

730 SW 10TH AVE

MT-01-156300

MT.01.156300

I

SEP 19 2001
MICROFILMED

16



CITY OF
PORTLAND, OREGON

OFFICE OF PLANNING AND DEVELOPMENT REVIEW
1900 SW 4th Ave, Suite 5000
Portland, OR 97201



STATUS CHECK	Mechanical Permit	Application # 01-156300-000-00-MT
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Status Date: August 31, 2001

IVR Number: **2119615**

APPLICANT PORTLAND CITY OF
OWNER PORTLAND CITY OF
CONTRACTOR NONE

Phone:
Phone:
Phone:

PROJECT INFORMATION

Description of Work: HVAC REPLACE CHILLER

Street 730 SW 10TH AVE
Address

Occupancy Group	Construction Type	Sub Type	Work Proposed
		Commercial/Multifamily	Addition/Alteration/Replace (MT)

This report shows those reviews which have been assigned as of August 31, 2001 at 8:22 am. Technical reviews may trigger additional review assignments.

Review Type/Process	Mandatory	Status	Action Date	Reviewer	Phone
Completeness Check - Mechanical	X	Closed	8/31/01	Loewen, Shirley	503-823-7298
Assign plan and file location		Open		DOCUMENT SERVICES	503-823-7357
Assign Reviews - MT		Open			
Corrections Received - MT		Open		DOCUMENT SERVICES	503-823-7357
Life Safety Review	X	Open	9/5	LIFE SAFETY	503-823-7357
Mechanical Review	X	Open		Lee, Fred	503-823-7536
Fire Plan Review	X	Open		FIRE	
Pre-issuance check	X	Open		PRE-ISSUANCE MT, SG	503-823-7357
Payment Received		Open			

(PAID)
AUG 31 2001
CITY OF PORTLAND



Mechanical Permit Application

City of Portland

1900 SW 4th, Ste 5000, PO Box 8120, Portland,

Phone: (503) 823-7633, Fax: (503) 823-3018

TDD: (503) 823-6868, Website: www.opdr.ci.portland.or.us

OFFICE USE ONLY

Date received: 8-21 Permit no.: 01-156300MT

By:

TYPE OF PERMIT

- ☐ 1 & 2 family dwelling or accessory
☐ New construction

- ☒ Commercial/Industrial
☐ Addition/alteration/replacement

- ☐ Multi-family ☐ Tenant improvement
☐ Other:

JOB SITE INFORMATION

Job address: 730 SW 10th Ave
Bldg. no.: _____ Suite no.: _____
Tax map/tax lot/account no.: _____
Lot: _____ Block: _____ Subdivision: _____
Project name: _____
City/county: _____ ZIP: _____
Description and location of work on premises: _____

Building Permit #, if applicable: _____
Est. date of completion/inspection: _____
Will you call for inspection within 24 hours? ☐ Yes ☐ No
Tenant improvement or change of use:
Is existing space heated or conditioned? ☐ Yes ☐ No
Is existing space insulated? ☐ Yes ☐ No

MECHANICAL CONTRACTOR

Business name: TD BID
Address: _____
City: _____ State: _____ ZIP: _____
Phone: _____ Fax: _____ E-mail: _____
CCB no.: _____
City/metro lic. no.: _____
Name (please print): _____

CONTACT PERSON

Name: JONATHAN E. FREDERICK BLS Facilities
Address: 1120 SW 5th Ave Rm 1204
City: PORTLAND State: OR ZIP: 97204
Phone: 823-6929 Fax: 3-5342 E-mail: _____

OWNER

Name: _____
Mailing address: _____
City: _____ State: _____ ZIP: _____
Phone: _____ Fax: _____ E-mail: _____

ENGINEER

Name: _____
Address: _____
City: _____ State: _____ ZIP: _____
Phone: _____ Fax: _____ E-mail: _____

Applicant's signature: [Signature] City of Portland
Name (print): FREDERICK

COMMERCIAL VALUATION SCHEDULE

Indicate equipment quantities in boxes below. Indicate the dollar value of all mechanical materials, equipment, labor, overhead, profit. Value \$ 780,000

*See checklist for important application information and jurisdiction's fee schedule for residential permit fee.

1 & 2 FAMILY DWELLING PERMIT FEE SCHEDULE AND COMMERCIAL/INDUSTRIAL EQUIPMENT SCHEDULE

Description	Qty.	Fee (ea)	Total
		Res. only	Res. only
HVAC:			
Air handling unit _____ CFM		\$19	
Air conditioning (site plan required)		\$19	
Alteration of existing HVAC system		\$24	
Boiler/compressors			
State boiler permit no.:			
HP _____ Tons _____ BTU/H		\$24	
Fire/smoke dampers/duct smoke detectors			
Heat pump (site plan required)		\$38	
Install/replace furnace/burner _____ BTU/H			
Including ductwork/vent/liner <input type="checkbox"/> Yes <input type="checkbox"/> No		\$40	
Install/replace/relocate heaters - suspended, wall, or floor mounted		\$19	
Vent for appliance other than furnace		\$16	
Refrigeration:			
Absorption units _____ BTU/H			
Chillers _____ HP			
Compressors _____ HP			
Environmental exhaust and ventilation:			
Appliance vent		\$16	
Dryer exhaust		\$10	
Hoods, Type I II/res. kitchen/hazmat hood fire suppression system		\$10	
Exhaust fan with single duct (bath fans)		\$10	
Exhaust system apart from heating or AC		\$16	
Fuel piping and distribution (up to 4 outlets)			
Type: _____ LPG _____ NG _____ Oil		\$11	
Fuel piping each additional over 4 outlets		\$2	
Process piping (schematic required)			
Number of outlets			
Other listed appliance or equipment:			
Decorative fireplace		\$19	
Insert - type _____		\$42	
Woodstove/pellet stove		\$42	
Other: (including oil tanks, gas and diesel generator, gas and electric ceramic kilns, gas fuel cells, jewelry torches, crucibles and other appliance/equipment not included above)		\$24	

SEP 10 200

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

Permit Number

Permit fee\$
Minimum fee (\$50)\$
Commercial Plan review (at 60%) \$
State surcharge (8%)\$
TOTAL\$

01-156300-MT

SPECIFICATION

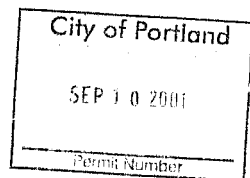
HVAC Chiller Replacement

At

Morrison Park West
10th & Yamhill Garage
730 SW Tenth Avenue
Portland, Oregon 97205

For

City of Portland
Bureau of General Services
1120 SW Fifth Avenue, Room 1204
Portland, OR 97204
01/02.1084
City Job #98/99-7040AC



Environmental & Engineering Services, Inc.
687 NW Fifth Street
Corvallis, Oregon 97330
(541) 754-1062 Phone
(541) 753-3948 Fax



August 2001



11/20/01

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- Project Locations
- Notice to Bidders
- Contact List
- 00100 Instructions to Bidders
- 00200 Special Prequalification Form
- 00300 Form of Proposal
- Bid Bond Form
- Non-Collusion Affidavit
- Assignment of Antitrust Rights
- Bidder Checklist - Good Faith Effort Requirements
- Divisions of Work
- Work Force Training & Hiring Program - Contractor Checklist
- Prevailing Wage Rates (COLI)
- 00301 General and Supplementary Conditions

Division 01 - General Requirements:

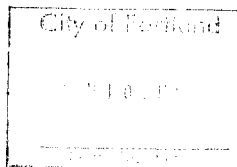
- 01000 General Requirements
- 01002 Project Meetings
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Division 1 - General Requirements

- 01010 Summary of Work
- 01040 Coordination
- 01085 Standards
- 01300 Submittals
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Division 15 - Mechanical

- 15050 Basic Mechanical Materials & Equipment
- 15500 Chiller



1 GENERAL

2
3 Work related to this Section is specified in other sections. Other sections of these
4 Specifications also apply even though not described here.

