

CITY OF WOODBURN, OREGON

Request for Proposals

Library HVAC Control Upgrade

DATE & TIME DUE: MARCH 25, 2015 AT 2:00PM

SUBMIT PROPOSAL TO CITY OF WOODBURN:

***City of Woodburn
Public Works Department
190 Garfield Street
Woodburn, OR 97071
503-982-5240***



**CITY OF WOODBURN
PUBLIC WORKS DEPARTMENT
Library HVAC Control Upgrade
Proposals due 2:00 pm, March 25, 2015
REQUEST FOR PROPOSALS**

The City of Woodburn is requesting proposals from qualified State of Oregon licensed contractors for providing HVAC Controls to the City of Woodburn Library.

The successful firm will be selected based upon the following criteria: 1) Qualifications to perform the scope of services; 2) Demonstrated understanding of the scope of services required; 3) Fee schedule for providing scope of services; 4) compatibility with current systems; and 5) Overall best value to the City.

The City of Woodburn invites firms to submit five (5) copies of the proposal outlining their experience and qualifications in performing work as described in the Scope of Services. The City will receive sealed proposals until **2:00 PM on March 25, 2015**. These should be delivered to the City of Woodburn, Public Works Department, 190 Garfield Street, Woodburn, Oregon 97071. The City will make the Solicitation Document available for viewing at the above address.

There will be a pre proposal Meeting at the Library, 280 2nd Street, Woodburn, OR at 10:00 AM on 3/18/2015.

The City **will not accept** facsimile proposals. The City **will not accept** any proposals after the stated opening date and time. The City will return all late proposals unopened to the submitting firm. Proposers are required to certify non-discrimination in employment practices and identify resident status as defined in ORS 279A.120. Pre-qualification of proposers is not required. All proposers are required to comply with the provisions of Oregon Revised Statutes and the City of Woodburn Public Contracting Rules

The City of Woodburn reserves the right to reject any or all proposals not in compliance with public bidding procedures; to postpone award of the contract for a period not to exceed sixty (60) days from date of proposal opening; to waive informalities in the proposals; and to select the proposal that is in the best interest of the City.

A complete copy of the Request for Proposals, invitation to propose, terms and conditions and a detailed description of services required are available at <http://www.woodburn-or.gov/?q=blog-categories/bids-and-rfps> or by contacting: Woodburn Public Works Department, ATTN: Pete Gauthier, Project Engineer, 190 Garfield Street, Woodburn, OR 97071, ph. 503-980-2429, pete.gauthier@ci.woodburn.or.us

Questions pertaining to this RFP should be directed to Pete Gauthier, Project Engineer at 503-980-2429 or pete.gauthier@ci.woodburn.or.us

Published March 9, 2015 in Daily Journal of Commerce

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PART 1

OVERVIEW

The City of Woodburn is requesting proposals from qualified State of Oregon licensed contractors for providing Digital Direct Control (DDC) HVAC Controls for the City of Woodburn public Library Facility. The current Library DDC is Alerton IBEX installed in 2000 as part of an HVAC upgrade. The operating system is Windows 98 on a dedicated PC with dial up modem (not connected to the City network). Although the system has been reliable, it is obsolete and repair parts are becoming difficult to obtain. The HVAC system is single AHU located in a mechanical room that acts as the return air plenum. The principle components are: a 30 hp supply and a 15 hp return air fan, cooling coils, two 100,000 BTU furnaces, exhaust and make-up air dampers, a chiller (in an outside enclosure) and twenty-one (21) terminal units. The system also controls the domestic hot water circulation pump and restroom exhaust fans.

1. The contractor shall provide all labor, tools, material and equipment to complete the following work:
 - a. Design and Install WebCTRL ® control system, or approved equal, to replace the existing obsolete Alerton IBEX controls based on the current sequence of operation and including mutually agreed upon modifications.
 - b. Interface the new controls with the existing Automated Logic WebCTRL ® in use at the Aquatic Center (located on the main server), or provide a new front end, dashboard, that is capable of monitoring and controlling both systems **without making any** alterations to the Munters equipment or sequence of operation.
 - c. The system shall be expandable to include other equipment and facilities in the future.
 - d. Remove and properly dispose of all unused and/or unnecessary components of the existing system.
 - e. Commission the system to insure it is functioning properly and controlling the HVAC per the current sequence of operations as modified in the design phase of the upgrade.
 - f. If the system is not Automated Logic WebCTRL, the Contractor shall be responsible for the cost of a third Party, approved by the City, to confirm compatibility, monitoring and control requirements have been met. This shall include verification that the common dashboard will effectively monitor and control the Munters unit at the Aquatic Center and the Library HVAC system.

PART 2

TIMELINE

- 3/09/2015 Publication of Solicitation for Proposals
- 3/18/2015 Pre Proposal Meeting
- 3/25/2015 Deadline for Submission of Proposals
- 3/26/2015 Evaluation of Proposals at Woodburn Public Works Department,
190 Garfield Street, Woodburn, Oregon
- 4/3/2015 Notice of Selection
- 4/13/2015 Contract Award
- 4/15/2015 Notice to Proceed
- 4/15/2015 Project Kick-off meeting
- 6/19/2015 Contract Completion

THE CITY RESERVES THE RIGHT TO MODIFY THIS SCHEDULE AT THE CITY'S DISCRETION. ALL INTERESTED PARTIES WILL RECEIVE PROPER NOTIFICATION OF CHANGES.

PART 3

SCOPE OF WORK

The successful firm shall provide an Automated Logic, or approved equal, fully BACnet compliant HVAC control system including, but not limited to, the following requirements:

- 1) Fully BACnet compliant
- 2) Automated Logic WebCTRL ® or approved equal Web based Front end
- 3) Front end must be able to monitor and control the Aquatic Center without alteration to equipment at the Aquatic Center.
- 4) The Library will remain open during construction activity. Work hours shall be between 7:30 AM and 7:00 PM Monday thru Thursday and until 5:00PM on Friday. Work outside of these hours may be possible.
- 5) Reflect the current HVAC sequence of operations.
- 6) Balance the HVAC system to original design standards.

Other Contractor responsibilities:

- 7) Project management,
 - a) Scheduling,
 - b) Reporting,
 - c) Documentation,
- 8) Operations and Maintenance manuals,
- 9) Commissioning and
- 10) Staff training.

The City desires to have a new control system in place and functioning properly by June 19, 2015.

Outline of Tasks

Task 1: Design

Design responsibilities of the Contractor:

1. Design the controls to reflect the sequence of operation, including any recommended and approved changes to the operation that would improve efficiency and or effective operation without substantially changing the HVAC system.
2. Insure compatibility with the Automated Logic WebCTRL in place at the Aquatic Center and that the Munters Unit can be seamlessly monitored and controlled from the common dashboard.
3. Provide drawings to show cabinets, controllers, and sensor locations along with any other pertinent information.

4. Reuse/repurpose existing components including sensors, switches, cable, and cabinets where practical.
5. Submit cut sheets on all components of the control system.

Task 2: Construction

The Contractor shall expedite construction in a professional competent manner and minimize disruption of the Library operations where possible. The Contractor shall be responsible to:

1. Obtain all necessary permits.
2. Comply with the National Electric Code and applicable City of Woodburn Codes.
3. Comply with all related safety codes including OSHA, National Electric Safety Code.
4. Coordinate construction activities and shut down with Project Engineer.
5. The Contractor will be responsible for all required alterations to the HVAC system.
6. The contractor is encouraged to reuse/repurpose existing components including cabinets and cable where practical.

Responsibilities of the City:

1. Required maintenance and repairs to the HVAC equipment necessary for the proper adjustment, calibration, and function of the controls and HVAC system. The City is not responsible for alterations and/or repairs due to design or operational incompatibility with the new system.
2. The City will provide an internet connection for the DDC in the electrical room adjacent to the mechanical room.

Task 3: Commissioning

Upon completion of the construction:

1. Balance the HVAC system according to the original design parameters which will be provided by the City, and provide a balancing report.
2. Verify and demonstrate that the Aquatic Center Munters unit is capable of being monitored and controlled with the front-end dashboard.
3. Provide a letter from the designing firm certifying that the controls have installed per the design and functioning properly.
4. Provide O&Ms for the control system.
5. Provide staff training on the control system.
6. Provide a software maintenance contract(s) for a minimum of one year from the date of completion.

PART 4

PROPOSAL CONTENT

Proposals must contain and include all information and documentation listed below:

- A. Completely fill out the attached Fee Schedule.
- B. List firm size and years in business
- C. Status as a “Resident” or “Non-Resident” bidder under ORS 279A.120 (Required form included as “Attachment B.”)
- D. Documentation of independent contractor status, (i.e., tax ID number, evidence of incorporation, legal status of entity providing service).
- E. Completed Non-Discrimination Form: The successful submitting vendor agrees that, in performing the work called for by this proposal, and in securing and supplying materials, contractor will not discriminate against any person based on race, color, religious creed, political ideas, sex, age, marital status, physical or mental handicap. The submitting vendors must certify on the appropriate form that they have not and will not discriminate against a subcontractor or the awarding of a subcontract because the subcontractor is a minority, women, or SBE certified under ORS 200.055. (Required form included as “Attachment C.”)
- F. The submitting firm must include an Executive Summary of relevant background information and a statement indicating that the firm has the ability to complete the described project in a successful manner.
- G. If any subconsultants are proposed, provide a list of tasks, the names, responsibilities, and qualifications of those subconsultants.
- H. Provide five (5) copies of the proposal to the City. The proposal shall not be more than ten (10) pages single sided printing, or five (5) pages double sided printing in length, exclusive of the following:
 - A short cover letter
 - Executive Summary
 - Firm background information
 - Resumes of team members and personnel references
 - Timeline spread sheet
 - Fee Schedule

FEE SCHEDULE					
Library HVAC Controls Upgrade					
PROJECT No.: 2014-019-28					
ITEM No.	ITEMS	UNITS	QUANTITY	UNIT COST	TOTAL COST
1	Design	LS	1		
2	Equipment, Materials, and Supplies	LS	1		
3	Installation / Construction	LS	1		
4	Replace Zone Sensor Cable (if necessary)	LS	1		
5	Software Programming	LS	1		
6	Annual License/Maintenance Software	EA	1		
7	Permits	LS	1		
8	Commissioning	LS	1		

Total Project Cost:

Change Orders					
10	Design	\$/Hr	1		
11	Programming	\$/Hr	1		
12	Installation Labor	\$/Hr	1		
Sample Replacement parts					
14	System controller - LGR	each	1		
15	Terminal Unit controllers	each	1		
16	Room temperature sensors	each	1		
17	Airflow sensor	each	1		
18	Duct pressure sensor	each	1		
19	Duct Temperature Sensor	each	1		

PART 5

EVALUATION OF PROPOSALS

The City will make a competitive based selection, with all scores based on the evaluation criteria listed below. If the City conducts interviews, then the City will use a combination of interview scores and evaluation criteria scores to make a selection. The City will establish a committee (the "Evaluation Committee") of at least two individuals to review, score, and rank proposals according to the criteria set forth below. Following the evaluation of proposals and ranking of respondent firms, the evaluation committee will select the Firm that provides the "best value" to the City.

