except for facing, if any
  - 4 Facing Unfaced
  - 5 Manufacturers
    - a CertainTeed Corporation [www.certainteed.com](http://www.certainteed.com)
    - b Johns Manville Corporation [www.jm.com](http://www.jm.com)
    - c Knauf Insulation GmbH [www.knaufinsulation.us](http://www.knaufinsulation.us)
    - d Owens Corning Corp [www.owenscorning.com](http://www.owenscorning.com)
  - 6 Substitutions See Section 01 60 00 - Product Requirements
- C Mineral Fiber Batt Insulation Flexible preformed batt or blanket, complying with ASTM C 665, friction fit, unfaced flame spread index of 0 (zero) when tested in accordance with ASTM E 84 1 Smoke Developed Index 0 (zero), when tested in accordance with ASTM E 84

#### 2 4 Vapor Retarder

- A Sheet Vapor Retarder breathable nylon membrane
- 1 Basis of Design CertainTeed, MemBrain
    - a Thickness 2-mil
    - b Permeance 0.02 perm per ASTM E-96-A
    - c Combustibility Non-combustible when tested in accordance with ASTM E 136

**THERMAL INSULATION**

RECEIVED  
SECTION 07 21 00  
MAY 05 2011

BDS  
DOCUMENT SERVICES

- d Surface Burning Characteristics Class A per ASTM E 84
- e Puncture Resistance 125 beach units per ASTM C-1136
- B Sheet Vapor Retarder Reinforced laminated plastic, ASTM C-1136 Type II with the following characteristics
  - 1 Permeance 0.02 perm per ASTM E-96-A
  - 2 Combustibility Non-combustible when tested in accordance with ASTM E 136
  - 3 Surface Burning Characteristics Class A per ASTM E 84
  - 4 Puncture Resistance 125 beach units per ASTM C-1136
  - 5 Acceptable Product Lamtec WMP-10
- C Vapor Retarder Tape Tape Same membrane as vapor retarder sheet, self-adhering type, mesh reinforced, 2 inch wide
- D Adhesive-Sealant Dow Corning 795

**2.5 ACCESSORIES**

- A Insulation Fasteners Impaling clip of galvanized steel with washer retainer and clips, to be adhered to surface to receive insulation, length to suit insulation thickness and substrate, capable of securely and rigidly fastening insulation in place
- B Vapor Retarder Tape Tape Same material as board jacketing, self-adhering type, 2 inch wide minimum
- C Adhesive Type recommended by insulation manufacturer for application

**PART 3 EXECUTION**

**3.1 EXAMINATION**

- A Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation and adhesive
- B Verify substrate surfaces are flat, free of honeycomb, fins, irregularities, or materials or substances that may impede adhesive bond

**3.2 BOARD INSTALLATION UNDER CONCRETE SLABS**

- A Place fiber board insulation under elevated slabs where indicated
- B Cut and fit insulation tightly to protrusions or interruptions to the insulation plane All ends must be firmly butted and secured with appropriate butt-strip material
- C Place boards to maximize adhesive contact
- D Secure in place using adhesive and mechanical fasteners spaced per manufacturer's requirements
  - 1 Insulation shall be secured with speed washers and all joints, breaks and punctures sealed with appropriate pressure-sensitive foil tape

**3.01 BOARD INSTALLATION UNDER CONCRETE SLABS**

- A Place extruded polystyrene insulation under slabs on grade and/or foundation footings after base for slab has been compacted
- B Cut and fit insulation tightly to protrusions or interruptions to the insulation plane
- C Prevent insulation from being displaced or damaged while placing vapor retarder and placing slab

**THERMAL INSULATION**

**3 3 BATT INSTALLATION**

- A Install insulation in accordance with manufacturer's instructions
- B Install in exterior wall and roof spaces without gaps or voids Do not compress insulation
- C Trim insulation neatly to fit spaces Insulate miscellaneous gaps and voids
- D Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation

**3 4 Vapor Retarder INSTALLATION**

- A In exterior stud-framed walls, attach sheet vapor retarder to inside stud faces with adhesive Lap edges over stud faces, seal laps with tape Lap ends onto adjacent construction, seal ends with sealant
  - 1 Seal penetrations and openings in vapor retarder sheet to penetration or frame of opening with sealant or tape
- B At window and door openings install sheet vapor retarder between frame and adjacent wall seal material and attach with adhesive Seal laps with tape Position lap seal over firm bearing
  - 1 When edge of frame will be concealed, apply tape between frame and vapor retarder to form a continuous membrane integrating frame
- C Apply sealants and adhesives within recommended application temperature ranges Consult manufacturer temperature is out of this range

**3 4 PROTECTION**

- A Do not permit installed insulation to be damaged prior to its concealment

END OF SECTION

**VEGETATED PROTECTED ROOFING**

**PART 1 GENERAL**

**1 1 SECTION INCLUDES**

- A Fluid applied membrane roofing system to include
  - 1 Surface conditioner
  - 2 Reinforcing Fabric
  - 3 Flashing
  - 4 Root Barrier
  - 5 Drainage mat
  - 6 Thermal Board Insulation, flat and tapered
  - 7 Air layer
  - 8 Water Retention mat
  - 9 Filter Fabric
  - 10 Soil
  - 11 Extensive planting assembly
  - 12 Intensive planting assembly
  - 13 Precast Paver System
  - 14 Paver Pedestals
  - 15 Field quality control
  - 16 Electronic Field Vector Mapping Leak Testing and repairs

**1 2 SUBMITTALS**

- A See Section 01 30 00 - Administrative Requirements, for submittal procedures
- B Product Data Provide data for membrane
- C Shop Drawings Indicate special joint or termination conditions and conditions of interface with other materials
- D Manufacturer's Installation Instructions Indicate special procedures
- E Warranty Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer

**1 3 QUALITY ASSURANCE**

- A Perform Work in accordance with NRCA Roofing and Waterproofing Manual for waterproofing system
- B Membrane Manufacturer Qualifications Company specializing in waterproofing sheet membranes with minimum ten years experience
- C Installer Qualifications Company specializing in performing the work of this section with minimum 5 years experience installing this system and approved, authorized, and licensed by roofing system manufacturer to install manufacturer's product prior to date of this Bid, in writing from manufacturer, and who is eligible to receive standard roofing manufacturer's warranty
- D Field Quality Control
  - 1 Technical representative of materials manufacturer to periodically observe Work in progress during installation at a minimum of 3 times
  - 2 Representative, at a minimum, to be present to observe deck preparation, general installation procedures and final completion
  - 3 Notify Owner's Representative at least twenty-four (24) hours prior to any roofing Work
  - 4 Work not to proceed until such observations have been made and conditions have been approved in writing to Architect

**VEGETATED PROTECTED ROOFING**

- 5 Installer to provide personnel trained in application of materials and systems and maintain supervision
- E Leak Test Electronic Field Vector Mapping (EFVM) survey
  - 1 Coordinate EFVM testing with installation and curing of fluid applied membrane waterproofing
  - 2 Do not proceed with remainder of system installation until leaks, if any, have been detected and repaired
  - 3 If leaks are detected, perform repairs per manufacturer's recommendations and retest for leaks at contractor's expense
  - 4 Retest immediately following installation of final layer of system

**1 4 FIELD CONDITIONS**

- A Maintain ambient temperatures above 40 degrees F for 24 hours before and during application and until cured

**1 5 WARRANTY**

- A See Section 01 78 00 - Closeout Submittals, for additional warranty requirements
- B Upon completion of work, Contractor must supply Owner with a single-source warranty of U S origin direct from manufacturer
- C Contractor Warranty Contractor shall correct defective Work within a five year period after Date of Substantial Completion, remove and replace materials concealing waterproofing at no cost to Owner
- D Manufacturer Warranty
  - 1 Material Warranty Excludes labor
    - a Duration 20 years
  - 2 Watertightness Warranty Includes labor and materials
    - a Duration 20 years
  - 3 Thermal Warranties 80 percent retention of original thermal value, and remain on deck withstanding 70 mph wind gusts
    - a Duration 20 years
  - 4 Total System Warranties Covers components of roof assembly, including membrane, flashing, insulation, vegetated protected roof components, ballast, and pavers
    - a Includes removal and replacement of vegetated protected roof components, ballast, pavers, and soil (24 inches deep) when supplied by and installed per, Manufacturer's requirements
    - b Duration of membrane and flashing 20 years (watertight condition)
    - c Duration of Insulation 20 years (80 percent of regular thermal value,, remain on deck withstanding wind speeds not to exceed 70 mph
    - d Material Integrity of Vegetative Protected Roof Components 15 years
    - e Duration of Pavers 10 years (will not crack, split or deteriorate due to freeze-thaw)

**PART 2 PRODUCTS**

**2 1 MANUFACTURERS**

- A Rubberized Asphalt Roofing Manufacturers
  - 1 Basis of Design American Hydrotech, Inc, Product Monolithic Membrane 6125EV-FR (minimum 25% post consumer recycled content) [www.hydrotechusa.com](http://www.hydrotechusa.com)
  - 2 Acceptable Manufacturers pending conformance to basis of Design requirements
    - a Henry, 790-11 EV fluid applied reinforced waterproof membrane system
    - b Tremco, Permaquick 6100 fluid applied reinforced waterproof membrane system
    - c Substitutions See Section 01 60 00 - Product Requirements

**VEGETATED PROTECTED ROOFING**

**2.2 MATERIALS**

- A Surface Conditioner
  - 1 Surface Conditioner for Concrete Surfaces Meet ASTM D 41, compatible with membrane
    - a American Hydrotech, Inc, Product Hydroflex Monolithic Membrane
    - b Substitutions See Section 01 60 00 - Product Requirements
- B Roofing Membrane See Section 07 14 13 - Hot Fluid-Applied Rubberized Asphalt Waterproofing
- C Root Barrier
  - 1 Extensive Conditions Combination of fiberglass reinforced rubberized asphalt sheet and polyethylene root barrier
    - a American Hydrotech, Inc, Product Hydroflex Monolithic Membrane
    - b Substitutions See Section 01 60 00 - Product Requirements
- D Drainage Composite
  - 1 Composite drainage system consisting of a three-dimensional, crush-proof, drainage core and filter fabric
    - a American Hydrotech, Inc, Product Hydrodrain 300
    - b Substitutions See Section 01 60 00 - Product Requirements
- E Board Insulation See Section 07 21 00
- F Air Layer
  - 1 Air space over board insulation when moisture mat is required to be composed of a crush-proof core and non-woven filter fabric
    - a American Hydrotech, Inc, Product Hydrodrain AL
    - b Substitutions See Section 01 60 00 - Product Requirements
- G Moisture Retention Mat
  - 1 Non-woven, synthetic fiber mat capable of retaining additional moisture for potential use by vegetation
    - a American Hydrotech, Inc, Product Moisture Retention Mat SSM 45
    - b Substitutions See Section 01 60 00 - Product Requirements
- H Water Retention Panel
  - 1 Three-dimensional molded panels of recycled material with drainage channels top and bottom sides and water retention reservoirs top side
    - a American Hydrotech, Inc, Product Moisture Retention Mat SSM 45
      - 1) Extensive Conditions FD 40
      - 2) Intensive Conditions FD 60 filled with mineral soil
    - b Substitutions See Section 01 60 00 - Product Requirements
- I Filter Fabric
  - 1 Non-woven, polymeric, geotextile fabric
    - a American Hydrotech, Inc, Product System Filter SF
    - b Substitutions See Section 01 60 00 - Product Requirements
- J Plant Materials
  - 1 See drawings for planting areas
  - 2 Planting Mix Percentages
    - a 20 percent Sedum Acre Auria (Botanical) Biting Stonecrop (common)
    - b 20 percent Sedum Album (Botanical) White Stonecrop (common)
    - c 20 percent Sedum Divergens (Botanical) Cascade Stonecrop (common)
    - d 10 percent Sedum H Immergrunchen (Botanical) Hybrid Stonecrop (common)
    - e 10 percent Sedum Oreganum (Botanical) Oregon Stonecrop (common)
    - f 20 percent Sedum Sexangular (Botanical) Tasteless Stonecrop (common)

**VEGETATED PROTECTED ROOFING**

- 3 Verify quantities and varieties prior to ordering plant materials

**K Soil**

- 1 Custom growing media mix capable of supporting vigorous growth of specified vegetation complying with the following
- a Mix Design Extensive 4" depth Use extensive for all eco roof planting areas
  - b American Hydrotech, Inc, Product LiteTop 40
  - c Substitutions See Section 01 60 00 - Product Requirements
- 2 Expanded lightweight aggregate for use as fill material for water retention panel
- a American Hydrotech, Inc, Product LiteTop Lightweight Aggregate
    - 1) 3/8 inch - 2/4 inch expanded, lightweight aggregate
  - b Substitutions See Section 01 60 00 - Product Requirements

**L Wind Blanket**

- 1 Geojute, woven jute yarn erosion control blanket
- 2
- 3

**M Precast Paver System**

- 1 Interlock type pavers within 18 feet of perimeter edge
- 2 Paver Weight
- a Perimeter Edges Within 18 feet from building edges, 54 pounds per square foot
  - b Field 30 pounds per square foot
- 3 American Hydrotech, Inc, Product Terra Pavers-H, Type 3 Cotillion FDX2008-H, meeting following physical properties
- a Compressive Strength ASTM C 140, greater than 8,500 psi average minimum
  - b Flexural Strength ASTM C 293, greater than 1,100 psi average minimum
  - c Water Absorption ASTM C 140, not greater than 5 percent
  - d Freeze/Thaw ASTM C 67, less than 1 percent loss of dry weight after 50 cycles
  - e Center Load Minimum 1,750 pounds
  - f Color As selected from manufacturers standard color line
  - g Style To be selected
  - h Texture To be selected

**N Pedestals**

- 1 For support and spacing of pavers
- a Terra Tabs
    - 1) Location Roof perimeter areas
  - b Terra Tabs with Terr-Adjust
    - 1) Location Adjacent to vegetative protected roof

**2 3 RELATED MATERIALS**

- A Soils Special soils required to support landscaping proposed are to be designed/engineered by landscape architect/designer or other appropriate landscaping professional

**2 4 ACCESSORIES**

- A Sealant for Substrate Surfaces Type as specified in Section 07 90 05
- B Tack-Reducing Surfacing Type 1 Portland cement
- C Protection Board Rigid insulation specified in Section 07 21 00
- D Drainage Panel 1/4 inch thick formed plastic, hollowed sandwich type

**PART 3 EXECUTION**

**3 1 EXAMINATION**

**VEGETATED PROTECTED ROOFING**

- A Verify existing conditions before starting work
- B Verify substrate surfaces are free of frozen matter, dampness, loose particles, cracks, pits, projections, penetrations, or foreign matter detrimental to adhesion or application of waterproofing system
- C Verify that substrate surfaces are smooth, free of honeycomb or pitting, and not detrimental to full contact bond of waterproofing materials
- D Verify that items that penetrate surfaces to receive waterproofing are securely installed

**3 2 PREPARATION**

- A Protect adjacent surfaces not designated to receive waterproofing
- B Do not apply waterproofing to surfaces unacceptable to manufacturer
- C Seal cracks and joints with sealant using methods recommended by sealant manufacturer

**3 3 INSTALLATION**

- A Apply waterproofing in accordance with manufacturer's instructions to specified minimum thickness
- B Seal membrane and flashings to adjoining surfaces Install termination bar at all edges Install counterflashing over all exposed edges

**3 4 INSTALLATION - DRAINAGE PANEL AND PROTECTION BOARD**

- A Immediately after cooling, dust membrane with tack-reducing surfacing at rate of approximately 10 lbs/100 sq ft
- B After membrane has cooled, but before it becomes dusty, apply separation sheet Lap joints to ensure complete coverage
- C Place drainage panel directly against membrane, butt joints, place to encourage drainage downward Scribe and cut boards around projections, penetrations, and interruptions
- D Place protection board directly against drainage panel, butt joints Scribe and cut boards around projections, penetrations, and interruptions
- E Adhere protection board to substrate with compatible adhesive

**3 5 FIELD QUALITY CONTROL**

- A Owner will provide testing services in accordance with Section 01 40 00 - Quality Requirements Contractor shall provide temporary construction and materials for testing

**3 6 WATERPROOF MEMBRANE PROTECTION**

- A Do not permit traffic over unprotected or uncovered waterproofing membrane

**3 7 PLACING SOIL MIXTURE**

- A Prevent damage to waterproofing membrane during soil installation
- B Place soil mixture to a consistent depth that will yield a 4 inch soil depth when watered

**3 8 PLACING PLANT MATERIALS**

- A Prevent damage to waterproofing membrane during plant installation
- B Plant material mix of plugs planted triangularly on 12 inch centers and un-rooted cuttings distributed at a rate of ten pounds per 1,000 square feet evenly distributed across planting areas in specified percentages, with cuttings being planted within three hours of cuttings being taken

**VEGETATED PROTECTED ROOFING**

- C Thoroughly water all plantings within 3 hours of planting

**3 9 SOIL AND PLANT PROTECTION**

- A Place jute blanket over top[ of planted plugs and cuttings, covering soil completely and overlapping blanket edges 6 inches minimum Wet entire blanket surface thoroughly, do not stake blanket

END OF SECTION

**APPLIED FIREPROOFING**

**PART 1 GENERAL**

**1 1 SECTION INCLUDES**

- A Fireproofing of interior structural steel

**1 2 ADMINISTRATIVE REQUIREMENTS**

- A Coordinate with placement of electrical and other adjacent components
- B Preinstallation Meeting Convene one week before starting work of this section

**1 3 SUBMITTALS**

- A See Section 01 30 00 - Administrative Requirements, for submittals procedures
- B Product Data Provide data indicating product characteristics
- C Test Reports Reports from reputable independent testing agencies for proposed products, indicating compliance with specified criteria, conducted under conditions similar to those on project, for
  - 1 Bond Strength
  - 2 Bond Impact
  - 3 Compressive Strength
  - 4 Fire tests using substrate materials similar those on project
- D Manufacturer's Installation Instructions Indicate special procedures
- E Manufacturer's Certificate Certify that sprayed-on fireproofing products meet or exceed requirements of contract documents
- F Manufacturer's Field Reports Indicate environmental conditions under which fireproofing materials were installed
- G QUALITY ASSURANCE
  - 1 Manufacturer Qualifications Company specializing in manufacturing products specified in this section, with not less than three years of documented experience
  - 2 Installer Qualifications Company specializing in performing work of the type specified in this section, and
    - a Having minimum 5 years of documented experience
    - b Approved by manufacturer
- H MOCK-UP
  - 1 Construct mock-up, 100 square feet in size
  - 2 Conform to project requirements for fire ratings
  - 3 Locate where directed
  - 4 Examine installation within one hour of application to determine variances from specified requirements due to shrinkage, temperature, and humidity
  - 5 Where shrinkage and cracking are evident, adjust mixture and method of application as necessary Remove materials and re-construct mock-up
  - 6 Mock-up may remain as part of the Work
- I FIELD CONDITIONS
  - 1 Do not apply spray fireproofing when temperature of substrate material and surrounding air is below 40 degrees F
  - 2 Provide ventilation in areas to receive fireproofing during application and 24 hours afterward, to dry applied material
  - 3 Provide temporary enclosure to prevent spray from contaminating air
  - 4 Do not allow roof traffic during installation of roof fireproofing and drying period

## APPLIED FIREPROOFING

### J WARRANTY

- 1 See Section 01 78 00 - Closeout Submittals, for additional warranty requirements
- 2 Correct defective Work within a five year period after Date of Substantial Completion
  - a Include coverage for fireproofing to remain free from cracking, checking, dusting, flaking, spalling, separation, and blistering
  - b Reinstall or repair failures that occur within warranty period

## PART 2 PRODUCTS

### 2 1 MANUFACTURERS

- A Sprayed-On Fireproofing
  - 1 Carboline Company www.carboline.com
  - 2 Grace Construction Products www.na.graceconstruction.com
  - 3 Isolatak International Inc www.isolatak.com
  - 4 Southwest Fireproofing Products Company www.sfrm.com
  - 5 Substitutions See Section 01 60 00 - Product Requirements

### 2 2 FIREPROOFING ASSEMBLIES

- A Provide assemblies as indicated on the drawings

### 2 3 MATERIALS

### 2 4 ACCESSORIES

- A Primer Adhesive Of type recommended by fireproofing manufacturer
- B Water Clean, potable

## PART 3 EXECUTION

### 3 1 EXAMINATION

- A Verify that surfaces are ready to receive fireproofing
- B Verify that clips, hangers, supports, sleeves, and other items required to penetrate fireproofing are in place
- C Verify that ducts, piping, equipment, or other items that would interfere with application of fireproofing have not been installed
- D Verify that voids and cracks in substrate have been filled Verify that projections have been removed where fireproofing will be exposed to view as a finish material

### 3 2 PREPARATION

- A Perform tests as recommended by fireproofing manufacturer in situations where adhesion of fireproofing to substrate is in question
- B Remove incompatible materials that could affect bond by scraping, brushing, scrubbing, or sandblasting
- C Prepare substrates to receive fireproofing in strict accordance with instructions of fireproofing manufacturer
- D Protect surfaces not scheduled for fireproofing and equipment from damage by overspray, fall-out, and dusting
- E Close off and seal duct work in areas where fireproofing is being applied

### 3 3 APPLICATION

- A Apply primer adhesive in accordance with manufacturer's instructions

**APPLIED FIREPROOFING**

- B Apply fireproofing in sufficient thickness to achieve required ratings, with as many passes as necessary to cover with monolithic blanket of uniform density and texture

**3 4 FIELD QUALITY CONTROL**

- A Inspect the installed fireproofing after application and curing for integrity, prior to its concealment Ensure that actual thicknesses, densities, and bond strengths meet requirements for specified ratings
- B Re-inspect the installed fireproofing for integrity of fire protection, after installation of subsequent Work

**3 5 CLEANING**

- A Remove excess material, overspray, droppings, and debris
- B Remove fireproofing from materials and surfaces not required to be fireproofed

END OF SECTION

## FIRESTOPPING

### PART 1 GENERAL

#### 1 1 SECTION INCLUDES

- A Firestopping systems
- B Firestopping of all penetrations, perimeters and interruptions to fire rated assemblies, whether indicated on drawings or not, and other openings indicated

#### 1 2 SUBMITTALS

- A See Section 01 30 00 - Administrative Requirements, for submittal procedures
- B Schedule of Firestopping List each type of penetration
- C Product Data Provide data on product characteristics
- D LEED Report Submit VOC content documentation for all non-preformed materials
- E Manufacturer's Installation Instructions Indicate preparation and installation instructions
- F Manufacturer's Certificate Certify that products meet or exceed specified requirements
- G Qualification statements for installing mechanics

#### 1 3 QUALITY ASSURANCE

- A Fire Testing Provide firestopping assemblies of designs that provide the specified fire ratings when tested in accordance with methods indicated
  - 1 Listing in the current-year classification or certification books of UL, FM, or ITS (Warnock Hersey) will be considered as constituting an acceptable test report
- B Manufacturer Qualifications Company specializing in manufacturing the products specified in this section with minimum 10 years documented experience
  - 1 Provide products from a single manufacturer
- C Installer Qualifications Company specializing in performing the work of this section and
  - 1 Able to show at least 10 satisfactorily completed projects of comparable size and type
  - 2 Licensed or approved by authority having jurisdiction
  - 3 Approved by firestopping manufacturer
- D Installing Mechanic's Qualifications Trained by firestopping manufacturer and able to provide evidence thereof
- E Pre-Installation Conference Include AHJ inspector

#### 1 4 MOCK-UP

- A Install one firestopping assembly representative of each fire rating design required on project
  - 1 Where one design may be used for different penetrating items or in different wall constructions, install one assembly for each different combination
- B If accepted, mock-up will represent minimum standard for the Work
- C If accepted, mock-up may remain as part of the Work Remove and replace mock-ups not accepted

#### 1 5 FIELD CONDITIONS

- A Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation Maintain minimum temperature before, during, and for 3 days after installation of materials

### **FIRESTOPPING**

- B Do not install work until work area is dry and moisture will not be present for at least 3 days

## **PART 2 PRODUCTS**

### **2 1 MANUFACTURERS**

- A Provide products that comply with requirements from a single manufacturer, one of the following
- 1 Grace, W R & Co - Conn
  - 2 Hilti, Inc
  - 3 Johns Manville
  - 4 Specified Technologies Inc
  - 5 3M, Fire Protection Products Division

### **2 2 FIRESTOPPING SYSTEMS**

- A Firestopping Any material meeting requirements
- 1 Fire Ratings Use any system listed by UL or tested in accordance with ASTM E 814 that has F Rating equal to fire rating of penetrated assembly and minimum T Rating Equal to F Rating and that meets all other specified requirements

### **2 3 MATERIALS**

- A Firestopping Sealants Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No 1168
- B Provide paintable surface material where firestopping is exposed to view, excluding maintenance areas
- C Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories Type required for tested assembly design

## **PART 3 EXECUTION**

### **3 1 EXAMINATION**

- A Verify openings are ready to receive the work of this section

### **3 2 PREPARATION**

- A Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter that could adversely affect bond of firestopping material
- B Remove incompatible materials that could adversely affect bond

### **3 3 INSTALLATION**

- A Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings
- B Do not cover installed firestopping until inspected by authority having jurisdiction
- C Install labelling required by code

### **3 4 PROTECTION**

- A Clean adjacent surfaces of firestopping materials
- B Protect adjacent surfaces from damage by material installation

END OF SECTION

## ACCESS DOORS AND PANELS

### PART 1 GENERAL

#### 1 1 SECTION INCLUDES

- A Access door and frame units, fire-rated, in wall locations

#### 1 2 DESIGN REQUIREMENTS

- A Fabricate floor access assemblies to support live load of 100 lb/sq ft with deflection not to exceed 1/180 of span

#### 1 3 SUBMITTALS

- A See Section 01 30 00 - Administrative Requirements, for submittal procedures
- B Product Data Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work
- C Shop Drawings Schedule of sizes and locations Indicate exact position of all access door units
- D LEED Submittals Complete LEED Checklist and Tracking Form, Section 01 33 00, and other data for the following LEED Credits Requirements and definitions are located in Section 01 35 15 and Section 01 60 00
  - 1 Credit MR 4 Recycled content for each product, post-consumer and post-industrial Product cost data
  - 2 Credit MR 5 List products that are extracted, harvested or recovered as well as manufactured within 500 straight-line miles of Project Site, or percent of regional material by weight Include address and distance of material source and product manufacture Product cost data
  - 3 Credit EQ 4 1 Manufacturers' product data for adhesives and sealants, including printed statement of VOC content
  - 4 Credit EQ 4 2 Manufacturers' product data for paints and coatings, including printed statement of VOC content and list of prohibited chemical quantities
- E Manufacturer's Installation Instructions Indicate installation requirements
- F Project Record Documents Record actual locations of all access units

#### 1 4 REGULATORY REQUIREMENTS

- A Conform to applicable code for fire rated access doors
  - 1 Provide access doors of fire rating equivalent to the fire rated assembly in which they are to be installed
- B Provide products listed and labeled by UL or ITS (Warnock Hersey) as suitable for the purpose specified and indicated

#### 1 5 PROJECT CONDITIONS

- A Coordinate the work with other work requiring access doors

### PART 2 PRODUCTS

#### 2 1 MANUFACTURERS

- A Access Doors
- B Basis of Design
  - 1 Acudor Products Inc [www.acudor.com](http://www.acudor.com)

### ACCESS DOORS AND PANELS

- C Acceptable manufacturers pending conformance to basis of design requirements
  - 1 Karp Associates, Inc www.karpinc.com
  - 2 Milcor by Commercial Products Group of Hart & Cooley, Inc www.milcorinc.com
  - 3 Nystrom, Inc http://www.nystrom.com/
  - 4 Substitutions See Section 01 60 00 - Product Requirements

### 2.2 ACCESS DOORS AND PANELS

- A All Units Factory fabricated, fully assembled units with corner joints welded, filled, and ground flush, square and without rack or warp, coordinate requirements with assemblies units are to be installed in

### 2.3 ACCESS DOOR UNITS - WALLS AND CEILINGS

- A Door and Frame Units Formed steel
  - 1 Frames with Recessed Flanges for Taping flush to Drywall 0 058 inch steel
  - 2 Door panels 0 070 inch single thickness steel sheet
  - 3 Size Required for access and approved in Shop Drawing
  - 4 Hardware
    - a Hinge Concealed constant force closure spring type
    - b Lock Screw driver slot for quarter turn cam lock
  - 5 Galvanized, hot dipped finish
  - 6 Prime coat with baked on primer
- B Fire-Rated Door and Frame Units Formed steel and insulated
  - 1 Basis of Design Acudor FW-5050
  - 2 Frames and flanges 16 gage
  - 3 Doors 20 gage with closer spring
  - 4 Size Required for access and approved in Shop Drawing
  - 5 Hardware
    - a Hinge Concealed
    - b Lock Universal latch operated by key
  - 6 Primed and painted factory prime painted finish