5
6
7 1. WORK COVERED BY CONTRACT DOCUMENTS

8 Work covers all labor and materials for the installation of Chiller Replacement as specified
9 herein and as shown on the Drawings. Work shall be done by skilled workers, properly
10 trained, qualified, and licensed for this Work.

11
12
13
14 1. CONTRACTOR'S DUTIES

15
16 Except as specifically noted, each Contractor shall provide and pay for:
17
18 Labor, materials and equipment, tools, construction equipment and machinery, required for
19 construction, and other services essential for proper execution and completion of the Work.

20
21 Give required notices, comply with codes, ordinances, rules, regulations, and other legal
22 requirements of public authorities which bear on performance of Work. Unless otherwise
23 noted in the Contract Documents, the Owner will be responsible for processing the
24 construction documents and obtaining any required permits from the local jurisdiction having
25 authority.

26
27 As essential for proper execution and completion of Work, and as applicable at time of receipt
28 of Bids, Contractor shall secure and pay for all: permits, government fees, and licenses.

29
30 The Contractor shall be responsible for all violations of the law for any cause in connection
31 with the construction of the Work or caused by obstruction of streets, sidewalks, or otherwise
32 and shall give all requisite notice to public authorities.

33
34 Promptly submit written notice to Engineer of observed variance of Contract Documents from
35 legal or code requirements.

36
37 Review shop drawings, product data, and samples.

38
39 Receive and unload products at site; inspect for completeness and for damage.

40
41 Handle, store, install, and finish products. Storage of materials to be coordinated with the
42 Owner.

43
44 Repair or replace items damaged by Work of this Contract.

45
46 Purchase and maintain liability insurance to protect Contractor from claims for not less than
47 the limits of liability which Contractor is required to provide to Owner.

City of Portland

SEP 10 2001

1 Conform to General Specifications and Requirements of the City of Portland.

3 Enforce strict discipline and good order among employees.

5 Do not employ on work unfit persons or persons not skilled in assigned tasks.

8 1.3 CONTRACTOR USE OF PREMISES

10 Confine operations at site to areas permitted by Contract Documents and as directed by
11 Project Manager.

13 Do not unreasonably encumber site with materials or equipment. Do not load structure with
14 weight that will endanger structure.

16 The building will be occupied during the work; therefore, the Contractor must take
17 precaution not to interfere with operation of occupants or shut down any building services
18 during operating business hours without obtaining prior approval to do so by building
19 maintenance. Allow for safe entry/exit of Owner's occupancy or public. Maintain building
20 security as required by Owner.

22 Assume full responsibility for protection and safekeeping of products stored on premises.

23 Move any stored products which interfere with operations of Owner or other Contractors.

24 Obtain and pay for use of additional storage or work areas needed for operations.

26 Limit Contractor's employee parking and storage to locations designated at the pre-
27 construction conference.

29 Conduct operations in such a way to ensure the least inconvenience to the Owner's staff and
30 general public, including:

- 32 a. Limitations and easements.
- 33 b. Emergency vehicle access.
- 34 c. Building access to the public, day and night.
- 35 d. Use of stairs & Vehicle access.
- 36 e. Storage space available.
- 37 f. Work areas.

40 1.4 TRANSPORTATION AND HANDLING

42 Arrange deliveries of products in accordance with construction schedules; coordinate to avoid
43 conflict with Work and conditions at the Site.

45 Deliver products in undamaged condition in manufacturer's original containers or packaging
46 with identifying labels intact and legible.

1 Inspect shipments to assure compliance with requirements of Contract Documents and
2 reviewed submittals, and that products are undamaged.

3
4 Provide equipment and personnel to handle products by methods to prevent damage to
5 products or packaging.

6
7
8 1.5 STORAGE

9
10 Arrange storage in a manner to provide easy access for inspections of stored products to assure
11 that products are maintained under specified conditions and free from damage or
12 deterioration.

13
14 Provide substantial coverings as necessary to protect installed products from damage from
15 traffic and subsequent construction operations. Remove when no longer needed.

16
17 Make arrangements and coordinate with Owner's Representative all on-site storage activities.
18 Security for on-site stored materials is the responsibility of the Contractor.

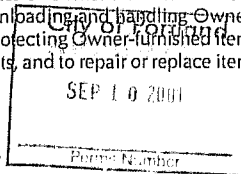
19
20 The Contractor is responsible for designating the delivery dates of Owner-furnished items in
21 the Contractor's Construction Schedule and for receiving, unloading and handling Owner-
22 furnished items at the site. The Contractor is responsible for protecting Owner-furnished items
23 from damage, including damage from exposure to the elements, and to repair or replace items
24 damaged as a result of their operations.

25
26
27 1.6 ASBESTOS AND OTHER HAZARDOUS MATERIALS

28
29 Asbestos is not believed to exist at the job site. Any asbestos interfering with the new work
30 shall be removed by the Owner. Asbestos removal is not part of this Contract. However, if
31 the Contractor and/or his subcontractors or subordinates encounter unexpected asbestos
32 materials that interfere with the work under this contract, notify the Owner and Engineer
33 immediately. Under no circumstances is asbestos to be removed by anyone other than a
34 qualified asbestos removal contractor approved by the Owner. The Contractor will be held
35 responsible for additional asbestos cleanup costs caused by the improper handling of asbestos
36 by the Contractor and/or his subcontractors or subordinates.

37
38
39 1.7 ALTERNATES

40
41 Alternates quoted on Bid Forms will be exercised as Owner option. Accepted alternates will
42 be listed in Owner-Contractor Agreement.



1.8 SALVAGE

Owner shall identify which items shall remain with site or for Owners salvage. All other material to be removed to accommodate new work or is indicated for demolition shall become the property of the Contractor. Contractor to safely remove or dispose of property salvaged by Contractor.

2 PRODUCTS

2.1 REUSE OF EXISTING MATERIAL

Except as specifically indicated or specified, materials and equipment removed from existing construction shall not be used in the completed Work.

For material and equipment specifically indicated or specified to be reused in the Work.

- a. Use special care in removal, handling, storage, and reinstallation to assure proper function in the completed Work.
- b. Arrange for transportation, storage, and handling of products which require off site storage, restoration, or renovation. Pay all costs for such Work.
- c. Contractor shall be responsible for removing and reinstalling mechanical units, vents, guys, antennae, and electrical and grounding wires or conduits.

2.2 MATERIALS AND EQUIPMENT

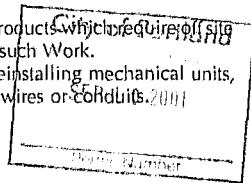
Unless otherwise specified, all material and equipment shall be new; free from defects impairing strength, durability, and appearance; of current manufacture. Items specified shall be considered minimum as to quality, function, capacity, and suitability for application intended.

Items incorporated into the Work shall conform to applicable specifications and standards designated, and shall be of size, make, type, and quality specified, unless otherwise approved.

2.3 MANUFACTURED AND FABRICATED PRODUCTS

Design, fabricate, and assemble in accordance with current best engineering, industry, and shop practices. Manufacture like parts of duplicate units to standard size and gauge to make them interchangeable.

Two or more items of the same kind shall be identical and made by the same manufacturer.



3 EXECUTION

3.1 PREPARATION

Inspect existing conditions, project requirements and the Contract Documents. Verify that materials and equipment being furnished meet requirements specified.

3.2 MATERIAL HANDLING

If, in the opinion of the Contractor, cranes, hoists, towers, or other lifting devices are necessary for the proper and efficient movement of materials, comply with these requirements;

- a. Use only experienced personnel.
- b. Remove equipment as soon as possible after task is ended.
- c. Coordinate the placement of such equipment with the Owner's Representative to insure that existing surfaces are not damaged.
- d. Obtain required permits and meet the requirements of governing authorities regarding street and sidewalk closures, safety, noise, and other applicable regulations.

3.3 QUALITY OF WORK

Unless otherwise specified, perform the Work using workers skilled in the particular type of work involved.

Should the Owner, in writing, deem anyone on the Work incompetent or unfit for the assigned duties, dismiss the worker immediately or reassign the worker to a different task requiring a lesser degree of competence.

Work shall be first class in every respect and all Work performed shall be according to the best trade practices.