Evaluation Criteria

- A. *Qualifications of the Firm:*** The Evaluation Committee will score the proposing firm's qualifications relating specifically to their ability to complete satisfactorily the scope of services outlined in the Scope of Work. (Maximum Score is 15 Points)

- B. *Demonstrated Project Understanding:*** The Evaluation Committee will score the proposing firm's demonstrated understanding of the scope of services sought. (Maximum Score is 10 Points)

- C. *Evaluation of Fee Schedule:*** The Evaluation Committee will score the proposing firm's fee schedule based on the reasonableness of the fees, including the fees for changes. (Maximum Score is 25 Points)

- D. *Compatibility with Current Systems:*** committee will evaluate how compatible and user friendly the interface is with the ALC /Munters system at the Aquatic Center. (Maximum Score is 25 Points)

- E. *Overall Best Value to the City:*** The Evaluation Committee will score the proposing firm's upfront cost, and maintenance agreement cost. The evaluation will include the proposed system longevity: how long the proposed system been has been in production, the expected release date of the next generation components and software, and if software upgrades are included in the maintenance fee. (Maximum Score is 25 Points).

The Evaluation Committee will rank each firm based on the sum of points awarded. The evaluation committee will base points awarded solely on the Evaluation Criteria. A maximum total score of 100 points is possible. The Evaluation Committee will establish a short list of no more than three firms following the proposal evaluation and ranking process to enter into negotiations for the Control system upgrade.

PART 6

SELECTION PROCESS

The City shall use the following selection process:

- A.** Following the ranking of submitted proposal information, the Director of Public Works or his designee will join at least two members of the Evaluation Committee and become the “Selection Committee.”
- B.** The Selection Committee, at its sole discretion, may choose to interview short-listed firms prior to making their final recommendation.
- C.** The Selection Committee shall engage in negotiations whose objective shall be obtaining written agreement on:
 - Firm’s performance obligations
 - Compensation to the Firm for services outlined in the Scope of Work
 - The City will make its own determination concerning the fairness and reasonability of the fee proposed by the Firm.
- D.** If negotiations with the highest-ranking proposer fail to proceed to agreement on Contract terms, the Selection Committee will formally terminate negotiations with that candidate, and begin negotiations with another candidate.
- E.** The City will Award. the contract
- F.** The City and the Firm will execute the Personal Services Contract.
- G.** The City will issue the Notice to Proceed.

PART 7

SUBMITTAL REQUIREMENTS

The City must receive proposals no later than **2:00 p.m. on March 25, 2015**. The City ***will return*** proposals received after this deadline, unopened, to the proposer. The City ***will not*** accept faxed or emailed proposals.

- A. Proposal:** The proposer will deliver an unbound original and five complete copies of the Proposal to the address shown below.

- B. Cover Letter:** A Cover Letter shall accompany the proposal and it shall state that the proposer accepts all terms and conditions contained in the Request for Proposals and the sample Professional Services Contract (attached). A legal representative of the proposer, authorized to bind the firm in contractual matters, must sign the cover letter.

- C. Submit one electronic copy on disk, PDF format**

Direct all correspondence pertaining to this RFP to:

City of Woodburn
Public Works Department
Pete Gauthier, Project Engineer
190 Garfield Street
Woodburn, OR 97071

Phone: 503-980-2429
FAX: 505-982-5242
E-mail: pete.gauthier@ci.woodburn.or.us

PART 8

OTHER REQUIREMENTS

A. Proposal Acceptance:

- Proposal shall be legally binding as an offer for a period of 60 days after the closing date. If the City has not accepted a submitting firm's proposal within sixty-(60) days from the RFP closing date, then the firm may withdraw its proposal. The contents of the Proposal will become a contractual obligation upon acceptance by the City.

B. Public Records:

- All Proposals shall become the property of the City and are public records unless otherwise specified. A bid that contains any information considered a trade secret under ORS 192.501(2) shall be segregated and clearly identified as such. This information shall not be disclosed except in accordance with the Oregon Public Records Law, ORS 192.

C. Clarification of Proposals

- The City reserves the right to obtain clarification of any point in a firm's proposal or to obtain additional information necessary to properly evaluate a particular proposal. Failure of a Proposer to respond to such a request for additional information or clarification could result in rejection of the firm's proposal.

D. Form of Agreement

- A copy of the standard Professional Service Agreement, which the City expects the successful firm or individual to execute, is included as "Attachment A." The agreement will incorporate the terms and conditions from this RFP document and the submitted proposal.

E. Proposal Rejection

- The City reserves the right:
 - To reject any or all proposals not in compliance with all public procedures and requirements:
 - To reject any proposal not meeting the specifications set forth herein:
 - To waive any or all irregularities in proposals submitted;
 - To reject all proposals:
 - To award any or all parts of any proposal; and
 - To request references and other data to determine responsiveness

F. Protest Process

- Protests to this RFP must be in writing and must be submitted in the form and manner prescribed by the Oregon Attorney General's Public Contracting Rules and the City of Woodburn Public Contracting Rules.

ATTACHMENT "A"

**PERSONAL SERVICES AGREEMENT
HVAC CONTROL DESIGN AND INSTALLATION SERVICES
(SAMPLE)**

THIS AGREEMENT is made and entered into as of the date first indicated on the signature page, by and between the City of Woodburn, an Oregon municipal corporation (hereinafter referred to as "CITY"), and _____, a _____ (hereinafter referred to as "CONTRACTOR").

WHEREAS, CITY needs certain professional personal services; and

WHEREAS, CITY wants to engage CONTRACTOR to provide these services by reason of its qualifications and experience; and

WHEREAS, CONTRACTOR has offered to provide the required services on the terms and in the manner set forth herein,

NOW, THEREFORE, IT IS AGREED as follows:

SECTION 1 – SCOPE OF SERVICES

The Scope of Work to be performed by CONTRACTOR under this Agreement is described in this Request for Proposals. Additionally, CONTRACTOR's proposal in response to CITY's RFP is incorporated by reference as part of this Agreement as if fully set forth.

SECTION 2 – DUTIES OF CONTRACTOR

- A. CONTRACTOR shall be responsible for the professional quality, technical accuracy and coordination of all work furnished by CONTRACTOR under this Agreement. CONTRACTOR shall, without additional compensation, correct or revise any errors or deficiencies in its work.
- B. CONTRACTOR represents that it is qualified to furnish the services described in this Agreement.
- C. CONTRACTOR shall be responsible for employing or engaging all persons necessary to perform its services.
- D. It is understood that _____ will be designated by CONTRACTOR as the person providing services to CITY under this Agreement and that this designated person shall not be replaced without CITY's approval.

ATTACHMENT "A"

SECTION 3 – DUTIES OF CITY

- A. CITY shall provide CONTRACTOR the pertinent information regarding CITY's requirements for the Project.
- B. CITY shall examine documents submitted by CONTRACTOR and shall render decisions promptly, to avoid unreasonable delay in the progress of CONTRACTOR'S work.
- C. CITY certifies that sufficient funds are available and authorized for expenditure to finance costs of this Agreement.
- D. The contact person on the Project for CITY is designated as Pete Gauthier, Project Engineer. CITY shall provide written notice to CONTRACTOR if CITY changes its contact person.

SECTION 4 – TERM

The services to be performed under this Agreement shall commence upon execution of the Agreement by both parties and be completed on or before June 19, 2015.

SECTION 5 – PAYMENT

Payment shall be made by CITY to CONTRACTOR only for services rendered and upon submission of a payment request and CITY approval of the work performed. In consideration for the full performance of the services set forth in the Proposal.

SECTION 6 – TERMINATION

Without limitation to such rights or remedies as CITY shall otherwise have by law, CITY shall have the right to terminate this Agreement or suspend work for any reason upon ten (10) days' written notice to CONTRACTOR. CONTRACTOR agrees to cease all work under this Agreement upon receipt of said written notice.

SECTION 7 – OWNERSHIP OF DOCUMENTS

All documents prepared by CONTRACTOR in the performance of this Agreement, although instruments of personal service, are and shall be the property of CITY.

SECTION 8 – CONFIDENTIALITY

All reports and documents prepared by CONTRACTOR in connection with the performance of this Agreement shall be considered as confidential by CONTRACTOR until they are released by CITY to the public. CONTRACTOR shall not make any such documents or information available to any individual or organization not employed by CONTRACTOR or CITY without the written consent of CITY before any such release.

ATTACHMENT "A"

SECTION 9 – INTEREST OF CONTRACTOR

CONTRACTOR covenants that it presently has no interest, and shall not acquire any interest, direct or indirect, financial or otherwise, which would conflict in any manner or degree with the performance of the services under this Agreement.

SECTION 10 – CONTRACTOR'S STATUS

It is expressly agreed that in the performance of the personal services required under this Agreement, CONTRACTOR shall at all times be considered an independent contractor, under control of CITY as to the result of the work but not the means by which the result is accomplished. Nothing herein shall be construed to make CONTRACTOR an agent or employee of CITY while providing services under this Agreement.

Section 11 – INDEMNITY

CONTRACTOR agrees to hold harmless and indemnify CITY, its officers and employees from and against any and all claims, loss, liability, damage, and expense arising from the negligent, or claimed negligent, performance of this Agreement by CONTRACTOR, its officers or employees. CONTRACTOR agrees to defend CITY, its officers or employees against any such claims. This provision does not apply to claims, loss, liability or damage or expense arising from the sole negligence, or willful misconduct, of CITY.