### 2.4 ACCESS DOOR UNITS - FLOORS

- A Water Storage Tank Hatch and Frame Units Aluminum channel frame construction with 1 1/2" drainage coupling and integral anchor flange
  - 1 Basis of Design Acudor, FC-300 Channel Frame Door with 300 pounds per square foot loading
  - 2 Watertight design
  - 3 Hatch panel and frame designed for flush floor installation, with diamond plate door panel is equipped with a flush aluminum drop handle and an automatic hold open arm with red vinyl grip
  - 4 Size 3 x 3 feet
  - 5 Hardware Keyed quarter turn cam lock
  - 6 *2 hour fire rating*

### 2.5 FABRICATION

- A Weld, fill, and grind joints to ensure flush and square unit

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A Verify that rough openings are correctly sized and located

### 3.2 INSTALLATION

- A Install units in accordance with manufacturer's instructions

**ACCESS DOORS AND PANELS**

- B Install frames plumb and level in openings Secure rigidly in place
- C Position units to provide convenient access to the concealed work requiring access

END OF SECTION

**DOOR HARDWARE**

**PART 1 GENERAL**

**1 1 SECTION INCLUDES**

- A Hardware for hollow metal, wood & sound rated doors
- B Seals and door gaskets

**1 2 RELATED SECTIONS**

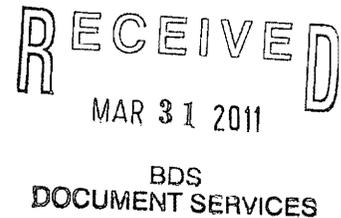
- A Section 06410 - Custom Casework Cabinet and miscellaneous hardware

**1 3 REFERENCES**

- A ANSI A117 1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People
- B NFPA 80 - Fire Doors and Windows
- C AWI - Architectural Woodwork Institute - Quality Standards
- D NFPA 101 - Code for Safety to Life from Fire in Buildings and Structures
- E NFPA 252 - Fire Tests of Door Assemblies
- F UL 305 - Panic Hardware
- G DHI - Recommended Locations for Builder's Hardware for Standard Steel Doors and Frames
- H IBC 2003, UL 10-C (Underwriters' Laboratories, Inc ) – Positive Pressure Testing Standards

**1 4 SUBMITTALS**

- A Submit under provisions of Section 01300, Submittals
- B Product Data Submit manufacturer's parts lists, templates and installation instructions indicating special procedures and perimeter conditions requiring special attention
- C Shop Drawings Indicate locations and mounting heights of each type of hardware and electrical characteristics and connection requirements
- D Samples
  - 1 To be furnished only upon request and prior to submittals of the last draft of Hardware Schedule and prior to delivery of hardware
  - 2 Submit one sample of each exposed hardware unit, finished as required, and tagged with full description for coordination with the schedule
  - 3 Sample will be reviewed by the Architect for design, color and texture only Compliance with other requirements is the exclusive responsibility of the Contractor
  - 4 Samples to be returned to the supplier Units which are acceptable and remain undamaged through submittal, review, and field comparison procedures may, after final check of operation, be used in the work
- E Hardware Schedule
  - 1 Submit five copies of the final hardware schedule in manner indicated below Coordinate hardware with doors, frames and related work to ensure proper size, thickness, hand, function and finish of hardware
  - 2 Hardware schedule is intended for coordination of the Work Review and acceptance by the Architect does not relieve the Contractor of his exclusive



**DOOR HARDWARE**

- responsibility to fulfill the requirements as shown and specified
- 3 Based on door hardware indicated, organize hardware schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Comply with the following format

**HW SET 01**

EACH TO HAVE

3	EA	HINGE	5BB1 4 5 X 4 5	652	IVE
1	EA	PASSAGE SET	ND10S RHO	626	SCH
1	EA	SURFACE CLOSER	1461 RA FC	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	CONVEX WALL STOP	WS407CVX	630	IVE
3	EA	SILENCER	SR64		GRAY IVE

- 4 Hardware schedules prepared in the horizontal manner are not acceptable. Doors listed for the same hardware, but of different sizes shall be listed under separate headings
- 5 Include separate key schedule, showing clearly how Owner's final instructions on keying of locks have been fulfilled

F Contract Closeout Documents

- 1 Submit under provisions of Section 01700, Contract Closeout
- 2 Project Record Documents Record actual locations of installed cylinders and their master key code
- 3 Maintenance Data and Installation Instructions Include templates and data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance for each type of hardware installed and templates

**1 5 TEMPLATE HARDWARE**

- A Install hardware to metal surfaces in accordance with template list

**1 6 QUALITY ASSURANCE**

- A Perform work in accordance with the following requirements
- 1 ANSI A117 1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People
- 2 NFPA 101
- 3 ANSI A117 1
- 4 NFPA 80
- 5 NFPA 252
- 6 2010 Oregon Structural Specialty Code (based on the 2009 IBC) and UL10C

**1 7 QUALIFICATIONS**

- A Manufacturer Obtain each type of hardware (latch and lock sets, hinges, closers, etc.) from a single manufacturer, although several may be indicated as offering products complying with requirements
- B Supplier A recognized architectural finish hardware supplier, with warehousing facilities, who has been furnishing hardware in the project's vicinity for a period of not less than 3 years, and who is, or who employs an experienced Architectural Hardware Consultant who is available, at reasonable times during the course of the work, for consultation about project's hardware requirements, to Owner, Architect and Contractor. Supplier shall maintain factory direct status with each manufacturer listed or approved. Consultant

**DOOR HARDWARE**

to be available to meet at jobsite or other requested location for keying meeting with Owner and contractor to establish keying schedule

**C Fire-Rated Openings**

- 1 Provide hardware for fire-rated openings in compliance with NFPA Standard No 80 and local building code requirements Provide only hardware which has been tested and listed by UL or FM for types and sizes of doors required and complies with requirements of door and door frame labels Where "S Labeled" positive pressure is required, provide hardware, including gasketing that meets IBC 2009 and UL10C testing standards
- 2 Where emergency exit devices are required on fire-rated doors (with supplementary marking on doors' UL or FM labels indicating "Fire Door to be Equipped with Fire Exit Hardware"), provide UL or FM label on exit devices indicating "Fire Exit Hardware"

**1 8 REGULATORY REQUIREMENTS**

- A Conform to applicable code for requirements applicable to fire-rated doors and frames
- B Products Requiring Electrical Connection Listed and classified by Underwriters' Laboratories, Inc , as suitable for the purpose specified and indicated

**1 9 DELIVERY, STORAGE, AND HANDLING**

- A Package hardware items individually, label and identify each package with door opening code to match hardware schedule Packaging of hardware is responsibility of supplier
- B Deliver keys to Owner by security shipment direct from hardware manufacturer or as directed by the Architect

**PART 2 PRODUCTS**

**2 1 ACCEPTABLE MANUFACTURERS**

- A Door hardware of equivalent size, type, finish, and function to that specified will be considered as an acceptable substitution except for products that have been standardized by the Owner Requested substitutions must be submitted seven (7) days prior to bid date

		<u>Specified Manufacturers</u>	<u>Acceptable Substitute Manufacturers</u>
1	Hinges	Ives (IVE)	Stanley (STA), Bommer (BOM)
2	Latch & Lock Sets	Schlage (SCH)	None
3	Cylinders	Schlage (SCH)	None
4	Unisex Indicator Locks	Schlage (SCH)	None
5	Key System	Schlage (SCH)	None
6	Surface Door Closers	LCN (LCN)	None
7	ADA Power Door Operators and Actuators	LCN	None
8	Exterior ADA Actuators	Reese (REE)	None
9	Exit Devices	Von Duprin (VON)	None
10	Power Supplies	Von Duprin (VON)	None
11	Electric Strikes	Von Duprin (VON)	None
12	Door Stops & Holders	Ives (IVE)	Trimco

**DOOR HARDWARE**

13	Overhead Stop & Holders	Glynn Johnson (GLY)	ABH
14	Kick plates	Ives (IVE)	Trimco, Tice
15	Thresholds, seals, weatherstrip		National Guard (NGP), Pemko

**2 2 HARDWARE FINISHES**

- A Match finish of every hardware unit of each door or opening, to the greatest extent possible, and except as otherwise indicated In general, match all items to the manufacturer's standard finish for the latch and lock set for color and texture
- B The Architect will decide whether hardware units match the accepted samples and match each other satisfactorily Units will be judged when held 2 feet apart at a 3-foot distance
- C Except where indicated otherwise, door hardware items shall be furnished in the following finishes
  - 1 Latches and Lock Sets 626
  - 2 Exit Devices 626
  - 3 Hinges 652 Interior, 630 Exterior
  - 4 Surface-Type Door Closers 689
  - 5 Miscellaneous Hardware 626 or 630
  - 6 Kick Plates & Armor Plates 630

**2 3 MATERIALS AND FABRICATION**

- A Hand of Door Drawings show direction of slide, swing or hand of each door leaf Furnish each item of hardware for proper installation and operation of door movement as shown
- B Furnish screws for installation, with each hardware item Provide Phillips flat-head screws except as otherwise indicated Finish screws to match the hardware finish, or if exposed in surfaces of other work, to match the finish of such other work as closely as possible, except as otherwise indicated
- C Provide concealed fasteners for hardware units which are exposed when the door is closed, except to the extent no standard manufactured units of the type specified are available with concealed fasteners Through bolting not allowed, unless screw or bolt heads are concealed
- D Provide fasteners which are compatible with both the unit fastened and the substrate, and which will not cause corrosion or deterioration of hardware, base material or fastener
- E Manufacturer's Name Plate Manufacturer's identification will be permitted on rim of lock cylinders only or on edges of door

**2 4 CLOSERS AND DOOR CONTROL DEVICES**

- A Size of Units
  - 1 Except as otherwise specifically indicated, comply with the manufacturer's recommendations for size of door control unit, depending upon size of door, exposure to weather and anticipated frequency of use
  - 2 Use maximum degree of opening permitted Provide forged main arm at all high use/abuse outswinging openings
  - 3 Pressure relief valves are not permitted
- B Access-Free Manual Closers Where manual closers are indicated for doors required to

## DOOR HARDWARE

be accessible to the physically handicapped, provide adjustable units complying with ANSI A117 1 provisions for door opening force and delayed action closing

- C Hydraulic closers to carry 10-year published manufacturer's warranty

### 2 5 DOOR TRIM UNITS

- A Fasteners Provide manufacturer's standard exposed fasteners for door trim units (edge trim, viewers, knockers, mail drops and similar units), either machine screws or self-tapping screw

### 2 7 KICKPLATES

- A Unless otherwise specified or required, metal kick plates and armor plates shall be 0 050-inch thick and beveled four edges
- B Unless otherwise specified or required, kick plates shall be 10 inches high, armor plates 34 inches high and the length shall be 2 inches less door width at single doors and 1 inch less door width of pairs of doors (except 2 inches less door width at inswing pairs with overlapping astragal)
- C Install plates with oval head full thread screws spaced uniformly at a maximum of 5 inches and to match the kick plate

### 2 6 HINGES/BUTTS

- A Templates Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units
- B Screws Furnish Phillips flat-head or machine screws for installation of units, except furnish Phillips flat-head or wood screws for installation of units into wood Finish screw heads to match surface of hinges or pivots
- C Width of butts shall be as required to clear projection trim In no case shall barrel of butts project more than required by conditions of installation
- D Butts shall be fully mortised
- E Hinge Pins Except as otherwise indicated, provide hinge pins as follows
  - 1 Steel Hinges Steel pins
  - 2 Non-ferrous Hinges Stainless steel pins
  - 3 Exterior Doors Non-removable pins
  - 4 Interior Doors Non-rising pins
  - 5 Tips Flat button and matching plug, finished to match leaves
- F Number of Hinges Provide number of hinges indicated but not less than 3 hinges per door leaf for doors 90 inches or less in height and one additional hinge for each 30 inches of additional height

### 2 7 LOCKS, LATCHES AND BOLTS

- A Strikes
  - 1 Provide manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set
  - 2 Provide dust-proof strikes for foot bolts, except where special threshold construction provides non-recessed strike for bolt
- B Lock Throw
  - 1 Provide 5/8-inch minimum throw of latch and deadbolt used on pairs of doors Comply with UL requirements for throw of bolts and latch bolts on rated fire

## DOOR HARDWARE

- openings
- 2 Provide 1/2-inch minimum throw on other latch and deadlock bolts

- C Use mortise locks with integral occupancy indicator at unisex toilet and bathing rooms. Unit must be equipped with ADA thumb turn and have simultaneous retraction of latch and deadbolt when inside lever is turned. Occupancy indicator and lockset assembly must be made by the same manufacturer and designed for use in this application.

### 2 8 EXIT DEVICES

- A Provide exit devices of the type and at the location indicated in the hardware groups
- B Exposed parts of exit devices shall be of the metal and finish specified herein
- C Furnish with provisions for concealed mounting. Through-bolts are not acceptable unless required by fire codes or fire tests
- D Exit devices to be used on Class A, B, C, D or E labeled doors shall be Underwriters' Laboratories listed devices. Dogging features shall be omitted and latches shall have 3/4-inch deadlocking latchbolt
- E Where cylinder operation is called for in the hardware groups, the cylinders shall be keyed with the other cylinders in the keying schedule
- F Exit device to include impact resistant, flush mounted end cap. End caps shall be of heavy-duty alloy construction and provide horizontal adjustment for flush alignment with device cover plate. No raised edges shall protrude from end cap
- G Furnish required filler plates and shim kits for flush mounting of exit devices on all doors
- H Exit devices must be furnished with hydraulic touchpad dampener for quiet operation of device
- I Supply plastic installation template to increase accuracy and decrease installation time
- J Exit devices to have 3-year manufacturer's published warranty

### 2 9 FLUSH BOLTS

- A Automatic Flush Bolts. Retractable without any manual actuation. Bolts shall have minimum throw of 3/4 inch and must have override feature to prevent damage to door or bolts. Bolts shall be UL-listed and be provided with dust-proof strikes with suitable floor attachment screws and bolts

### 2 10 COORDINATORS

- A Coordinators shall insure proper sequence of closing and shall have minimal projection of operating parts not to exceed 1 1/8 inches
- B Coordinators shall extend the entire width between the vertical stops
- C Coordinators shall have absorption mechanism to prevent damage to active door and coordinator if door is forced closed while it is being held open

### 2 11 SEALS/GASKETING

- A Except as otherwise indicated, provide continuous weather-stripping at each edge of every exterior door leaf. Provide type, sizes and profiles shown or scheduled. Provide non-corrosive fasteners as recommended by manufacturer for application indicated
- B Standard doors listed as 20 minute shall have gasketing listed for 20 minute or greater

## DOOR HARDWARE

- C Except as otherwise indicated, provide standard metal threshold unit of type, size and profile as shown or scheduled
- D For doors classified for "S labeled", positive pressure installation shall have special gasketing required under IBC 2009 and UL10C

### 2 12 DOOR STOPS AND HOLDERS

- A Provide door stops and holders of the type indicated by catalog number in the hardware groups
- B Door holders shall have the maximum degree of hold-open or stop as to prevent damage to other hardware, doors, or walls
- C Holders shall be of the proper size and operation to suit the individual door design and swing

### 2 13 DOOR SILENCERS

- A Provide rubber door silencers for all door frames at openings having single-acting doors in wood or pressed steel frames that are not gasketed
- B Provide three silencers for single doors and two or four silencers for each pair of doors

### 2 14 KEYING

- A Key System Schlage Everest D Supplier's Architectural Hardware Consultant to meet with Owner's representative to establish new key system
- B Keys shall be nickel silver
- C Keys shall be furnished as follows
  - 1 Change keys 2 per lockset
  - 2 Masterkeys 2 per masterkey set
  - 3 Grandmasterkeys as directed by Owner

### 2 18 ELECTRICAL CHARACTERISTICS AND COMPONENTS

- A Electrical Characteristics 24 volts, single phase, 60 Hz

## PART 3 EXECUTION

### 3 1 EXAMINATION

- A Verify that doors and frames are ready to receive work and dimensions are as indicated on shop drawings
- B Verify that electric power is available to power operated devices and of the correct characteristics

### 3 2 INSTALLATION

- A Install each hardware item in accordance with manufacturer's instructions and recommendations
- B Where cutting and fitting is necessary to install hardware, which is later to be painted or finished in another way, install each item completely and then remove and store in a secure place during the finish application After completion of the finishes, reinstall each item Do not install surface-mounted items until finishes have been completed

**DOOR HARDWARE**

- C Hardware Mounting Heights from Finished Floor to Centerline of Hardware Item Unless noted otherwise, comply with the following mounting heights
  - 1 Top Hinge Jamb manufacturer's standard, but not greater than 10 inches from head of frame to center line of hinge
  - 2 Bottom Hinge Jamb manufacturer's standard, but not greater than 12 1/2 inches from floor to centerline of hinge
  - 3 Center Hinge Equal distance between top and hinges
  - 4 Locksets 38 inches
  - 5 Dead Locks 48 inches
  - 6 Push Plates 42 inches from finish floor to center of plate Cut for cylinder/thumb turn where required
  - 7 Door Pulls 42 inches Cut for cylinder/thumb turn where required
  - 8 Exit devices Per manufacturer's templates
  - 9 Other hardware shall be installed as recommended by manufacturer

**3 3 FIELD QUALITY CONTROL**

- A Field inspection and testing will be performed under provisions of Section 01400, Quality Control
- B Architectural Hardware Consultant to inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions and as specified

**3 4 ADJUSTING AND CLEANING**

- A Adjust and check each operating item of new and existing hardware and each door, to ensure proper operation or function of every unit
- B Lubricate moving parts with type of lubrication recommended by manufacturer (silicone-type spray if no other recommended )
- C Replace units which cannot be adjusted and lubricated to operate freely and smoothly as intended for the application made
- D Where hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the Work during the week prior to acceptance or occupancy, and make a final check and adjustment of all hardware and doors Door control devices to be adjusted by hardware installer(s) to compensate for final operation of heating and ventilating equipment

**3 5 HARDWARE SETS**

- A Furnish the following hardware indicated on the Door Schedule, or as required to complete the facility

**HW SET 01**

DOOR NUMBER  
001            ~~010A~~

**EACH TO HAVE**

3	EA	HINGE	5PB1 4 5 X 4 5 NRP	652	IVE
1	EA	STOREROOM LOCK	ND80PD RHO	626	SCH
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP & HOLDER	FS495	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

**DOOR HARDWARE**

]

**HW SET 01A**

DOOR NUMBER

**005B**

EACH TO HAVE

<b>3</b>	<b>EA</b>	<b><u>HINGE</u></b>	<b><u>5BB1 4 5 X 4 5 NRP</u></b>	<b><u>652</u></b>	<b><u>IVE</u></b>
<b>3</b>	<b>EA</b>	<b><u>HINGE</u></b>	<b><u>5PB1 4.5 X 4.5 NRP</u></b>	<b><u>652</u></b>	<b><u>IVE</u></b>
1	EA	STOREROOM LOCK	ND80PD RHO	626	SCH
<b>1</b>	<b>EA</b>	<b><u>SURFACE CLOSER</u></b>	<b><u>1461 PA FC</u></b>	<b><u>689</u></b>	<b><u>LCN</u></b>
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
<del>4</del>	<del>EA</del>	<del>WALL STOP &amp; HOLDER</del>	<del>FS495</del>	<del>626</del>	<del>IVE</del>
<b>1</b>	<b>SET</b>	<b><u>SEALS</u></b>	<b><u>5050B (HEAD &amp; JAMBS)</u></b>	<b><u>BRN</u></b>	<b><u>NGP</u></b>
<b>3</b>	<b>EA</b>	<b><u>SILENCER</u></b>	<b><u>SR64</u></b>	<b><u>GRY</u></b>	<b><u>IVE</u></b>

**HW SET 02**

DOOR NUMBER

002A            002B

EACH TO HAVE

3	EA	HINGE	5BB1 4 5 X 4 5 NRP	652	IVE
1	EA	PANIC HARDWARE	22NL-OP	689	VON
1	EA	RIM CYLINDER	20-057	626	SCH
1	EA	ADA FLUSH PULL	1111C	630	TRI
1	EA	SURFACE CLOSER	1461 PA FC	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	CONVEX WALL STOP	WS407CVX	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

**HW SET 03**

DOOR NUMBER

**006**

EACH TO HAVE

3	EA	HINGE	5PB1 4 5 X 4 5 NRP	652	IVE
1	EA	STOREROOM LOCK	ND80PD RHO	626	SCH
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	CONVEX WALL STOP	WS407CVX	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

**HW SET 04**

DOOR NUMBER

**005A**

EACH TO HAVE

6	EA	HINGE	5PB1 4 5 X 4 5 NRP	652	IVE
---	----	-------	--------------------	-----	-----

**DOOR HARDWARE**

1	EA	STOREROOM LOCK	ND80PD RHO X 7/8" LIP STRIKE	626	SCH
4	<del>EA</del>	<del>ROLLER LATCH</del>	<del>RL32 (TOP MOUNT INACTIVE LEAF)</del>	<del>626</del>	<del>IVE</del>
1	EA	<u>COORDINATOR</u>	<u>COR X FL</u>	<u>628</u>	<u>IVE</u>
2	EA	<u>MOUNTING BRACKET</u>	<u>MB</u>	<u>689</u>	<u>IVE</u>
1	EA	ASTRAGAL	139SP X SNB	600	NGP
2	EA	<u>SURFACE CLOSER</u>	<u>1461 SCUSH FC X ST3410</u>	<u>689</u>	<u>LCN</u>
2	EA	KICK PLATE	8400 10" X 1" LDW	630	IVE
2	<del>EA</del>	<del>WALL STOP &amp; HOLDER</del>	<del>FS495</del>	<del>626</del>	<del>IVE</del>
1	SET	<u>SEALS</u>	<u>5050B (HEAD, JAMBS, &amp; ASTRAGAL)</u>	<u>BRN</u>	<u>NGP</u>
4	EA	<u>SILENCER</u>	<u>SR64</u>	<u>GRY</u>	<u>IVE</u>

NOTE COORDINATE DOOR UNDERCUT WITH FINISHED FLOOR TO INSURE BOTTOM FLUSH BOLT ENGAGES INTO STRIKE

**HW SET 05**

DOOR NUMBER  
**008**

EACH TO HAVE

3	EA	HINGE	5BB1 4 5 X 4 5 NRP	652	IVE
1	EA	STOREROOM LOCK	ND80PD RHO	626	SCH
1	EA	SURFACE CLOSER	1461 SCUSH FC	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	SET	SEALS	5050B (HEAD & JAMBS)	BRN	NGP

**HW SET 06**

DOOR NUMBER  
**010**

EACH TO HAVE

6	EA	HINGE	5PB1 4 5 X 4 5 NRP	652	IVE
2	EA	MANUAL FLUSH BOLT	FB458-12"	626	IVE
1	EA	STOREROOM LOCK	ND80PD RHO X 7/8" LIP STRIKE	626	SCH
1	EA	ASTRAGAL	139SP X SNB	600	NGP
1	EA	OVERHEAD HOLDER	450H (LHR LEAF)	652	GLY
2	EA	KICK PLATE	8400 10" X 1" LDW	630	IVE
1	EA	WALL STOP & HOLDER	WS40 (RHR LEAF)	626	IVE
4	EA	SILENCER	SR64	GRY	IVE

NOTE COORDINATE DOOR UNDERCUT WITH FINISHED FLOOR TO INSURE BOTTOM FLUSH BOLT ENGAGES INTO STRIKE

**HW SET 07**

DOOR NUMBER  
 021            112B            221            321            421

EACH TO HAVE

3	EA	HINGE	5BB1HW 4 5 X 4 5	652	IVE
1	EA	PASSAGE SET	ND10S RHO	626	SCH
1	EA	SURFACE CLOSER	1461 PA FC	689	LCN
1	EA	MAGNETIC HOLD-OPEN	SEM 1980	AL	LCN

**DOOR HARDWARE**

1 SET SEALS 5050B (HEAD & JAMBS) BRN NGP

NOTE COORDINATE FRAME/DOOR SIZE WITH PERIMETER ELEVATOR FRAME SOFFIT OF SINGLE RABBET FRAME PROFILE TO BE FLUSH WITH ELEVATOR CASED OPEN FRAME  
CONNECT WALL MAGNET TO FIRE ALARM

**HW SET 08**

DOOR NUMBER  
009

EACH TO HAVE

4	EA	PADLOCK	KS23F2300	606	SCH
3	EA	HINGE	5BB1 4 5 X 4 5 NRP	652	IVE
1	EA	STOREROOM LOCK	ND80PD RHO	626	SCH
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE

BALANCE OF HARDWARE BY CHAIN LINK  
GATE SUPPLIER

**HW SET 09**

DOOR NUMBER  
051 251 252 351 352 451  
452

EACH TO HAVE

3	EA	HINGE	5BB1HW 4 5 X 4 5	652	IVE
1	EA	FIRE EXIT HARDWARE	98L-BE-F 996L-BE-06	626	VON
1	EA	SURFACE CLOSER	1461 RA FC	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	CONVEX WALL STOP	WS401CVX (HEAVY DUTY)	626	IVE
1	SET	SEALS	5050B (HEAD & JAMBS)	BRN	NGP

**HW SET 10**

DOOR NUMBER  
052

EACH TO HAVE

3	EA	HINGE	5BB1HW 4 5 X 4 5	652	IVE
1	EA	FIRE EXIT HARDWARE	98NL-F	626	VON
1	EA	SURFACE CLOSER	1461 RA FC	689	LCN
1	EA	OVERHEAD STOP	100S-ADJ	630	GLY
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	SET	SEALS	5050B (HEAD & JAMBS)	BRN	NGP

**HW SET 11**

DOOR NUMBER  
101A

EACH TO HAVE

8	EA	HINGE	5BB1HW 5 X 4 5 NRP	630	IVE
2	EA	POWER TRANSFER	EPT-10	689	VON

**DOOR HARDWARE**

1	EA	MULLION	KR4954	689	VON
1	EA	PANIC HARDWARE	QEL-RX98EO	626	VON
1	EA	PANIC HARDWARE	QEL-RX98NL-OP	626	VON
1	EA	RIM CYLINDER	20-057	626	SCH
1	EA	MORTISE CYLINDER	26-091 (FOR MULLION)	626	SCH
2	EA	CUSTOM PULL	TO BE DETERMINED BY ARCHITECT		TBD
1	EA	SURFACE CLOSER	4111 SCUSH	689	LCN
1	EA	CUSH SHOE SUPPORT	4110-30	689	LCN
1	EA	BLADE STOP SPACER	4110-61	689	LCN
1	EA	AUTO OPERATOR	9531 RF (RHR LEAF)	628	LCN
1		HD ADA DOOR ACTUATOR	04960-412 (EXTERIOR)	BLK	REE
1	EA	ACTUATOR, WALL MOUNT	8310-855 (VESTIBULE)		LCN
1	EA	FLUSH MOUNT BOX	8310-867F (VESTIBULE)		LCN
2	EA	KICK PLATE	8400 10" X 1" LDW	630	IVE
1	EA	SECURITY FLOOR STOP	FS18L (RHR LEAF)	BLK	IVE
1	EA	DRIP CAP	16A (OMIT IF OPENING IS PROTECTED)	AL	NGP
2	EA	DOOR SWEEP	C627A	AL	NGP
1	EA	THRESHOLD	653 MS/LA	AL	NGP
2	EA	DOOR POSITION SWITCH	679-05 HM		SCE
1	EA	POWER SUPPLY	PS873-2Q	GRY	VON
1	EA	HANDICAP ACCESS SIGN	751	BLU	TRI

PROVIDE FACTORY POINT TO POINT WIRING  
 DIAGRAM  
 PROVIDE RISER DIAGRAMS  
 ACCESS CONTROL (WORK OF DIV 28)  
 WEATHERSTRIP BY DOOR/FRAME  
 MANUFACTURER

NOTE 120VAC TO POWER SUPPLY AND DOOR OPERATOR ACCESS CONTROLLED OPENING  
 ACCESS CONTROL CONTROLS WHEN EXTERIOR SIDE ADA PUSH BUTTON IS ACTIVE EXTERIOR  
 SIDE ADA PUSH BUTTON IS HEAVY DUTY CROSS WALK STYLE BUTTON WITH SEPARATE  
 HANDICAP ACCESS SIGNAGE (TRIMCO 751) VESTIBULE PUSH BUTTONS CONTROL INTERIOR  
 AND EXTERIOR DOORS INDEPENDENTLY