The Contractor shall maintain effective supervision on the project at all times Work is being performed. The Superintendent shall be the same person throughout the project and shall attend the preconstruction conference.

END OF SECTION

1 1 GENERAL

2
3 Work related to this Section is specified in other sections. Other sections of these
4 Specifications also apply even though not described here.

5
6
7 1.1 DESCRIPTION

8
9 The Contractor is responsible for overall coordination of the Project described herein.
10 Cooperation among the various crafts and contracts is essential for the proper execution of the
11 Work.

12
13 Coordinate sequence of Work to accommodate Owner occupancy.

14
15 Coordinate Work under direction of Engineer, or Owner's Representative.

16
17
18 1.2 JOB CONDITIONS

19
20 Contract Documents show and describe overall installation of equipment. Drawings are
21 diagrammatic and do not show every offset, bend or elbow which may be required for
22 installation in the space provided.

23
24 Include all items required for a complete installation, whether or not shown or described.

25
26 Follow indicated routing of hydronic pipes and electrical raceway and conduit as closely as
27 practicable. Provide clearances and utilize spaces, efficiently to maintain adequate
28 accessibility for future maintenance, repairs, and additions.

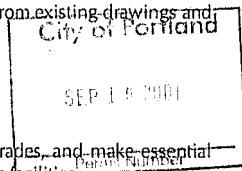
29
30 Existing facilities are located as accurately as can be determined from existing drawings and
31 on-site inspections. Verify at Site.

32
33
34 1.3 COORDINATION

35
36 Perform all essential Work to receive or join with Work of all trades, and make essential
37 connections required to prevent interruption of service to existing facilities.

38
39 Coordinate Work to provide adequate clearances for installation and maintenance of
40 equipment.

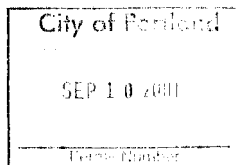
41
42 Relocate installed work which does not provide adequate accessibility.



1 Coordinate space requirements and installation of mechanical, plumbing, and electrical work,
2 which are indicated diagrammatically on Drawings. Follow routing as closely as practical;
3 make runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility
4 for other installations and maintenance.

5
6 Refer any coordination questions to the Owner's Representative.
7
8
9

10
END OF SECTION



1 GENERAL

2
3 Work related to this Section is specified in other sections. Other sections of these
4 Specifications also apply even though not described here.

5
6
7 1.4 DESCRIPTION

8
9 Work Included:

10 Throughout the Contract Documents, reference is made to codes and standards which
11 establish qualities and types of workmanship and materials, and which establish methods for
12 testing and reporting on the pertinent characteristics.

13
14 Where named materials or workmanship are required by these Contract Documents, it is the
15 Contractor's responsibility to provide materials and workmanship which meet or exceed the
16 specifically named code or standard.

17
18 It is also the Contractor's responsibility, when so required by the Contract Documents, or by
19 written request from the Engineer, to deliver to the Engineer all required proof that materials
20 or workmanship, or both, meet or exceed the requirements of the specifically named code or
21 standard. Such proof shall be in the form requested in writing by the Engineer, and generally
22 will be required to be copies of a certified report of tests conducted by a testing agency
23 approved for that purpose by the Engineer.

24
25 Related Work Described Elsewhere:

26 Specific naming of codes or standards occurs on the Drawing and in other Sections of these
27 Specifications.

28
29
30 1.5 QUALITY ASSURANCE

31
32 Familiarity With Pertinent Codes and Standards:

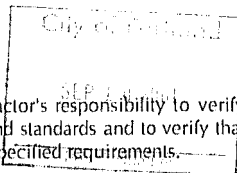
33 In procuring all items used in this Work, it is the Contractor's responsibility to verify the
34 detailed requirements of the specifically named codes and standards and to verify that the
35 items procured for use in this Work meet or exceed the specified requirements.

36
37 Rejection of Non-Complying Items:

38 The Engineer reserves the right to reject items incorporated into the Work which fail to meet
39 the specified minimum requirements. The Engineer further reserves the right, and without
40 prejudice to other recourse the Engineer may take, to accept non-complying items subject to
41 an adjustment in the Contract Amount as approved by the Engineer and the Owner.

42
43 Applicable Standards:

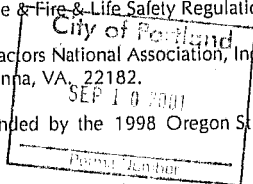
44 The applicable standards listed in these Specifications include, but are not necessarily limited
45 to, standards promulgated by the following agencies and organizations:



City of Portland
10th & Yamhill Garage HVAC Chiller Replacement

Standards
01085-2

- 1 AWWA: American Water Works Association.
2
3 ANSI: American National Standards Institute, 1430 Broadway, New York, NY 10018.
4
5 ASHRAE: American Society of Heating, Refrigeration, and Air Conditioning Engineer, Inc.,
6 1791 Tullie Circle, N.E., Atlanta, GA 30329.
7
8 ASME: American Society of Mechanical Engineers.
9
10 ASTM: American Society For Testing and Materials, 1916 Race Street, Philadelphia, PA
11 19103.
12
13 AWS: American Welding Society, Inc., 2501 NW 7th Street, Miami, FL 33125.
14
15 CS: Commercial Standard of NBS, U.S. Department of Commerce, Government
16 Printing Office, Washington, D.C. 20402.
17
18 IAPMO: International Association Of Plumbing and Mechanical Officials.
19
20 NEC: National Electrical Code (see NFPA).
21
22 NEMA: National Electrical Manufacturer's Association, 155 East 44th Street, New York,
23 NY 10017.
24
25 NFPA: National Fire Protection Association, 470 Atlantic Avenue, Boston, MA 02210.
26 State of Oregon Structural Specialty Code & Fire & Life Safety Regulations.
27
28 SMACNA: Sheet Metal and Air Conditioning Contractors National Association, Inc., 8224
29 Old Courthouse Rd., Tysons Center, Vienna, VA, 22182.
30
31 UBC: 1997 Uniform Building Code as amended by the 1998 Oregon Structural
32 Specialty Code.
33
34 UL: Underwriter's Laboratory, Inc., 207 East Ohio Street, Chicago, IL 60611.
35
36 IMC: 1998 International Mechanical Code as amended by the 1999 Oregon
37 Mechanical Specialty Code.
38
39 UPC: 1997 Uniform Plumbing Code as amended by the 2000 Oregon Plumbing
40 Specialty Code.
41



1 1 GENERAL

2
3 Work related to this Section is specified in other sections. Other sections of these
4 Specifications also apply even though not described here.

5
6
7 1. DESCRIPTION

8
9 Submit, to the Engineer, project documentation required by Specification sections.

10
11 Refer to Section 01630 for substitution options.

12
13
14 1.7 SUBMITTALS

15
16 List of all sub-contractors, to include name(s) of principals, telephone number and Scope of
17 Work to be performed by that sub-contractor.

18
19 Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts,
20 illustrations and other standard descriptive data. Clearly mark each copy to identify pertinent
21 materials, products, or models. Show dimensions and clearances required, performance
22 characteristics, capacities, wiring diagrams, and controls.

23
24
25 1.8 CONTRACTOR'S RESPONSIBILITIES

26
27 The Contractor shall review and approve shop drawings and project data prior to submission.

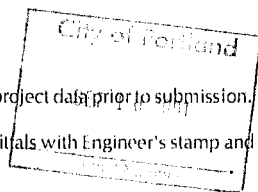
28
29 Begin no work which requires submittals until return of submittals with Engineer's stamp and
30 initials or signature indicating approval.

31
32 Delays caused by Contractor's failure to fully comply with requirements of this Section will
33 not justify extensions in the construction schedule. Submittals which indicate less than full
34 review by Contractor will be returned by Engineer for compliance.

35
36 The Contractor shall verify field measurements, field construction criteria, catalog numbers,
37 and similar data. Coordinate each submittal with requirements of Work and of Contract
38 Documents. Notify Engineer, in writing at time of submission, of deviations in submittals from
39 requirements of Contract Documents. Contractor's responsibility for errors and omissions in
40 submittals is not relieved by Engineer's review of submittals, nor is the responsibility for
41 deviations in submittals from requirements of Contract Documents relieved by Engineer's
42 review of submittals unless Engineer gives written acceptance of specific deviations.