SECTION 12 – INSURANCE

CONTRACTOR shall provide and maintain:

- A. Commercial General Liability Insurance, occurrence form, with a limit of not less than \$1,000,000 for each occurrence.
- B. Automobile Liability Insurance, occurrence form, with a limit of not less than \$1,000,000 for each occurrence. Such insurance shall include coverage for owned, hired, and non-owned automobiles.
- C. Workers Compensation in at least the minimum statutory limits.
- D. All insurance shall:
 1. Include CITY as an additional insured with respect to this Agreement and the performance of services in this Agreement.
 2. Be primary with respect to any other insurance or self-insurance programs of CITY.

ATTACHMENT "A"

3. Be evidenced, prior to commencement of services, by properly executed policy endorsements in addition to a certificate of insurance provided to CITY.
4. No changes in insurance may be made without the written approval of CITY.

SECTION 13 – NONASSIGNABILITY

Both parties recognize that this Agreement is for the personal services of CONTRACTOR and cannot be transferred, assigned, or subcontracted by CONTRACTOR without the prior written consent of CITY.

SECTION 14 – RELIANCE UPON PROFESSIONAL SKILL OF CONTRACTOR

It is mutually understood and agreed by and between the parties hereto that CONTRACTOR is skilled in the professional calling necessary to perform the work agreed to be done under this Agreement and that CITY relies upon the skill of CONTRACTOR to do and perform the work in the most skillful manner, and CONTRACTOR agrees to perform the work. The acceptance of CONTRACTOR'S work by CITY does not operate as a release of CONTRACTOR from said obligation.

SECTION 15 – WAIVERS

The waiver by either party of any breach or violation of any term, covenant, or condition of this Agreement or of any provisions of any ordinance or law shall not be deemed to be a waiver of such term, covenant, condition, ordinance or law or of any subsequent breach or violation of same or of any other term, covenant, condition, ordinance or law or of any subsequent breach or violation of the same or of any other term, condition, ordinance, or law. The subsequent acceptance by either party of any fee or other money, which may become due hereunder, shall not be deemed to be a waiver of any preceding breach or violation by the other party of any term, covenant, or condition of this Agreement of any applicable law or ordinance.

SECTION 16 – STATE PUBLIC CONTRACT PROVISIONS

All requirements of ORS Chapters 279A, 279B, and 279C including but not limited to the following, as applicable, are incorporated herein by reference.

- A. If Contractor fails, neglects or refuses to make prompt payment of any claim for labor or services furnished by any person in connection with this Contract as such claim becomes due, City may pay such claim to the person furnishing the labor or services and charge the amount of the payment against funds due or to become due Contractor by reason of the Contract. The payment of a claim in the manner authorized above shall not relieve the Contractor or its surety from its obligation with respect to any unpaid claims.

ATTACHMENT "A"

- B. Contractor and its subcontractors, if any, are subject to Oregon Workers' Compensation Law, which requires all employers that employ subject workers who work under this Contract in the State of Oregon to comply with ORS 656.017 and provide the required workers' compensation coverage, unless such employers are exempt under ORS 656.126. Contractor shall ensure that each of its subcontractors, if any, complies with these requirements.
- C. Contractor shall, upon demand, furnish to the City, written proof of workers' compensation insurance coverage. Contractor is required to submit written notice to the City thirty (30) days prior to cancellation of said coverage.
- D. Contractor shall use recyclable products to the maximum extent economically feasible in the performance of the contract.
- E. Contractor is engaged as an independent contractor and will be responsible for any federal or state taxes applicable to any payments made under this Contract.
- F. Contractor agrees and certifies that it is a corporation in good standing and licensed to do business in the State of Oregon. Contractor agrees and certifies that it has complied and will continue to comply with all Oregon laws relating to the performance of Contractor's obligations under this Contract.
- G. Contractor shall:
 - G.1 Make payment promptly, as due, to all persons supplying to the Contractor labor and material for the prosecution of the work provided for in the contract documents;
 - G.2 Pay all contributions or amounts due to the State Accident Insurance Fund incurred in the performance of this Contract;
 - G.3 Not permit any lien or claim to be filed or prosecuted against the City on account of any labor or material furnished; and
 - G.4 Pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.
- H. The Contractor shall promptly as due, make payment to any person, co-partnership or association or corporation furnishing medical, surgical and hospital care or other needed care and attention, incident to sickness or injury, to the employee of such Contractor, of all sums which the Contractor agrees to pay for such services and all moneys and sums which the Contractor collected or deducted from the wages of employees pursuant to any law, contract or Agreement for the purpose of providing or paying for such service.

ATTACHMENT "A"

- I. The CONTRACTOR shall pay employees for overtime work performed under the contract in accordance with ORS 653.010 to 653.261 and the Fair Labor Standards Act of 1938 (29USC201 et. seq.).
- J. An employer must give notice to employees who work on a contract for services in writing, either at the time of hire or before commencement of work on the contract, or by posting a notice in a location frequented by employees, of the number of hours per day and days per week that the employees may be required to work.
- K. Contractor will comply with 279.835 et seq. in the procurement of products and services from a nonprofit agency for disabled individuals.

SECTION 17 – ATTORNEY FEES

In the event a suit or action is instituted to enforce any right guaranteed pursuant to this Agreement, the prevailing party shall be entitled to, in addition to the statutory costs and disbursements, reasonable attorney fees to be fixed by the trial and appellate courts respectively.

SECTION 18 – NOTICES

All notices hereunder shall be given in writing and mailed, postage prepaid, addressed as follows:

TO CITY:

TO CONTRACTOR:

City of Woodburn
Public Works Department
Randy Scott, Director
190 Garfield Street
Woodburn, OR 97071

SECTION 19 – AGREEMENT CONTAINS ALL UNDERSTANDINGS; AMENDMENT

This document represents the entire and integrated Agreement between CITY and CONTRACTOR and supersedes all prior negotiations, representations, and agreements, either written or oral.

This document may be amended only by written instrument, signed by both CITY and CONTRACTOR

ATTACHMENT "A"

SECTION 20 – GOVERNING LAW

This Agreement shall be governed by the laws of the State of Oregon.

IN WITNESS WHEREOF, CITY and CONTRACTOR have executed this Agreement the day and year written.

CITY OF WOODBURN:

CONTRACTOR:

By: _____
City Administrator

By: _____

Title: _____

Title: _____

Date: _____

Date: _____

ATTACHMENT "B"

BIDDER/PROPOSER RESIDENCY STATEMENT

Pursuant to ORS 279A.120, Oregon’s Reciprocal Preference Law, public contracting agencies shall, for the purposes of determining the lowest responsible bidder/proposer and the awarding of a contract, add a percent increase on the bid of a non-resident bidder/proposer equal to the percent, if any, of the preference given to that bidder/proposer in the state in which the bidder/proposer resides.

As defined in ORS 279A.120, "Resident Bidder/proposer" means a bidder/proposer that has paid unemployment taxes or income taxes in this state in the twelve calendar months immediately preceding submission of the bid, has a business address in this state, and has stated in the bid whether the bidder/proposer is a "Resident Bidder/proposer". A "Non-resident Bidder/proposer" is a bidder/proposer who does not meet the definition of a "Resident Bidder/proposer" as stated above.

1. Bidder/Proposer IS IS NOT a "Resident Bidder/proposer" as set forth above.

2. If a Resident Bidder/Proposer, enter your Oregon Business address below:

3. If a Non-resident Bidder/Proposer, enter state of residency:

Bidder/Proposer hereby certifies that the information provided is true and accurate.

Signature: _____

Date: _____

Printed or Typed Name: _____

Title: _____

Firm: _____

Telephone: _____

ATTACHMENT "C"

CERTIFICATE OF NON-DISCRIMINATION

Pursuant to ORS 279A.110, discrimination in subcontracting is prohibited. Any contractor who contracts with a public contracting agency shall not discriminate against minority, women or emerging small business enterprises in the awarding of contracts.

By signature of the authorized representative of the bidder/proposer, the bidder/proposer hereby certifies to the City of Woodburn that this bidder/proposer has not discriminated against minority, women, or emerging small business enterprises in obtaining any subcontracts; and, further, that if awarded the contract for which this bid or proposal is submitted, shall not so discriminate.

Date: _____

Signature: _____

Printed or Typed Name: _____

Name of Firm: _____

Exhibit A

WOODBURN PUBLIC LIBRARY Sequence of Operation

AS-BUILT

8/11/00

GENERAL

Functions of the mechanical HVAC system are monitored and/or controlled by the Alerton Direct Digital Control (DDC) System. The system is programmed, monitored, and accessed by an on-site IBM compatible computer that will be referred to as the "Workstation". Alerton *IBEX for Windows* LAN card and key are installed at the workstation. The computer is directly linked with an Alerton APEX - LT global controller.

Communication with the HVAC mechanical equipment is accomplished via an 18/2 twisted shielded communication cable from the APEX-LT to the equipment controllers (TUX's) throughout the building. A remote computer via a modem and the Alerton *IBEX for Windows* (IBEX) dial-up software can also access the system.