**HW SET 12**

DOOR NUMBER

101B

EACH TO HAVE

3	EA	HINGE	5BB1HW 4 5 X 4 5 NRP	652	IVE
<b>1</b>	<b>EA</b>	<b>FIRE EXIT HARDWARE</b>	<b>98L-F 996L-06</b>	<b>626</b>	<b>VON</b>
<del>4</del>	<del>EA</del>	<del>FIRE EXIT HARDWARE</del>	<del>98NL-F</del>	<del>626</del>	<del>VON</del>
1	EA	RIM CYLINDER	20-057	626	SCH
1	EA	ELECTRIC STRIKE	6111 FSE 24VDC	630	VON
1	EA	AUTO OPERATOR	9531 RF	628	LCN
1	EA	ACTUATOR, JAMB MOUNT	8310-818T (INTERIOR)		LCN
1	EA	JAMB BOX ONLY	8310-819F (INTERIOR)		LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	CONVEX WALL STOP	WS401CVX (HEAVY DUTY)	626	IVE
1	SET	SEALS	5050B (HEAD & JAMBS)	BRN	NGP

**DOOR HARDWARE**

- |   |    |   |     |
|---|----|---|-----|
| 1 | EA | DOOR POSITION SWITCH 679-05 HM                | SCE |
|   |    | PROVIDE FACTORY POINT TO POINT WIRING DIAGRAM |     |
|   |    | PROVIDE RISER DIAGRAMS                        |     |
|   |    | POWER SUPPLY (WORK OF DIV 28)                 |     |

**NOTE 120VAC TO DOOR OPERATOR CONNECT DOOR OPERATOR TO FIRE ALARM FIRE ALARM PREVENTS DOOR OPERATOR FROM FUNCTIONING**

**HW SET 13**

DOOR NUMBER  
 101C

EACH TO HAVE

- |   |     |                |                      |     |     |
|---|-----|----------------|----------------------|-----|-----|
| 3 | EA  | HINGE          | 5BB1 4 5 X 4 5 NRP   | 652 | IVE |
| 1 | EA  | CLASSROOM LOCK | ND70PD RHO           | 626 | SCH |
| 1 | EA  | SURFACE CLOSER | 1461 EDA FC          | 689 | LCN |
| 1 | EA  | KICK PLATE     | 8400 10" X 2" LDW    | 630 | IVE |
| 1 | EA  | FLOOR STOP     | FS444                | 626 | IVE |
| 1 | SET | SEALS          | 5050B (HEAD & JAMBS) | BRN | NGP |

**HW SET 14**

DOOR NUMBER  
 102A

EACH TO HAVE

- |   |    |   |                                    |     |     |
|---|----|---|------------------------------------|-----|-----|
| 4 | EA | HINGE                                   | 5BB1HW 5 X 4 5 NRP                 | 630 | IVE |
| 1 | EA | PANIC HARDWARE                          | 98EO                               | 626 | VON |
| 1 | EA | CUSTOM PULL                             | TO BE DETERMINED BY ARCHITECT      |     | TBD |
| 1 | EA | SURFACE CLOSER                          | 4111 EDA                           | 689 | LCN |
| 1 | EA | BLADE STOP SPACER                       | 4110-61                            | 689 | LCN |
| 1 | EA | CONVEX WALL STOP                        | WS401CVX (HEAVY DUTY)              | 626 | IVE |
| 1 | EA | DRIP CAP                                | 16A (OMIT IF OPENING IS PROTECTED) | AL  | NGP |
| 1 | EA | DOOR SWEEP                              | C627A                              | AL  | NGP |
| 1 | EA | THRESHOLD                               | 653 MS/LA                          | AL  | NGP |
| 1 | EA | DOOR POSITION SWITCH 679-05 HM          |                                    |     | SCE |
|   |    | WEATHERSTRIP BY DOOR/FRAME MANUFACTURER |                                    |     |     |

**HW SET 15**

DOOR NUMBER

~~102B~~      ~~102C~~      117      118A

EACH TO HAVE

- |   |    |  |     |
|---|----|--|-----|
| 1 | EA | DOOR POSITION SWITCH 674-OH              | SCE |
|   |    | BALANCE OF HARDWARE BY DOOR MANUFACTURER |     |

**HW SET 16**

**DOOR HARDWARE**

DOOR NUMBER  
 102D ~~102E~~

EACH TO HAVE

ALL HARDWARE BY DOOR MANUFACTURER

**HW SET 17**

DOOR NUMBER  
 103A

EACH TO HAVE

8	EA	HINGE	5BB1HW 5 X 4 5 NRP	630	IVE
<u>1</u>	<u>EA</u>	<u>MULLION</u>	<u>4854 X KR54-F</u>	<u>689</u>	<u>VON</u>
<u>4</u>	<u>EA</u>	<u>MULLION</u>	<u>KR4954</u>	<u>689</u>	<u>VON</u>
1	EA	PANIC HARDWARE	98EO	626	VON
1	EA	PANIC HARDWARE	98NL-OP	626	VON
1	EA	RIM CYLINDER	20-057	626	SCH
<u>1</u>	<u>EA</u>	<u>MORTISE CYLINDER</u>	<u>26-091 (FOR KEY SWITCH)</u>	<u>626</u>	<u>SCH</u>
1	EA	MORTISE CYLINDER	26-091 (FOR MULLION)	626	SCH
<u>1</u>	<u>EA</u>	<u>ELECTRIC STRIKE</u>	<u>6111 FSE 24VDC</u>	<u>630</u>	<u>VON</u>
2	EA	CUSTOM PULL	TO BE DETERMINED BY ARCHITECT		TBD
<u>1</u>	<u>EA</u>	<u>SURFACE CLOSER</u>	<u>4111 SCUSH</u>	<u>689</u>	<u>LCN</u>
<u>1</u>	<u>EA</u>	<u>AUTO OPERATOR</u>	<u>9542 (RHR LEAF)</u>	<u>628</u>	<u>LCN</u>
<u>1</u>	<u>EA</u>	<u>CUSH SHOE SUPPORT</u>	<u>4110-30</u>	<u>689</u>	<u>LCN</u>
<u>1</u>	<u>EA</u>	<u>BLADE STOP SPACER</u>	<u>4110-61</u>	<u>689</u>	<u>LCN</u>
<u>1</u>		<u>HD ADA DOOR</u>	<u>04960-412 (EXTERIOR)</u>	<u>BLK</u>	<u>REE</u>
		<u>ACTUATOR</u>			
<u>1</u>	<u>EA</u>	<u>ACTUATOR, JAMB</u>	<u>8310-818T (INTERIOR)</u>		<u>LCN</u>
		<u>MOUNT</u>			
<u>1</u>	<u>EA</u>	<u>JAMB BOX ONLY</u>	<u>8310-819F (INTERIOR)</u>		<u>LCN</u>
<u>1</u>	<u>EA</u>	<u>OVERHEAD STOP</u>	<u>100S-ADJ (RHR LEAF)</u>	<u>630</u>	<u>GLY</u>
2	EA	KICK PLATE	8400 10" X 1" LDW	630	IVE
1	EA	DRIP CAP	16A (OMIT IF OPENING IS PROTECTED)	AL	NGP
2	EA	DOOR SWEEP	C627A	AL	NGP
1	EA	THRESHOLD	653 MS/LA	AL	NGP
<u>1</u>	<u>EA</u>	<u>KEY SWITCH</u>	<u>653-04</u>	<u>630</u>	<u>SCE</u>
2	EA	DOOR POSITION SWITCH	679-05 HM		SCE
<u>1</u>	<u>EA</u>	<u>HANDICAP ACCESS SIGN</u>	<u>751</u>	<u>BLU</u>	<u>TRI</u>

**PROVIDE FACTORY POINT TO POINT WIRING  
 DIAGRAM  
 PROVIDE RISER DIAGRAMS  
 WEATHERSTRIP BY DOOR/FRAME  
 MANUFACTURER**

NOTE 120VAC TO DOOR OPERATOR KEY SWITCH CONTROLS WHEN EXTERIOR SIDE ADA  
 PUSH BUTTON IS ACTIVE EXTERIOR SIDE ADA PUSH BUTTON IS HEAVY DUTY CROSS WALK  
 STYLE BUTTON WITH SEPARATE HANDICAP ACCESS SIGNAGE (TRIMCO 751)

**HW SET 18**

DOOR NUMBER  
 103B

**DOOR HARDWARE**

EACH TO HAVE

4	EA	HINGE	5BB1HW 5 X 4 5 NRP	652	IVE
1	EA	FIRE EXIT HARDWARE	98L-BE-F 996L-BE-06	626	VON
1	EA	ELECTRIC STRIKE	6111 FSE 24VDC	630	VON
4	<del>EA</del>	<del>SURFACE CLOSER</del>	<del>4111-EDA</del>	<del>689</del>	<del>LCN</del>
1	EA	<u>AUTO OPERATOR</u>	<u>9542</u>	<u>628</u>	<u>LCN</u>
4	<del>EA</del>	<del>BLADE STOP SPAGER</del>	<del>4110-64</del>	<del>689</del>	<del>LCN</del>
2	EA	<u>ACTUATOR, JAMB MOUNT</u>	<u>8310-818T</u>		<u>LCN</u>
1	EA	<u>JAMB BOX ONLY</u>	<u>8310-819F</u>		<u>LCN</u>
1	EA	<u>KICK PLATE</u>	<u>8400 10" X 2" LDW</u>	<u>630</u>	<u>IVE</u>
1	EA	CONVEX WALL STOP	WS401CVX (HEAVY DUTY)	626	IVE

FRAME SEAL BY ALUMINUM FRAME SUPPLIER

**NOTE 120VAC TO DOOR OPERATOR CONNECT DOOR OPERATOR TO FIRE ALARM FIRE ALARM PREVENTS DOOR OPERATOR FROM FUNCTIONING**

**HW SET 19**

DOOR NUMBER

104            105            107            115

EACH TO HAVE

3	EA	HINGE	5BB1 4 5 X 4 5	652	IVE
1	EA	COIN TURN PRIV/IND	L9496P 06A 09-900 XL12-196 L583-363	626	SCH
1	EA	SURFACE CLOSER	1461T FC (PULL SIDE MOUNTED)	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	CONVEX WALL STOP	WS407CVX	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

**HW SET 20**

DOOR NUMBER

106

EACH TO HAVE

3	EA	HINGE	5PB1 4 5 X 4 5	652	IVE
1	EA	STOREROOM LOCK	ND80PD RHO	626	SCH
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	CONVEX WALL STOP	WS407CVX	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

**HW SET 20A**

DOOR NUMBER

312

EACH TO HAVE

<u>3</u>	<u>EA</u>	<u>HINGE</u>	<u>5BB1 4 5 X 4 5</u>	<u>652</u>	<u>IVE</u>
<u>3</u>	<u>EA</u>	<u>HINGE</u>	<u><del>5PB1 4 5 X 4 5</del></u>	<u>652</u>	<u>IVE</u>
1	EA	STOREROOM LOCK	ND80PD RHO	626	SCH
1	EA	<u>SURFACE CLOSER</u>	<u>1461 DEL RA FC</u>	<u>689</u>	<u>LCN</u>

**DOOR HARDWARE**

1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	CONVEX WALL STOP	WS407CVX	630	IVE
<u>1</u>	<u>SET</u>	<u>SEALS</u>	<u>5050B (HEAD &amp; JAMBS)</u>	<u>BRN</u>	<u>NGP</u>
<del>3</del>	<del>EA</del>	<del>SILENCER</del>	<del>SR64</del>	<del>GRY</del>	<del>IVE</del>

**HW SET 21**

DOOR NUMBER

109

EACH TO HAVE

3	EA	HINGE	5PB1 4 5 X 4 5	652	IVE
1	EA	CLASSROOM LOCK	ND70PD RHO	626	SCH
1	EA	OVERHEAD STOP	450S	652	GLY
1	EA	ARMOR PLATE	8400 34" X 2" LDW	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

**HW SET 22**

DOOR NUMBER

111

EACH TO HAVE

3	EA	HINGE	5PB1 4 5 X 4 5	652	IVE
1	EA	OFFICE LOCK	ND50PD RHO	626	SCH
1	EA	CONCAVE WALL STOP	WS407CCV	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

**HW SET 23**

DOOR NUMBER

112A

EACH TO HAVE

3	EA	HINGE	5BB1HW 4 5 X 4 5 NRP	652	IVE
1	EA	PANIC HARDWARE	98NL	626	VON
1	EA	RIM CYLINDER	20-057	626	SCH
1	EA	SURFACE CLOSER	1461 EDA FC	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	CONVEX WALL STOP	WS401CVX (HEAVY DUTY)	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

**HW SET 24**

DOOR NUMBER

~~412C~~

EACH TO HAVE

3	EA	HINGE	5BB1HW 4 5 X 4 5	630	IVE
1	EA	CLASSROOM LOCK	ND70PD RHO	626	SCH
1	EA	SURFACE CLOSER	1461 RA FC	689	LCN
<del>4</del>	<del>EA</del>	<del>KICK PLATE</del>	<del>8400 10" X 2" LDW</del>	<del>630</del>	<del>IVE</del>
<u>1</u>	<u>EA</u>	<u>ARMOR PLATE</u>	<u>8400 34" X 2" LDW</u>	<u>630</u>	<u>IVE</u>
<u>1</u>	<u>EA</u>	<u>WALL STOP &amp; HOLDER</u>	<u>WS40</u>	<u>626</u>	<u>IVE</u>

**DOOR HARDWARE**

4	<del>EA CONVEX WALL STOP</del>	<del>WS407CVX</del>	<del>630</del>	<del>IVE</del>
1	SET SEALS	5050B (HEAD & JAMBS)	BRN	NGP
1	<u>EA DOOR SWEEP</u>	<u>600A</u>	<u>AL</u>	<u>NGP</u>
1	<u>EA THRESHOLD</u>	<u>425HD MS/LA</u>	<u>AL</u>	<u>NGP</u>
4	<del>EA THRESHOLD</del>	<del>896S MS/LA</del>	<del>AL</del>	<del>NGP</del>
1	EA DOOR POSITION SWITCH	679-05 HM		SCE

**HW SET 25**

DOOR NUMBER  
113

EACH TO HAVE

3	EA HINGE	5PB1 4 5 X 4 5	652	IVE
1	EA CLASSROOM LOCK	ND70PD RHO	626	SCH
1	EA OVERHEAD STOP	450S	652	GLY
3	EA SILENCER	SR64	GRY	IVE

**HW SET 26**

DOOR NUMBER  
114

EACH TO HAVE

3	EA HINGE	5PB1 4 5 X 4 5	652	IVE
1	EA STOREROOM LOCK	ND80PD RHO	626	SCH
1	EA CONVEX WALL STOP	WS407CVX	630	IVE
3	EA SILENCER	SR64	GRY	IVE

**HW SET 27**

DOOR NUMBER  
116

EACH TO HAVE

3	EA HINGE	5PB1 4 5 X 4 5	652	IVE
1	EA PASSAGE SET	ND10S RHO	626	SCH
1	EA FLOOR STOP	FS444	626	IVE
3	EA SILENCER	SR64	GRY	IVE

**HW SET 28**

DOOR NUMBER  
118B

EACH TO HAVE

3	EA HINGE	5BB1HW 4 5 X 4 5	630	IVE
1	EA PASSAGE SET	ND10S RHO	626	SCH
1	EA SURFACE CLOSER	1461 EDA FC	689	LCN
1	EA ARMOR PLATE	8400 34" X 2" LDW	630	IVE
1	EA WALL STOP & HOLDER	FS495	626	IVE
1	SET SEALS	5050B (HEAD & JAMBS)	BRN	NGP
1	EA DOOR SWEEP	600A	AL	NGP
1	EA THRESHOLD	425HD MS/LA	AL	NGP
1	EA DOOR POSITION SWITCH	679-05 HM		SCE

**DOOR HARDWARE**

**HW SET 29**

DOOR NUMBER  
119A

EACH TO HAVE

3	EA	HINGE	5BB1 4 5 X 4 5	652	IVE
1	EA	PUSH PLATE	8200 4" X 16"	630	IVE
1	EA	PULL PLATE	8302-6 4" X 16" TYPE G MOUNTING	630	IVE
1	EA	SURFACE CLOSER	1461 DEL RA FC	689	LCN
1	EA	ARMOR PLATE	8400 34" X 2" LDW	630	IVE
1	EA	MOP PLATE	8400 8" X 1" LDW	630	IVE
1	EA	CONVEX WALL STOP	WS401CVX (HEAVY DUTY)	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

**HW SET 30**

DOOR NUMBER  
119B

EACH TO HAVE

3	EA	HINGE	5BB1 4 5 X 4 5 NRP	652	IVE
1	EA	CLASSROOM LOCK	ND70PD RHO	626	SCH
1	EA	SURFACE CLOSER	1461 EDA FC	689	LCN
1	EA	ARMOR PLATE	8400 34" X 2" LDW	630	IVE
1	EA	WALL STOP & HOLDER	FS495	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

**HW SET 31**

DOOR NUMBER  
151

EACH TO HAVE

3	EA	HINGE	5BB1HW 4 5 X 4 5 NRP	652	IVE
1	EA	FIRE EXIT HARDWARE	98EO-F	626	VON
1	EA	SURFACE CLOSER	1461 EDA FC	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	CONVEX WALL STOP	WS401CVX (HEAVY DUTY)	626	IVE
1	SET	SEALS	5050B (HEAD & JAMBS)	BRN	NGP

**HW SET 32**

DOOR NUMBER  
152

EACH TO HAVE

3	EA	HINGE	5BB1HW 4 5 X 4 5 NRP	652	IVE
<b>1</b>	<b>EA</b>	<b><u>FIRE EXIT HARDWARE</u></b>	<b><u>98L-F 996L-06</u></b>	<b><u>626</u></b>	<b><u>VON</u></b>

**DOOR HARDWARE**

4	<del>EA</del>	<del>FIRE EXIT HARDWARE</del>	<del>98NL-F</del>	<del>626</del>	<del>VON</del>
1	EA	RIM CYLINDER	20-057	626	SCH
4	<del>EA</del>	<del>ELECTRIC STRIKE</del>	<del>6111-FSE-24VDC</del>	<del>630</del>	<del>VON</del>
1	EA	SURFACE CLOSER	1461 EDA FC	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	FLOOR STOP	FS444	626	IVE
1	SET	SEALS	5050B (HEAD & JAMBS)	BRN	NGP
4	<del>EA</del>	<del>DOOR POSITION SWITCH</del>	<del>679-05 HM</del>		<del>SCE</del>
			<del>ACCESS CONTROL (WORK OF DIV 28)</del>		
			<del>POWER SUPPLY (WORK OF DIV 28)</del>		

**HW SET 33**

DOOR NUMBER

202A            302            402

EACH TO HAVE

3	EA	HINGE	5BB1 4 5 X 4 5	652	IVE
1	<del>EA</del>	<del>PASSAGE SET</del>	<del>ND10S RHO</del>	<del>626</del>	<del>SCH</del>
4	<del>EA</del>	<del>PUSH PLATE</del>	<del>8200-4" X 16"</del>	<del>630</del>	<del>IVE</del>
4	<del>EA</del>	<del>PULL PLATE</del>	<del>8302-6 4" X 16" TYPE G MOUNTING</del>	<del>630</del>	<del>IVE</del>
1	EA	SURFACE CLOSER	1461 DEL RA FC	689	LCN
1	<del>EA</del>	<del>ARMOR PLATE</del>	<del>8400 34" X 2" LDW X UL LABEL</del>	<del>630</del>	<del>IVE</del>
1	EA	CONVEX WALL STOP	WS407CVX	630	IVE
1	SET	SOUND SEALS	137NA (HEAD & JAMBS)	AL	NGP

**HW SET 34**

DOOR NUMBER

202B

EACH TO HAVE

3	EA	HINGE	5BB1 4 5 X 4 5 NRP	630	IVE
1	EA	CLASSROOM LOCK	ND70PD RHO	626	SCH
1	EA	SURFACE CLOSER	4011T	689	LCN
4	<del>EA</del>	<del>OVERHEAD STOP</del>	<del>100S-ADJ</del>	<del>630</del>	<del>GLY</del>
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	<del>EA</del>	<del>CONVEX WALL STOP</del>	<del>WS407CVX</del>	<del>630</del>	<del>IVE</del>
1	SET	SEALS	5050B (HEAD & JAMBS)	BRN	NGP
1	EA	DRIP CAP	16A (OMIT IF OPENING IS PROTECTED)	AL	NGP
1	EA	DR BTM RAIN DRIP	17	AL	NGP
1	EA	THRESHOLD	896S MS/LA	AL	NGP
1	EA	DOOR POSITION SWITCH	679-05 HM		SCE

**WEATHERSTRIP BY DOOR/FRAME  
 MANUFACTURER**

NOTE LOCK SIDE ON INSIDE FREE EGRESS INTO BUILDING AT ALL TIMES

**HW SET 35**

DOOR NUMBER

208            308            408

EACH TO HAVE

3	EA	HINGE	5BB1 4 5 X 4 5	652	IVE
---	----	-------	----------------	-----	-----

**DOOR HARDWARE**

1	EA	STOREROOM LOCK	ND80PD RHO	626	SCH
1	EA	SURFACE CLOSER	1461 DEL RA FC	689	LCN
<b>1</b>	<b>EA</b>	<b>ARMOR PLATE</b>	<b>8400 34" X 2" LDW X UL LABEL</b>	<b>630</b>	<b>IVE</b>
1	EA	CONVEX WALL STOP	WS407CVX	630	IVE
<b>1</b>	<b>SET</b>	<b>SEALS</b>	<b>5050B (HEAD &amp; JAMBS)</b>	<b>BRN</b>	<b>NGP</b>
<b>3</b>	<b>EA</b>	<b>SILENCER</b>	<b>SR64</b>	<b>GRY</b>	<b>IVE</b>

**HW SET 36**

DOOR NUMBER  
 310A

EACH TO HAVE

<b>1</b>	<b>EA</b>	<b>HINGE</b>	<b>5BB1 4 5 X 4 5 NRP</b>	<b>652</b>	<b>IVE</b>
<b>3</b>	<b>EA</b>	<b>HINGE</b>	<b>5PB1 4 5 X 4 5</b>	<b>652</b>	<b>IVE</b>
1	EA	CLASSROOM LOCK	ND70PD RHO	626	SCH
<b>1</b>	<b>EA</b>	<b>SURFACE CLOSER</b>	<b>1461 EDA FC</b>	<b>689</b>	<b>LCN</b>
<b>1</b>	<b>EA</b>	<b>KICK PLATE</b>	<b>8400 10" X 2" LDW</b>	<b>630</b>	<b>IVE</b>
1	EA	CONVEX WALL STOP	WS407CVX	630	IVE
<b>1</b>	<b>SET</b>	<b>SEALS</b>	<b>5050B (HEAD &amp; JAMBS)</b>	<b>BRN</b>	<b>NGP</b>
<b>3</b>	<b>EA</b>	<b>SILENCER</b>	<b>SR64</b>	<b>GRY</b>	<b>IVE</b>

**HW SET 37**

DOOR NUMBER  
 210B                      310B                      410B

EACH TO HAVE

3	EA	HINGE	5BB1 4 5 X 4 5	630	IVE
1	EA	CLASSROOM LOCK	ND70PD RHO	626	SCH
1	EA	SURFACE CLOSER	4111 CUSH	689	LCN
1	EA	CUSH SHOE SUPPORT	4110-30	689	LCN
1	EA	BLADE STOP SPACER	4110-61	689	LCN
1	EA	DRIP CAP	16A (OMIT IF OPENING IS PROTECTED)	AL	NGP
1	EA	DOOR SWEEP	C627A	AL	NGP
1	EA	THRESHOLD	653 MS/LA	AL	NGP
1	EA	DOOR POSITION SWITCH	679-05 WD		SCE
			WEATHERSTRIP BY DOOR/FRAME MANUFACTURER		

NOTE LOCK SIDE ON INSIDE FREE EGRESS INTO BUILDING AT ALL TIMES

**HW SET 38**

DOOR NUMBER  
 210C                      310C                      410C

EACH TO HAVE

3	EA	HINGE	5BB1 4 5 X 4 5	630	IVE
1	EA	CLASSROOM LOCK	ND70PD RHO	626	SCH
1	EA	SURFACE CLOSER	4111 SCUSH	689	LCN
1	EA	CUSH SHOE SUPPORT	4110-30	689	LCN
1	EA	BLADE STOP SPACER	4110-61	689	LCN
1	EA	DRIP CAP	16A (OMIT IF OPENING IS PROTECTED)	AL	NGP
1	EA	DOOR SWEEP	C627A	AL	NGP
1	EA	THRESHOLD	653 MS/LA	AL	NGP

**DOOR HARDWARE**

1 EA DOOR POSITION SWITCH 679-05 WD SCE  
 WEATHERSTRIP BY DOOR/FRAME  
 MANUFACTURER  
 NOTE LOCK SIDE ON INSIDE FREE EGRESS INTO BUILDING AT ALL TIMES

**HW SET 39**

DOOR NUMBER

213 313 413

EACH TO HAVE

3	EA	HINGE	5BB1 4 5 X 4 5	652	IVE
4	EA	DEADBOLT	B663P	626	SCH
1	EA	<u>CLASSROOM LOCK</u>	<u>ND70PD RHO</u>	626	SCH
4	EA	<u>PUSH PLATE</u>	<u>8200 4" X 16" CFC</u>	630	IVE
4	EA	<u>PULL PLATE</u>	<u>8302 6 4" X 16" GTC TYPE G MOUNTING</u>	630	IVE
1	EA	SURFACE CLOSER	1461T FC (PULL SIDE MOUNTED)	689	LCN
1	EA	OVERHEAD STOP	900S	652	GLY
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	SET	<u>SEALS</u>	<u>5050B (HEAD &amp; JAMBS)</u>	BRN	NGP
3	EA	<u>SILENCER</u>	<u>SR64</u>	GRY	IVE

~~NOTE DEADLOCK USED WHEN RESTROOM NEEDS TO BE SECURED FOR SERVICE.  
 THUMBTURN CANNOT PROJECT DEADBOLT, ONLY RETRACT IT.~~

**HW SET 40**

DOOR NUMBER

309

EACH TO HAVE

3	EA	HINGE	5BB1 4 5 X 4 5	652	IVE
<del>3</del>	<del>EA</del>	<del>HINGE</del>	<del>5PB1 4 5 X 4 5</del>	<del>652</del>	<del>IVE</del>
1	EA	OFFICE LOCK	ND50PD RHO	626	SCH
1	EA	<u>SURFACE CLOSER</u>	<u>146T FC (PULL SIDE MOUNTED)</u>	689	LCN
1	EA	OVERHEAD STOP	450S	652	GLY
1	EA	<u>KICK PLATE</u>	<u>8400 10" X 2" LDW</u>	630	IVE
1	SET	<u>SEALS</u>	<u>5050B (HEAD &amp; JAMBS)</u>	BRN	NGP
3	EA	<u>SILENCER</u>	<u>SR64</u>	GRY	IVE

**HW SET 41**

DOOR NUMBER

210A 222 410A

EACH TO HAVE

3	EA	HINGE	5BB1 4 5 X 4 5	652	IVE
<del>3</del>	<del>EA</del>	<del>HINGE</del>	<del>5PB1 4 5 X 4 5</del>	<del>652</del>	<del>IVE</del>
1	EA	PASSAGE SET	ND10S RHO	626	SCH
1	EA	<u>SURFACE CLOSER</u>	<u>1461 EDA FC</u>	689	LCN
1	EA	<u>KICK PLATE</u>	<u>8400 10" X 2" LDW</u>	630	IVE
1	EA	CONVEX WALL STOP	WS407CVX	630	IVE
1	SET	<u>SEALS</u>	<u>5050B (HEAD &amp; JAMBS)</u>	BRN	NGP

**DOOR HARDWARE**

**3 EA SILENCER SR64 GRY IVE**

**HW SET R-1**

DOOR NUMBER  
A1

EACH TO HAVE

3	EA	HINGE	5BB1 4 5 X 4 5	652	IVE
1	EA	CLASSROOM LOCK	ND70PD RHO	626	SCH
1	EA	SURFACE CLOSER	1461T FC (PULL SIDE MOUNTED)	689	LCN
1	EA	OVERHEAD STOP	450S	652	GLY
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	SET	SEALS	5050B (HEAD & JAMBS)	BRN	NGP