43
44
45 1.9 SUBMITTAL SCHEDULING

46
47 Submittals shall be sent to the Owner at least 15 calendar days before the date each is



required for fabrication or installation for items requiring review by the Owner only.

Submittals to be reviewed by Owner's consultants shall be sent to the Owner at least 20 calendar days before the date each is required for fabrication or installation.

Submittals involving Substitution Requests or other modifications requiring review by the Owner and/or the Owner's consultants shall be sent to the Owner at least 20 calendar days before the date each is required for fabrication or installation.

Process submittals in ample time for review, as applicable, so as to not delay the Work. All submittals shall be received by the Owner within ten (10) days after pre-construction conference.

1.10 SUBMISSION REQUIREMENT

Submit three (3) copies of shop drawings and project data which Contractor requires for distribution, including one (1) copy to be retained by Engineer.

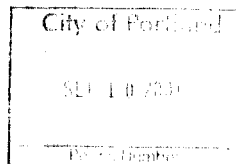
Accompany Submittals with dated transmittal letter containing Project title and number, Contractor's name and address, the number of each Shop Drawing, Project Data submitted, other pertinent data and notification of any deviations from Contract Documents.

Submittals shall include current date, revision dates, Project title, and the names of the Engineer, Contractor, Supplier, and Manufacturer. Also include identification of product or material, relation to adjacent structure or materials, field dimensions (clearly identified as such) and any deviations from the Contract Documents.

The Contractor shall initial or sign the submittals, certifying to review of submittal, verification of field measurements and compliance with Contract Documents.

1.11 DISTRIBUTION OF SUBMITTALS AFTER APPROVAL

Distribute approved copies of Shop Drawings and Project Data to Contractor's file, Engineer, subcontractors, supplier, and Owner.



ENGINEER'S DUTIES

Engineer will review submittals with reasonable promptness, for adherence to design concept of project and information given in Contract Documents. Review of separate item does not constitute review of an assembly in which item functions.

Engineer will affix stamp and initials, or sign, to certify review of submittal and then will return submittals to contractor for distribution.

Engineers approval of submittals do not supersede the Plans and Specification requirements. Equipment not meeting design criteria is to be replaced at Contractors or suppliers cost. Any omission of equipment or materials in the submittals, but necessary for the work must be furnished and installed.

AS-BUILT DRAWINGS

Contractor is to maintain one set of marked drawings showing all clarifications, deviations and alterations, routing and nomenclature for documentation of actual installation. Upon completion of the Project, submit to Engineer. Engineer will provide Owner with revised as-built drawings obtained from contractor's marked construction drawing set.

REVIEW CONDITIONS

Engineer will mark reviewed materials as follows:

- a. "No Exception Taken," which means fabrication, manufacture and/or installation may proceed.
- b. "Make Revisions Noted," which means fabrication, manufacture and/or installation may proceed with revisions as noted.
- c. "Revise and Resubmit," which means that fabrication, manufacture and/or installation may not proceed.
- d. "Rejected," which means do not proceed; make arrangements for the re-review of the proposed Work with the Owner as soon as possible.

2. PRODUCTS

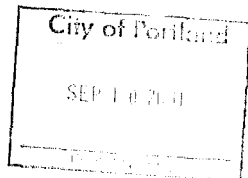
2.1 SUBMITTAL CONTENT AND FORMAT

2.1.1 Manufacturer's Requirements:

2.1.1.1 Shop Drawings - submit three (3) prints of each drawing.

2.1.1.2 Product Data

2.1.1.3 Submit 4 copies



Submittals shall include:

- a. Date and revision dates, return date requested.
- b. Project title and number.
- c. The names of the Contractor, subcontractor, supplier, and manufacturer.
- d. Identification of product or material, with Specification Section number.
- e. Relation to adjacent critical features of work or materials.
- f. Field dimensions, clearly identified as such.
- g. Applicable standards, such as ASTM number or Federal Specification.
- h. Identification of deviations from Contract Documents, and for products, accompanied by Substitution Request as required.
- i. Contractor's stamp, legibly signed, essentially as follows:
 - i) The undersigned, acting on behalf of the Contractor, certifies that this submittal has been reviewed and is approved; products have been verified as being as specified, field measurements and field construction criteria have been or will be coordinated, and the submittal is in compliance with Contract documents.

Re-submission Requirements:

- a. Revise initial drawings as required and resubmit as specified for initial submittal.
- b. Indicate on drawings any changes which have been made other than those requested by the Owner or the Owner's consultants.
- c. The Owner may return without review any submittal not meeting the requirements listed above.

Shop Drawings:

Present data in a clear and thorough manner.

- a. Details shall be identified by reference to sheet and detail, schedule or room numbers shown on Contract Documents.
- b. Structural items shall be identified by location in the completed structure. Identify details by reference to contract sheet and detail numbers.

Minimum sheet Size: 8 1/2" x 11"

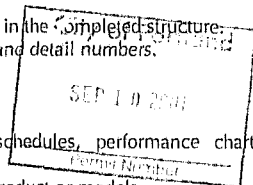
Product Data:

Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data.

- a. Clearly mark each copy to identify pertinent product or models
- b. Show dimensions, weights, and clearances required.
- c. Show performance data consisting of capabilities, power ratings, pressure drops, design characteristics and consumption; conforming as closely as possible to the test methods referenced in the plans and specification.
- d. Show wiring or piping diagrams and controls.

Manufacturer's standard schematic drawings and diagrams:

- a. Modify to delete information which is not applicable.
- b. Supplement standard information to provide information specifically applicable to project.



3 EXECUTION

3.3 GENERAL REQUIREMENTS

Review submittals, make necessary corrections, and become familiar with the content of the submittals prior to turning the material over to the Owner. Mark each item with a stamp or by some other means to indicate that such is the case.

Accompany submittals with a transmittal letter bearing the Project name, Contractor's name, number of items, and other pertinent data.

Mark or tag each submittal to show the date, and the names of the Project, Contractor, or subcontractor, manufacturer or supplier, and separate detailer, if pertinent. Also, identify the Specification section where the particular item is specified in the Project Manual.

Keep one copy of each reviewed submittal on the job site at all times.

3.4 SPECIFIC REQUIREMENTS, SHOP DRAWINGS

Identify shop drawing details by reference to sheet and detail numbers shown on the Drawings.

Unless otherwise specified in an individual Specification section, submit one reproducible transparency, and three prints of each shop drawing.

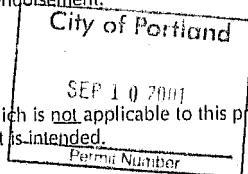
Be responsible for obtaining and distributing prints of shop drawings to the various suppliers, and the Owner once approval is obtained. Make prints of reviewed shop drawings only from transparencies which carry the appropriate stamp and endorsement.

3.5 SPECIFIC REQUIREMENTS PRODUCT DATA

Modify standard product data to delete information which is not applicable to this project. Supply additional data, if required to show clearly what is intended.

Modify manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data to show the specific product application intended for the Project.

Unless otherwise specified in an individual specification section, submit four (4) copies of each submittal item.



END OF SECTION

1 1 GENERAL

2
3 Work related to this Section is specified in other sections. Other sections of these
4 Specifications also apply even though not described here.

7 2 PRODUCTS

10 2.1 MATERIALS

11
12 Furnish materials new and free from defects and of size, make, type and quality specified or
13 an acceptable substitute.

16 2.2 PRODUCTS AND EQUIPMENT

17
18 Meet the detailed requirements indicated in the various sections and provide products and
19 equipment suitable for the installation shown. Products and equipment not meeting all
20 specified requirements will not be accepted, even though specified by name along with other
21 manufacturers.

22
23 When two or more items of the same kind are required under this work, use items of a single
24 manufacturer, except where specifically exempted. Unless otherwise indicated, component
25 parts of an assembly need not be the product of a single manufacturer.

26
27 Capacities and equipment sizes and dimensions shown or specified are minimum, unless
28 otherwise indicated.