VAV AIR HANDLING UNIT AH-1 & TERMINAL UNIT'S

A. General:

1. VAV air handling unit with supply and return fan variable frequency drives, chilled water valve and two gas furnaces.
2. VAV terminal units with electric reheat.
3. TUXs shall be completely stand alone capable, and shall store control software and setpoints in nonvolatile EEPROM memory resident on each TUX.
4. **Most of the settings below are adjustable and the values given here are for reference ONLY.**
5. **All analog and most digital outputs shall have "Hand- Off-Auto" switch on the screen.**

B. Day Mode

1. Supply and return fans run continuously during occupancy subject to smoke and freeze alarms.
2. Maintain supply air pressure at 1.0" w.c. (adj.) by modulating the supply fan speed via the Variable Frequency Drive. Modulate the return fan speed with a plus or minus 10 % (adj.) offset from the supply fan speed.
3. Maintain supply air temperature setpoint by operating the economizer dampers, chilled water valve for cooling and two stages of gas heat for heating.
4. Reset supply air temperature setpoint based on cooling demand. If more than two zones in cooling mode (cooling demand is greater than 80%), reset supply air temperature down 1 °F every 10 minutes. If less than two zones in cooling mode, reset supply air temperature up 1 °F every 10 minutes. Minimum supply air setpoint is 55 °F. Maximum supply air setpoint is 70 °F. Provide an option to select the setpoint manually.
 - a) Use Proportional plus Integral control to maintain supply air temperature setpoint. If supply air temperature falls below setpoint more than 5 °F with OSA damper at adjusted minimum position, sequence two gas furnaces to maintain supply air setpoint (used mainly in very cold weather). Stage up one stage of heat when supply

- air temperature is 5 °F below setpoint for 5 minutes. Stage down one stage when supply air temperature is above setpoint for 5 minutes.
- b) Provide manual high occupancy switch that changes damper positions to provide the higher minimum outside air (OSA). Switch is an adjustable timed operation, length established by owner.
 - c) When OSA temperature rises above return air, close OSA damper to the adjusted minimum position.
 - d) When OSA temperature is below return air, modulate economizer dampers to maintain supply air temperature, subject to mixed air temperature low limit (M.A.L.L) of 55 °F. Two gas furnaces shall stage up when mixed air temperature stays below mixed air temperature M.A.L.L with OSA damper at minimum position for 3 minutes.
 - e) If the OSA damper is fully open for 3 minutes and the supply air temperature is still above setpoint, start modulating the chilled water valve to maintain supply air temperature. Keep the OSA damper at 100 % open whenever the valve is open to maintain supply air temp setpoint –unless the damper is forced to minimum.
 - f) Lock out the chilled water valve when the OSA temperature is below lockout setpoint of 55 °F. Lock out gas heat when the OSA temperature is above lockout setpoint of 60 °F.

C. Safeties

- 1. Smoke:
 - a) Smoke detector is hard-wired to shut down supply and return fans. DDC stops fans and closes economizer dampers upon detection of smoke in the supply air duct.
- 2. Freeze:
 - a) Freezestat downstream of cooling coil is hard-wired to shut down supply and return fans. DDC stops fans, closes economizer dampers whenever temperature is below 40 °F (set @ device).
- 3. Force all terminal units to FULL OPEN if AH-1 unit shows fan status and command from the DDC is "off".

D. Night Mode

- 1. Supply and return fans are off, heating and cooling stages are off, and economizer dampers close to the OSA.

E. Morning Warm-up Mode

- 1. The IBEX determines warm up mode based on morning OSA temperature, space air temps, and previous warm up history. Initiate mode when there are more than two zones (adj.) in warm up mode.
- 2. Terminate warm-up at scheduled occupancy or when all zones are satisfied or when return air temperature is greater than 72°F (adj.). If warm up mode is terminated before scheduled occupancy time, force all VAVs and AH-1 into an early-occupied mode.
- 3. Start AH-1. Close economizer dampers to OSA. Close chilled water valve.
- 4. Control supply and return fan speed as in day mode.

5. Energize gas heating. Lock out highest current heating stage if supply air temperature exceeds 100°F (adj.) for 1 minute. **Keep this lockout until next warm up or NLL mode.**
6. Provide an option to allow or disable VAV box electric reheat during warm up mode.
7. Force all VAV terminal units not in warm-up to 25% open.

F. Night Low Limit (NLL)

1. Initiate NLL mode when there are more than two zones (adj.) in NLL mode.
2. A zone is in NLL mode when space temperature drops below the night low limit setpoint of 55 °F.
3. Terminate this mode when all zones' temperatures rise 3 °F above the night low limit setpoint or at occupancy.
4. Operate AH-1 unit and terminal units in morning warm-up mode as described above.
5. Any zone within 5 °F of NLL setpoint will enter occupied mode if any NLL mode is active.
6. Force all terminal units not in NLL mode to 25% open.

G. Night High Limit (NHL) / Cooldown Mode

1. Initiate NHL mode when there are more than two zones (adj.) in NHL or cooldown mode.
2. A zone is in NHL mode when space temperature rises above the night high limit setpoint of 85 °F. Cooldown mode is determined by IBEX similar to warm up mode.
3. Terminate this mode when all zones' temperatures drop 3 °F below the night high limit setpoint or at occupancy.
4. Force all terminal units not in NHL or cool-down mode to 25% open.
5. Any zone within 5 °F of NHL setpoint will enter occupied mode with heating locked-out if any NHL mode is active.

H. After Hours Override

1. The terminal zone units initiate this mode. See wall sensor below for more details.
2. Control AH-1 unit fans speed, heating and cooling as in occupied mode.
3. VAV terminal units in this mode control as in occupied mode.

VAV TERMINAL UNIT CONTROL

Each terminal unit is provided with an Alerton terminal unit controller called a "VAV-TUX". Each zone utilizes an Alerton Microtouch wall sensor that has a timed override button and service tool jack. After hours mode is initiated when an occupant pushes the Microtouch. Minimum,

maximum setpoint and the override period adjustments are set by the operator at workstation and are fully adjustable for each zone of control.

Microtouch Space Temperature Sensor / After Hours Override

Each Alerton wall sensor is equipped with a timed override button. Upon activation of the timed override button on any of the zone space temperature sensors, the AH-1 unit will activate and a minimum number of terminal units will control to occupied setpoint to allow for adequate airflow. The timed override period is adjustable at the work station. The owner can increase or decrease the occupied setpoint by moving the Microtouch lever above or below the center position. The setpoint bias range (maximum SP- minimum SP) determines the maximum effect of this bias. The bias is limited to 6 °F.

Occupied Heating Mode

Upon a call for heat during the occupied mode of operation the terminal unit damper modulates to the reheat CFM setpoint and the electric reheat is cycled as required to maintain the heating setpoint. Separate CFM setpoints are provided for minimum, maximum, and reheat operation. A programmable dead-band between heating and cooling with minimum of 2 degrees is provided to prevent short-cycling.

Occupied Cooling Mode

Upon a call for cooling during the occupied mode of operation the terminal unit damper modulates between the minimum and maximum CFM setpoints to maintain the cooling space temperature setpoint.

CHILLED WATER SYSTEM

Run chilled water system on call for mechanical cooling system from AH-1 (when chilled water valve is open more than 20 % for 3 minutes until valve is fully closed for 3 minutes). Lock out chilled water system whenever OSA temperature is below 50 °F

Upon request, start chilled water pump P-1. After proving P-1 operation, allow chiller to operate as required to satisfy chilled water setpoint. Chiller SP to be manual (42 °F adj.) or auto. In auto mode, SP equals to AH-1 supply air temperature SP minus an adj. Offset.

When stopping chilled water system, stop CH-1 and maintain P-1 operation for 5 minutes (adj.) to accommodate CH-1 pump down requirement.

Generate an alarm if P-1 status shows off and command is on. Monitor chilled water supply water temperature and generate an alarm if temperature is above SP more than 10 °F for 10 minutes.

Chilled Water Pump Cold Weather Circulation:

For cold weather freeze protection, the chilled water pump shall run without circulating coolant through the cooling coil whenever the outside air temperature is less than a user definable setpoint (adj.).

MISC. CONTROL

Exhaust Fan EF-1

Exhaust fan is commanded to run based upon occupied time schedule as set by the owner.

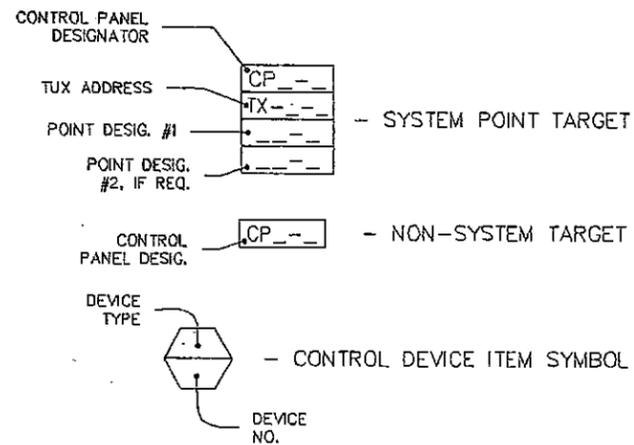
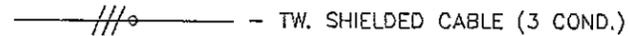
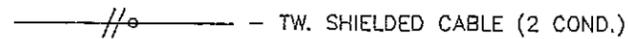
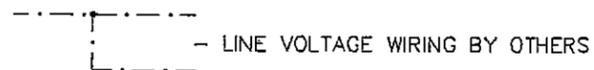
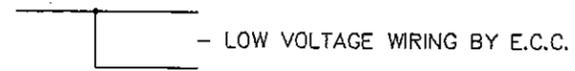
Hot Water Circ. Pump

Pump is commanded to run based upon occupied time schedule as set by the owner. Generate an alarm if pump status shows off and command is on.