**HW SET R-2**

DOOR NUMBER  
A1-ADA

EACH TO HAVE

3	EA	HINGE	5BB1 4 5 X 4 5	652	IVE
1	EA	CLASSROOM LOCK	ND70PD RHO	626	SCH
1	EA	SURFACE CLOSER	1461T FC (PULL SIDE MOUNTED)	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	CONVEX WALL STOP	WS407CVX	630	IVE
1	SET	SEALS	5050B (HEAD & JAMBS)	BRN	NGP

NOTE SIX ADA ACCESSIBLE UNITS 2 EACH AT 2ND, 3RD, AND 4TH FLOORS

**HW SET R-3**

DOOR NUMBER  
A2

EACH TO HAVE

3	EA	HINGE	5BB1 4 5 X 4 5	652	IVE
1	EA	STOREROOM LOCK	ND80PD RHO	626	SCH
1	EA	SURFACE CLOSER	1461T FC (PULL SIDE MOUNTED)	689	LCN
1	EA	OVERHEAD STOP	450S	652	GLY
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	SET	SEALS	5050B (HEAD & JAMBS)	BRN	NGP

**HW SET R-4**

DOOR NUMBER  
B1

EACH TO HAVE

2	EA	BUTTON STOP	WS404CVX	626	IVE
---	----	-------------	----------	-----	-----

**DOOR HARDWARE**

**ALL HARDWARE BY DOOR MANUFACTURER**  
~~**BALANCE OF HARDWARE SUPPLIED BY**~~  
~~**OWNER**~~

NOTE CLOSET DOORS SUPPLIED BY OWNER

**HW SET R-5**

DOOR NUMBER  
C1

EACH TO HAVE

3	EA	HINGE	5PB1 4 5 X 4 5	652	IVE
1	EA	PRIVACY SET	ND40S RHO	626	SCH
1	EA	CONVEX WALL STOP	WS407CVX	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

END OF SECTION

## GLAZING

### PART 1 GENERAL

#### 1 1 SECTION INCLUDES

- A Glass
- B Glazing compounds and accessories

#### 1 2 DEFINITIONS

- A ASHRAE NFRC 2001 Terms and abbreviations
  - 1 U-Value = U-Factor, winter
  - 2 VTL = Visible Light Transmittance
  - 3 SHGC = Solar Heat Gain Coefficient
  - 4 STC, Sound Transmission Class, STC, when tested per ASTM E 90

#### 1 3 PERFORMANCE REQUIREMENTS

- A Provide glass and glazing materials for continuity of building enclosure vapor retarder and air barrier
  - 1 In conjunction with vapor retarder and joint sealer materials described in other sections
  - 2 To maintain a continuous air barrier and vapor retarder throughout the glazed assembly from glass pane to heel bead of glazing sealant
- B Select type and thickness of exterior glass to withstand dead loads and wind loads acting normal to plane of glass at design pressures calculated in accordance with Building code
  - 1 Use the procedure specified in ASTM E 1300 to determine glass type and thickness
  - 2 Limit glass deflection to 1/200 or flexure limit of glass, whichever is less, with full recovery of glazing materials
  - 3 Thicknesses listed are minimum

#### 1 4 SUBMITTALS

- A See Section 01 30 00 - Administrative Requirements, for submittal procedures
- B Product Data on Glass Types Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements
- C Product Data on Glazing Compounds Provide chemical, functional, and environmental characteristics, limitations, special application requirements Identify available colors
- D Glazing Schedule List glass types and thicknesses for each size opening and location Use same designations indicated on Drawings
  - 1 Design Data When required by AHJ, Section 01 33 16
- E Samples
  - 1 Glass, Two 12 by 12 inches in size of glass and insulated glass units showing coloration and design
  - 2 Sealant, One 8 inch long bead of glazing sealant in selected color
- F LEED Submittals Complete LEED Checklist and Tracking Form, Section 01 33 00, and other data for the following LEED Credits Requirements and definitions are located in Section 01 35 15 and Section 01 60 00
  - 1 Credit MR 4 Recycled content for each product, post-consumer and post-industrial Product cost data
  - 2 Credit MR 5 List products that are extracted, harvested or recovered as well as manufactured within 500 straight-line miles of Project Site, or percent of regional material by weight Include address and distance of material source and product manufacture Product cost data

**GLAZING**

- 3 Credit EQ 4 1 Manufacturers' product data for adhesives and sealants, including printed statement of VOC content
- G Certificates Certify that products meet or exceed specified requirements
  - 1 Testing reports for acoustical performance
  - 2 Testing reports for non-standard or special products
- H Manufacturer's Certificate and Qualifications Certify that insulating glass unit meets or exceeds specified requirements
- I Installer's Qualifications
- J Sample Warranties

**1 5 QUALITY ASSURANCE**

- A Perform Work in accordance with GANA Glazing Manual and FGMA Sealant Manual for glazing installation methods
- B Safety Glazing Labeling Where safety glazing labeling is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies
- C Insulating-Glass Certification Program Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC
- D Source Limitations for Glass Obtain ultraclear float glass tinted float glass coated float glass laminated glass and insulating glass from single source from single manufacturer for each glass type
- E IGU Fabricator Certified by glass coating manufacturer for products specified
- F Installer Qualifications Company specializing in performing the work of this section with minimum 10 years documented experience
  - 1 A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program

**1 6 MOCK-UP**

- A See Section 01 43 39 - Mockups for mockup requirements
- B See Section 01 40 00 - Quality Requirements, for additional mock-up requirements
- C Provide mockup of Aluminum Clad Wood Window systems including glass and air barrier and vapor retarder seal
- D Locate where directed
- E Mockup may remain as part of the Work

**1 7 PRE-INSTALLATION MEETING**

- A Convene one week before starting work of this section

**1 8 FIELD CONDITIONS**

- A Do not install glazing when ambient temperature is less than 50 degrees F
- B Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds

**1 9 WARRANTY**

**GLAZING**

- A See Section 01 78 00 - Closeout Submittals, for additional warranty requirements
- B Sealed Insulating Glass Units Provide a ten (10) year warranty to include coverage for seal failure, interpane dusting or misting, including replacement of failed units
- C Laminated Glass Provide a five (5) year warranty to include coverage for delamination, including replacement of failed units

**PART 2 PRODUCTS**

**2 1 GLASS MATERIALS**

- A Requirements
  - 1 Provide Heat Strengthened and Tempered treatment for glass at all locations required by code
  - 2 Heat-Treated Float Glass ASTM C 1048, Type I, Quality-Q3, of class, kind and condition indicated, horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed
  - 3 Laminated Glass Comply with ASTM C 1172 and 16 CFR 1201, Category II Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation
  - 4 Exposed Edges of Glass Ground and polished
- B Glass Manufacturers
  - 1 Guardian Industries Corp [www.sunguardglass.com](http://www.sunguardglass.com)
  - 2 Pilkington North America Inc [www.pilkington.com](http://www.pilkington.com)
  - 3 PPG Industries, Inc [www.ppg.com](http://www.ppg.com)
  - 4 Substitutions Refer to Section 01 60 00 - Product Requirements
- C Float Glass All glazing is to be float glass unless otherwise indicated
  - 1 Annealed ASTM C 1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select)
  - 2 Heat Strengthened and Tempered ASTM C 1048, Heat Strengthened (HS) and Fully Tempered (FT), Coated and Uncoated Glass where required
    - a Provide this treatment for glass at all locations required by code
  - 3 Tinted Types Color and performance characteristics as indicated
  - 4 Thicknesses As indicated, for exterior glazing comply with specified requirements for wind load design regardless of specified thickness
- D Laminated Glass Float glass laminated in accordance with ASTM C 1172
  - 1 Plastic Interlayer 0.060 inch thick, minimum
  - 2 Where fully tempered is specified or required, provide glass that has been tempered by the tong-less horizontal method
  - 3 Manufacturers
    - a Cardinal Glass Industries [www.cardinalcorp.com](http://www.cardinalcorp.com)
    - b Hartung Glass Industries/Lami Glass Division, [www.hartung-glass.com](http://www.hartung-glass.com)
    - c Northwestern Industries, [www.nwglass.com](http://www.nwglass.com)
    - d Oldcastle Glass, [www.oldcastlebe.com](http://www.oldcastlebe.com)
    - e Vitrum Industries, [www.vitrumindustries.com](http://www.vitrumindustries.com)
    - f Viracon, Apogee Enterprises, Inc [www.viracon.com](http://www.viracon.com)
    - g Substitutions Refer to Section 01 60 00 - Product Requirements
- E Entry Door Glass Clear glass with vacuum deposition coating, tempered per ASTM C 1048, Kind FT, Quality Q3
  - 1 Thickness 8 mm
  - 2 Coating on outboard surface
  - 3 Product Guardian DiamondGuard SRG
- F Coated Glass Type 1, with the following characteristics (measurements for a two pane IGU)

**GLAZING**

- 1 Visible light transmittance 64%
- 2 Solar Heat Gain Coefficient, SHGC 0.27
- 3 U-Value 0.29
- 4 Fading Transmission, TDW 0.43
- 5 Basis of Design Cardinal Glass Industries, LoE-366
  - a Other listed manufacturers and substitutions will be considered provided the overall performance is within the specified range(s) and the overall appearance is not significantly different from that of the specified product
- G Coated Glass Type 2, with the following characteristics (measurements for a two pane IGU)
  - 1 Visible Light Transmittance 60 to 72 percent
  - 2 Solar Light Transmittance 38 to 37 percent
  - 3 Solar Heat Gain Coefficient 0.27 to 0.41
  - 4 U-Value 0.29
  - 5 Fading Transmission, TDW 0.43
  - 6 Manufacturers
    - a Guardian SunGuard SN 54
    - b PPG Solarban 70XL
    - c Viracon VNE 1-63
    - d Other listed manufacturers and substitutions will be considered provided the overall performance is within the specified range(s) and the overall appearance is not significantly different from that of the specified product
- H
- I Obscure Glass Heat-treated clear float glass, Condition C, with ceramic enamel applied by silk-screened process
  - 1 Comply with Specification No 95-1-31 in GANA's Tempering Division's "Engineering Standards Manual" and with other requirements specified
  - 2 Coating Color and Pattern Translucent white, continuous over vision surface
  - 3 Basis of Design Product Milgard "EtchMatte" or comparable product subject to compliance with requirements

**2.2 SEALED INSULATING GLASS UNITS**

- A Manufacturers Certified by glass coating Manufacturer
  - 1 Any of the manufacturers listed for glass
  - 2 Current member of The Insulating Glass Certification Council (IGCC)
  - 3 Substitutions Refer to Section 01 60 00 - Product Requirements
- B Requirements
  - 1 Comply with ASTM E 774 and E 773, Class CBA
  - 2 Durability Certified by an independent testing agency to comply with ASTM E 2190
  - 3 Edge Spacers Aluminum, bent and soldered corners
  - 4 Edge Seal Glass to elastomer with supplementary silicone sealant
  - 5 Place low E coating on No 2 surface within the unit
  - 6 Purge interpane space with dry hermetic air
  - 7 Total unit thickness of 1 inch, unless noted otherwise
  - 8 Outer pane of clear Low-E glass, inner pane of clear glass
  - 9 Total unit thickness of 1 inch
- C Type CIG-1 - Sealed Clear Insulating Glass Units Vision glazing
  - 1 Factory installed in residential window units See Section 08 52 13
- D Type CIG-2 - Sealed Clear Insulating Glass Units Vision glazing
  - 1 Factory installed in storefront window units See Section 08 52 13

### GLAZING

- E Type OIG - Sealed Obscuring Insulating Glass Units Vision glazing
  - 1 Factory installed in storefront window units See Section 08 52 13
- F Type IGU-1 - Sealed Clear Insulating Glass Units Double pane with double edge seal vision glazing for skylights
  - 1 Outer pane of Coated Glass Type 1, inner pane of Laminated Glass
  - 2 Coating on No 2 surface within the unit

### 2 3 FIRE-PROTECTION-RATED GLAZING

- A Requirements
  - 1 Listed and labeled by a testing agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 252 for door assemblies and NFPA 257 for window assemblies

### 2 4 INTERIOR GLAZING ASSEMBLIES

- A Safety Glass Clear, fully tempered with horizontal tempering
  - 1 Comply with ASTM C 1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select) and ASTM C 1048
  - 2 Comply with 16 CFR 1201 test requirements for Category II
  - 3 6 mm minimum thick
  - 4 Provide this type of glazing in the locations required by code

### 2 5 GLAZING ACCESSORIES

- A Setting Blocks Neoprene, 80 to 90 Shore A durometer hardness, ASTM C 864 Option I Length of 0 1 inch for each square foot of glazing or minimum 4 inch x width of glazing rabbet space minus 1/16 inch x height to suit glazing method and pane weight and area
- B Spacer Shims Neoprene, 50 to 60 Shore A durometer hardness, ASTM C 864 Option I Minimum 3 inch long x one half the height of the glazing stop x thickness to suit application, self adhesive on one face
- C Glazing Tape Preformed butyl compound with integral resilient tube spacing device, 10 to 15 Shore A durometer hardness, coiled on release paper, black color

## PART 3 EXECUTION

### 3 1 EXAMINATION

- A Verify that openings for glazing are correctly sized and within tolerance
- B Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing

### 3 2 PREPARATION

- A Clean contact surfaces with solvent and wipe dry
- B Prime surfaces scheduled to receive sealant
- C Install sealants in accordance with ASTM C 1193 and FGMA Sealant Manual
- D Install sealant in accordance with manufacturer's instructions

### 3 3 INSTALLATION - INTERIOR DRY METHOD (TAPE AND TAPE)

- A Cut glazing tape to length and set against permanent stops, projecting 1/16 inch (1 6 mm) above sight line
- B Place setting blocks at 1/4 points with edge block no more than 6 inches from corners

**GLAZING**

- C Rest glazing on setting blocks and push against tape for full contact at perimeter of pane or unit
- D Place glazing tape on free perimeter of glazing in same manner described above
- E Install removable stop without displacement of tape Exert pressure on tape for full continuous contact
- F Knife trim protruding tape

**3 4 CLEANING**

- A Remove glazing materials from finish surfaces
- B Remove labels after Work is complete
- C Clean glass and adjacent surfaces

**3 5 PROTECTION**

- A After installation, mark pane with an 'X' by using removable plastic tape or paste, do not mark heat absorbing or reflective glass units

END OF SECTION

## PASSENGER ELEVATORS

### PART 1 GENERAL

#### 1 1 SECTION INCLUDES

- A Complete elevator systems

#### 1 2 SUBMITTALS

- A See Section 01 30 00 - Administrative Requirements, for submittal procedures
- B Shop Drawings Indicate the following information
- 1 Locations of machine room equipment driving machines, controllers, governors and other component
  - 2 Hoistway components Car, counterweight, sheaves, machine and sheave beams, guide rails, buffers, ropes, and other components
  - 3 Rail bracket spacing, maximum loads imposed on guide rails requiring load transfer to building structural framing
  - 4 Individual weight of principal components, load reaction at points of support
  - 5 Loads on hoisting beams and location of trolley beams
  - 6 Clearances and over-travel of car and counterweight
  - 7 Locations in hoistway and machine room of traveling cables and connections for car light and telephone
  - 8 Location and sizes of access doors, doors, and frames
  - 9 Expected heat dissipation of elevator equipment in machine room
  - 10 Applicable seismic design data, certified by a licensed Professional Structural Engineer
  - 11 Interface with building security system
  - 12 Electrical characteristics and connection requirements
  - 13 Show arrangement of equipment in machine room so rotating elements, sheaves, and other equipment can be removed for repairs or replaced without disturbing other components  
Arrange equipment for clear passage through access door
- C Product Data Provide data on the following items
- 1 Signal and operating fixtures, operating panels, indicators
  - 2 Cab design, dimensions, layout, and components
  - 3 Cab and hoistway door and frame details
  - 4 Electrical characteristics and connection requirements
- D Samples Submit two samples, 6 by 8 inch in size illustrating cab interior finishes, cab and hoistway door and frame finishes, and handrail material and finish
- E Maintenance Data Include
- 1 Parts catalog with complete list of equipment replacement parts, identify each entry with equipment description and identifying code
  - 2 Technical information for servicing operating equipment
  - 3 Legible schematic of hydraulic piping and wiring diagrams of installed electrical equipment and changes made in the Work List symbols corresponding to identity or markings on machine room and hoistway apparatus

#### 1 3 QUALITY ASSURANCE

- A Perform Work in accordance with applicable code and as supplemented in this section
- 1 Comply with ANSI/ASME 17 1 and local jurisdiction supplements
- B Designer Qualifications Design guide rails, brackets, anchors, machine anchors, and hoisting beam under direct supervision of a Professional Engineer experienced in design of work of this type and licensed in the State of Oregon

**PASSENGER ELEVATORS**

- C Perform welding of steel in accordance with AWS D1 1
- D Fabricate and install door and frame assemblies in accordance with NFPA 80
- E Perform electrical work in accordance with NFPA 70
- F Installer Qualifications Employees and supervisor on payroll of elevator equipment manufacturer
- G Products Requiring Fire Resistance Rating Listed and classified by UL
- H Products Requiring Electrical Connection Listed and classified by Underwriters Laboratories Inc as suitable for the purpose specified and indicated

**1 4 PRE-INSTALLATION MEETING**

- A Review schedule of installation, installation procedures and conditions, and coordination with related work
- B Review use of elevator for construction purposes, hours of use, scheduling of its use, cleanliness of cab, employment of operator, maintenance of system

**1 5 PROJECT CONDITIONS**

- A Construction Use of Elevator Not allowed

**1 6 WARRANTY**

- A See Section 01 78 00 - Closeout Submittals, for additional warranty requirements
- B Provide one year manufacturer warranty for elevator operating equipment and devices
- C Provide service and maintenance of elevator system and components for one year from Date of Substantial Completion
- D Examine system components monthly Clean, adjust, and lubricate equipment
- E Include systematic examination, adjustment, and lubrication of elevator equipment Maintain hydraulic fluid levels Repair or replace parts whenever required Use parts produced by the manufacturer of the original equipment Replace wire ropes when necessary to maintain the required factor of safety
- F Perform work without removing cars during peak traffic periods
- G Perform maintenance work using competent and qualified personnel under the supervision and in the direct employ of the elevator manufacturer or original installer

**PART 2 PRODUCTS**

**2 1 MANUFACTURERS**

- A Basis of Design ThyssenKrupp Elevator, Product Synergy Model 100R 3,500 lb  
www.thyssenkruppelevator.com
- B Other Acceptable Manufacturers pending conformance to basis of design requirements
  - 1 Otis Elevator Co www.otis.com
  - 2 Schindler Elevator Corp www.us.schindler.com
  - 3 Substitutions See Section 01 60 00 - Product Requirements
- C All components to be manufactured by same entity, unless otherwise indicated

**2 2 ELEVATORS**

- A Elevator No 1 MRL Passenger, gearless electric

**PASSENGER ELEVATORS**

- 1 Operation and Controls Five-stop automatic
- 2 ThyssenKrupp Elevator System Synergy - MRL
- 3 Cab Design Model 100R by ThyssenKrupp Elevator
- 4 Cab Height 7' - 10" inches
- 5 Hoistway and Cab Entrance Frame Opening Size 3' - 6" x 7' - 0" inches
- 6 Door Type Double leaf
- 7 Door Operation Side opening - *90 minute fire rating*
- 8 Rated Net Capacity 3 500 lbs
- 9 Rated Speed 350 ft/min
- 10 Clear Net Platform Size 6' - 8" x 5' - 5" inches
- 11 Travel Distance As indicated on drawings
- 12 Number of Stops 5
- 13 Number of Openings 5 Front, 0 Rear
- 14 Traction Machine Location Overhead

**B Elevator Cab**

- 1 Walls 5WL patterned stainless steel with brushed stainless steel base
- 2 Handrail 1 5 inch cylindrical with returned ends and brushed stainless steel finish
- 3 Ceiling Disc light with white powder coat frame and white powder coat panel
- 4 Floor Linoleum
- 5 Sill Aluminum
- 6 Front return and Fixtures Full width wrap around return with brushed stainless steel front and vandal fixtures

**2 3 CONTROLS**

- A Elevator Controls Provide landing buttons, hall lanterns, and lobby panel
- B Door Controls
- 1 Program door control to open doors automatically when car arrives at floor
  - 2 Render "Door Close" button inoperative when car is standing at dispatching terminal with doors open
  - 3 If doors are prevented from closing for approximately ten seconds because of an obstruction, automatically disconnect door reopening devices, close doors more slowly until obstruction is cleared Sound buzzer
  - 4 Door Safety Devices Moveable, retractable safety edges, quiet in operation, equip with photo-electric light rays
- C Landing Buttons Stainless steel type, one for originating UP and one for originating DOWN calls, one button only at terminating landings, marked with arrows
- D Car Direction Indicators Illuminating white
- E Interconnect elevator control system with building fire alarm systems
- F Provide "Firefighter's Operation" in accordance with applicable code Designated Landing directed by Fire Marshall

**2 4 MACHINE ROOM FITTINGS**

- A Wall-Mounted Frames Glazed with clear plastic, sized as required Provide one for master electric and hydraulic schematic and one for lubrication chart Install charts
- B Key Cabinet Wall-mounted, lockable, keyed to building keying system, for control/operating panel keys

**PART 3 EXECUTION**

**3 1 EXAMINATION**

### **PASSENGER ELEVATORS**

- A Verify existing conditions before starting work
- B Verify that hoistway, pit, and machine room are ready for work of this section
- C Verify hoistway shaft and openings are of correct size and within tolerance
- D Verify location and size of machine foundation and position of machine foundation bolts
- E Verify that electrical power is available and of the correct characteristics

#### **3 2 PREPARATION**

- A Arrange for temporary electrical power for installation work and testing of elevator components

#### **3 3 INSTALLATION**

- A Install system components Connect equipment to building utilities
- B Provide conduit, boxes, wiring, and accessories
- C Mount machines on vibration and acoustic isolators, on bed plate and concrete pad Place on structural supports and bearing plates Securely fasten to building supports Prevent lateral displacement
- D Accommodate equipment in space indicated
- E Install guide rails using threaded bolts with metal shims and lock washers under nuts Compensate for expansion and contraction movement of guide rails
- F Accurately machine and align guide rails Form smooth joints with machined splice plates
- G Coordinate installation of hoistway wall construction
- H Install hoistway door sills, frames, and headers in hoistway walls Grout sills in place Set entrances in vertical alignment with car openings and aligned with plumb hoistway lines
- I Structural Metal Surfaces Clean surfaces of rust, oil or grease, wipe clean with solvent, prime two coats
- J Machine Room Components Clean and degrease, prime one coat, finish with one coat of enamel
- K Adjust equipment for smooth and quiet operation

#### **3 4 ERECTION TOLERANCES**

- A Guide Rail Alignment Plumb and parallel to each other within 1/8 inch
- B Cab Movement on Aligned Guide Rails Smooth movement, with no objectionable lateral or oscillating movement or vibration

#### **3 5 FIELD QUALITY CONTROL**

- A Testing and inspection by regulatory agencies will be performed at their discretion
  - 1 Schedule tests with agencies and notify Owner and Architect
  - 2 Obtain permits required to perform tests
  - 3 Document regulatory agency tests and inspections in accordance with the requirements of Section 01 40 00
  - 4 Perform tests required by regulatory agencies
  - 5 Furnish test and approval certificates issued by authorities having jurisdiction
- B Perform testing and inspection in accordance with requirements of Section 01 40 00
  - 1 Perform tests as required by ASME A17 2
  - 2 Provide two weeks written notice of date and time of tests

**PASSENGER ELEVATORS**

3 Supply instruments and execute specific tests

C Perform operational tests in the presence of Owner and Architect

**3 6 ADJUSTING**

A Adjust for smooth acceleration and deceleration of car so not to cause passenger discomfort

B Adjust automatic floor leveling feature at each floor to achieve 1/4 inch from flush

**3 7 CLEANING AND PROTECTION**

A Remove protective coverings from finished surfaces

B Clean surfaces and components ready for inspection

C Do not permit construction traffic within cab after cleaning

END OF SECTION

## SITE CLEARING

### PART 1 - GENERAL

#### 1 1 SUMMARY

- A Section Includes
  - 1 Removing existing vegetation
  - 2 Clearing and grubbing
  - 3 Removing above- and below-grade site improvements
  - 4 Disconnecting, capping or sealing site utilities
  - 5 Temporary erosion- and sedimentation-control measures

#### 1 2 MATERIAL OWNERSHIP

- A Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site

#### 1 3 PROJECT CONDITIONS

- A Traffic Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations
  - 1 Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction
  - 2 Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction
- B Utility Locator Service Notify utility locator service for area where Project is located before site clearing
- C Do not commence site clearing operations until temporary erosion- and sedimentation-control measures are in place
- D The following practices are prohibited within protection zones
  - 1 Storage of construction materials, debris, or excavated material
  - 2 Parking vehicles or equipment
  - 3 Foot traffic
  - 4 Erection of sheds or structures
  - 5 Impoundment of water
  - 6 Excavation or other digging unless otherwise indicated

### PART 2 - PRODUCTS

#### 2 1 MATERIALS

#### 2 2 RETAIN THIS ARTICLE IF SOIL BACKFILL IS REQUIRED IN BELOW-GRADE AREAS AFTER SITE CLEARING

- A Satisfactory Soil Material Requirements for satisfactory soil material are specified in Division 31 Section "Earth Moving "
  - 1 Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site

### PART 3 - EXECUTION

#### 3 1 PREPARATION

- A Protect and maintain benchmarks and survey control points from disturbance during construction

**SITE CLEARING**

- B Protect existing site improvements to remain from damage during construction
  - 1 Restore damaged improvements to their original condition, as acceptable to Owner

**3 2 TEMPORARY EROSION AND SEDIMENTATION CONTROL**

**3 3 RETAIN THIS ARTICLE IF EROSION- AND SEDIMENTATION-CONTROL MEASURES ARE NOT INCLUDED IN DIVISION 01 SECTION "TEMPORARY FACILITIES AND CONTROLS "**

**3 4 INSERT SPECIFIC PROCEDURES OR INSTALLATION REQUIREMENTS FOR TEMPORARY SOIL PROTECTION AND STABILIZATION, EROSION CONTROLS, STORMWATER RUNOFF CONTROLS, AND SEDIMENTATION CONTROLS**

- A Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction
- B Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones
- C Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established
- D Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal

**3 5 TREE AND PLANT PROTECTION**

**3 6 RETAIN THIS ARTICLE IF REQUIRED IF RETAINING, DRAWINGS SHOULD SHOW TREE- AND PLANT-PROTECTION ZONES AND PROTECTION-ZONE FENCING**

- A General Protect trees and plants remaining on-site according to requirements in Division 01 Section "Temporary Tree and Plant Protection "
- B Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect

**3 7 EXISTING UTILITIES**

- A Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place
  - 1 Arrange with utility companies to shut off indicated utilities
  - 2 Generally retain first paragraph below unless there are no existing utilities Coordinate with requirements in Division 01 Section "Temporary Facilities and Controls" for temporary utilities
- B Interrupting Existing Utilities Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated
- C Revise subparagraphs below to suit Project
  - 1 Notify Architect not less than two days in advance of proposed utility interruptions
  - 2 Do not proceed with utility interruptions without Architect's written permission
- D Removal of underground utilities is included in Division 33 Sections

**3 8 CLEARING AND GRUBBING**

- A Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction

**SITE CLEARING**

- 1 Grind down stumps and remove roots, obstructions, and debris to a depth of 18 inches (450 mm) below exposed subgrade
  - 2 Use only hand methods for grubbing within protection zones
  - 3 Retain paragraph below if required Coordinate with Division 31 Section "Earth Moving "
- B Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated
- 1 Place fill material in horizontal layers not exceeding a loose depth of 8 inches (200 mm), and compact each layer to a density equal to adjacent original ground

**3 9 TOPSOIL STRIPPING**

- A Remove sod and grass before stripping topsoil
- B Retain one option for topsoil depth in first paragraph below if depth is known Delete options if Contractor will identify and determine depth of existing topsoil
- C Strip topsoil to depth of 6 inches in a manner to prevent intermingling with underlying subsoil or other waste materials
- D Revise paragraph below if topsoil is to be removed from site
- E Remove all sod and grass, and topsoil stripping from project site