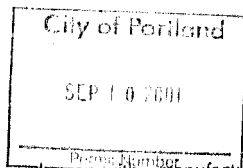
29
30 Tolerances used in specified rating or testing standards will not be allowed in determining
31 capacities of products and equipment.

34 3 EXECUTION

37 3.1 PERFORMANCE

38
39 Unless otherwise indicated, perform work in accordance with ~~manufacturer's~~
40 recommendations for BEST results. Do not omit any preparatory step or installation procedure
41 unless specifically modified or exempted by the Contract Documents.

42
43 Install work in a neat and professional manner.
44
45
46



3.2 QUALITY CONTROL, GENERAL

Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.

3.3 WORKMANSHIP

Comply with industry standards, except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

Perform work by persons qualified to produce workmanship of specified quality.

Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

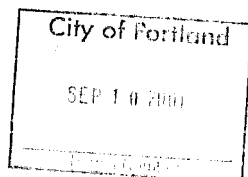
3.4 MANUFACTURER'S INSTRUCTIONS

Comply with instructions in full detail, including each step in sequence. Should instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

3.5 MANUFACTURER'S CERTIFICATES

When required by individual specifications section, submit manufacturer's certificate, in duplicate, showing that products meet or exceed specified requirements.

END OF SECTION



1 1 GENERAL

4 1.1 DESCRIPTION

6 This section specifies general requirements for the Work in relation to substitutions and
7 product options.

9 Work related to this Section is specified in other sections. Other sections of these
10 specifications also apply even though not described here.

13 1.2 REQUESTS FOR SUBSTITUTIONS

14 Requests for substitution of products in place of those specified shall be in accordance with
15 Instructions to Bidders, Section 00100, and as specified herein.

19 1.3 CONTRACTOR'S RESPONSIBILITIES

20 Investigate proposed products and determine that they are equal or superior in all respects to
21 products specified.

22 Provide same guarantee for accepted substitutions as for products specified.

23 Coordinate installation of accepted substitutions into the Work, making such changes as may
24 be required for the Work to be complete in all respects.

30 2 REQUIREMENTS

33 2.1 SUBSTITUTION REQUIREMENTS DURING THE BIDDING PERIOD

34 Accompany written substitution requests with samples, catalog cuts, and complete technical
35 data pertinent to the request. Include any other data the Engineer may require. Incomplete
36 data will be cause for rejection of the request. No verbal acceptance will be given and all
37 acceptable substitutions will be listed by the Engineer in the form of Addenda issued before
38 the Bid date. All requests for substitutions are subject to complete compliance with
39 requirements of the Contract Documents.

41 Submit two (2) copies of the following information with each request to the Engineer:

42 a. Use substitution request form at end of this section.

43 b. Itemized comparison of proposed substitution with product or method specified.

- c. Complete data on each material and system for this project only, substantiating compliance of proposed substitution with the Contract Documents.
- d. Complete evidence, including test numbers and supporting reports, indicating compliance with referenced standards.
- e. A statement from the materials manufacturers stating that warrantee requirements specified are acceptable and that such a warrantee shall be issued upon successful completion of the project.
- f. A set of details for this project clearly indicating specific deviations proposed for the substitution. Copies of the Drawings and Details within this Project Manual shall be used for this purpose. Any and all deviations shall be indicated.
- g. Copies of related specification sections within the Project Manual clearly marked to indicate all deviations in materials, products and methods specified. Any and all deviations shall be indicated.
- h. Samples of all materials and products included accessories, anchors, and similar items.

All substitution requests shall be received in the Owner's office no less than ten (10) calendar days before Bid Opening. Requests received after this date will not be considered.

2.2 SUBSTITUTIONS REQUESTED AFTER AWARD OF CONTRACT

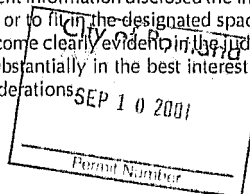
Substitutions will normally not be considered after date of contract, except when required, due to unforeseen circumstances. Within a period of thirty (30) days after date of Contract, the Owner may, at its option, consider formal written requests for substitution of products in place of those specified, when submitted in accordance with the requirements stipulated herein. To receive consideration, one or more of the following conditions must be documented in any such request.

- a. The substitution is required for compliance with final interpretation of code requirements or insurance regulations.
- b. The substitution is required due to unavailability of a specified product, through no fault of the Contractor.
- c. The substitution is required because subsequent information disclosed the inability of the specified product to perform properly or to fit in the designated space.
- d. The substitution is required because it has become clearly evident in the judgment of the Owner, that a substitute would be substantially in the best interest of the Owner in terms of cost, time, or other considerations.

2.3 SUBSTITUTIONS NOT PERMITTED

They are indicated or implied on shop drawings or product data submitted without first requesting approval thereof in accordance with requirements of this Section.

Acceptance will require substantial revision of the Contract Documents, except as allowed by Paragraph 2.2, above.



2.4 PRODUCT OPTIONS

The specified products establish minimum qualities that substitutes shall meet to be considered acceptable. All requests for substitution are subject to complete compliance with requirements of the Contract Documents.

Wherever the term "prior approved equal" appears in these Specifications, the Engineer's evaluation shall be obtained by the bidder prior to the Bid date. Bidders shall submit written requests for substitution upon request of the Engineer (Substitution Request Form at end of this Section).

Products Specified by Reference Standards or by Description Only:

May use any product meeting those standards. For products specified by association or trade standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

Products Specified by Naming One or More Manufacturers with a Provision for Substitution: May request substitution for any manufacturer not specifically named. Request may be made by phone or written, as directed by the Engineer.

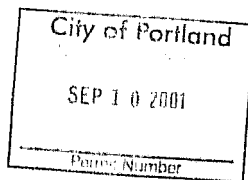
Products Specified by Naming Several Manufacturers with Prior Approved Equal:

Products of named manufacturers meeting Specifications; others require prior Bid approval.

Products Specified by Naming Only One Manufacturer:

No option; no substitution allowed.

For products specified by association or trade standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.



SUBSTITUTION REQUEST FORM

To: _____

Project: _____

Specified Item: _____

Section / Page / Paragraph / Description

The undersigned requests consideration of the following

Proposed Substitution: _____

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes description of changes to Contract Documents which proposed substitution will require for its proper installation.

The undersigned states that the following paragraphs, unless modified on attachments, are correct:

1. The proposed substitution does not affect dimensions shown on Drawings.
2. The undersigned will pay for changes to the building design, including engineering design, detailing and construction costs caused by the requested substitution.
3. The proposed substitution will have no adverse affect on other trades, the construction schedule, or specified warranty requirements.
4. Maintenance and service parts will be locally available for the proposed substitution.

The undersigned further states that the function, appearance and quality of the proposed substitution are equivalent or superior to the Specified Item.

Submitted by:

For use by Design Consultant or District:

Firm: _____

☐ Accepted ☐ Accepted as noted

Address: _____

☐ Not Accepted ☐ Received too late

By: _____

By: _____

By: _____

Date: _____

Please type or print name & title

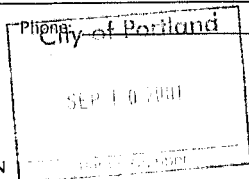
Remarks: _____

Signature: _____

Date: _____

Attachments: _____

END OF SECTION



1 1 GENERAL

2
3 Work related to this Section is specified in other sections. Other sections of these
4 Specifications also apply even though not described here.

5
6
7 1.1 DESCRIPTION

8
9 The requirements specified in this Section relate to all Contractors individually performing
10 under these Contract Documents:

- 11 a. Project Record Documents
12 b. Final Review and Payment
13

14
15 1.2 REQUIRED DOCUMENTS

16
17 Prior to issuance of Certificate of Completion and final payment, submit to Engineer the
18 following documents.