Exhibit B

CONTROL LEGEND

- - LOW VOLTAGE WIRING TERMINAL
- - LINE VOLTAGE WIRING TERMINAL
- ⬡ - PNEUMATIC OR PRESSURE SENSING PIPING LINE IDENTIFICATION



- ⬡ - NEW EQUIPMENT
- ⬡ - EXISTING EQUIPMENT
- ⬡ - CONNECT TO EXISTING

DWG NO.	DRAWING TITLE
30100	TITLE SHEET, CONTROL LEGEND & DRAWING LIST
30101	APEX-LT POINT-TO-POINT ADDRESSES
30102	DDC SYSTEM ARCHITECTURE (CP#1)
30103	APEX-LT INSTALLATION SHEET
30104	AH-1 CONTROL LAYOUT
30105	CHILLED WATER SYSTEM LAYOUT
30106	AH-1/CHW SYSTEM WIRING (CP#2)
30107	TERMINAL UNIT SCHEDULE (CP#3)
30108	TERMINAL UNITS - 1 STAGE REHEAT
30109	TERMINAL UNITS - 2 STAGE REHEAT (COMBINED)
30110	TERMINAL UNITS - 2 STAGE REHEAT

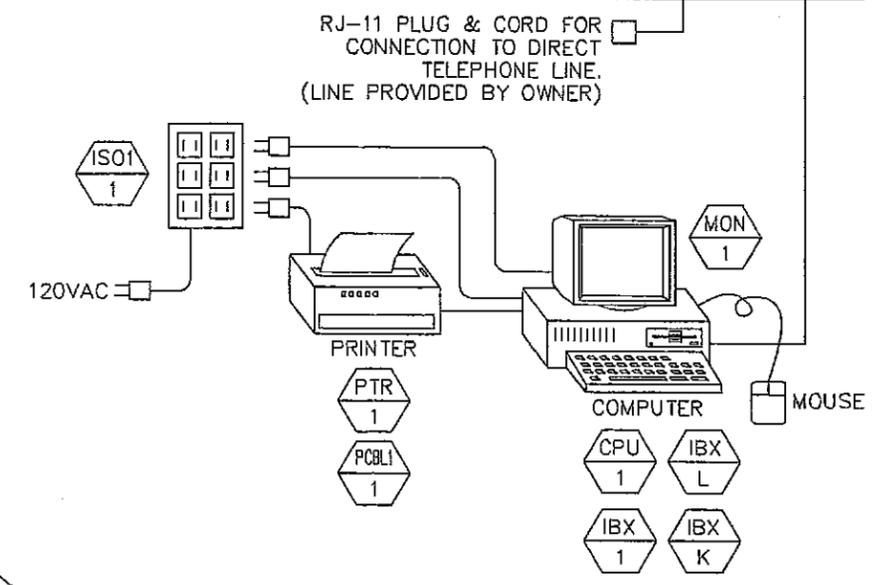
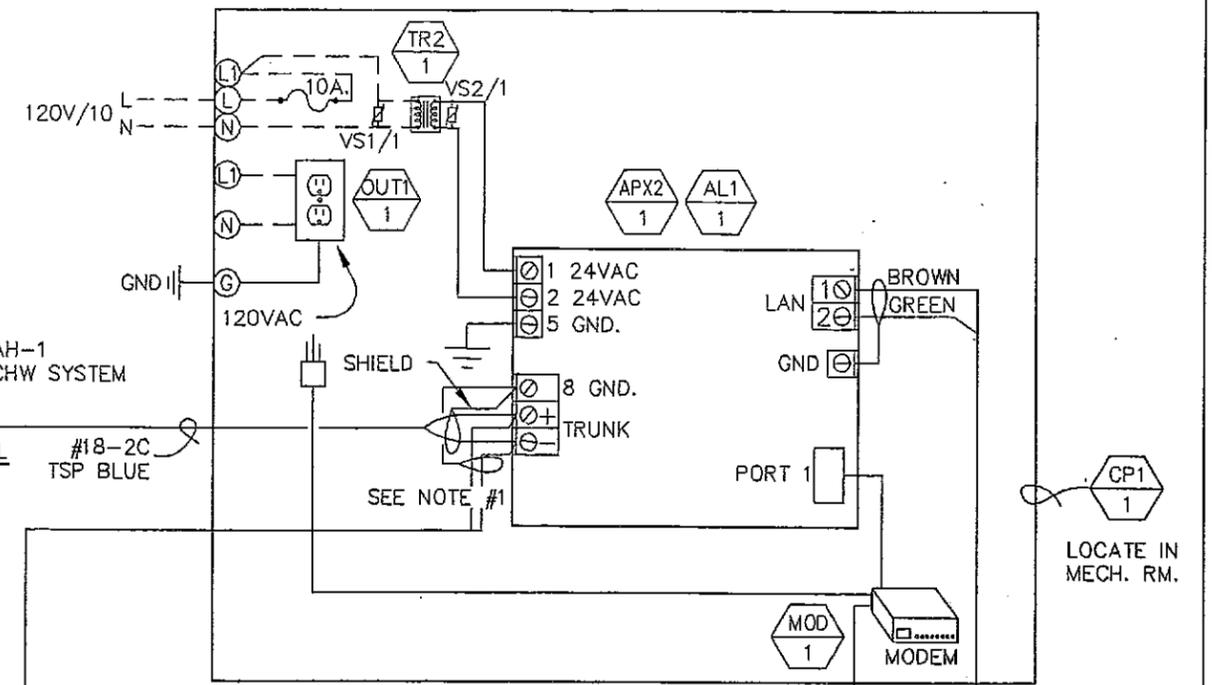
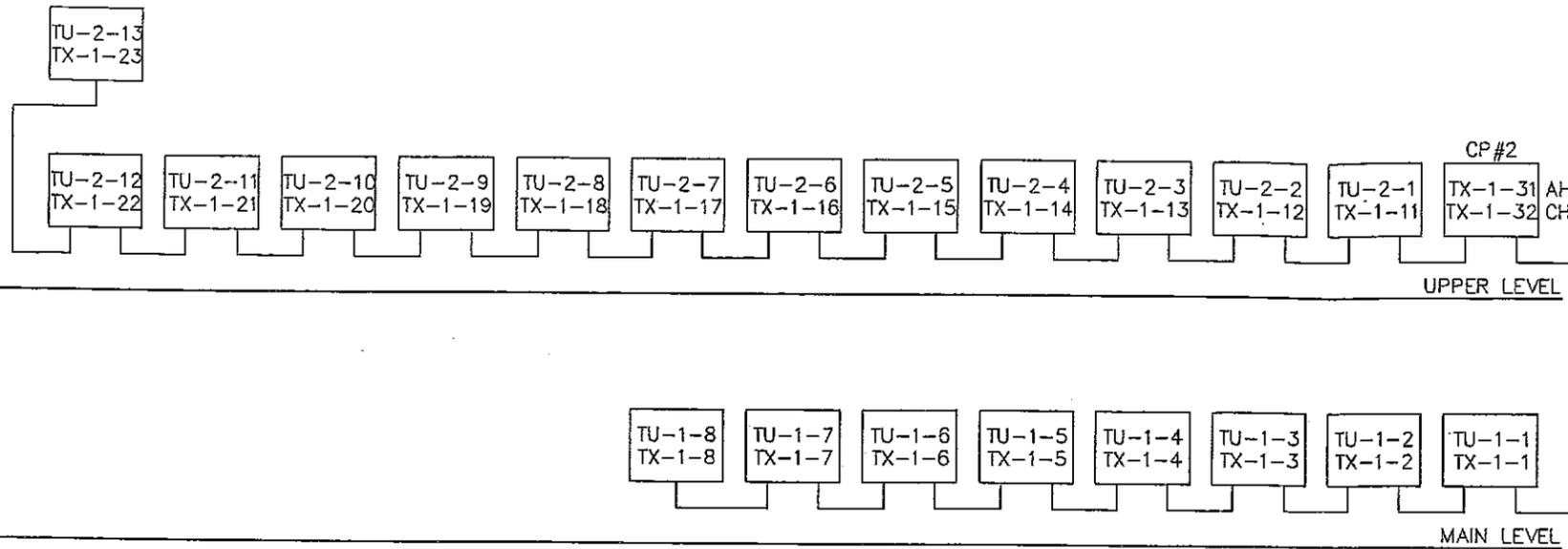
REV. #	DESCRIPTION:	DATE:
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JOB NAME:	WOODBURN PUBLIC LIBRARY	JOB NO: 301A
DATE:	DRAWN BY:	ENG. BY:
6/5/00	TAN	JA
		CHK'D BY: PBG
ENVIRONMENTAL CONTROL CORPORATION		
DWG. TITLE:	CONTROL LEGEND & DRAWING LIST	DWG. NO: 30100

APEX #1

TUX #	UNIT #	NOTE #	TUX DIP SWITCH	TUX #	UNIT #	NOTE #	TUX DIP SWITCH
			1 2 3 4 5 6 7 8 9 10 11 12				1 2 3 4 5 6 7 8 9 10 11 12
0.			<input type="checkbox"/>	32.	CH-1/P-1		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
1.	TU-1-1		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	33.			<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
2.	TU-1-2		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	34.			<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
3.	TU-1-3		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	35.			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
4.	TU-1-4		<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	36.			<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
5.	TU-1-5		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	37.			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
6.	TU-1-6		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	38.			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
7.	TU-1-7		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	39.			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
8.	TU-1-8		<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	40.			<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
9.			<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	41.			<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
10.			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	42.			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
11.	TU-2-1		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	43.			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
12.	TU-2-2	(1)	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	44.			<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
13.	TU-2-3		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	45.			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
14.	TU-2-4	(1)	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	46.			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
15.	TU-2-5		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	47.			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
16.	TU-2-6		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	48.			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
17.	TU-2-7		<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	49.			<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
18.	TU-2-8	(1)	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	50.			<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
19.	TU-2-9		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	51.			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
20.	TU-2-10		<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	52.			<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
21.	TU-2-11		<input checked="" type="checkbox"/> <input type="checkbox"/>	53.			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
22.	TU-2-12		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	54.			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
23.	TU-2-13		<input checked="" type="checkbox"/> <input type="checkbox"/>	55.			<input checked="" type="checkbox"/> <input type="checkbox"/>
24.			<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	56.			<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
25.			<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	57.			<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
26.			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	58.			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
27.			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	59.			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
28.			<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	60.			<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
29.			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	61.			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
30.			<input checked="" type="checkbox"/> <input type="checkbox"/>	62.			<input checked="" type="checkbox"/> <input type="checkbox"/>
31.	AH-1		<input checked="" type="checkbox"/> <input type="checkbox"/>	63.			<input checked="" type="checkbox"/> <input type="checkbox"/>

NOTES:
 (1) 2 SMALL HTG. STAGES TREATED AS ONE.