**3 10 SITE IMPROVEMENTS**

**3 11 REVISE PARAGRAPH BELOW AND ADD SPECIFIC ITEMS TO SUIT PROJECT**

- A Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction

**3 12 DISPOSAL OF SURPLUS AND WASTE MATERIALS**

- A Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property
- B Retain paragraph below where recycling programs exist and recycling facilities can accept materials such as concrete or asphalt paving
- C Separate recyclable materials produced during site clearing from other nonrecyclable materials Store or stockpile without intermixing with other materials and transport them to recycling facilities Do not interfere with other Project work

END OF SECTION

## EARTH MOVING

### PART 1 - GENERAL

#### 1 1 SUMMARY

- A This Section includes the following
  - 1 Preparing subgrades for slabs-on-grade, walks, pavements, lawns, grasses and exterior plants
  - 2 Excavating and backfilling for buildings and structures
  - 3 Drainage course for slabs-on-grade
  - 4 Base course for concrete walks and pavements
  - 5 Base course for asphalt paving
  - 6 Excavating and backfilling for utility trenches
  - 7 Backfill at retaining structures

#### 1 2 DEFINITIONS

- A Backfill Soil material used to fill an excavation
  - 1 Initial Backfill Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe
  - 2 Final Backfill Backfill placed over initial backfill to fill a trench
- B Base Course Course placed between the subbase course and hot-mix asphalt paving
- C Bedding Course Course placed over the excavated subgrade in a trench before laying pipe
- D Borrow Soil Satisfactory soil imported from off-site for use as fill or backfill
- E Drainage Course Course supporting the slab-on-grade that also minimizes upward capillary flow of pore water
- F Excavation Removal of material encountered above subgrade elevations and to lines and dimensions indicated
  - 1 Authorized Additional Excavation Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect Authorized additional excavation and replacement material will be paid for according to Contract provisions changes in the Work
  - 2 Unauthorized Excavation Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation
- G Fill Soil materials used to raise existing grades
- H Structural Fill Fill material used beneath foundations, slabs, pavements, and other areas intended to support structures, or within the influence zones of structures
- I Structures Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface
- J Subgrade Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials
- K Utilities On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings

## EARTH MOVING

### 1 3 PROJECT CONDITIONS

- A Existing Utilities Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated

### 1 4 SUBMITTALS

- A Product Data For each type of the following manufactured products required
- 1 Geotextiles
  - 2 Controlled low-strength material, including design mixture
  - 3 Detectable warning tapes
- B Remaining paragraphs are defined in Division 01 Section "Submittal Procedures" as "Informational Submittals "
- C Coordinate first paragraph below with qualification requirements in Division 01 Section "Quality Requirements" and as supplemented in "Quality Assurance" Article
- D Qualification Data For qualified testing agency
- E Material Test Reports For each on-site and borrow soil material proposed for fill and backfill as follows
- 1 Classification according to ASTM D 2487
  - 2 Laboratory compaction curve according to ASTM D 1557

## PART 2 - PRODUCTS

### 2 1 SOIL MATERIALS

- A General Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations
- B Satisfactory Soils ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM, or a combination of these groups, free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter
- C Unsatisfactory Soils Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups
- 1 Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction
- D Pavement Base Course Base rock for pavements shall consist of ¾- or 1 ½-inch-minus material meeting the requirements of ODOT SS 00641, with the exception that the aggregate shall have less than 5 percent by weight passing the U S Standard No 200 Sieve, and have at least two mechanically fractured faces
- E Structural Fill All material used as structural fill shall be free from organic matter or other unsuitable materials The material shall meet the specifications of ODOT SS 00330 All structural fill shall have a maximum particle size of 3-inches and contain no frozen, organic or other deleterious material More specific subclassifications follow
- 1 Native Soil The native silts and silty soils are suitable for use as structural fill, provided they meet the requirements in ODOT SS 00330 12

### EARTH MOVING

- 2 Imported Granular Material Imported granular material used for structural fill shall be pit or quarry run rock, crushed rock, or crushed gravel and sand and shall meet the requirements set forth in ODOT SS 00330 14 and 00330 15 Imported granular material shall be fairly well graded between coarse and fine material, and have less than 5 percent by weight passing the U S Standard No 200 Sieve, and have at least two mechanically fractured faces
- F Pipe Bedding and Pipe Zone Courses Crushed, well-graded, granular material with a maximum particle size of 3/4-inch and less than 5 percent by weight passing the U S Standard No 200 Sieve and shall meet ODOT SS 00405 14 The material shall be free from roots, organic matter, and other unsuitable material
- G Pipe Trench Backfill Material within building, pavement, and other structural areas shall consist of Pipe Bedding and Pipe Zone Course Other areas, trench backfill may consist of properly moisture conditioned Native Soil or other Satisfactory Soils
- H Drainage Course Shall consist of angular, granular material with a maximum particle size of 2-inches and shall meet ODOT SS 00430 11 The material shall be free of roots, organic matter, and other unsuitable materials The material shall have less than 2 percent by weight passing the U S Standard No 200 Sieve (washed analysis) and have at least two mechanically fractured faces
- I Stabilization Material Shall consist of pit or quarry run rock, crushed rock, or crushed gravel and sand and shall meet the requirements of ODOT SS 00330 14 and 00330 15 Material size shall consist of 4- to 6-inch minus material, and have less than 5 percent passing the U S Standard No 4 sieve The material shall be free of organic matter and other deleterious material
- J Floor Slab Base Rock Imported granular material placed beneath building floor slabs consisting of clean, crushed rock or crushed gravel and sand that is fairly well graded between coarse and fine Material shall have maximum particle size of 1 1/2 -inches and less than 5 percent by weight passing the U S Standard No 200 Sieve with at least two mechanically fractured faced Material shall meet ODOT SS 00641
- K Recycled On-Site Material On-site asphalt pavement, conventional concrete, and oversized rock may be used as fill if they are processed to meet the requirements for their intended use, and placed in accordance with the project Geotechnical report recommendations under Section 6 7 8
- L Soil Amendment with Cement The contractor may be able to amend the on-site soils with Portland cement or with limekiln dust and Portland cement as an alternative to importing granular materials This work shall be completed in accordance with the project Geotechnical report recommendations under Section 6 7 9

## 2 2 ACCESSORIES

- A Warning Tape Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility

## PART 3 - EXECUTION

### 3 1 PREPARATION

- A Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations

### **EARTH MOVING**

- B Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 2 Section "Site Clearing "
- C Protect and maintain erosion and sedimentation controls, which are specified in Division 2 Section "Site Clearing," during earthwork operations

### **3 2 EXCAVATION**

- A Unclassified Excavation Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered Unclassified excavated materials may include rock, soil materials, and obstructions No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions
  - 1 If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials

### **3 3 EXCAVATION FOR STRUCTURES**

- A Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections
  - 1 Excavations for Footings and Foundations Do not disturb bottom of excavation Excavate by hand to final grade just before placing concrete reinforcement Trim bottoms to required lines and grades to leave solid base to receive other work

### **3 4 EXCAVATION FOR WALKS AND PAVEMENTS**

- A Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades

### **3 5 EXCAVATION FOR UTILITY TRENCHES**

- A Excavate trenches to indicated gradients, lines, depths, and elevations
- B Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated
  - 1 Clearance 12 inches each side of pipe or conduit
- C Trench Bottoms Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits Remove projecting stones and sharp objects along trench subgrade
  - 1 Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material, 4 inches deeper elsewhere, to allow for bedding course

### **3 6 SUBGRADE INSPECTION**

- A Proof-roll subgrade below the building slabs and pavements with fully loaded dump truck or similar heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding Do not proof-roll wet or saturated subgrades
- B Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation

### **3 7 UNAUTHORIZED EXCAVATION**

- A Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by

## EARTH MOVING

### Architect

- 1 Fill unauthorized excavations under other construction or utility pipe as directed by Architect

### 3 8 STORAGE OF SOIL MATERIALS

- A Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing Place, grade, and shape stockpiles to drain surface water Cover to prevent windblown dust
  - 1 Stockpile soil materials away from edge of excavations Do not store within drip line of remaining trees

### 3 9 UTILITY TRENCH BACKFILL

- A Place backfill on subgrades free of mud, frost, snow, or ice
- B Place and compact bedding course on trench bottoms and where indicated Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits
- C Backfill trenches excavated under footings and within 18 inches of bottom of footings with satisfactory soil, fill with concrete to elevation of bottom of footings Concrete is specified in Division 3 Section "Cast-in-Place Concrete "
- D Provide 4-inch- thick, concrete-base slab support for piping or conduit less than 30 inches below surface of roadways After installing and testing, completely encase piping or conduit in a minimum of 4 inches of concrete before backfilling or placing roadway subbase
- E Place and compact initial backfill of base coarse material, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the utility pipe or conduit
  - 1 Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit Coordinate backfilling with utilities testing
- F Place and compact final backfill of satisfactory soil to final subgrade elevation
- G Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs

### 3 10 SOIL FILL

- A Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material
- B Place and compact fill material in layers to required elevations as follows
  - 1 Under grass and planted areas, use satisfactory soil material
  - 2 Under walks and pavements, use satisfactory soil material
  - 3 Under steps and ramps, use engineered fill
  - 4 Under building slabs, use engineered fill
  - 5 Under footings and foundations, use engineered fill

### 3 11 SOIL MOISTURE CONTROL

- A Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content
  - 1 Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice
  - 2 Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight

### 3 12 COMPACTION OF SOIL BACKFILLS AND FILLS

### EARTH MOVING

- A Place backfill and fill soil materials in layers not more than
  - 1 On-site backfill or fill soil material 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers
  - 2 Pavement Base Course 12 inches in loose depth
  - 3 Imported Granular Material 12 inches in loose depth
  
- B Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure
  
- C Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557
  - 1 Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of
    - a On-site backfill or fill soil material at 92 percent
    - b Imported Granular material at 95 percent
  - 2 Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 92 percent
  - 3 Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent
  - 4 For utility trenches
    - a Under building, pavement, and other structural areas, backfill shall be compacted to 92 percent at depths greater than 2 feet below the finished grade, and 95 percent within 2 feet of finished grade
    - b Other areas, backfill shall be compacted to 92 percent
  - 5 Stabilization material Compact to firm condition
  - 6 Floor slab base rock Compact in one lift to 95 percent
  
- D Backfill at retaining structures Fill located within 3 horizontal feet from the retaining wall shall be compacted to 90 percent of ASTM D 1557 Compact in 6-inch thick loose lifts with hand-operated tamping equipment (such as jumping jack or vibratory plate compactor) If flat work (slabs, sidewalk, or pavement) is located adjacent to the wall, compact the upper 2 feet of fill to 95 percent of ASTM D 1557

### 3 13 GRADING

- A General Uniformly grade areas to a smooth surface, free of irregular surface changes Comply with compaction requirements and grade to cross sections, lines, and elevations indicated
  
- B Site Grading Slope grades to direct water away from buildings and to prevent ponding Finish subgrades to required elevations within the following tolerances
  - 1 Lawn or Unpaved Areas Plus or minus 1 inch
  - 2 Walks Plus or minus 1 inch
  - 3 Pavements Plus or minus 1/2 inch
  
- C Grading inside Building Lines Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge

### 3 14 BASE COURSES

- A Place base course on subgrades free of mud, frost, snow, or ice
  
- B On prepared subgrade, place base course under pavements and walks as follows
  - 1 Shape base course to required crown elevations and cross-slope grades
  - 2 Place in 12 inch maximum uncompacted thicknesses
  - 3 Compact base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557

## EARTH MOVING

### 3 15 DRAINAGE COURSE

- A Place drainage course on subgrades free of mud, frost, snow, or ice
- B On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows
  - 1 Place drainage course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick
  - 2 Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698

### 3 16 FIELD QUALITY CONTROL

- A Testing Agency Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing
- B Allow testing agency to inspect and test subgrades and each fill or backfill layer Proceed with subsequent earthwork only after test results for previously completed work comply with requirements
- C Footing Subgrade At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect
- D Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable
- E When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required, recompact and retest until specified compaction is obtained

### 3 17 PROTECTION

- A Protecting Graded Areas Protect newly graded areas from traffic, freezing, and erosion Keep free of trash and debris
- B Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions
- C Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing
  - 1 Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible

### 3 18 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A Disposal Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property

END OF SECTION

## DRIVEN STEEL PIPE PILES

### PART 1 GENERAL

#### 1 1 RELATED DOCUMENTS

- A Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section

#### 1 2 SUMMARY

- A Section includes steel pipe piles driven by hammering. Installing piles by vibration is not allowed. Installing piles by jetting is not allowed.
- 1 Drive piles to embedment lengths in accordance with the Geotechnical Report to provide piles of capacity indicated
  - 2 Drive 4 indicator piles, prior to driving production piles, at locations that provide coverage across the foundation area
  - 3 Piles shall be driven using impact systems
- B Related Sections include the following
- 1 Division 1 Section "Unit Prices" for a schedule of unit prices
  - 2 Division 1 Section "Construction Facilities and Temporary Controls "
  - 3 Division 1 Section "Allowances "
  - 4 Division 9 Section "Special Coatings" for surface preparation and coatings

#### 1 3 UNIT PRICES

- A Basis for Payment. From data obtained as a result of driving piles, calculate actual total net length of piles used. Contract price per linear foot (meter) includes labor, materials, tools, equipment, and incidentals and for performing work for furnishing, driving, cutting off and capping piles. This includes splicing, welding, field splicing and welding, weld testing including special weld testing, weld inspections as well as disposal of cutoffs.
- 1 Measurements will be based on effective length of piles in place, with lengths measured to nearest 12 inches (300 mm). Additional payment for lengths in excess of that indicated, and credit for lengths less than that indicated, will be calculated at unit prices stated in the Contract, based on net addition or deduction to total length of piling.
  - 2 Test piles that become part of completed foundation system will be considered as an integral part of the Work.
  - 3 No payment will be made for rejected piles, including piles driven out of place, defective piles, or piles damaged during handling or driving.

#### 1 4 SUBMITTALS

- A At least two weeks prior to mobilization at the site, submit data fully describing all proposed pile installation equipment including hammers, rams, driving cushions, pile caps and cap blocks to Engineer.
- B Provide certification of yield strength and weldability of steel products by process acceptable to Engineer, mill certificates of chemical and physical properties, or equivalent.
- C Installation Records
- 1 Prepare and submit to the Engineer full-length installation records for each pile installed. The records shall be submitted within 24 hours after installation is completed for the pile. The records shall include the following minimum information:
    - a Project name and number
    - b Name of Contractor
    - c Pile location in pile group and designation of pile group
    - d Sequence of driving in pile group
    - e Pile dimensions

**DRIVEN STEEL PIPE PILES**

- f Ground elevation
  - g Elevation of tip after driving
  - h Final tip and cutoff elevations of pile after driving pile group
  - i Records of redriving
  - j Elevation of splices
  - k Type, make, model, and rated energy of hammer
  - l Weight and stroke of hammer
  - m Type of pile-driving cap used
  - n Cushion material and thickness
  - o Actual stroke and blow rate of hammer
  - p Pile-driving start and finish time, and total driving time
  - q Time, pile-tip elevation, and reason for interruptions
  - r Record of number of blows for each 12 inches (300 mm) of penetration, and number of blows per 1 inch (25 mm) for the last 6 inches (150 mm) of driving
  - s Pile deviations from location and plumb
  - t Record preboring or special procedures used
  - u Record of unusual occurrences during pile driving
- D Welding Certificates Copies of certificates for welding procedures and personnel
- E Qualification Data For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience Include lists of seven (minimum) completed projects within the last five years with project names and addresses, names and addresses of architects and owners, and other information specified
- F Mill test reports signed by manufacturer certifying that each of the following complies with requirements
- 1 Steel pipe piles
  - 2 Steel castings
  - 3 Steel plate
- G Pile-Driving Equipment Include type, make, maximum rated energy, and rated energy per blow of hammer, weight of striking part of hammer, weight of drive cap, details, type, and structural properties of hammer cushion, and details of follower
- H Driving Records Submit within two days of driving

**1 5 QUALITY ASSURANCE**

- A Installer Qualifications An experienced installer who has specialized experience in installing piling similar in material, design, and extent to that indicated for this Project
- B Survey Work Provide pile-driving records, including surveys, layouts, and measurements, prepared by a surveyor or professional engineer who is legally qualified in Oregon to perform these kinds of services
- C Testing Agency Qualifications An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM E 329 to conduct the testing indicated, as documented according to ASTM E 548
- D Comply with requirements of the following publication
- 1 AISC's "Load and Resistance Factor Design (LRFD) Specification for Structural Steel Buildings "
- E Welding Standards Qualify welding procedures and personnel according to AWS D1 1, "Structural Welding Code--Steel "

**DRIVEN STEEL PIPE PILES**

- F Preinstallation Conference Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings "

**1 6 DELIVERY, STORAGE, AND HANDLING**

- A Deliver materials to the project site in such quantities and at such times to assure the continuity of pile driving operations to the project schedule
- B Store piles in orderly groups above ground and blocked during storage to minimize possible distortion of members Piles exhibiting variations beyond tolerance limits will be considered distorted and may not be used in the work

**1 7 PROJECT CONDITIONS**

- A Site Information Subsurface conditions were investigated by the Geotechnical Engineer The geotechnical engineering consultant for this project is GeoDesign, Inc , 15575 SW Sequoia Parkway, Suite 100, Portland, OR 97224, (503) 968-8787 Their report was prepared for the purpose of obtaining data necessary for planning and design of this project The report is available for review from the architect
- 1 The report has been made available for information purposes only and is not a part of the contract The Owner assumes no responsibility for deductions, conclusions, or interpretations made from this data
  - 2 Additional test borings and other exploratory operations may be made by the Contractor at no additional cost to the Owner, provided such operations are acceptable to the Owner
- B Protect structures, underground utilities and other construction from damage caused by pile driving operations Pre-excavate for piles as required and as specified

**PART 2 PRODUCTS**

**2 1 STEEL PIPE PILES**

- A Steel for Piling ASTM A 252 Grade 3 (45 ksi yield) or engineer approved alternate with minimum 45 ksi yield strength, size as indicated on Structural Drawings
- B Steel Reinforcing ASTM A 706, grades as indicated, weldable
- C Fabrication Provide cap plate and end bearing plate complying with ASTM A 36 Fasten to piles with welded connections as shown on drawings Piles shall be installed with closed ends

**2 2 PAINT**

- A Paint SSPC-Paint 16, self-priming, two-component, coal-tar epoxy polyamide
- 1 Color Black
  - 2 Color Red
  - 3 Color Black or red

**2 3 DRIVING EQUIPMENT**

- A General Furnish pile driving equipment of a type generally used in standard pile driving practice Operate equipment at manufacturer's specified rate to develop the required rated energy Drop hammers will not be allowed
- B Equipment
- 1 Provide equipment of adequate size and capacity to handle, place and hold the piles to the designed alignment This equipment shall be able to maintain the alignment of pile with driving equipment, without damage to either
  - 2 Maintain all pile driving equipment in safe operating condition at all times
  - 3 Driving equipment shall be in good repair and operating condition and shall be capable of being operated as recommended by the manufacturer

### DRIVEN STEEL PIPE PILES

- 4 Any equipment or methods which result in regular or repeated damage to the piles during driving, or are detrimental to the bearing capacity of piling already driven, will be rejected by the Engineer
  - 5 Impact hammers shall be steam, air, or diesel driven that develop a rated energy of at least 24,000 ft-lbs per blow and no more than 33,000 ft-lbs per blow or as required to achieve the required pile tip penetration Contractor is responsible for selecting driving equipment that will not cause damage to the piling or adjacent structures during driving
- C Driving Caps Provide driving caps capable of protecting pile head and providing uniform distribution of energy to pile head
- D Leads Use fixed rigid type pile driver leads that will hold the pile firmly in position and alignment, and in axial alignment with the driving equipment Free-swinging leads will not be permitted Extend leads to within 2 feet of the elevation at which the pile enters the ground

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A Examine areas and conditions under which piles are to be installed, and correct conditions detrimental to the proper and timely completion of the work Proceed with work only after unsatisfactory conditions have been corrected in a manner acceptable to the installer

### 3.2 PRE-DRIVING WORK

- A Site Conditions Do not drive piles until the earthwork in the area which piles are to occupy has been completed, as follows
- 1 Excavations Earth excavation will be stopped at an elevation of 6 inches to 12 inches above the bottom of the foundation before piles are driven Final excavation of the required elevation of footing bottoms will be done as part of the earthwork, after the piles have been driven
  - 2 Fills Fills will be constructed and compacted to the elevation of the grade indicated
  - 3 Mobility of the Contractor's equipment in the excavation is the Contractor's responsibility
- B Pile Length Markings Mark each pile with horizontal lines at 1'-0" intervals, and the number of feet from pile point at 5'-0" intervals In order to be able to measure the driving resistance, mark the last 60 inches at one-inch intervals
- C Welding
- 1 Perform manual arc-welding using shielded metal arc or submerged arc method, complying with AWS Standards and requirements of the City
  - 2 Use oxygen-gas or oxygen arc methods for field cutting of steel, complying with AWS recommendations
- D Welded Splices Clean surfaces to be welded of rust, scale, oil, paint, and foreign material Use only pile members with identical cross-sections for splicing
- 1 Only one splice per pile will be permitted, unless otherwise authorized by the Engineer Make splices before starting driving operations wherever possible If a welded splice is required during driving operation, make splice when top of drive pile portion is at least 3'-0" above ground, to permit inspection of welded connection during welding and during subsequent driving Splices are not allowed in top 15' of pile as installed
  - 2 Splices shall be 100% butt welded, producing straight pile alignment through splice and developing full strength of pile in both bearing and bending
- E Preboring Use augering, wet-rotary drilling or other methods of preboring only when specified or with written approval When permitted, prebore holes at pile locations and to the depths shown or directed Make prebored holes smaller than the diameter or diagonal of the pile cross section that is sufficient to allow penetration of the pile to the specified depth If subsurface

### DRIVEN STEEL PIPE PILES

obstructions, such as cobbles, boulders, or rock layers are encountered, the hole diameter may be increased to the least dimension which is adequate for pile installation. The use of a reinforced section (spud) to loosen the subsurface material at pile locations will not be permitted unless otherwise approved.

- 1 Perform preboring in a manner which will not impair the bearing or lateral capacity of the piles already in place or the safety of existing adjacent structures. When determined that preboring has disturbed the load bearing capacities of previously installed piles, restore those piles that have been disturbed to conditions meeting the requirements of this specification by redriving or by other acceptable methods. The Contractor shall be responsible for the costs of any necessary remedial measures unless the preboring method was specifically included in the contract documents and properly executed by the Contractor.

### 3.3 DRIVING PILES

#### A General

- 1 Care should be exercised in the first 10 to 12 feet of pile penetration where foreign objects in the fill may be present.
- 2 Continuously drive each pile at the locations indicated, to satisfactory embedment and driving resistance directed by the Geotechnical Engineer.
  - a Pile Lengths Conform to recommendations of Geotechnical Report as stated on Drawings to provide piles of capacity indicated on the Drawings. Minimum embedment lengths should be in accordance with Geotechnical Report and final embedment lengths should be as required to develop capacity in the underlying bearing material. The elevation of the underlying bearing material may vary considerably across the site. Furnish piles of sufficient length to meet the embedment criteria and the splicing limitations.
  - b Engineer reserves the right to modify driving criteria depending on the equipment used, field conditions encountered and observations made during pile installation.
- 3 Carefully maintain the center of gravity for each group or cluster of piles to conform to the locations shown on the drawings.
- 4 Carefully plumb the leads and the pile before driving. Take care during driving to prevent and to correct any tendency of piles to twist or rotate.
- 5 Avoid excessive driving as established by the Geotechnical Engineer.

#### B Driving Tolerances Drive piles within the following maximum tolerances

- 1 Location 2 inches (75 mm) from location indicated for center of gravity of each single pile or pile groups
- 2 Plumbness Maintain 1 inch in 10'-0" from the vertical, or a maximum of 4 inches, measured when the pile is above ground, in the leads

#### C Heaved Piles Compile recorded instrument observations made during pile driving to determine whether a driven pile has lifted from its original seat during the driving of adjacent piles. If uplift occurs, redrive the affected piles to a point elevation at least as deep as the original point elevation with a driving resistance at least as great as the original driving resistance.

#### D Damaged or Misdriven Piles

- 1 Damaged piles, and piles driven outside the required driving tolerances, will not be accepted.
- 2 Withdraw piles rejected after driving, and replace with new piles.
- 3 Drive additional pile or piles where the centerline deviation exceeds 3 inches and an analytical determination indicates a load on any pile exceeding 110% of the design load.
- 4 Fill holes left by withdrawn piles that will not be filled by new piles using flowable cementitious fill.

#### E Cutting-Off

### DRIVEN STEEL PIPE PILES

- 1 Cut-off tops of driven piles, square with pile axis and at elevations indicated
- F Pile Caps After pile is cut-off, weld steel plates in place, square and level on top of pile as shown on the structural drawings Provide steel reinforcing on top of piles as shown on the structural drawings

### 3 4 FIELD QUALITY CONTROL

- A Install 4 indicator piles, located to provide coverage across the foundation area, as reviewed and approved by the Geotechnical Engineer, in order to verify design pile lengths
- B Indicator piles, furnished and driven by Contractor to determine lengths of piles, may become part of foundation system provided they conform to the contract requirements
- C Driving Indicator Piles
- 1 Use piles of the same diameters and lengths as those to be used in the work and drive with the appropriate pile driving equipment operating at the rated driving energy proposed to be used for the balance of the work
  - 2 Drive indicator piles at locations as approved to the driving resistance specified
- D Survey Employ independent Professional Land Surveyor or Registered Civil Engineer to make field survey of completed piling Show actual pile locations with respect to planned pile locations, and plumbness
- E Weld Testing In addition to visual inspection, welds will be inspected and tested according to AWS D1 1 and the inspection procedures listed below, at testing agency's option Correct deficiencies in and retest welds to determine compliance with requirements
- 1 Liquid Penetrant Inspection ASTM E 165
  - 2 Magnetic Particle Inspection ASTM E 709, performed on root pass and on finished weld Cracks or zones of incomplete fusion or penetration will not be accepted
  - 3 Radiographic Inspection ASTM E 94 and ASTM E 142, minimum quality level "2-2T "
  - 4 Ultrasonic Inspection ASTM E 164

### 3 5 TOUCHUP PAINTING

- A Clean field welds, splices, and abraded painted areas and field-apply paint according to SSPC-PA 1 Use same paint and apply same number of coats as specified for shop painting
- 1 Apply touchup paint before driving piles to surfaces that will be immersed or inaccessible after driving

### 3 6 DISPOSAL

- A Remove withdrawn piles and cutoff sections of piles from site and legally dispose of them off Owner's property

END OF SECTION

2011  
Oregon Plumbing  
Specialty Code  
City of Portland ~ BDS

Plumbing Division  
Bureau of Buildings  
City of Portland

This Drawing is approved for  
Construction; Errors and  
Omissions Excepted.

Date 7-7-11

Per *M. J. Jones*

These Plans and Specifications  
Shall be kept on the Work  
Under Construction.