19
20 Guarantees:

21 The guarantee required by the General Conditions and all other extended guarantees stated
22 in the Specifications.

23
24 Operation and Maintenance Manuals:

25 As required by Division 15 (Mechanical). Include inspection reports, if applicable.

26
27 Legibly mark the Drawings to indicate actual as-built conditions. The Drawings shall clearly
28 indicate changes in the Work made by Addenda or Change Order. Redraw or provide new
29 drawings as required for a complete as-built set of drawings.
30

31
32 1.3 FINAL REVIEW AND PAYMENT

33
34 Prior to completion, the Contractor shall inspect the Work and make a "punch list" noting all
35 items that are incomplete and/or incorrect.

36
37 The Contractor shall notify all Subcontractors in writing of incomplete and/or incorrect items.
38 Notify far enough in advance of the Completion Date that the Work can be completed on
39 schedule. Said Work shall be immediately corrected.

40
41 Should conditions prevail which prohibit some elements of the Work from being
42 accomplished, but the work-in-place will perform the primary function (i.e., painting cannot
43 be completed due to high moisture content of masonry walls.) the Contractor shall record the
44 reason with this "punch list" item requesting temporary delay in completion from the Owner
45 in writing.

46
47 Notify the Owner in writing that all items are completed and ready for final review or else that

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1 the work product is fully usable, but some listed deficiencies remain to be completed. Submit
2 all record documents at this time.

3
4 The Owner will review all documents. When the documents include a Contractor's request
5 for delay in completion, the Owner will review all Work which is certified as complete to the
6 best knowledge of the Contractor. The Owner will also review the listed incomplete Work
7 and assign a value to such uncompleted work.

8
9 The Contractor shall make the required corrections to the Work expeditiously. Upon Owner
10 Occupancy, sufficient retainage monies will be held to pay for incomplete Work, should the
11 Contractor fail to perform. A letter will be addressed to the Contractor informing the
12 Contractor of the project status and the monies available for a semi-final payment upon receipt
13 of billing.

14
15 When Contract closeout procedures are completed and all punch listed deficiencies have been
16 corrected, final acceptance by the Owner will be documented. The contractor will receive
17 written notice of acceptance of the Work and notification that final payment may be billed and
18 released.

19
20 All guarantees shall commence and become effective beginning on the date of Final
21 Acceptance by the Owner.

22
23
24
25
26
27
28
29
30
31
32
33
END OF SECTION

1 1 GENERAL

2
3 Work related to this Section is specified in other sections. Other sections of these
4 Specifications also apply even though not described here.
5

6
7 1.1 DESCRIPTION

8
9 Maintain Owner's property and public properties free from accumulations of waste, debris and
10 rubbish caused by operations. Remove waste materials from work areas at the end of each
11 working day. **The occupied areas must be kept clean to minimize disruption to occupants.**
12 Coordinate with Owner should any operation or equipment become hazardous to staff or
13 customers to allow staff to take necessary precautionary measures.
14

15 Workers shall exercise caution to avoid marring, soiling, or otherwise defacing, finished
16 surfaces. Clean and restore defaced surfaces to original condition.
17

18 Clean up immediately following completion of each trade's work.
19

20 At completion of Work, remove waste materials, rubbish, tools, equipment, machinery and
21 surplus materials; clean all sight-exposed surfaces and leave work site clean and ready for use.
22

23
24 1.2 SAFETY REQUIREMENTS

25
26 Maintain Project in accordance with applicable safety and insurance standards. Prevent
27 accumulations of waste, debris, and rubbish which create hazardous conditions. Provide
28 adequate ventilation during use of volatile or noxious substances. Do not burn rubbish and
29 waste materials; remove from Owner's property and dispose of legally.
30

31
32 2 PRODUCTS

33
34
35 2.1 CLEANING MATERIALS

36
37 Use only those cleaning materials recommended by manufacturer for surface being cleaned.

38 Use cleaning materials only on surfaces recommended by cleaning material manufacturer.
39
40
41

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3 EXECUTION

3.1 CLEANING DURING CONSTRUCTION

Execute cleaning to ensure that building, grounds, and public properties are maintained free from accumulations of waste materials and rubbish resulting from this work.

Provide on-site containers for collection of waste materials, debris, and rubbish.

Handle waste materials, debris and rubbish in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.

At reasonable intervals during progress of Work clean site and public properties, and dispose of waste materials, debris and rubbish.

Remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off Owner's property.

3.2 FINAL CLEANING

Employ experienced workers, or professional cleaners, for final cleaning.

At completion of project, conduct final inspection of sight-exposed interior and exterior surfaces and accessible concealed spaces.

Remove grease, dust, dirt, stains, labels, fingerprints and other foreign materials from sight-exposed interior and exterior finished surfaces.

Repair, patch and touch up marred surfaces to specified finish, to match adjacent surfaces.

Paved surfaces are to be broomed clean.

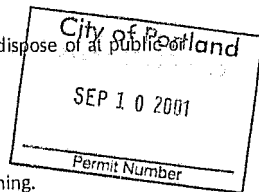
Leave equipment in an undamaged, bright, clean, and polished condition.

After completion of Work, remove temporary structures, fences, scaffolding, surplus materials and rubbish of every nature from Owner's property.

Maintain cleaning until project, or portion thereof, is occupied by Owner.

END OF SECTION

END OF DIVISION



1 1 GENERAL

2
3 Work related to this Section is specified in other sections. Other sections of these
4 Specifications also apply even though not described here.

5
6 The Work under the Mechanical 15000 Section is to be finished and installed by experienced
7 workers skilled in the disciplines as described herein. References to specific sections the
8 mechanical are:

9
10 Section 15050 - Basic Mechanical Materials & Methods.

11
12 Section 15500 - Chiller

13
14 The Contractor may be qualified for one or more of the disciplines listed. Where the
15 Contractor is not qualified under the conditions of these specifications, Contractor must
16 subcontract to a qualified firm as listed above to accomplish the Work

17
18
19 1.3 WORK INCLUDED

20
21 Provide labor and materials for a complete installation of Chiller and related controls, as
22 specified and as described on the Drawings. Chiller and plumbing systems to include
23 electrical power, piping, drainage, insulation, fittings, supports, and controls.

24
25 The Contractor is responsible for installation, balancing, testing, startup, and operational
26 checkout for a fully functional system. Provide check-out and start-up of all mechanical
27 systems in accordance with manufacturer procedures and specifications. Install all Work
28 parallel and plumb to building lines, unless otherwise indicated.

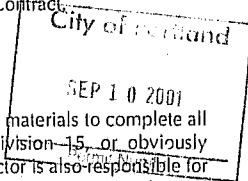
29
30 The Drawings and Work Scope are not intended to be comprehensive of all Work to be done
31 under this Contract. Specifications, Drawings, and Work Scope must be used in their entirety
32 to develop full understanding of the Work to be done under this Contract.

33
34
35 1.4 RELATED WORK

36
37 The Contractor is responsible to provide all labor, equipment and materials to complete all
38 mechanical and plumbing work indicated, specified within Division 15, or obviously
39 necessary and required for a fully operational system. The Contractor is also responsible for
40 proper location and sizes for sleeves, building penetrations, and supports for mechanical
41 materials and equipment.

42
43 The Contractor is responsible for all work requiring subcontractors, such as plumbing, HVAC
44 controls, electrical, chases, roofing, curbing, blocking, and related general work.

45
46 Coordinate all Work with various trades. Cutting of structural members not permitted, except
47 as approved by Structural Engineer.



1.5 REFERENCES AND STANDARDS

- ASTM: American Society for Testing and Materials.
ASHRAE: American Society of Heating, Refrigeration, and Air-Conditioning Engineers, Inc.
AWWA: American Water Works Association.
ANSI: American National Standards Institute
NEMA: National Electrical Manufacturer's Association.
ASME: American Society of Mechanical Engineers.
UL: Underwriters' Laboratory.
UPC: 1997 Uniform Plumbing Code as amended by the 2000 Oregon Plumbing Speciality Code.
IMC: 1998 International Mechanical Code as amended by the 1999 Oregon Mechanical Speciality Code.
IAPMO: International Association of Plumbing and Mechanical Officials.

1.6 ELECTRICAL WORK

Electrical work includes wiring, conduit, disconnect switches, mounts starters, convenience outlets for equipment service, and makes line voltage connections to equipment furnished under Division 15, unless noted under specific item. Electrical to provide convenience outlet within 25 feet of all HVAC equipment for maintenance service per UMC adopted by Oregon Speciality Code.