REV. #	DESCRIPTION:	DATE:
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DATE:	DRAWN BY:	ENG. BY:
6/5/00	TAN	JA
	CHK'D BY:	PEG
ENVIRONMENTAL CONTROL CORPORATION		
DWG. TITLE:	APEX-LT POINT TO POINT (HIGH SPEED)	REV. NO: 30101



JOB # - 301A		BILL OF MATERIAL		
ITEM	QUAN.	MODEL NO.	MANUF.	DESCRIPTION
PANEL MATERIAL:				
APX2	1	AL-1000	ALERTON TECH.	APEX-LT GLOBAL CONTROLLER - 1MB RAM
AL1	1	AL-LAN	ALERTON TECH.	LAN ADAPTER OPTION FOR AL-1000
MOD1	1	XPR58EPC-XL1S	DIAMOND MULTIMEDIA	MODEM, SUPRA EXPRESS, 56K, V.90
OUT1	1	S2621	HUBBELL	15A, 2-WIRE, 3-POLE DUPLEX OUTLET
TR2	1	UM-40T	PACIFIC ELECTRONICS	120/24 VAC TRANSFORMER, 40VA, 2 HUBS
VS1	1	V130LA-1	-	VARISTOR TRANSIENT SUPPRESSOR, 120VAC/VDC
VS2	1	V38ZA-1	-	VARISTOR TRANSIENT SUPPRESSOR, 24VAC/VDC
FIELD MATERIAL:				
CP1	1	HCO-1004	KMC CONTROLS	CONTROL PANEL 16" x 18" x 6" WHINGED, LOCKING DOOR
CPU1	1	PC-PENT-266-32-3.2	P.C. SUPPLY	PC, 266.MHz PENTIUM II W/32MB RAM, 4.3 GB HD, CD ROM, 3-1/2" FDD
IBX1	1	IBEX-W	ALERTON TECH.	IBEX FOR WINDOWS SOFTWARE
IBXK	1	IBWKEY	ALERTON TECH.	IBEX FOR WINDOWS KEY
IBXL	1	IBWLAN	ALERTON TECH.	IBEX FOR WINDOWS LAN CARD
ISO1	1	ARESST PRO	APC	POWER/PHONE SURGE SUPPRESSOR, 120VAC,
MON1	1	TE555G	RYLIBSYS	15" SVGA COLOR MONITOR, 1024 x 768, .28 dpi
PCBL1	1	FZA050-10	BELKIN COMP.	PRINTER CABLE, PARALLEL, 10 FT.
PTR1	1	HP-312C	HEWLETT PACKARD	COLOR INKJET PRINTER

General
 Functions of the mechanical HVAC system are monitored and/or controlled by the Alerton Direct Digital Control (DDC) System. The system is programmed, monitored, and accessed by an on site IBM compatible personal computer which will be referred to as the "Operator Terminal". An Alerton *IBEX for Windows* LAN card and associated DDC software is installed at the Operator Terminal. The computer is linked by a LAN cable with an Alerton APEX for Windows global controller.

The APEX for Windows global controller is a peer-to-peer controller; it does not need the IBEX front-end to share data. The IBEX for Windows computer can be turned off and the APEX will continue to function as normal. However, it is recommended to remain on.

Communication with HVAC mechanical equipment is accomplished via an 18/2 twisted shielded communication cable from the APEX to the equipment controllers (TUX's) throughout the building. In most cases the TUX's are capable of stand-alone operation; meaning in the event of communications loss, they will continue to control to their current set points.

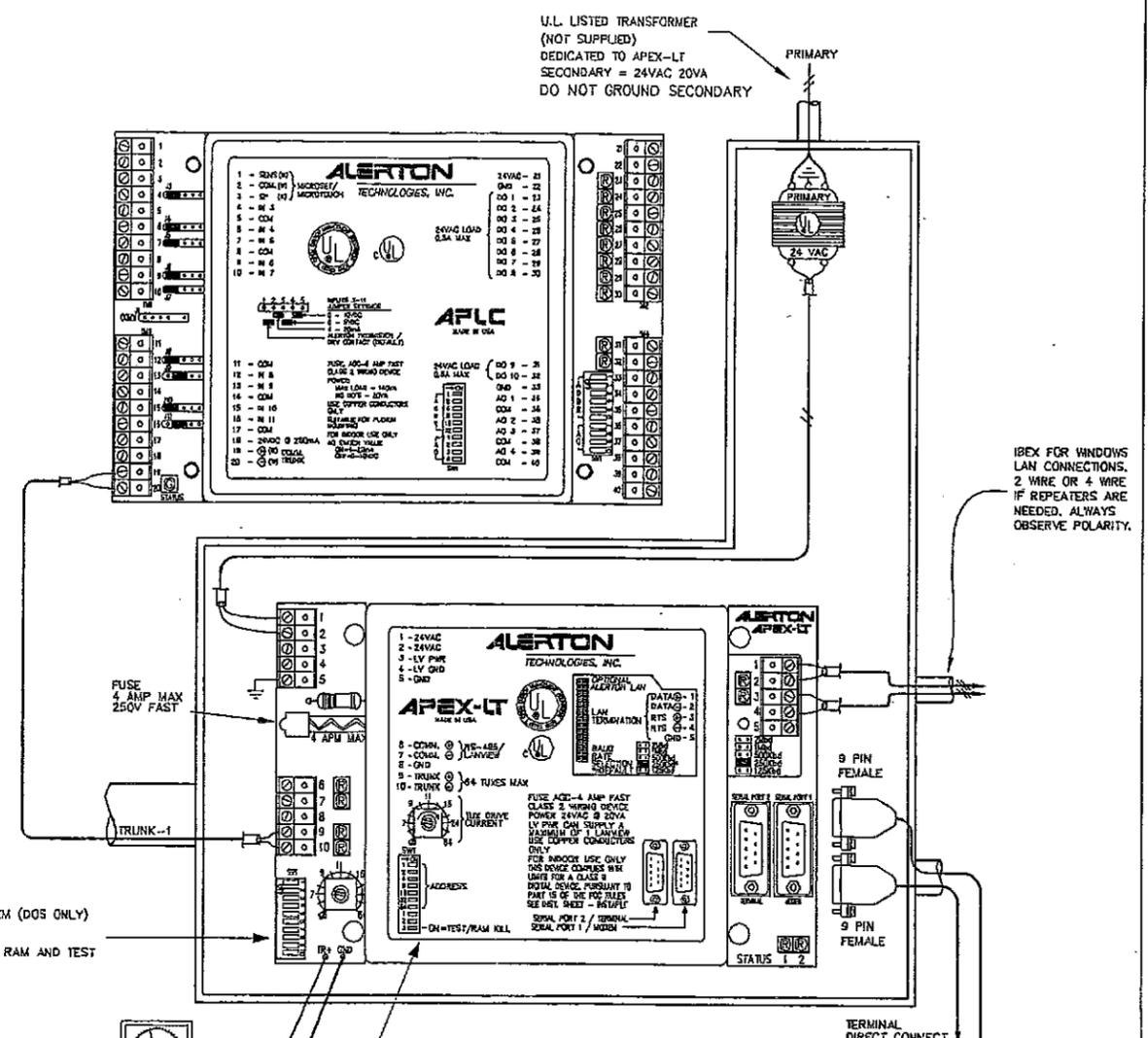
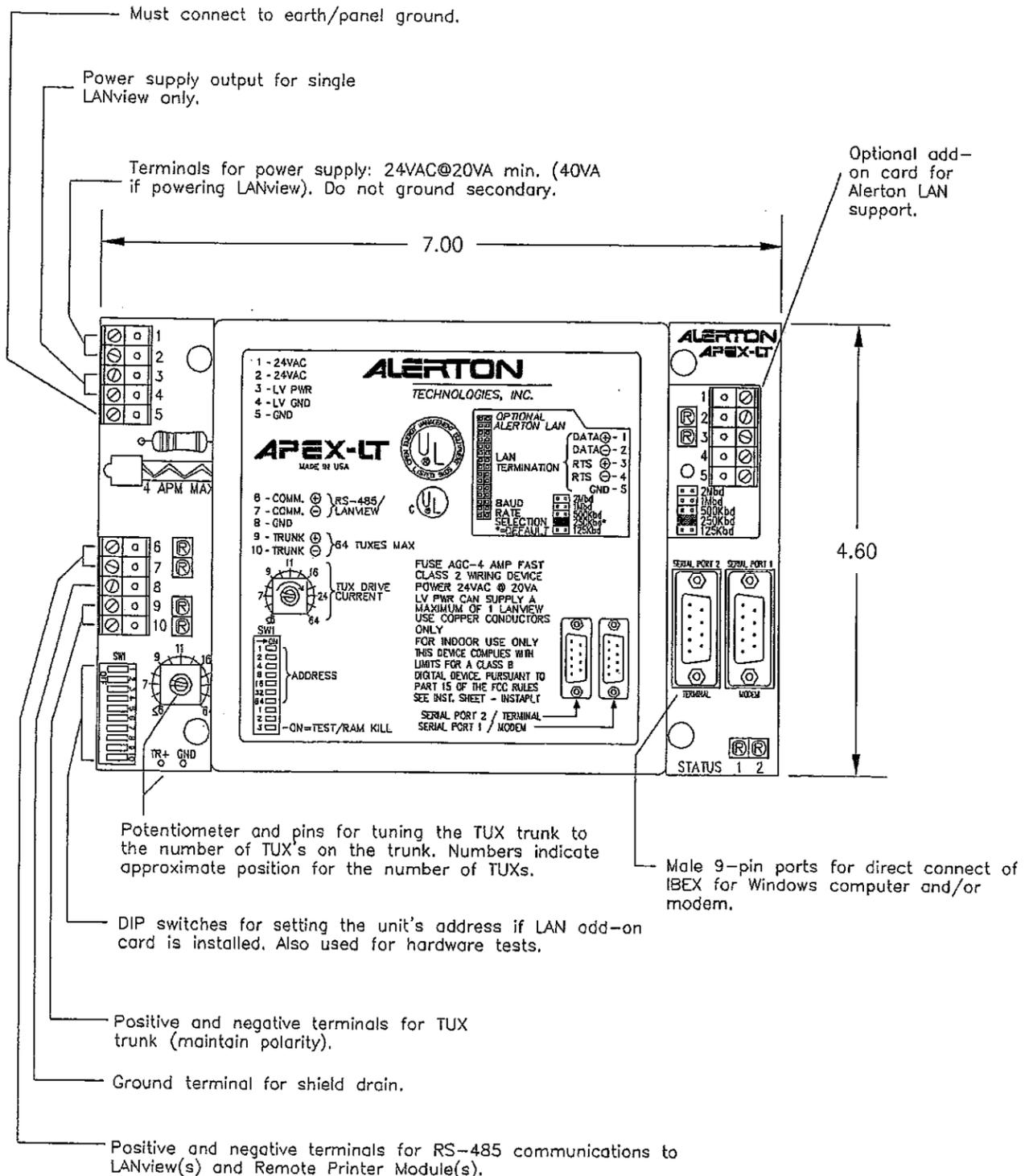
The system can also be accessed by a remote computer via a modem and the Alerton *IBEX for Windows* dial-up software.