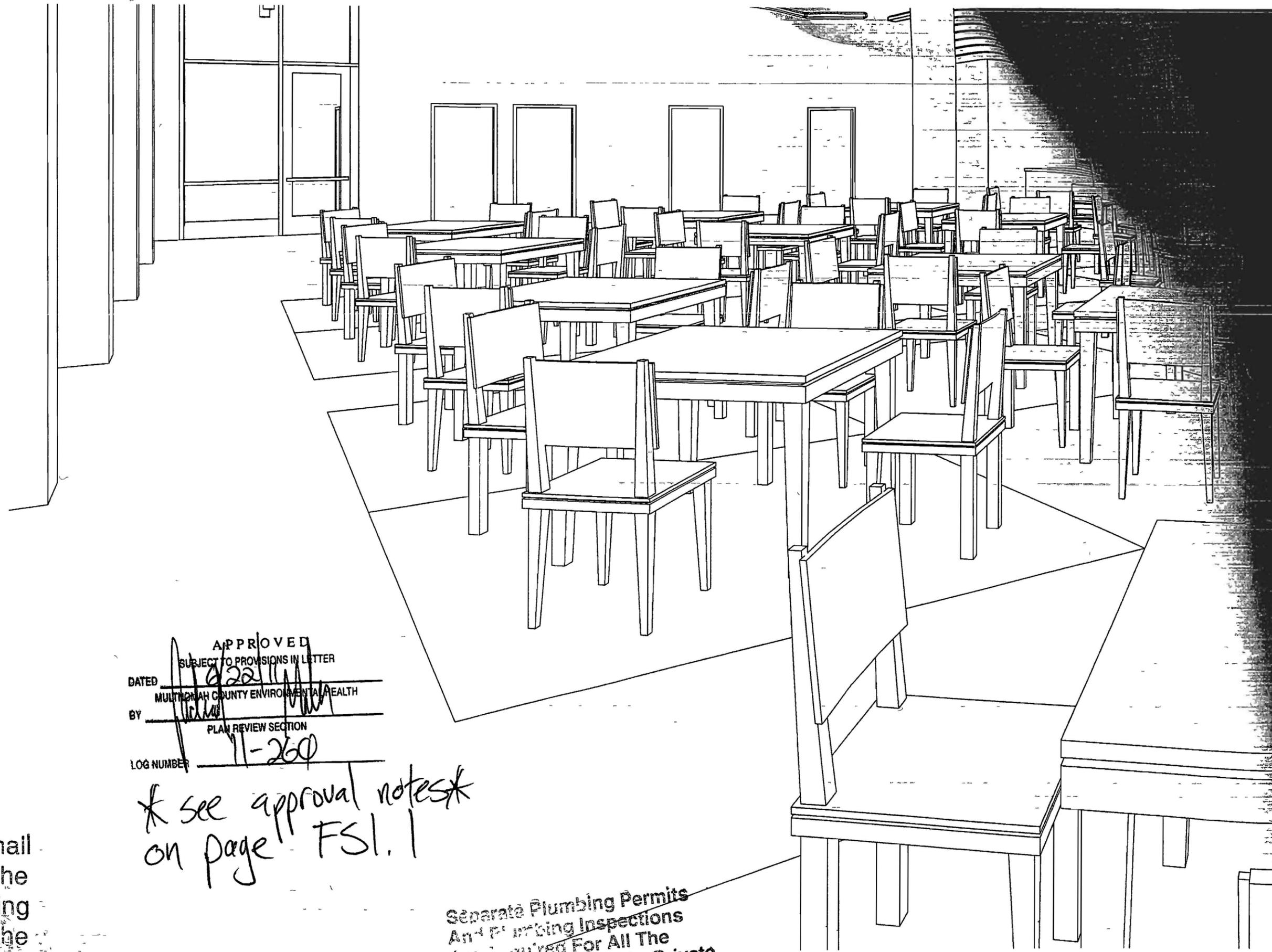
APPROVED  
SUBJECT TO PROMSIONS IN LETTER  
DATED *7-22-11*  
BY *[Signature]*  
MULTNOMAH COUNTY ENVIRONMENTAL HEALTH  
PLAN REVIEW SECTION  
LOG NUMBER *11-260*

*\* see approval notes \*  
on page FS1.1*

'Plumbing materials shall  
be installed as per the  
Oregon State Plumbing  
Specialty Code, and the  
Oregon State Structural  
Specialty Code.'

INSTALL PLUMBING PRODUCTS  
APPROVED BY THE STATE PLUMBING  
BOARD OR APPROVED LISTING AGENCY.

Separate Plumbing Permits  
And Plumbing Inspections  
Are Required For All The  
Plumbing Installed On Private  
Property As Per This Plan.



## Site Development Checksheet Response Erosion Control Checksheet Response

Permit # 10-178319-000-00-CO

Date 28 April 2011

Customer name and phone number John Smith, SERA Architects, 503-445-7350

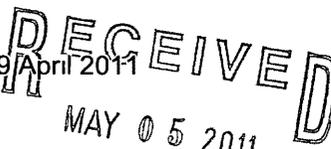
*Note Please number each change in the '#' column Use as many lines as necessary to describe your changes Indicate which reviewer's checksheet you are responding to and the item your change addresses If the item is not in response to a checksheet item, write **customer** in the last column*

#	Description of changes, corrections, additions, etc	Checksheet and item #
-	<b>SITE DEVELOPMENT</b>	-
1	Requires review of below items	SD - #1
2	Demolition permit application submitted on 14 April 2011	SD - #2
3	Geotechnical engineering report PDF forwarded on 28 April 2011	SD - #3
4 A	Temporary shoring by contractor to be submitted under differed submittal Note "see structural" removed from 2 & 3/A701 Also see response from structural engineer on memorandum from KPFF	SD - #4 A
4 B	See answer to item #4 A	SD - #4 B
4 C	See answer to item #4 A	SD - #4 C
4 D	See answer to item #4 A	SD - #4 D
5	See attached memorandum from GeoDesign, Inc dated 19 April 2011	SD - #5
6	See answer to item #5	SD - #6
7	See answer to item #5	SD - #7
8	See response from structural engineer on memorandum from KPFF	SD - #8
9	See response from structural engineer on memorandum from KPFF	SD - #9
10	See answer to item #5	SD - #10
11	See response from structural engineer on memorandum from KPFF	SD - #11
12	See attached memorandum from GeoDesign, Inc dated 19 April 2011 and memorandum from KPFF dated 19 April 2011	SD - #12
13	No foundation drains to be provided per recommendation from geotechnical engineer	SD - #13
-	<b>EROSION CONTROL</b>	-
14	Erosion Control Note #10 has been removed from sheet C101 Gravel construction entrances will not be used for this project	EC - #14

Plan Bin Location AX 1-2

**Attachments**

Memorandum from GeoDesign, INC Dated 19 April 2011

  
 MAY 05 2011  
 BDS  
 DOCUMENT SERVICES



April 19, 2011

Mr John Smith  
**SERA Architects**  
338 NW 5<sup>th</sup> Avenue  
Portland, OR 97209

RE Blanchet House of Hospitality  
439 NW 3<sup>rd</sup> Avenue – Portland, OR  
COP Permit # 10-178319-000-00-CO  
Response to Structural Checksheet

Dear John

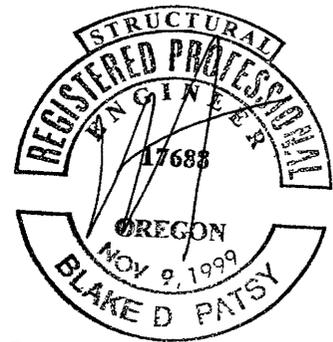
Please find below our responses to the plan check comments we received dated November 1, 2010, by Jason Butler-Brown

Item #	Drawing Location	Calculation Location	Action
4	S099		Shoring is a bidder designed item and will be a deferred submittal
8	S005		Pile testing requirements have been added to the Testing schedule on sheet S005
9			Piles do not have tension loading, therefore tension testing is not required
11	1/S501		The estimated pile depth of 35' to 50' below ground surface, as called out in the general notes on S003, has been added to detail 4/S501
12			Per memo from GeoDesign, dated April 19, 2011, expected mat settlement is 5 inches A differential settlement of 5 inches can be accommodated by the structure

Please do not hesitate to call me at (503) 227-3251 if you have any questions or comments

Sincerely,

Nick Saari, P E , S E  
Associate



EXPIRES 12-31-2012

Attachments

[AC/bd\208298 response to structural checksheet 4 19 11 docx]

111 SW Fifth Avenue, Suite 2500 Portland Oregon 97204-3628 (503) 227-3251 Fax (503) 227 7980

## Site Development Checksheet Response Erosion Control Checksheet Response

Permit # 10-178319-000-00-CO

Date. 15 June 2011

Customer name and phone number. John Smith, SERA Architects, 503-445-7350

*Note Please number each change in the '#' column Use as many lines as necessary to describe your changes Indicate which reviewer's checksheet you are responding to and the item your change addresses If the item is not in response to a checksheet item, write **customer** in the last column*

Item #	Description of changes, corrections, additions, etc	Location on Plans
1	No response required	
4	See attached structural response Note a Shoring drawings included for reference only b Shoring drawings are not part of SERA Architect's contract documents c Shoring drawings are not part of this permit d Shoring and shoring permit are responsibility of General Contractor	SH001, SH002
✓ 5	See attached GeoDesign response	
✓ 6	See attached GeoDesign response and attached structural response	
✓ 8	See attached GeoDesign response and attached structural response	S005, No changes
✓ 9	See attached GeoDesign response and attached structural response	S003
✓ 12	See attached structural response	
13	No foundation drains provided per geotechnical engineer's recommendation See attached memorandum from GeoDesign, Inc dated 14 June 2011	

Plan Bin Location AX 1-2

**Attachments**

- Memorandum from GeoDesign, INC Dated 02 June 2011
- Memorandum from KPFF Consulting Engineers Dated 03 June 2011
- Memorandum from GeoDesign, INC Dated 14 June 2011

RECEIVED

JUN 15 2011

BDS  
DOCUMENT SERVICES

JBB  
S/D  
6/14



**City of Portland, Oregon**  
**Bureau of Development Services**  
**Site Development**

1900 SW 4th Avenue, Suite 5000  
 Portland, Oregon 97201  
 503-823-6892  
 Fax 503-823-5433  
 TTY 503-823-6868  
 www.portlandonline.com/bds

**SITE DEVELOPMENT CHECKSHEET**  
**Number 3**

Application # **10-178319-000-00-CO**  
 Review Date June 27, 2010

To	APPLICANT	JOHN SMITH SERA ARCHITECTS 338 NW 5TH AVE PORTLAND OR 97209	Primary 503 445-7350 Fax 503 445-7395 e-mail <a href="mailto:johns@serapdx.com">johns@serapdx.com</a>
From	BDS SITE DEVELOPMENT ENGINEER	JASON BUTLER-BROWN, PE, GE	Phone 503-823-4936 Fax 503-823-5433 e-mail <a href="mailto:jason.butler-brown@portlandoregon.gov">jason.butler-brown@portlandoregon.gov</a>
Cc	OWNER	CITY OF PORTLAND PDC LEASED & MULTIPLE TENANTS 222 NW 5TH AVE PORTLAND, OR 97209-3812	

**PROJECT INFORMATION**

Street Address	439 NW 3RD AVE
Description of Work	4 story bldg on 1/4 block, 3 floors residential, 1st floor food service (soup kitchen serving low-income and homeless)

**PLAN REVIEW**

Based on the plans and specifications submitted, the following items appear to be missing or not in conformance with the Oregon Structural Specialty Code, Oregon One and Two Family Dwelling Specialty Code and/or other city, state, or federal requirements

Item #	Location on plans	Code Section	Clarification / Correction Required
1			This checksheet has been written following a review of plans and supporting documents received by Document Services on June 15, 2011. The following items are missing or require further clarification:  The numbering convention from the previous Checksheet has been maintained.
1	File	OSSC 1704.7 PCC 24.20	Special inspection will be required for this permit. The <i>Soils Special Inspections</i> form will be issued following a review of the information requested below.
4	C201 A401 S099	OSSC 3304 PCC 24.10.070	The following comments pertain to the excavation and shoring design:  A) The "for reference only" has been crossed out on Sheets SH001 and SH002 respectively. Please verify the permit drawings do not refer to the shoring plans elsewhere as for reference only.  B) Soldier piles are shown to extend below the typical groundwater table, identified as 20 feet below site grades.

**SITE DEVELOPMENT CHECKSHEET  
Number 2**

Application # 10-178319-000-00-CO  
Review Date June 27, 2010

			<p>It does not appear that the design calculations reflect buoyant conditions. Therefore, please submit a memorandum prepared by the geotechnical engineer that provides recommendations for shoring design below the groundwater table.</p> <p>C) Please justify the application of passive pressure over three pile diameters given the soft / loose to medium-stiff soft soils disclosed in the borings.</p> <p>D) Please revise the shoring calculations as necessary based on the revised geotechnical design recommendations (Items 4B and 4C above).</p> <p>E) It appears that soldier piles and the 1 5H 1V temporary cut slope will need to encroach on private property and the Right of Way to achieve the necessary excavation depths. Therefore, please submit temporary construction easements signed by the affected private property owners and documentation from the Portland Bureau of Transportation that an encroachment permit will be issued.</p>
			<p><u>Checksheet 2 Text (For Reference)</u> Shoring is shown to be a deferred submittal per the April 28, 2011 SERA Architects Site Development Checksheet Response and the April 19, 2011 KPFF Consulting Engineers letter response.</p> <p>The Bureau of Development Services does not accept shoring as a deferred submittal. Therefore, please provide the information requested in Items 4A – 4D below.</p> <p><u>Original Text</u> Excavations on the order of 14 feet appear to be required to construct the basement mat slab. The elevation of the bottom of the mat appears to be ~18 feet finished floor elevation = 32 17 ft (Sheet C201), basement floor is 11 feet below finished floor (Sheet A401), and the mat slab is 3 feet thick (Sheet S099).</p> <p>An excavation and shoring plan is required to demonstrate how private properties and the Right of Way (ROW) will be protected during construction. Details 1, 2, and 3 of Sheet A701 show shoring by structural. It does not appear that the permit drawings include shoring drawings. Therefore, please submit the following:</p> <p>A) Revised permit drawings that include an excavation and shoring plan that shows areas to be sloped and shored in plan and detail. Shoring drawings must be stamped by a registered professional engineer licensed in the State of Oregon.</p> <p>B) Two copies of the shoring design calculations stamped by a registered professional engineer licensed in the State of Oregon.</p> <p>C) The engineer of record and geotechnical engineer of record must review and take no exceptions to the excavation and shoring plan if it is prepared by others.</p> <p>D) Temporary construction easements signed by affected private property owners if work is to be performed on private property, e.g. temporary excavations and/or staging of construction equipment.</p>

**SITE DEVELOPMENT CHECKSHEET  
Number 2**

Application # 10-178319-000-00-CO  
Review Date June 27, 2010

**INSTRUCTIONS**

To respond to this checksheet, come to Permitting Services (located at 1900 SW Fourth Ave , 2<sup>nd</sup> Floor, hours 8 00 a m - 3 00 p m Tuesday through Friday) and update all four sets of the originally submitted drawings To update the drawings, you may either replace the original sheets with new sheets, or edit the originally submitted sheets (Specific instructions for updating plans are posted in Document Services )

Please complete the attached Checksheet Response Form and include it with your re-submittal

If you have specific questions concerning this Checksheet, please call me at the phone number listed above To check the status of your project, go to [http //www portlandonline com/bds/index.cfm?c=34194](http://www.portlandonline.com/bds/index.cfm?c=34194) Or, you may request the status to be faxed to you by calling 503-823-7000 and selecting option 4

You may receive separate Checksheets from other City agencies that will require separate responses

**NEW DEVELOPMENT SERVICES CENTER HOURS** The DSC (1<sup>st</sup> floor) and Permitting Services (2<sup>nd</sup> floor) are open Tuesday through Friday from 8 00 a m to 3 00 p m (closed on Mondays) In the DSC, Land Use, Site Development or Building Permit application review, submittal or intake of complete permits/applications will be limited to between 8 00 AM and 12 00 PM Land Use applications and Building Permit review or intake will not be processed after 12 00 PM Please visit the BDS website for more information regarding the Development Services Center hours

**NEW RECHECK.FEE** Please note that for plans submitted on or after July 1, 2010, plan review fees for Life-Safety, Structural, Site Development and Planning and Zoning will cover the initial review and up to two checksheets and the reviews of the applicant's responses to those checksheets All additional checksheets and reviews of applicant responses will be charged \$155 per checksheet



**FORTIS**  
CONSTRUCTION INC

1705 SW TAYLOR STREET  
SUITE 200  
PORTLAND OR 97205

P> 503+459+4477  
F> 503+459+4478  
CCB# 155766

July 5, 2011

Wayne Close  
City of Portland Office of Transportation  
1120 SW 5th Avenue, Suite 800  
Portland, Oregon 97204-1914

**Reference    Blanchet House of Hospitality**  
**Application # 10-178319-000-00 CO**  
**Response to Transportation Development Checksheet dated June 22, 2011**

Dear Wayne

We are providing this response to the Transportation Development Checksheet dated June 22, 2011 for the above mentioned permit application. Please see the response narrative and attached documents. We hope this addresses your questions and request for clarifications.

**Item #1** Please see enclosed Revocable Permit issued by PBOT, a copy of the Application to the City Engineer for Street Improvement Permit #TI5026 and a copy of Performance Bond #023008841 for the related street improvement work.

**Item #2** Please see enclosed updated drawings SH001 and SH002 dated 6/3/2011 with related structural calculations, GeoDesign Memorandum dated 6/28/2011 and enclosed Revocable Permit issued by PBOT.

**Item #3** See response to Item #2 above.

Please let me know if you need more information.

Sincerely,  
Fortis Construction, Inc

*Blain Grover*

Blain Grover  
Sr Project Manager

Cc File



**TRANSPORTATION DEVELOPMENT REVISED CHECKSHEET**

Application # **10-178319-000-00-CO**

**Commercial Building Permit**

Review Date **June 22, 2011**

<b>To</b>	<b>APPLICANT</b> JOHN SMITH SERA ARCHITECTS 338 NW 5TH AVE PORTLAND OR 97209	Primary 503 445-7350 Fax 503 445-7395 E-Mail johns@serapdx.com
<b>From</b>	Wayne Close	Phone 503-823-7647 Fax 503 823-4591 E-Mail Wayne Close@portlandoregon.gov
<b>cc.</b>	<b>OWNER</b> Not Available	

<b>PROJECT INFORMATION</b>	
Street Address	<b>310 NW GLISAN ST</b>
Description of Work	<b>4 story bldg on 1/4 block, 3 floors residential, 1st floor food service (soup kitchen serving low-income and homeless)</b>

Based on the plans and specifications submitted, the following items appear to be missing or not in conformance with the appropriate city, state, or federal requirements

Item #	Location on Plans	Code Sec	Clarification / Correction Required
1	CONDITION OF PBOT PERMIT APPROVAL	Title 17	Public Works (PW) Permit WT 10-171979 has been set up for the management of "Street Job" No TI-5026 Completion of the Performance Guarantee requirements (bond, fees, contract, etc ) is required as a condition of Transportations approval for this building permit For PW process requirement questions, contact Mark Fischer 503-823-7072 For PW design questions, contact Permit Engineering Chon Wong 503-823-7050  The PW Design review is in process at this time and will resolve the concerns listed in checksheet items #2 & 3 of the original checksheet (dated 11/1/10)  Additionally Wayne Close (503-823-7647) may be contacted if additional information regarding PBOT requirements is needed
2	SH002 A099 A401 SO099		Based on the information located in sheets SH002, A099, A401 and SO099, it appears that the excavation will be required to be approximately 12 to 14-feet below top of sidewalk (also relative to PBOT PW Street Job # TI5026) The plans indicate the edge of basement slab is setback inward from the property line by 10 0-feet, the proposed side slope ration is 1 1 5 Based on the information provided, the excavation will extend approximately 20-feet from the edge of basement slab along the NW Glisan and NW 3 <sup>rd</sup> Ave frontages – encroaching into the Public Right-of-Way, for both frontages, by approximately 10-feet  <b>A Revocable Encroachment Permit for Mass Excavation will be required as a condition of the building permit approval by Transportation.</b>

**TRANSPORTATION DEVELOPMENT**  
**CHECKSHEET**

Application # 10-178319-000-00-CO

Review Date June 22, 2011

3	A701 SH002 A099 A401 SO099	Title 17	<p>A shoring plan is required to better demonstrate how the Right-of-Way will be impacted and to what extent the shoring will occur, location and dimensions required. Details 1, 2, and 3 of Sheet A701 show structural shoring. It does not appear that the permit drawings include shoring drawings. Therefore, please submit the following:</p> <ul style="list-style-type: none"><li>• Revised permit drawings that include an excavation and shoring plan which shows the areas to be sloped and shored provided in plan view and detail</li><li>• Shoring design calculations are required for review</li><li>• Shoring permit drawings and shoring design calculations must be stamped by a registered professional engineer licensed in the State of Oregon</li></ul> <p><b>A Revocable Encroachment Permit for Excavation and Shoring will be required as a condition of the building permit approval by Transportation.</b> The revocable permit will be provided by Transportation once the above shoring information is reviewed and approved by the City of Portland Transportation Engineering group</p>
---	--	----------	---

To respond to this checksheet, bring to Document Services (located at 1900 SW 4<sup>th</sup> Ave, 2<sup>nd</sup> Floor, hours 8:00 a.m. - 3:00 p.m. Tuesday through Friday) a complete set of updated plans (one set for each checksheet). However, a single set may be submitted for responses to Fire, Life Safety, Structural and Site Development checksheets. You will also need to update or replace the Reference set kept in Document Services. Provide with your submittal, the attached Checksheet Response form.

If you have questions about the items on this checksheet, call the identified reviewer. To check the status of your project, call (503) 823-7000 and select option 4. Your Plan Review Status will be faxed to you, so please be ready to provide a fax number. If you don't have a fax number, you may dial (503) 823-7357 to request a Plan Review Status or visit Document Services.

We appreciate your helping us help you

## Ryan Lujan

---

**From** Blain Grover  
**Sent** Friday, July 01, 2011 7:43 AM  
**To** Ryan Lujan  
**Subject** FW: PBOT Checksheet - shoring and excavation Blanchet

Print this out and put with the checksheet response materials. Thanks

---

**From:** Close, Wayne [<mailto:Wayne.Close@portlandoregon.gov>]  
**Sent** Thursday, June 23, 2011 5:32 PM  
**To** Blain Grover  
**Subject:** RE: PBOT Checksheet - shoring and excavation Blanchet

Blain,

I talked with my supervisor, we can forgo the application and its review by the encroachment committee, will not be necessary. We just need the design and calcs so the PBOT structure group can take a look, they will let me know what to write into the encroachment permit for their needs. Once I get the permit written, I will send it over for signature and notarization. Sorry for the confusion, but the good news is, the application and committee approval time is out of the equation.

Thanks,  
Wayne

---

**From** Blain Grover [<mailto:BlainG@fortisconstruct.com>]  
**Sent** Thursday, June 23, 2011 5:04 PM  
**To** Close, Wayne  
**Cc** John Smith, Nick Saari ([Nick.Saari@kpff.com](mailto:Nick.Saari@kpff.com)), Joshua Lupkin, Greg Wimmer  
**Subject** RE: PBOT Checksheet - shoring and excavation Blanchet

Wayne

Can you send me a copy of the Encroachment Permit application so we can expedite response to #2's and #3 in the attached.

Thank you!

Blain Grover  
Fortis

---

**From** Joshua Lupkin [<mailto:joshual@serapdx.com>]  
**Sent.** Thursday, June 23, 2011 4:39 PM  
**To.** Greg Wimmer  
**Cc.** Blain Grover, John Smith, Nick Saari ([Nick.Saari@kpff.com](mailto:Nick.Saari@kpff.com))  
**Subject** FW: PBOT Checksheet - shoring and excavation Blanchet

Greg,  
Attached is a permit checksheet regarding PBOT and the shoring drawings for Blanchet House. Please respond to these issues as soon as possible and CC SERA with your response. These are some of the last issues holding up the permit so please be timely with your response.  
Thanks,

Joshua

Joshua Arum Lupkin  
www.serapdx.com  
503 445 7346

---

**From:** John Smith  
**Sent:** Thursday, June 23, 2011 4 21 PM  
**To:** Joshua Lupkin  
**Subject:** FW: PBOT Checksheet - shoring and excavation Blanchet

coordinate with fortis

John Smith, Associate, LEED® AP  
[www.serapdx.com](http://www.serapdx.com)  
503 445 7350

---

**From:** Close, Wayne [<mailto:Wayne.Close@portlandoregon.gov>]  
**Sent:** Thursday, June 23, 2011 10 42 AM  
**To:** John Smith  
**Cc:** Auch, Charles, O'Longaigh, David (PDOT), Jenkins, Jeri  
**Subject:** PBOT Checksheet - shoring and excavation Blanchet

Hello John,

Please find attached a copy of PBOT's checksheet addressing the requirements for obtaining an encroachment permit for the proposed shoring and excavation work in the public right-of-way. If you have any questions, please feel free to contact me.

Thank you,  
Wayne Close  
City of Portland  
Transportation Development Review  
503-823-7647

---

DISCLAIMER

This message and any attachments are intended for the sole use of the individual or entity to whom it is addressed. It may contain information that is privileged, confidential, and / or exempt from disclosure under applicable law. If you are not the intended recipient, you are hereby notified that you may not use, copy, disclose, or distribute this message or any information contained within, including any attachments, to anyone. If you have received this message in error, please immediately advise the sender and permanently delete the message and any attachments and destroy any printouts made. Although we have taken steps to ensure that our e-mail and attachments are free from viruses, the recipients should also ensure that they are virus free.

**REVOCABLE PERMIT**  
**Fortis Construction, Inc – Blanchet House of Hospitality Project**

This REVOCABLE PERMIT ("Permit") is hereby granted by the CITY OF PORTLAND, ("Grantor"), through the Office of Management and Finance, (OMF), to FORTIS CONSTRUCTION, INC, ("Fortis"), an Oregon corporation, ("Permittee"), for the temporary access and use of certain City owned real property for activities related to a development project for Blanchet House of Hospitality, ("Blanchet"), an Oregon nonprofit corporation. The Grantor and Grantee may be individually referenced herein as "Party" or collectively as "Parties"

**Recitals**

- 1 The City is the owner of the Lots 1 through 6 and east ½ of Lot 7 of Block 25, COUCH'S ADDITION TO THE CITY OF PORTLAND, in Portland, Oregon, which the city block surrounded by NW Glisan to the north, NW 3<sup>rd</sup> Avenue to the east, NW Flanders to the south and NW 4<sup>th</sup> Avenue to the west. These lots of Block 25 ("Property") are used for off-street parking utilized by Northwest Natural Gas Company, ("NWNG"), an Oregon corporation, under a Parking Agreement between the City and NWNG of June 1, 1999. The Office of Management and Finance (OMF) has administrative responsibility over the Property and the NWNG Parking Agreement.

---

- 2 Fortis is the construction contractor for Blanchet, which is obligated to develop Lots 5 and 8 of Block 25, COUCH'S ADDITION TO THE CITY OF PORTLAND, in Portland, Oregon, the portion of land at the northeast corner of that city block with the common addresses of 314-316 NW Glisan Street and 421, 429 & 439 NW 3rd Avenue, ("Development Parcel"), under a disposition and development agreement ("DDA") between Blanchet and City's Portland Development Commission ("PDC"). The property ownership to the Development Parcel and PDC's rights in the DDA have been transferred to the City's Portland Housing Bureau ("PHB"). It is the City's intention to transfer title to the Development Parcel to Blanchet to permit development of that property in accordance the DDA.
- 3 The City's Office of Transportation (PBOT) has administrative authority over the public right of ways, including the sidewalks, curbs, gutter and street, ("the ROW"), surrounding the Development Parcel. PBOT has management responsibility over the surface parking lot operations at the Property. The Office of Management and Finance (OMF) manages the NWNG Parking Agreement in consultation with PBOT and has authority to enter into this Permit.
- 4 Fortis requests permission for entry and access to a portion of the Property and the ROW surrounding the Development Parcel in order to excavate and construct a basement at the Development Parcel. Fortis anticipates the need to create a sloped layback that would intrude into the Property and ROW beyond the property line of the Development Parcel in order to excavate a basement approximately 11 to 13 feet below grade at the Development Parcel.
- 5 Fortis will execute a separate ROW permit directly with PBOT's ROW section for Fortis's proposed activities in the ROW.

**Agreed**

**1) Grant of Permit, Permitted Activities and Limitations of Use**

- a Permittee, its contractors and subcontractors are permitted to enter upon the Property in connection with the basement excavation work required at the adjacent Development Parcel, to perform the following
- i Install fencing and other barrier to safely segregate the portion of the Property that would continue to serve parking uses from the portion of the Property Permittee desires for the sloped layback zone for basement excavation of the Development Parcel. The City reserves the right to request safety devices or material (such as signs, lighting or cones) as it deems necessary to mitigate construction impact to the Property.
  - ii Provide the City with copies of environmental and geotechnical investigation/assessment reports pertaining to the layback zone.
  - iii Remove surface and subsurface materials in the layback zone as may be necessary to create the sloped layback zone for the basement excavation of the Development Parcel. The proposed location of the layback zone is preliminarily illustrated on the attached Exhibit A "Proposed Intrusion". All work to the layback zone must be performed in a manner that is satisfactory to the City and that will pose the least impact to the remainder of the Property and its use for parking and other purposes. Permittee shall provide specific details, including but not limited to construction documents incorporating geological, engineering and design details, regarding the specific width and depth of the layback zone and the amount of surface/subsurface material Permittee will remove. The actual location of the layback zone must be approved by the City and shall not remove more than 40 existing parking spaces from the Property. Permittee shall work with the City to ensure that the layback zone is the least amount of intrusion into, across and under the Property that is necessary for the Blanchet House project. Before commencing any surface or subsurface intrusion at the Property, Permittee shall obtain the City's written approval of Permittee's construction plans for the layback zone.
- b Permittee's access to the Property shall be in a manner that causes the least practical interference with the uses of the Property for parking and other ongoing operations of the City and NWNG. Access to the layback zone is permissible 24 hours a day, 7 days a week upon installation of fencing and barrier as required in the Permit.
- c Permittee agrees to keep the City Permit Representative informed on the Blanchet House project, including but not limited to construction commencement date, construction progress and anticipated project completion of any Permittee activity relating to the Property or the layback zone.
- d At its sole expense, Permittee will obtain all required building or work permits to perform work at the Property or the Development Parcel. Permittee shall provide the City with copies of permits and construction documents pertaining to work that relates to the Property or layback zone prior to commencement of any work at the Property, including but not limited to a ROW encroachment permit for excavation work on the ROW surrounding the Development Parcel. The City reserves the right to require Permittee make changes that may be necessary to satisfactorily mitigate the City's or NWNG's concerns.
- e All material including but not limited to concrete, asphalt, soil, dirt, rock and water excavated or generated in connection with Permittee activities at the Property or at Development Site shall be transported by Permittee to its facility or other suitable recycling or disposal location(s) for proper disposal in accordance with applicable local, state, and federal regulations.
- f Unless otherwise permitted, Permittee shall keep its equipment, materials, and vehicles within the confines of the layback zone. The remainder of the Property that is not part of the layback zone may not be utilized for construction activities including but not limited to construction staging, loading/unloading or storage, or vehicle parking or turn around. Permittee shall strictly manage construction activities in and around the Property and Development Parcel to ensure the minimum disruption to the rights of users of the Property.