Section 15500 provides control wiring, and conduit, except as indicated, to conform with electrical wiring methods.

1.7 PERMITS, CODES, AND STANDARDS

Install all work in accordance with applicable codes and standards and in accordance with manufacturer's current specifications. Include all permits and inspections required by applicable codes pertaining to work in this Specification.

1.8 OCCUPANCY

The Work areas are occupied. All Work scheduling which may interfere with the building operations must be coordinated with the Owner and Owner's representative. Do not shut down any utilities without 24 hours notice and approval of Owner.

1.9 VISITING JOB SITE

A mandatory visitation of job site is not required prior to bidding. Existing conditions may affect extent of Work. Additional costs will not be authorized for omission in Bid due to lack of understanding of the Scope of Work.

1.10 SUBMITTALS

After award of Contract, provide shop drawings which have been reviewed and approved by Contractor, and literature showing item used, size, dimensions, capacity, rough-in, etc.

Provide submittal data for the following items within 20 days of award of Contract for Contractor review and approval per Section 01300:

- a. Chiller
- b. Seismic Supports

1.11 DRAWINGS

Mechanical drawings are **diagrammatic** and are intended to show the approximate location of equipment and piping. Dimensions given in figures on the Drawings shall take precedence over scaled dimensions; and all dimensions, whether given in figures or scaled, shall be **verified in the field**. All piping and equipment shall be installed in a manner and in locations to avoid obstruction, preserve head room and keep openings and passageways clear. Contractor is required to submit shop drawings of all work to be installed. Any changes or modifications from Bid documents must be approved by Engineer prior to installation.

1.12 GUARANTEE

Mechanical work, materials and equipment shall be free from defects and guaranteed for a period of one year from the date of final acceptance. Any workmanship, equipment or materials proved defective due to this Contract, shall be repaired or replaced without additional cost to the Owner.

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1.13 CLEAN-UP

Keep the Work area in a safe, neat, and orderly condition during construction. Upon completion of work, thoroughly clean all equipment, materials, and floor. Remove all debris or extra material resulting from the Work. Refer also to Section 01710.

1.14 OPERATION AND MAINTENANCE MANUALS

Submit three (3) sets of engineering data and/or specifications, operating and maintenance instructions, parts lists and other relevant data for mechanical equipment.

1.15 "AS BUILT" RECORD DRAWINGS

Maintain a marked set of prints at job site at all times. Show all changes from Contract Drawings, whether visible or concealed. Dimension accurately from building lines, floor or curb elevations. Show exact location, elevation and size of piping, conduit, access panels and doors, and all other information pertinent to the Work.

At project completion, submit one set of reproducible tracings to Engineer for approval.

See Section 01700, Contract Close-out, for detailed requirements.

2 PRODUCTS

Section not used

3 EXECUTION

Section not used

END OF SECTION

1 1 GENERAL

2
3 Work related to this Section is specified in other Sections. Other Sections of these
4 Specifications also apply even though not described here.

5
6
7 1.1 WORK INCLUDED

8
9 Furnish and install all materials and equipment pertaining to the air cooled chiller system.
10 This includes items of a minor nature necessary to complete the installation for a fully
11 functional systems. Refer to Section 15050.

12
13
14 2 PRODUCTS

15
16
17 2.1 CHILLER

18
19 Provide a new Trane chiller, size and capacity as noted on equipment schedule. The existing
20 chiller is to be removed from the Site by the Contractor.

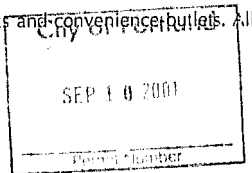
21
22 The rotary screw compressor is semi-hermetic, direct drive, 3600 rpm, with capacity control
23 slide valve, rolling element bearings, differential refrigerant pressure oil pump and oil heater.

24
25 The evaporator and condenser shall be at 300 psig waterside working pressures. The tube
26 sheets shall be carbon steel, drilled, reamed, and grooved to accommodate the tubes. The
27 tubes shall be individually replaceable, externally finned, seamless copper. The tubes shall
28 be mechanically expanded into the tube sheets.

29
30 The chiller shall have a microprocessor - based control panel, factory-mounted with
31 Honeywell DDC interface. The unit shall be provided with automatic shutdown for low
32 evaporator refrigerant temperature, low oil pressure, high refrigerant condenser pressure, high
33 oil temperature, high motor current, high motor temperature, and starter function fault. The
34 chiller shall be equipped with unit-mounted starter.

35
36 The chiller shall have factory installed electrical disconnects and convenience outlets. All
37 equipment shall be UL and NEC compliant.

38
39 Acceptable Manufacturers: Trane or prior approved equal.
40
41



3 EXECUTION

3.1 CHILLERS

The chiller is to be installed to allow for all access and clearances per the manufacturer's recommendations. The Contractor shall verify the chiller's dimensions per the manufacturer's certified dimensions, and notify the Engineer if any clearance problems exist. Install the chiller to allow for adequate access to all adjacent equipment.

Attach unit to concrete pad and/or steel skid mount through vibration isolators for earthquake protection.

Manufacturer's Field Services:

Prepare and start systems. Perform chiller checkout according to manufacturer's recommendation, in presence of Owner's Representative.

Provide a field representative for starting unit and training operator.

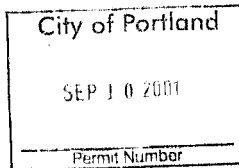
Provide control contractor work to integrate Honeywell control strategy with chiller controls

Provide DDC system checkout by authorized Honeywell representative.

Provide connections to electrical services, controls, and existing chiller piping. Insulate new or existing pipes as necessary with sheet metal cover. Paint metal cover to blend with existing.

END OF SECTION

END OF DIVISION



WORK SCOPE

Replace the existing HVAC chiller for Morrison Park West, Portland, Oregon.

Remove controls, chiller piping, electrical power from existing chiller on rooftop level. Owner reserves right for salvage of equipment. Install new chiller and reconnect piping, electrical power, and controls as necessary for a fully functional system.

Existing building controls are Honeywell DDC. New chiller to interface with existing controls. Electrical disconnects and convenience outlet to be provided by chiller manufacturer. Chiller to be mounted on seismic spring isolators. Mounting platform may be reused if convenient. Leave existing fence intact.

GENERAL NOTES

Disconnect and remove redundant devices and material. Reusable devices will become the property of the Owner, and will be delivered to an Owner designated location. Existing devices, wiring, tubing, and conduit may be reused if covered by warranty as a new device and as per Specification warranty requirements. Safety devices and circuits are to remain operational.

Refer to Specifications and Mechanical Drawings for other general requirements. Coordinate crane loading and unloading with City of Portland and Owner.

OPERATION SEQUENCE

Chiller Start/Stop:

The chiller operates based on fan operation and outside air temperature. When the outside temperature is below 50°F (operator adjustable), the chiller stops. When the outside temperature is above 55°F (operator adjustable) and the fan unit is operating, the chiller starts. Specific chiller alarm prints to indicate equipment start failure.

Chilled Water Pump Start/Stop:

The chilled water pump operates based on the chiller start command. When the chiller is commanded on, the pump operates until 30 minutes after the chiller is commanded off, at which time the pump stops. Specific cooling pump alarm prints to indicate equipment start failure.

CHILLER SCHEDULE

MARK	DESCRIPTION	MANUF./MODEL	EWI	LWT	GPM	CAPACITY TONS	WEIGHT
CH-1	Air-cooled	RTAA-100	55	45	75	101	7751

Model number based on Trane, refer to specifications for acceptable manufacturers.

EWI = Entering water temperature in Fahrenheit.

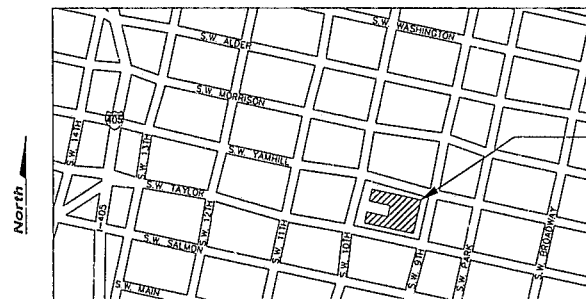
LWT = Exiting water temperature in Fahrenheit.