- NOTES:**
 1) GROUND COMM. TRUNK SHIELD AT APEX ONLY.

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DATE:	DRAWN BY:	ENG. BY:
6/5/00	TAN	JA
	CHK'D BY:	PBG
ENVIRONMENTAL CONTROL CORPORATION		
DWG. TITLE:	DDC SYSTEM ARCHITECTURE (CP#1)	DWG. NO: 30102

TYPICAL APEX-LT INSTALLATION

The APEX-LT

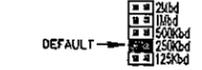


ON = DIRECT CONNECT / MODEM (DOS ONLY)
ON = KILL RAM AND TEST

APEX LT WITH LAN OPTION

LAN BAUD RATE

1. Recommended default setting is 250K bd (baud)
2. If alternate settings are enabled all devices (APEX/APEX LT/IBEX) must have identical settings.
3. Alternate settings are not compatible with IB-3500 cards or APEXLT's & IBW-LAN cards without jumpers.



TRUNK ADJUSTMENT

1. Connect voltmeter between GND and trunk adjustment pin as shown above. Set meter to Volts (DC).
2. Adjust trunk potentiometer until meter reads 7.5 to 9.5 VDC.
3. Repeat for remaining trunks.

Note:
With less than 6 Tuxes on the trunk the voltage will be greater than 9.5 VDC, and with 24-64 Tuxes on the trunk, the voltage may be lower than 7.5VDC.

ATTENTION:

REMOVE RED TAG PROTRUDING FROM BATTERY IMMEDIATELY AFTER POWER UP, IF TAG IS REMOVED AND APEX IS NOT POWERED UP, BATTERY LIFE IS REDUCED FROM YEARS TO SEVERAL WEEKS. (SEE NOTE #5)

NOTES:

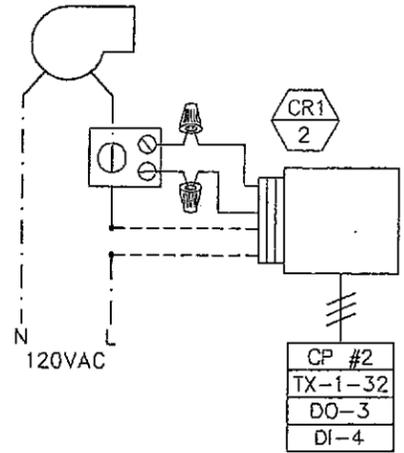
- 1) INSTALL IN A UL ENCLOSURE, MINIMUM 8" x 10" x 4".
- 2) RECOMMENDED ALERTON TUX/IBEX/APEX COMMUNICATION WIRE RUNS ARE SHIELDED 18/2.
- 3) THIS UNIT IS INTENDED TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION WIRING MANUAL, THE NATIONAL ELECTRIC CODE, AND IN A MANNER ACCEPTABLE TO THE LOCAL AUTHORITY HAVING JURISDICTION.
- 4) IT IS RECOMMENDED THAT AN ELECTRICAL CIRCUIT BE DEDICATED FOR APEX LT'S.
- 5) THE BATTERY IS A .3V 2/3A DURACELL LITHIUM BUTTON BATTERY, PART #DL2450 EXPECTED LIFE: 2YRS. ACCUM.
- 6) APEX LT HAS ADDRESSABLE BAUD RATES, 10 PLACE DIP SWITCH, & LOCAL LANVIEW POWER CONNECTIONS.

FCC STATEMENT:

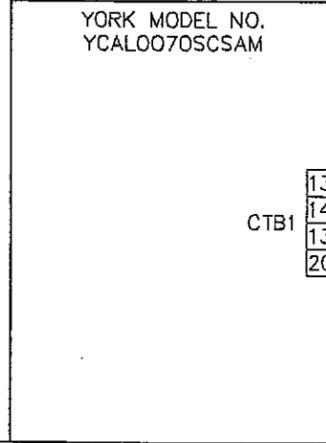
THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS. OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

REV. #	DESCRIPTION:	DATE:
N/A	AS-BUILT	8/11/00
JOB NAME:	WOODBURN PUBLIC LIBRARY	JOB NO: 301A
DATE:	6/5/00	DRAWN BY: TAN
		ENG. BY: JA
		CHK'D BY: PBG
ENVIRONMENTAL CONTROL CORPORATION		
DWG. TITLE:	APEX-LT INSTALLATION DRAWING	DWG. NO: 30103

HOT WATER
CIRC. PUMP



DX AIR COOLED
SCROLL CHILLER



CTB1

13
14
13
20

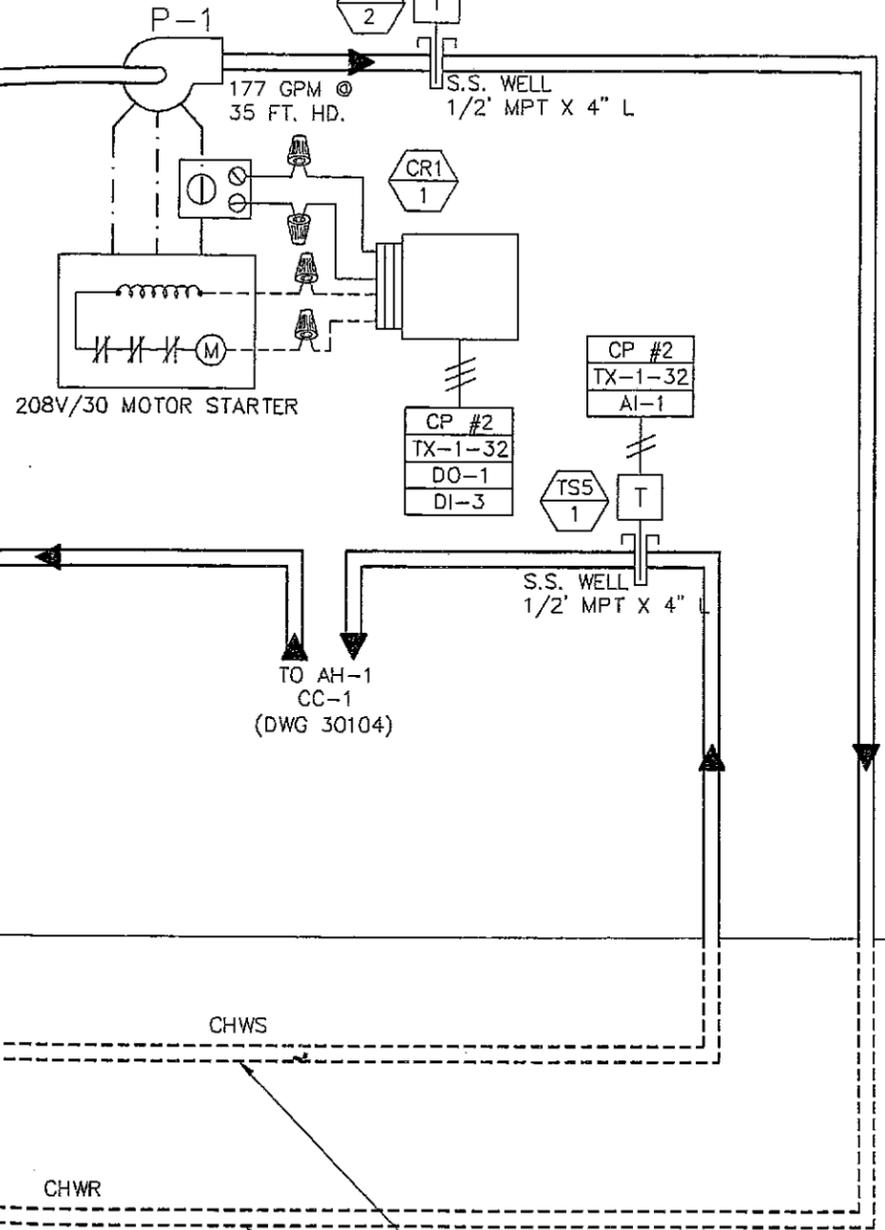
SP RESET

TIMED CONTACT CLOSURE
1 SEC. - SP= LOCAL SP
11 SEC. - SP= LOCAL SP + MAX RESET

CP #2
TX-1-32
DO-2

FLOW SWITCH
'FS1'
(BY OTHERS)