Permittee assumes all risk for any damage or loss to its equipment or property while working under this Permit

- g Permittee shall give the City prompt written notice of any condition, disturbance, accident or occurrence on the Property related to Permittee's activities at the Property which might create a hazard to users of the Property
- h Permittee shall obtain City approval as to the materials that may be utilized at or brought onto the Property Use of explosives, highly flammable material or hazardous material is not permitted without prior written authorization from the City If permitted to have explosives, highly flammable material or other hazardous material at the Property Permittee shall exercise utmost care and carry on Permittee activities under supervision of properly qualified personnel
- i Permittee may not disturb any easements or utilities on the Property without the written consent to easement holders or utility service providers, and upon notice to the City
- j All work to be performed and material required shall be Permittee's sole expense and undertaken in a professional manner and in accordance with the highest and best work and safety requirements, standards and practices
- k Other than specified in this Permit, Permittee shall make no improvements to the Property without the prior consent of the City
- l Nothing in this Permit shall be interpreted to create anything other than a grant to use and shall specifically not create any right, title or interest in the Property or the layback zone
- m Permittee acknowledges that the City makes no representation or warranty, expressed or implied, as to the surface or subsurface condition of the Property—Permittee accepts the Property in its "AS IS" condition Notwithstanding this Permit, Permittee is not required or obligated to enter or use the Property or the layback zone The City, its officers, directors, agents, and employees shall not be liable for any patent or latent defect at the Property, any damage to equipment or any other property of Permittee or its contractor, or any injury to any person in or upon the Property

## 2) Repair and Restoration

- a At the expiration of the Permit or completion of Permittee work, whichever is sooner, Permittee shall
  - i Repair and restore the layback zone and any other portion of the Property, including any landscaping, sidewalk and curb adjacent to the Property, that may have been affected by Permittee's activities to the same or better condition as that existing immediately prior to Permittee's entry onto the Property, or to such other condition as the City may require Restoration shall include but is not limited to restoring and maintaining the structural and geological integrity of the layback zone and the Property, installing necessary and sufficient shoring as necessary, providing for environmental mitigation of any disturbed surface or subsurface whether within the layback zone or elsewhere on the Property, re-installing a parking surface satisfactory to the City, striping or restriping the layback zone and any other affected portions of the Property in the manner and upon the configuration required by the City, and replacing any signage or lighting that may have been removed or relocated for Permittee's activities Permittee shall obtain the City's approval as any subsurface material proposed to be re-installed in the layback zone
  - ii Remove all litter, scrap, rock, debris or like material resulting from Permittee's activities, and leave the Property in at least clean and neat condition
  - iii Provide assurances in the form as may be required by the City and satisfactory to the City Attorney to guarantee and warrant against defect the repair and restoration work done by Permittee at the Property, including but not limited to a two year warranty bond
- b Prior to commencement of repair or restoration work, Permittee shall provide the City with a written repair and restoration plan and obtain City approval of such plan Permittee shall

include any additional actions or steps in the plan to satisfactorily address the City's concerns related to repair and restoration

3) **Mitigation Impact to NWNG Parking Agreement**

- a Permittee understands that the Property is subject to a Parking Agreement between the City and NWNG and that Permittee's proposed entry and use of a portion of the Property would interfere with the City's and NWNG's rights to use the Property. Permittee shall inform and provide updates to the City and NWNG as to Permittee's activities at the Property.
- b Permittee shall be required to provide satisfactory compensation to the City and NWNG to mitigate the loss of revenue and parking use due to Permittee's activities at the Property.
- c Due to the loss of parking spaces in Permittee's use of the Property for the layback zone, Permittee shall provide equivalent number of alternative parking spaces to NWNG as may be lost due to the layback zone. The Parties estimate that there will be 40 spaces lost. Permittee may do so by obtaining rights of use, at no costs to the City or NWNG, at one or more nearby surface parking lot(s) or parking garage(s) at locations agreeable to NWNG. Alternatively, if NWNG consents, Permittee shall directly pay a sum agreeable to NWNG with which NWNG can utilize to acquire parking rights directly at nearby surface parking lot(s) or parking garage(s).
- d Permittee shall restripe the Property as may be deemed necessary by the City so that the portion of the Property not within the layback zone can be efficiently utilize to have adequate drive lanes, park spaces orientation and sufficient ingress/egress points that are efficient and safe for maneuvering and parking of vehicles.
- e If applicable, Permittee shall install temporary signage or lighting that may be required to be relocated due to Permittee's activities.
- f Within thirty (30) days of execution of this Permit or prior to commencement of any Permit activity, whichever is sooner, Permittee shall pay the City the sum of \$13,000.00 to compensate the City for parking revenue lost on evenings and weekends as a result of Permittee's activities.
- g On a daily basis, Permittee shall monitor and remove construction debris, dust and other material that may intrude onto the Property beyond the layback zone and shall avoid creating nuisance or other hazardous condition for the users of the Property.
- h Permittee will promptly pay claims of loss, injury or damage that may result from Permittee activities.

4) **Hazardous Substances**

- a No materials shall be stored, used, manufactured or disposed of within the Property or the surrounding City property except in compliance with all federal, state and local laws, provided that in no case may there be stored, used, manufactured or disposed of within the Property or surrounding City property any hazardous substances, as defined by ORS 465.200 and implementing regulations of the State of Oregon Department of Environmental Quality or which constitute a public health hazard, as defined by rules of the Oregon State Health Division, and no condition shall be permitted within the Property or surrounding Property which constitutes a health hazard, as defined by the rules of the Health Division.
- b Permittee shall in its use and entry upon the Property, observe all rules, regulations, and laws now in effect by any municipality, county, state or federal authority having jurisdiction over the Property, as they relate to the use of the Property. Permittee is solely responsible for obtaining any permits or approvals from other agencies or licensing bodies as may be necessary for Permittee's authorized entry upon and use of the Property. Furthermore, Permittee agrees to indemnify the Commission as provided above for any damages caused by the violation thereof of any permits or approvals that may so be required.
- c Permittee shall not have the right to use the electricity, gas, water, sewer and other utilities on the Property unless otherwise specified in Section 6 below.

- d Permittee shall not cause or permit to occur the use, generation, release, manufacture, handling, processing, storage, disposal or improper use of any Hazardous Substance, pollutant, or contaminant, on, under, or about the Property or the transportation to or from the Property of any Hazardous Substance except as may specifically detailed in Section 6 below. Prohibited Substances are substances regulated under any environmental law or regulation now or hereafter enacted by any governmental federal, state or local authority. Furthermore, Permittee agrees to indemnify the Commission as provided above for any damages caused by the violation thereof of any permits or approvals that may otherwise be required.
- e Permittee shall be responsible for the disposal of any contaminated soil encountered during work within the layback zone.
- f Permittee shall immediately notify the City of any hazardous materials abatement or environmental contamination that may be discovered during Permittee's activities at the Property, and that may or may not require clean-up or abatement by a property owner under federal, state or local environmental laws. As a material consideration for granting this Permit, Permittee shall have responsibility to undertake abatement and cleanup of the layback zone. The City shall have the right to review and audit Permittee's hazardous material abatement and environmental clean-up due diligence and remediation proposals.

**5) Indemnification**

- a Permittee shall indemnify, defend (at the City's request) and hold harmless the City and ~~NWNG, their officers, directors, agents and employees from any and all liability, damages, expenses, attorneys fees, causes of action, suits, claims or judgments, arising out of or connected with Permittee's (including Permittee's officers', directors', employees' or agents') acts or omissions with regard to this Permit~~
- b Permittee shall indemnify, defend (at the City's request) and hold harmless the City, and its successors and assigns, from and against all claims, costs, expenses, losses, damages and liabilities whatsoever arising from or in connection with any mechanics', materialmen's, laborers' or other construction or statutory liens filed against any portion of the Property or arising from or related to this Permit.
- c In addition to the indemnity provided above, Contractor agrees to indemnify, defend and hold harmless City, its officers, directors, agents and employees from and against all damages, costs, liabilities, and expenses caused by, arising out of, or in connection with, the handling, storage, discharge, transportation or disposal of hazardous or toxic wastes or substances, pollutants, oils, materials or contaminants, as those terms are defined by federal, state or local law or regulation, as amended from time to time. Damages, costs, liabilities and expenses shall include any amounts claimed to be owed by any regulating and administering agency. Permittee hereby assumes all risk of damage to Property or injury to persons in, upon or about the Property from any cause other than the City sole negligence, and Permittee waives all claims in respect thereof against the City.
- d Notwithstanding any defense obligation, no person or entity engaged by Permittee shall purport to act as the City's legal representative or in the name of the City, without first receiving from City's attorney (City Attorney) the authority to act as legal counsel for the City, and shall not settle any claim on behalf of the City without the approval of the City Attorney. Notwithstanding the obligation to indemnify, defend and hold harmless the City, the City may at its election assume its own defense and settlement if the City determines that Permittee or any other person is prohibited from defending the City or is not adequately defending City's interest, or determines that an important governmental principle is at issue and the City desires to assume its own defense.

**6) Insurance**

- a Permittee shall obtain and maintain insurance liability coverage, performance and payment security, public works bond requirement in amounts that would cover Permittee's work and

activities on the Property Unless the City otherwise agrees in writing, the following shall be required

- i Commercial general liability insurance coverage for bodily injury, property damage, personal injury, independent contractor's protection, premises/operations, products and completed operations, contractual liability coverage with minimum limits of not less than \$2,000,000 per occurrence and \$5,000,000 in the general aggregate, with the products and completed operations liability limits of not less than \$10,000,000 in the aggregate. The Commercial General Liability policy shall also have a per project aggregate endorsement
  - ii If pollution liability coverage is not included in the commercial general liability insurance, pollution liability coverage shall be required to cover bodily injury or property damage arising out of the actual, alleged or threatened discharge, dispersal, seepage, migration, release or escape of pollutants or hazardous materials (with coverage not be less than \$2,000,000 per occurrence, and \$5,000,000 in aggregate, inclusive of legal defense costs
  - iii Auto liability coverage in an amount not less than \$1,000,000 per accident to protect against liability arising out of the use of any automobile (owned, scheduled or hired) If Permittee requires the transport of hazardous substances, such as fuel, solvents or other hazardous materials with potential for environmental exposure, then pollution liability-broadened coverage for covered autos (CA 9948) and motor carrier act endorsement (MCS 90) or their equivalent are required
  - ~~iv Professional liability insurance covering wrongful acts, errors and/or omissions, including design errors, for damage arising from professional services in the amount of \$2,000,000 per occurrence and \$3,000,000 in the aggregate. The Professional Liability coverage shall apply for not less than three (3) years following Substantial Completion and shall be on a primary basis~~
  - v Workers' compensation insurance complying with the statutory limits of the State of Oregon to insure all persons or entities employed by Permittee, with the costs of such insurance as Permittee's cost
- b Permittee shall name its subcontractors as additional insureds under its policies or, in the alternative, cause each subcontractor to maintain separate insurance as determined by Permittee, provided that each subcontractor's limits of liability shall not be less than \$1,000,000 per occurrence and \$2,000,000 in the aggregate
  - c Prior to commencement of any Permit activities, Permittee shall provide the City with copies of Permittee's insurance certificates, including endorsements and/or policy summaries, security and bond documents of Permittee. The City shall have no responsibility for Permittee's insurance premiums
  - d The City of Portland and Northwest Natural Gas Company shall be added as listed additional insured on Permittee's policies, except for workers compensation and professional liability insurance. Permittee's insurance coverage shall be primary and non-contributory with any other insurance and self-insurance. The insurance shall be without prejudice to coverage otherwise existing and shall name as additional insureds the City and its officers, agents and employees. Notwithstanding the naming of additional insureds, the insurance shall protect each insured in the same manner as though a separate policy had been issued to each
  - e There shall be no termination, cancellation, material change, potential exhaustion of aggregate limits or non renewal of coverage without thirty (30) days' written notice from Permittee to City. If the insurance is canceled or terminated prior to the termination of this Permit, Permittee shall immediately notify the City and provide a new policy with the same terms. Any failure to comply with this clause shall constitute a material breach and shall be grounds for immediate termination of this Permit

- 7) **No Liens** Permittee shall keep the Property and adjacent properties used in connection with this Permit free from any liens arising in connection with any work performed, materials furnished or obligations incurred by or at the request of Permittee
- 8) **Performance Guarantee** Permittee shall guarantee performance in the form of a surety bond in a sum mutually agreeable and executed by a company authorized to transact business in the State of Oregon and acceptable to the City Attorney. Permittee shall maintain the guarantee in place throughout the term of the permit, except that Permittee may reduce the penal amount of such guarantee from time to time with the prior written consent of the City Permit Manager, which consent shall not unreasonably be withheld
- 9) **Notice, Permit Representatives, Proprietary Function**
  - a All notices under this Permit shall be in writing and shall be deemed validly given if sent by first class or certified mail, nationally recognized courier or facsimile transmission, and shall be effective upon receipt. Notices should be addressed as follows

To The CITY

Office of Management and Finance  
 Attn: Janene Edgerton, Property Manager  
 1120 SW 5th Avenue, Room 1204  
 Portland, OR 97204  
 503-823-6018  
 503-823-6924 Facsimile  
 Janene.edgerton@portlandoregon.gov

and

Office of Transportation – Parking Operations  
 Attn: Ruth Lane  
 1120 SW 5th Avenue, Room 800  
 Portland, OR 97204  
 503-823-5001  
 503-823-7576 Facsimile  
 Ruth.lane@portlandoregon.gov

To PERMITTEE

Fortis Construction Inc  
 Project Manager/Blanchet House of Hospitality Project  
 Attn: Blain Grover  
 1705 SW Taylor Street, Suite 200  
 Portland, Oregon 97205  
 503-572-5517  
 503-459-4477  
 503-549-4478 Facsimile  
 blaing@fortisconstruct.com

- b The Parties' Permit Representative shall be Ruth Lane for the City and Blain Grover for Fortis, or such other person(s) as the Parties may designate at a later time. The Permit Representative shall be responsible for monitoring, coordinating and managing requests and activities under this Permit
- c OMF shall be the proprietary agent of the City for this Permit and has the authority to execute this Permit on the City's behalf. Any City actions in its regulatory capacity, such as through the City's Bureau of Development Services (BDS), shall be deemed separate from

the actions of the City in its proprietary function in entering into this Permit which shall be exercised through OMF, any regulatory decisions land use and design review shall be subject to dispute resolution or judicial review appropriate for such decision. Actions by PBOT in its administration of the public right of ways and in issuing permits pertaining to use, occupancy or construction within the ROW shall be deemed separate administrative and proprietary functions and shall not bind nor limit the City's or OMF's decisions or activities pertaining to this Permit.

10) **Entry by City** This Permit in no way limits the City's right to enter upon the Property for any purpose. Upon reasonable notice to Permittee, the City may access the layback zone to inspect Permittee activities.

11) **Fees** Upon execution, Permittee shall pay a permit fee of \$2,500.00. This Permit may be extended for up to one year, with specific length of permit extension term, to be set at the discretion of the City. The fee for the extension term shall be prorated based on the fee for the initial permit term. All payments shall be paid to the "City of Portland" and sent to OMF - Property Management, 1120 SW 5th Ave, Room 1204, Portland, OR 97204, or to such other place as City may designate in writing. As may be applicable, Permittee shall pay taxes, if any, including, but not limited to, real property taxes or other assessments or levies assessed on the Property that may arise out of Permit's use of the Property, and any personal, income or excise tax obligations. All such taxes shall be paid within thirty (30) days of receipt of billing, with proof of payment to be provided to the City.

12) **Term**

- a The term of this Permit shall commence on July 18, 2011 (the "Commencement Date") and shall terminate on July 31, 2012 (the "Expiration Date"), unless sooner terminated or revoked pursuant to the terms of this Permit.
- b Request for continued use of the Property is subject to the sole discretion of the City and shall be made in writing at least thirty (30) days prior to the Expiration Date. No approval of extension of Permit may be permitted unless Permittee continues the mitigation actions related to the NWNG Parking Agreement and has not defaulted on any obligations under the Permit.
- c This Permit may be terminated and revoked as follows:
  - i At the option of the City, due to any breach of any term or condition contained herein to be performed by the Permittee. If the City chooses to terminate and revoke this Permit, it will give Permittee thirty (30) days notice of its intent to terminate and revoke. If the breach has not been cured within the 30 day period, then this Permit shall terminate and Permittee will restore the Premises as required herein.
  - ii If the Blanchet House project is terminated pursuant to the Blanchet and PHB DDA. At the option of the City, due to any breach of any term or condition contained in the Blanchet-PHB DDA by Blanchet. If the City chooses to terminate and revoke this Permit, it will give Permittee thirty (30) days notice of the City's intent to terminate and revoke. If the breach has not been cured by Blanchet within the 30 day period, then this Permit shall terminate and Permittee will restore the Premises as required herein. The City, at its sole discretion, may permit longer period for cure to match any cure period that Blanchet may have under its disposition and development agreement.
  - iii Upon mutual written agreement by the Parties.
  - iv Prior to commencement of surface or subsurface work in the layback zone, either party may terminate this Permit without cause by giving at least thirty (30) days prior written notice to the other specifying the date and time of termination. Upon any termination or expiration of this Permit, Permittee shall quit the Property and return the Property to the same or better condition it was in immediately prior to the activities of Permittee on the Property.

- d Termination of this Agreement shall not relieve or release Permittee from any liability or obligation which may have been incurred by Permittee prior to termination. In the event that the Permit is terminated, the City may retain any permit fees, if any.

13) **General Provisions**

- a Recitals The Recitals stated above are incorporated into this Permit
- b Compliance with Laws In connection with its activities under this Permit, Permittee shall comply with all applicable federal, state and local laws and regulations. Permittee is also responsible for determining and acquiring all other permits, licenses and approvals that may be required for this project.
- c Oregon Law and Forum This Permit of Entry shall be governed by the laws of the State of Oregon. Any litigation arising under this permit shall be in Multnomah County Circuit Court. Permittee shall conform to all applicable laws and regulations of any public authority affecting the Property and shall correct at Permittee's own expense any failure of compliance created by the fault or use of Permittee or its agents, employees or invitees.
- d Waiver of Breach The waiver by the City of the breach of any condition, covenant, or agreement herein contained to be kept, observed and performed by the Permittee shall in no way impair the right of the City to avail itself of any subsequent breach thereof. No waiver is effective unless such waiver is in writing and signed by the waiving party.
- e Entire Agreement/Survival This Permit contains the entire agreement between City and the Permittee and supersedes all prior written or oral discussions or agreements. Permittee's obligations under this Permit shall survive termination.
- f Assignability This permit is not assignable without the prior written consent of the City. Assignment of Permit without valid consent shall result in immediate termination of this Permit.
- g Illegality If any provision of this Agreement is determined by a proper court to be invalid, illegal or unenforceable, such invalidity, illegality or unenforceability shall not affect the other provisions of this Agreement and this Agreement shall remain in full force and effect without such invalid, illegal, or unenforceable provision.

The terms and conditions of this Revocable Permit are hereby accepted. The undersigned are duly authorized to execute this document on behalf of their respective corporation or governing body.

CITY OF PORTLAND, a municipal corporation



FORTIS CONSTRUCTION, INC  
an Oregon corporation

By \_\_\_\_\_  
Jeffrey B. Baer  
Director, Bureau of Internal Business Services  
Date \_\_\_\_\_

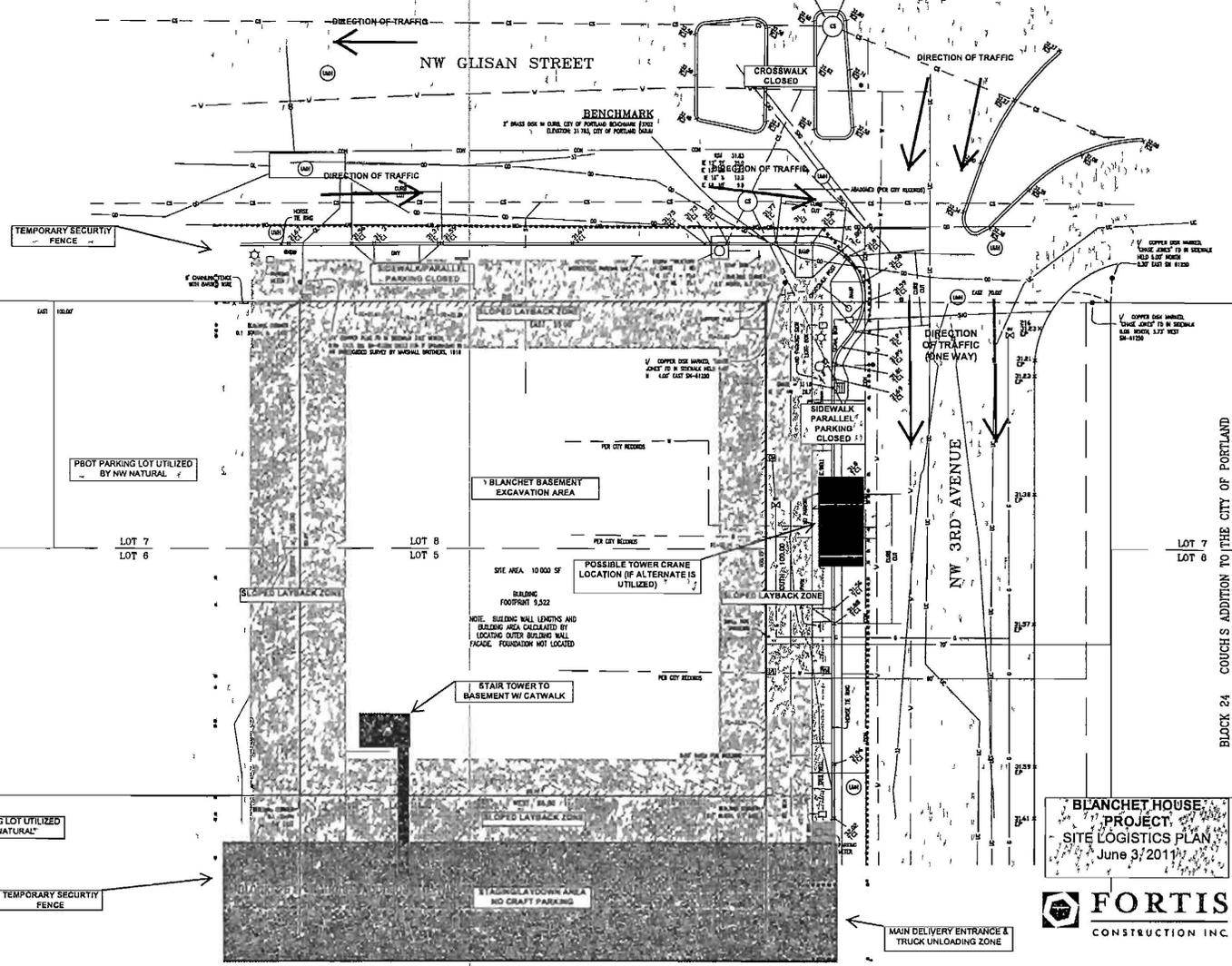
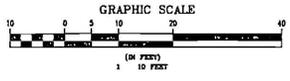
By \_\_\_\_\_  
Print Name \_\_\_\_\_  
Title \_\_\_\_\_  
Date \_\_\_\_\_

APPROVED AS TO FORM

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

**Exhibit A  
Proposed Intrusion**

*[map showing where layback zone will be]*



BLOCK 36 COUCH S ADDITION TO THE CITY OF PORTLAND

LOT 6

TOWN LOFTS CONDOMINIUM

OLD

NW 4TH AVENUE

EXISTING BLANCHET HOUSE PROPERTY

PBOT PARKING LOT UTILIZED BY NW NATURAL

LOT 7  
LOT 6

LOT 8  
LOT 5

LOT 7  
LOT 6

BLOCK 24 COUCH S ADDITION TO THE CITY OF PORTLAND

BLANCHET HOUSE PROJECT  
SITE LOGISTICS PLAN  
June 3, 2011



MAIN DELIVERY ENTRANCE & TRUCK UNLOADING ZONE

1) ANTI-COLLISION AREA NO CRAFT PARKING

STAIR TOWER TO BASEMENT W/ CATWALK

POSSIBLE TOWER CRANE LOCATION (IF ALTERNATE IS UTILIZED)

BLANCHET BASEMENT EXCAVATION AREA

BLANCHET BASEMENT EXCAVATION AREA

BENCHMARK  
1" BRASS DISK IN CURB, CITY OF PORTLAND RECORDS FILED  
ELEVATION 31.741, CITY OF PORTLAND DATA

NW GLISAN STREET

NW 3RD AVENUE

CROSSWALK CLOSED

DIRECTION OF TRAFFIC

DIRECTION OF TRAFFIC

DIRECTION OF TRAFFIC

DIRECTION OF TRAFFIC (ONE WAY)

TEMPORARY SECURITY FENCE

PBOT PARKING LOT UTILIZED BY NW NATURAL

TEMPORARY SECURITY FENCE

1/4" COPPER DISK MARKED "CHUCK JONES" IS IN SCHEDULED HELD LOT 6A, EAST 94-41250

1/4" COPPER DISK MARKED "CHUCK JONES" IS IN SCHEDULED HELD LOT 6A, EAST 94-41250

1/4" COPPER DISK MARKED "CHUCK JONES" IS IN SCHEDULED HELD LOT 6A, EAST 94-41250

1/4" COPPER DISK MARKED "CHUCK JONES" IS IN SCHEDULED HELD LOT 6A, EAST 94-41250

**FIRST ADDENDUM TO PARKING AGREEMENT  
FOR PART OF BLOCK 25, COUCH'S ADDITION**

This First Addendum is effective the \_\_\_\_\_ of June, 2011 between THE CITY OF PORTLAND, ("the City"), a municipal corporation, as Landlord, and NORTHWEST NATURAL GAS COMPANY, ("NWNG"), an Oregon corporation, as Tenant

Landlord and Tenant entered into a Parking Agreement on June 1, 1999 for Tenant's use of Lots 1 through 6 and east ½ of Lot 7 of Block 25, COUCH'S ADDITION TO THE CITY OF PORTLAND in the City of Portland, County of Multnomah, State of Oregon (the "Parking Property") for Tenant's parking use

Blanchet House of Hospitality, ("Blanchet"), an Oregon nonprofit corporation, currently owns and runs a men's transitional housing and shelter facility at the real property located at the west ½ of Lot 7 of Block 25, COUCH'S ADDITION TO THE CITY OF PORTLAND Blanchet has acquired rights to develop the real property located at Lot 8 of Block 25, COUCH'S ADDITION TO THE CITY OF PORTLAND ("Development Parcel"), and to construct a new building for Blanchet's operations Fortis Construction, Inc, ("Fortis"), an Oregon corporation, is the contractor for Blanchet and has requested permission for entry and access to a portion of the Parking Property surrounding the Development Parcel in order to excavate and construct a basement at the Development Parcel Fortis anticipates the need to create a sloped layback ("layback zone") that would intrude into the Parking Property of about 12 feet beyond the property line of the Development Parcel in order to excavate a basement about 13 feet below grade at the Development Parcel