GPM = Flow of chilled water in gallons per minute.

1 TON = 12,000 Btu cooling capacity per hour.

Capacity at 95°F ambient db temperature, 67°F wb.

Weight is operating weight in pounds.



AREA OF WORK
730 S.W. 10TH AVE.

SITE PLAN

NOT TO SCALE

TABLE OF CONTENTS

SHEET M1	HVAC COVER SHEET
SHEET M2	HVAC SITE PLAN
SHEET M3	HVAC FLOOR PLAN

City of Portland

SEP 10 2001

Permit Number

Environmental &
Engineering
Services
Inc.



CITY OF PORTLAND
730 S.W. 10TH AVE.

HVAC CHILLER REPLACEMENT

FILE NO. O2COPMO1
DRAWN BY RLP
DATE AUG 20, 2001
SCALE AS NOTED

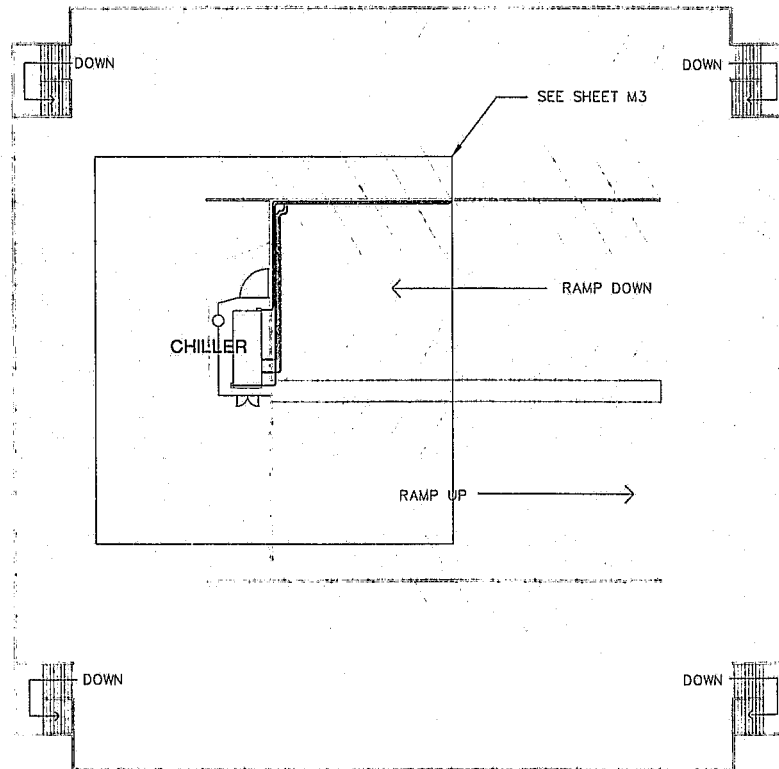
M1 of 3

EESI — 687 NW 5TH STREET
CORVALLIS, OREGON 97330

TELEPHONE (541) 754-1062
FAX (541) 753-3948
EMAIL eesi@peak.org

3
01-156300-117

S.W. 10TH AVE.



S.W. YAMHILL ST.

S.W. 9TH AVE.

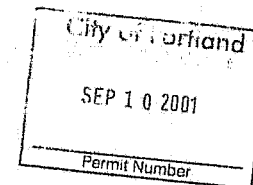
CRANE ACCESS THIS SIDE, BLDG. HEIGHT RANGES 70 TO 100 FT

S.W. TAYLOR ST.

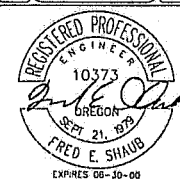
ROOFTOP PLAN - 7TH LEVEL

SCALE: 1/32" = 1'-0"

North



**Environmental &
Engineering
Services
Inc.**



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CORVALLIS, OREGON 97330

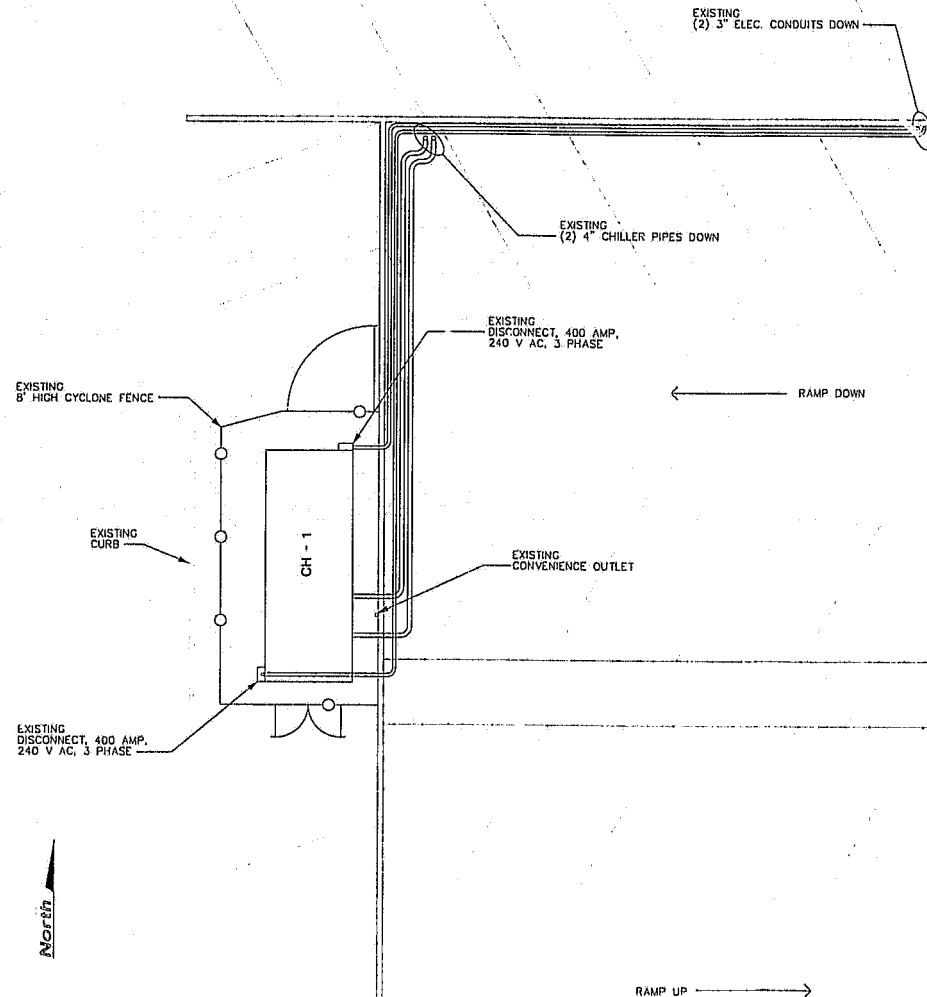
CITY OF PORTLAND
730 S.W. 10TH AVE.

HVAC CHILLER REPLACEMENT

FILE NO. 02COPMO2
DRAWN BY RLP
DATE AUG 20, 2001
SCALE AS NOTED

M2 OF 3

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FAX (541) 753-3948
EMAIL: ees@peakorg



ROOFTOP PARTIAL PLAN - CHILLER ENCLOSURE

SCALE: 3/32" = 1'-0"

City of Portland
SEP 10 2001
Permit Number

Environmental & Engineering Services Inc.	CITY OF PORTLAND 730 S.W. 10TH AVE.	
	HVAC CHILLER REPLACEMENT	
	FILE NO	O2COPMO3
	DRAWN BY	RLP
	DATE	AUG 20, 2001
	SCALE	AS NOTED
M3 of 3		
E.E.S.I. — 687 N.W. 5TH STREET CORVALLIS, OREGON 97330		TELEPHONE (541) 754-1062 FAX (541) 753-3948 EMAIL: ees@peak.org