Fortis discussed with NWNG its construction plan and proposal to mitigate and offset impacts and temporary intrusion onto the Parking Property NWNG is agreeable to Fortis's proposal The City will issue a revocable permit to Fortis separately to permit Fortis's entry onto the Parking Property

IT IS AGREED

- 1 The Recitals are made part of this Addendum
- 2 NWNG consents to the City's Office of Management and Finance issuing a revocable permit to Fortis granting Fortis permission to enter and use to the Parking Property for the purposes related to Blanchet's and Fortis's development of the Development Parcel NWNG understands that Fortis's permit term will be from July 18, 2011 through July 31, 2012, and may be extended by the City as needed to complete construction activities
- 3 NWNG understands that Fortis's operations will include fencing and/or other barrier to segregate the layback zone from the rest of the Parking Property and will temporarily deprive NWNG of 40 parking spaces at the Parking Property NWNG accepts Fortis's mitigation to NWNG as satisfactory consideration and substitution of NWNG's lost of use and benefit to NWNG and its tenants, customers, invitees, agents and

employees NWNG accepts Fortis's proposal to replace the lost parking spaces with equivalent number of spaces at one or more nearby surface parking lot(s) or garage(s) at no additional costs to NWNG Arrangements for the substitute parking spaces will be made directly between NWNG and Fortis

- 4 NWNG understands that Fortis will include NWNG as an additional insured on Fortis's liability insurance policy as an additional mitigation measure NWNG agrees that NWNG will pursue Fortis directly regarding any claims, causes of action, liability, damage or expenses that may arise out of Fortis's activities at the Parking Property and that the City will not have any responsibility to NWNG for the same The City shall not be required to compensate NWNG NWNG will work with Fortis and Fortis's insurer directly to address any insurance claims
- 5 For the duration of Fortis's use of the Parking Property, NWNG will be relieved of responsibility for security and maintenance as to that portion of the Parking Property used by Fortis for the layback zone NWNG will retain and continue its responsibility for the portion of the Parking Property not so used by Fortis
- 6 As to Section 12.6 of the Parking Agreement, notice to the City, the following will be substituted in lieu

To the City  
 Office of Management and Finance (OMF)  
 Attn: Director of Bureau of Internal Business Services  
 1120 SW 5<sup>th</sup> Avenue, Rm 1204  
 Portland, Oregon 97204

With Copy to  
 City Attorney's Office  
 Attn: City Attorney  
 1221 SW 4<sup>th</sup> Avenue, Rm 430  
 Portland, Oregon 97204

- 7 All other terms and conditions of the Parking Agreement shall remain the same

IN WITNESS WHEREOF, the parties have executed this First Addendum in duplicate, any corporate signature being by authority of the Board of Directors of the executing corporation

**NORTHWEST NATURAL GAS COMPANY, CITY OF PORTLAND, Landlord  
 Tenant**

\_\_\_\_\_  
 Print Name \_\_\_\_\_  
 Title \_\_\_\_\_  
 Date \_\_\_\_\_

\_\_\_\_\_  
 Print Name Jeffrey B. Baer  
 Title Director, Bureau of Internal Business Services  
 Office of Management and Finance  
 Date \_\_\_\_\_

APPROVED AS TO FORM

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

CITY OF PORTLAND  
OFFICE OF TRANSPORTATION

APPLICATION TO THE CITY ENGINEER FOR STREET IMPROVEMENT PERMIT

Date 7/5/2011

Job No TI5026

Applicant FORTIS CONSTRUCTION INC  
~~BLANCHET HOUSE OF HOSPITALITY~~

Applicant's Address 340 NW GLISAN ST, PORTLAND, OR 97209-3712 1705 SW TAYLOR ST SUITE 200

PORTLAND, OR 97205

Applicant's phone number(s) 503-297-1729 (503) 459-4477

The Applicant applies for a permit to improve/construct public street improvements on NW 3RD AVE & GLISAN ST, as a condition of approval for Building Permit Applications No 2010-178319-000-00-CO, under PBOT Job No TI5026 in accordance with plans and specifications approved by the City Engineer (PBOT) and in conformance with all applicable City Codes and requirements

The applicant agrees to the following conditions

- 1 The Applicant shall complete the attached permit within 6 months of the date of signature of this application and prior to occupancy of any new buildings on site
- 2 The Applicant shall complete all required street improvements within 18 months of the date of the signature of this application, or prior to occupancy of any buildings on the site, whichever comes first
- 3 The assurance of performance in the amount of \$50,300 00, provided in conformance with 17 24 055 and described below can be called on in the event that applicant fails to carry out all provisions of this application

Assurance of Performance

Type PERFORMANCE BOND

Date signed 7/5/11

Identifying number BOND # 023008841

Signer's name JIM KILPATRICK

- 4 An initial permit fee deposit in the amount of \$500 must be submitted and is subject to forfeit in full if the applicant fails to carry out the provisions of this application
- 5 The Applicant shall maintain, at the Applicant's expense, required public improvements for a period of twenty-four (24) months following issuance of a Certificate of Completion, as assurance against defective workmanship or materials employed in such improvements
- 6 Twenty (20%) percent of the amount of the performance of assurance shall be retained by the City through the maintenance period as assurance of performance by the Applicant of maintenance responsibilities
- 7 If installation of required improvements is not completed, and required maintenance work is not performed to the City's satisfaction within the one year time period specified in Section 1 above, the City may recover the full cost and expense from the assurance of performance of if the assurance of performance is not sufficient, from the Applicant, and may utilize these funds to cause the work to be completed

**COPY**

IN WITNESS WHEREOF, the Applicant above named, has executed this Permit Application as of this 5<sup>th</sup> day of JULY, 2011

~~BLANCHET HOUSE OF HOSPITALITY~~ FORTIS CONSTRUCTION INC  
(Name of Applicant)

By [Signature]  
(Signature)

Title PROJECT MANAGER  
(Title of Signatory)

STATE OF OREGON

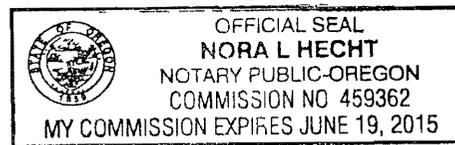
COUNTY OF MULTNOMAH

This instrument was acknowledged before me on JULY 15, 2011,  
by BLAIN GROVER as PROJECT MGR  
(Name of Signatory) (Corporate Title of Signatory)  
of FORTIS CONSTRUCTION  
(Corporation Name)

[Signature]  
Notary Public for Oregon

My Commission expires JUNE 19, 2015

APPROVED AS TO FORM



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

**COPY**

**PERFORMANCE BOND**

Job No TI5026

Bond No 023008841

**KNOW ALL MEN BY THESE PRESENTS** That we, Fortis Construction, Inc,  
as Principal, and Safeco Insurance Company of America, a corporation organized  
and existing under the laws of the State of Washington, and duly authorized to transact a surety  
business in the State of Oregon, as Surety, are held and firmly bound unto the CITY OF PORTLAND, a municipal  
corporation of the State of Oregon, in the penal sum of **FIFTY THOUSAND THREE HUNDRED & ZERO/100**  
Dollars (**\$50,300 00**), lawful money of the United States of America, for the payment which well and truly to be  
made, we and each of us, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and  
severally, firmly by these presents

**THE CONDITION OF THIS BOND IS SUCH**

**WHEREAS**, the Principal herein has made application to the City Engineer of the City of Portland for a  
permit to construct public street improvements on NW 3RD AVE & GLISAN ST, as a condition of approval for  
Building Permit Applications No 2010-178319-000-00-CO, per plans and specifications for PBOT Job No TI5026  
as approved by the City Engineer (PBOT) under the provisions of Ordinance No 130672, Code of the City of  
Portland, and whereas said application, a copy of which is attached, when approved by the City Engineer of said  
City, and a permit issued, subject to and upon certain conditions, directions, stipulations, terms, provisions and  
requirements provided for in said permit, said permit is made a part of this bond to the same extent and effect as if  
written herein and specific reference now made to all the terms, provisions, specifications and requirements set out,  
declared and provided for in said permit,

**NOW THEREFORE**, if the Principal herein shall faithfully and truly observe the terms, provisions,  
conditions, stipulations, directions and requirements of said permit and shall in all respects, whether the same be  
enumerated herein or not, faithfully comply with the same and shall assume the defense of, indemnify and save  
harmless the City of Portland, its officers, agents and employees from all claims, liabilities, loss, damage or injury  
which may have been suffered or claimed to have been suffered to persons or property directly or indirectly  
resulting from or arising out of the operations or conduct of said Principal or any subcontractor in the performance  
of the work under said permit and shall indemnify and make whole the City for any injury or damage to any street,  
highway, avenue or road or any part thereof, resulting from the operations or conduct of said Principal or any  
subcontractor in connection with the performance or conduct of the work under said permit, and shall in all respects  
faithfully keep and observe all of said terms, provisions, conditions, stipulations, directions and requirements, then  
this obligation is void, otherwise it shall remain in full force and effect

**IN WITNESS WHEREOF**, the above named parties have duly executed this instrument this 1st  
Day of July, 20 11

Fortis Construction, Inc  
Principal's Name

By \_\_\_\_\_  
Principal's Signature & Title

Corporate Seal

By Vicki Mather  
Signature of Attorney-in-Fact for Surety **Vicki Mather**

Anchor Insurance & Surety, Inc  
Firm Name of Attorney-in-Fact

Address 1201 SW 12th Ave , Suite 500

Portland, OR 97205

Phone No 503-224-2500

**POWER OF ATTORNEY ATTACHED**

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated

SAFECO INSURANCE COMPANY OF AMERICA  
SEATTLE, WASHINGTON  
POWER OF ATTORNEY

COPY

KNOW ALL PERSONS BY THESE PRESENTS That Safeco Insurance Company of America (the "Company"), a Washington stock insurance company, pursuant to and by authority of the By-law and Authorization hereinafter set forth, does hereby name, constitute and appoint **GLORIA BRUNING, GENE M DIETZMAN, JAMES P DOONEY, PHILIP O FORKER, JOHN D KLUMP, RAY M PAIEMENT, J PATRICK DOONEY, RICHARD W KOWALSKI, TAMARA A RINGEISEN, VICKI MATHER, BRENT OLSON, JOEL DIETZMAN, KAREN A PIERCE, CHRISTOPHER A REBURN, ALL OF THE CITY OF PORTLAND, STATE OF OREGON**

, each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations in the penal sum not exceeding **ONE HUNDRED MILLION AND 00/100\*\*\*\*\* DOLLARS (\$ 100,000,000 00\*\*\*\*\*)** each, and the execution of such undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents, shall be as binding upon the Company as if they had been duly signed by the president and attested by the secretary of the Company in their own proper persons

That this power is made and executed pursuant to and by authority of the following By law and Authorization

ARTICLE IV Execution of Contracts Section 12 Surety Bonds and Undertakings

Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitations as the Chairman or the President may prescribe, shall appoint such attorneys in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and executed, such instruments shall be as binding as if signed by the president and attested by the secretary

By the following instrument the chairman or the president has authorized the officer or other official named therein to appoint attorneys-in-fact

- Pursuant to Article IV, Section 12 of the By-laws, Garnet W Elliott, Assistant Secretary of Safeco Insurance Company of America, is authorized to appoint such attorneys-in-fact as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations

That the By-law and the Authorization set forth above are true copies thereof and are now in full force and effect

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Company and the corporate seal of Safeco Insurance Company of America has been affixed thereto in Plymouth Meeting, Pennsylvania this 21st day of December, 2010



SAFECO INSURANCE COMPANY OF AMERICA

By Garnet W. Elliott  
Garnet W Elliott, Assistant Secretary

COMMONWEALTH OF PENNSYLVANIA ss  
COUNTY OF MONTGOMERY

On this 21st day of December, 2010, before me, a Notary Public, personally came Garnet W Elliott, to me known, and acknowledged that he is an Assistant Secretary of Safeco Insurance Company of America, that he knows the seal of said corporation, and that he executed the above Power of Attorney and affixed the corporate seal of Safeco Insurance Company of America thereto with the authority and at the direction of said corporation

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written



Notaria Sada  
Teresa Pastella, Notary Public  
Plymouth Meeting, Montgomery County  
My Commission expires Mar 28 2013  
Member Pennsylvania Association of Notaries

By Teresa Pastella  
Teresa Pastella, Notary Public

CERTIFICATE

I, the undersigned, Assistant Secretary of Safeco Insurance Company of America, do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy, is in full force and effect on the date of this certificate, and I do further certify that the officer or official who executed the said power of attorney is an Assistant Secretary specially authorized by the chairman or the president to appoint attorneys-in-fact as provided in Article IV, Section 12 of the By-laws of Safeco Insurance Company of America

This certificate and the above power of attorney may be signed by facsimile or mechanically reproduced signatures under and by authority of the following vote of the board of directors of Safeco Insurance Company of America at a meeting duly called and held on the 18th day of September, 2009

VOTED that the facsimile or mechanically reproduced signature of any assistant secretary of the company, wherever appearing upon a certified copy of any power of attorney issued by the company in connection with surety bonds, shall be valid and binding upon the company with the same force and effect as though manually affixed

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seal of the said company, this 1st day of July, 2011



David M. Carey  
David M Carey, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, bank deposit, currency rate, interest rate or residual value guarantees

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day

COPY

**STREET OPENING BOND**

Bond # 023008839

KNOW ALL MEN BY THESE PRESENTS

That we Fortis Construction, Inc

Address 1705 SW Taylor St , Suite 200, Portland, OR 97205

Phone # 503-459-4477

as Principal, and Safeco Insurance Company of America

Address 16505 SW 72nd Ave , Bldg F, Portland, OR 97224

Phone # 503-697-0170

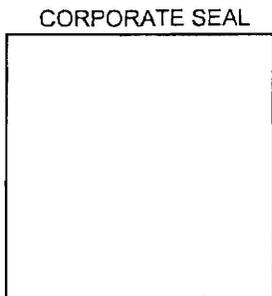
a corporation organized and existing under the laws of the State of Washington, and duly authorized to transact a surety business in the State of Oregon, as Surety, are held and firmly bound unto the CITY OF PORTLAND, a municipal corporation of the State of Oregon, and unto whom it may concern, in the penal sum of TWO THOUSAND AND NO/100 DOLLARS (\$2,000), lawful money of the United States, for the payment of which will and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents

**WHEREAS**, the above named principal from time to time is working on projects as provided by Section 17 32 040 of the Code of the City to dig up, break into, excavate, disturb, dig under or undermine a public street or part thereof in the said City of Portland

**NOW, THEREFORE**, if the above named Principal shall faithfully comply with the Code and Ordinances of the City of Portland regulating such work in effect at that time, and shall further, in performing work, immediately remove all surplus sand, earth, rubbish and other material and shall immediately place in condition satisfactory to the City Engineer, the portion of such street, alley, or public highway so disturbed, dug up, or undermined, **and shall keep such portion of said street in good repair for a period of two years from the date of the completion of such work, then this obligation shall be null and void, otherwise to remain in full force and effect**

This bond shall not be canceled for any reason without first giving 30 days written notice to the City Engineer, 1900 SW 4<sup>th</sup> Avenue, Suite 5000, Portland OR 97201

**IN WITNESS WHEREOF**, the above named parties have duly executed this instrument this 30th day of June, 2011



APPROVED AS TO FORM

City Attorney

Date \_\_\_\_\_

**Fortis Construction, Inc**

By \_\_\_\_\_  
Principal's Signature

By \_\_\_\_\_  
Principal's Name & Title  
**Safeco Insurance Company of America**  
Attorney-in-Fact for Surety Signature

**Vicki Mather, Attorney-in-Fact**  
Attorney-in-Fact for Surety Name

**Anchor Insurance & Surety, Inc**  
Firm Name of Attorney-in-Fact

**1201 SW 12th Ave , Suite 500**  
Portland, OR 97205

Address (Attorney-in-Fact)

**503-224-2500**

Phone # (Attorney-in-Fact)

**POWER OF ATTORNEY ATTACHED**

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND

4307401

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated

SAFECO INSURANCE COMPANY OF AMERICA  
SEATTLE, WASHINGTON  
POWER OF ATTORNEY

**COPY**

KNOW ALL PERSONS BY THESE PRESENTS That Safeco Insurance Company of America (the "Company"), a Washington stock insurance company, pursuant to and by authority of the By-law and Authorization hereinafter set forth, does hereby name, constitute and appoint **GLORIA BRUNING, GENE M DIETZMAN, JAMES P DOONEY, PHILIP O FORKER, JOHN D KLUMP, RAY M PAIEMENT, J PATRICK DOONEY, RICHARD W KOWALSKI, TAMARA A RINGEISEN, VICKI MATHER, BRENT OLSON, JOEL DIETZMAN, KAREN A PIERCE, CHRISTOPHER A REBURN, ALL OF THE CITY OF PORTLAND, STATE OF OREGON**

, each individually if there be more than one named, its true and lawful attorney-in fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations in the penal sum not exceeding **ONE HUNDRED MILLION AND 00/100\*\*\*\*\* DOLLARS (\$ 100,000,000 00\*\*\*\*\*)** each, and the execution of such undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents, shall be as binding upon the Company as if they had been duly signed by the president and attested by the secretary of the Company in their own proper persons

That this power is made and executed pursuant to and by authority of the following By-law and Authorization

ARTICLE IV Execution of Contracts Section 12 Surety Bonds and Undertakings

Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitations as the Chairman or the President may prescribe, shall appoint such attorneys in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and executed, such instruments shall be as binding as if signed by the president and attested by the secretary

By the following instrument the chairman or the president has authorized the officer or other official named therein to appoint attorneys-in-fact

Pursuant to Article IV, Section 12 of the By laws, Garnet W Elliott, Assistant Secretary of Safeco Insurance Company of America, is authorized to appoint such attorneys-in-fact as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations

That the By-law and the Authorization set forth above are true copies thereof and are now in full force and effect

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Company and the corporate seal of Safeco Insurance Company of America has been affixed thereto in Plymouth Meeting, Pennsylvania this 21st day of December, 2010



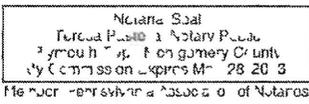
SAFECO INSURANCE COMPANY OF AMERICA

By Garnet W. Elliott  
Garnet W Elliott, Assistant Secretary

COMMONWEALTH OF PENNSYLVANIA ss  
COUNTY OF MONTGOMERY

On this 21st day of December, 2010, before me, a Notary Public, personally came Garnet W Elliott, to me known, and acknowledged that he is an Assistant Secretary of Safeco Insurance Company of America, that he knows the seal of said corporation, and that he executed the above Power of Attorney and affixed the corporate seal of Safeco Insurance Company of America thereto with the authority and at the direction of said corporation

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written



By Teresa Pastella  
Teresa Pastella, Notary Public

CERTIFICATE

I, the undersigned, Assistant Secretary of Safeco Insurance Company of America, do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy, is in full force and effect on the date of this certificate, and I do further certify that the officer or official who executed the said power of attorney is an Assistant Secretary specially authorized by the chairman or the president to appoint attorneys-in-fact as provided in Article IV, Section 12 of the By-laws of Safeco Insurance Company of America

This certificate and the above power of attorney may be signed by facsimile or mechanically reproduced signatures under and by authority of the following vote of the board of directors of Safeco Insurance Company of America at a meeting duly called and held on the 18th day of September, 2009

VOTED that the facsimile or mechanically reproduced signature of any assistant secretary of the company, wherever appearing upon a certified copy of any power of attorney issued by the company in connection with surety bonds, shall be valid and binding upon the company with the same force and effect as though manually affixed

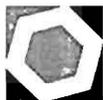
IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seal of the said company, this 30th day of January, 2011



By David M. Carey  
David M Carey, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, bank deposit, currency rate, interest rate or residual value guarantees

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day



July 5, 2011

Jason Butler-Brown, PE, GE  
City of Portland  
Bureau of Development Services  
1900 SW 4th Ave, Suite 5000  
Portland, Oregon 97201

RECEIVED  
JUL 06 2011  
BDS  
DOCUMENT SERVICES

**Reference Blanchet House of Hospitality  
Application #: 10-178319-000-00 CO  
Response to Site Development Checksheet Number 3**

Dear Jason

We are providing this response to the Site Development Checksheet Number 3 dated June 27, 2010 for the above mentioned permit application. Please see the response narrative and attached documents. We hope this addresses your questions and request for clarifications.

Item #1 Special Inspection Form for Soils Special Inspection. No response at this time pending BDS review of response to Item #4 below.

Item #4 Shoring and Excavation Design

- Sub Item A See revised Sheets SH001 and SH002 dated 6/3/2011
- Sub Item B See attached GeoDesign Memorandum dated 6/28/2011 and revised Sheets SH001 and SH002 dated 6/3/2011
- Sub Item C See response to Sub Item B above
- Sub Item D See attached structural calculations provided by KPFF
- Sub Item E See attached access permit produced by PBOT which is currently enroute for execution by the signing parties. An encroachment permit will not be required per attached e-mail from Wayne Close dated June 23, 2011

Please let me know if you need more information.

Sincerely,  
Fortis Construction, Inc

*Blain Grover*

Blain Grover  
Sr Project Manager

## Site Development Checksheet Response

Permit # 10-178319-000-00-CO

Date 6/30/11

Customer name and phone number FORTIS CONSTRUCTION (503) 894-3741

*Note* Please number each change in the '#' column. Use as many lines as necessary to describe your changes. Indicate which reviewer's checksheet you are responding to and the item your change addresses. If the item is not in response to a checksheet, write customer in the last column.

#	Description of changes, revisions, additions, etc	Checksheet and Item #
1	SH 001 & SH 002 - SHOWING DESIGN HAS BEEN REDESIGNED TO REFLECT WATER TABLE	CHECK SHEET 4
2	CALL SHEETS FROM KPFF FOR NEW CONDITION	CHECK #4
3	LETTER FROM FORTIS - FURTHER CLARIFYING CHANGES	CUSTOMER
4	LETTER FROM FORTIS REGARDING PBOT CHECKLIST	CUSTOMER
5	EMAIL FROM WAYNE @ PBOT NOTING NO NEED FOR APPLICATION FOR ENCROACHMENT COMMITTEE	CHECK #4E
6	COPY OF REVOKABLE PERMIT	CUSTOMER
7	COPY OF STREET IMPROVEMENT PERMIT & BONDS	CUSTOMER

(For office use only)



# STRUCTURAL CHECKSHEET

Application # 10-178319-000-00-CO

Review Date May 26, 2011

## INSTRUCTIONS

To respond to this checksheet, come to Permitting Services (located at 1900 SW Fourth Ave , 2<sup>nd</sup> Floor, hours 8 00 a m - 3 00 p m Tuesday through Friday) and update all four sets of the originally submitted drawings To update the drawings, you may either replace the original sheets with new sheets, or edit the originally submitted sheets (Specific instructions for updating plans are posted in Document Services )

Please complete the attached Checksheet Response Form and include it with your re-submittal

If you have specific questions concerning this Checksheet, please call me at the phone number listed above To check the status of your project, go to <http://www.portlandonline.com/bds/index.cfm?c=34194> Or, you may request the status to be faxed to you by calling 503-823-7000 and selecting option 4

You may receive separate Checksheets from other City agencies that will require separate responses

**NEW DEVELOPMENT SERVICES CENTER HOURS** The DSC (1<sup>st</sup> floor) and Permitting Services (2<sup>nd</sup> floor) are open Tuesday through Friday from 8 00 a m to 3 00 p m (closed on Mondays) In the DSC, Land Use, Site Development or Building Permit application review, submittal or intake of complete permits/applications will be limited to between 8 00 AM and 12 00 PM Land Use applications and Building Permit review or intake will not be processed after 12 00 PM Please visit the BDS website for more information regarding the Development Services Center hours

**NEW RECHECK FEE** Please note that for plans submitted on or after July 1, 2010 plan review fees for Life Safety, Structural, Site Development and Planning and Zoning will cover the initial review and up to two checksheets and the reviews of the applicant's responses to those checksheets All additional checksheets and reviews of applicant responses will be charged \$155 per checksheet



**MECHANICAL CHECKSHEET**

Application # **10-178322-000-00-MT**

**Mechanical Permit**

Review Date **October 7, 2010**

<b>To</b>	<b>APPLICANT</b>	JOHN SMITH SERA ARCHITECTS 338 NW 5TH AVE PORTLAND OR 97209	<b>Primary</b>	503 445-7350
			<b>Fax</b>	503 445-7395
			<b>e-Mail</b>	johns@serapdx.com

<b>From</b>	BDS Mechanical Engineer	Marcia Karr P E	<b>Phone</b>	503-823-1107
			<b>Fax</b>	503-823-4591

<b>cc</b>	<b>OWNER</b>	PORTLAND CITY OF(PDC)(LEASED & MULTIPLE TENANTS 222 NW 5TH AVE PORTLAND, OR 97209-3812		
-----------	--------------	---	--	--

**PROJECT INFORMATION**

Street Address      439 NW 3RD AVE

Description of Work      TWO 2 5-TON AND ONE 12-TON SPLIT, HW BOILERS W/DV COMBUSTION AND FLUES, TWO HRU'S, ONE MAU, TYPE 1 HOOD W/FIRE WRAP TO ROOF, PLANS W/10-178319-CO

Based on the plans and specifications submitted, the following items appear to be missing or not in conformance with the Oregon Mechanical Specialty Code and / or other city, state, or federal requirements

Item #	Location on plans	Code Section	Clarification / Correction Required
1			Please provide duct penetration detail demonstrating compliance w/IBC 716 5 4, exception 3
2			Please provide elevator vent per IBC 3004, w/motorized damper defined to be normally closed, power closed, open upon fire alarm
3			Please confirm that 100 cfm is adequate to provide 68 degrees minimum in sleeping rooms per IBC 1204
4			Please note to slope Type 1 duct 1/4" per foot toward hood and confirm adequate space above ceiling just north of stair 1
5			
6			
7			
8			
9			
10			

**RECEIVED**  
MAY 19 2011  
BDS  
DOCUMENT SERVICES

## MECHANICAL CHECKSHEET

Application # 10-178322-000-00-MT

Review Date October 7, 2010

### INSTRUCTIONS

To respond to this checksheet, come to Permitting Services located at 1900 SW Fourth Ave , 2<sup>nd</sup> Floor, and update all four sets of the originally submitted drawings To update the drawings, you may either replace the original sheets with new sheets, or edit the originally submitted sheets (Specific instructions for updating plans are posted in Document Services )

Please complete the attached Checksheet Response Form and include it with your re-submittal

If you have specific questions concerning this Checksheet, please call me at the phone number listed above To check the status of your project, go to <http://www.portlandonline.com/bds/index.cfm?c=34194> Or, you may request the status to be faxed to you by calling 503-823-7000 and selecting option 4

You may receive separate Checksheets from other City agencies that will require separate responses

**NEW DEVELOPMENT SERVICES CENTER HOURS** The DSC (1<sup>st</sup> floor) and Permitting Services (2<sup>nd</sup> floor) are open Tuesday through Friday from 8 00 a m to 3 00 p m (closed on Mondays) In the DSC, Land Use, Site Development or Building Permit application review, submittal or intake of complete permits/applications will be limited to between 8 00 AM and 12 00 PM Land Use applications and Building Permit review or intake will not be processed after 12 00 PM Please visit the BDS website for more information regarding the Development Services Center hours

**NEW RECHECK FEE** Please note that for plans submitted on or after July 1, 2010 plan review fees for Life Safety, Structural, Site Development and Planning and Zoning will cover the initial review and up to two checksheets and the reviews of the applicant's responses to those checksheets All additional checksheets and reviews of applicant responses will be charged \$155 per checksheet

# Mechanical Checksheet Response

Permit #: 10-178322-000-00-MT

Date: May 19, 2011

Customer name and phone number John Smith, SERA Architects 503-445-7350

Note Please number each change in the '# column Use as many lines as necessary to describe your changes Indicate which reviewer's checksheet you are responding to and the item your change addresses If the item is not in response to a checksheet, write **customer** in the last column

#	Description of changes, revisions, additions, etc.	Checksheet and item #
1	See revised Detail #2 on Drawing M501	Mechanical #1
2	See revised Drawing M105 and revised Detail #4 on Drawing M501	Mechanical #2
3	The supply air to the rooms have adequate heating capacity to maintain at least 68 degrees F on a design day per code This is accomplished through highly insulated walls, efficient glazing selection and low leakage construction	Mechanical #3
4	See revised Drawing M101 key note #4 This requirement is also included in specification section 233101 3 2-H	Mechanical #4

-----  
(for office use only)

RECEIVED  
MAY 19 2011  
BDS  
DOCUMENT SERVICES