CP #2
TX-1-32
DO-5



CHWS

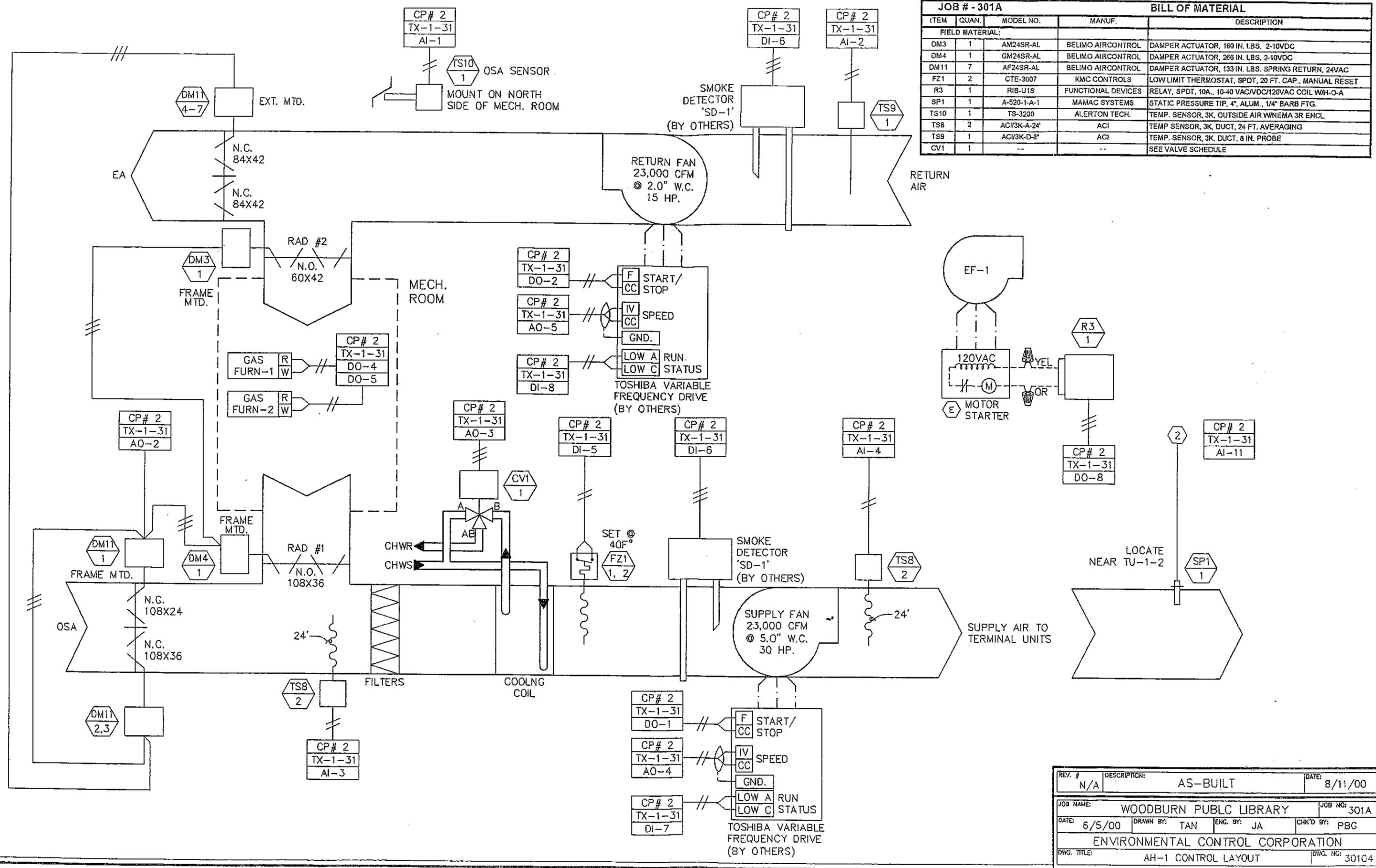
CHWR

EXISTING
UNDERGROUND
PIPE

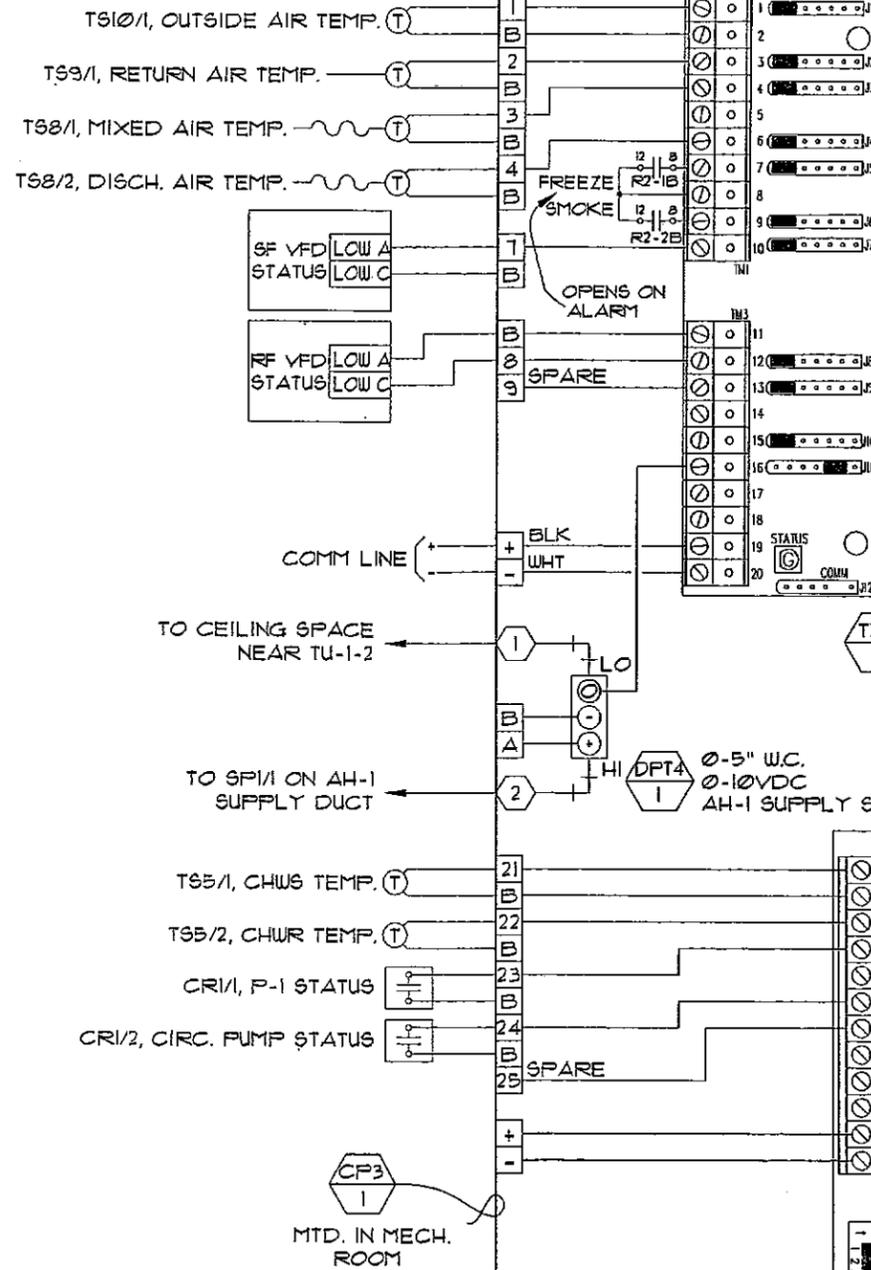
JOB # - 301A		BILL OF MATERIAL		
ITEM	QUAN.	MODEL NO.	MANUF.	DESCRIPTION
FIELD MATERIAL:				
CR1	2	RIBXLSRA	FUNCTIONAL DEVICES	COMMAND RELAY / CURRENT SWITCH, REMOTE, ADJ. W/SW.
TS5	2	ACI/3K-I-4"	ACI	TEMP. SENSOR, 3K, IMMERSION, 4" W/SS WELL

REV. #	DESCRIPTION:	DATE:
N/A	AS-BUILT	8/11/00
JOB NAME:	WOODBURN PUBLIC LIBRARY	JOB NO: 301A
DATE:	DRAWN BY:	ENG. BY:
6/5/00	TAN	JA
ENVIRONMENTAL CONTROL CORPORATION		CHK'D BY: PBG
DWG. TITLE:	CHILLED WATER SYSTEM	DWG. NO: 30105

JOB # - 301A		BILL OF MATERIAL		
ITEM	QUAN.	MODEL NO.	MANUF.	DESCRIPTION
FIELD MATERIAL:				
DM3	1	AM24SR-AL	BELIMO AIRCONTROL	DAMPER ACTUATOR, 160 IN. LBS. 2-10VDC
DM4	1	GM24SR-AL	BELIMO AIRCONTROL	DAMPER ACTUATOR, 266 IN. LBS. 2-10VDC
DM11	7	AF24SR-AL	BELIMO AIRCONTROL	DAMPER ACTUATOR, 133 IN. LBS. SPRING RETURN, 24VAC
FZ1	2	CTE-3007	KMC CONTROLS	LOW LIMIT THERMOSTAT, SPDT, 20 FT. CAP., MANUAL RESET
R3	1	RIB-U1S	FUNCTIONAL DEVICES	RELAY, SPDT, 10A., 10-40 VAC/VDC/120VAC COIL WH-O-A
SP1	1	A-520-1-A-1	MAMAC SYSTEMS	STATIC PRESSURE TIP, 4", ALUM., 1/4" BARB FTG.
TS10	1	TS-3200	ALERTON TECH.	TEMP. SENSOR, 3K, OUTSIDE AIR W/NEMA 3R ENCL.
TS8	2	ACI/3K-A-24"	ACI	TEMP. SENSOR, 3K, DUCT, 24 FT. AVERAGING
TS9	1	ACI/3K-D-8"	ACI	TEMP. SENSOR, 3K, DUCT, 8 IN. PROBE
CV1	1	--	--	SEE VALVE SCHEDULE



REV. #	DESCRIPTION:	DATE:
N/A	AS-BUILT	8/11/00
JOB NAME:	WOODBURN PUBLIC LIBRARY	JOB NO: 301A
DATE:	DRAWN BY:	ENG. BY:
6/5/00	TAN	JA
	CHK'D BY:	PBG
ENVIRONMENTAL CONTROL CORPORATION		
DWG. TITLE:	AH-1 CONTROL LAYOUT	DWG. NO: 30104



ALERTON TECHNOLOGIES, INC.

APLC 2
MADE IN USA

24VAC LOAD 0.5A MAX

1 - SENS(B) MICROSET/JUMPER DEFAULT

2 - COM.(W)

3 - SP (R)

4 - IN 3

5 - COM

6 - IN 4

7 - IN 5

8 - COM

9 - IN 6

10 - IN 7

11 - COM

12 - IN 8

13 - IN 9

14 - COM

15 - IN 10

16 - IN 11

17 - COM

18 - 24VDC @ 250mA

19 - (B) COMM.

20 - (W) TRUNK

21 - 24VAC - 21

22 - GND - 22

23 - DO 1 - 23

24 - DO 2 - 24

25 - DO 3 - 25

26 - DO 4 - 26

27 - DO 5 - 27

28 - DO 6 - 28

29 - DO 7 - 29

30 - DO 8 - 30

INPUT JUMPER SETTINGS

1 2 3 4 5 6 7

0 - 5VDC

1 - 10VDC

2 - 20mA

3 - 4-20mA

4 - 0-10VDC

5 - 0-20mA

6 - 4-20mA

7 - 0-10VDC

ANALOG OUTPUT

SW2

SW1

ADDRESS

AO1 - 31

COM - 32

AO2 - 33

AO3 - 34

COM - 35

AO4 - 36

AO5 - 37

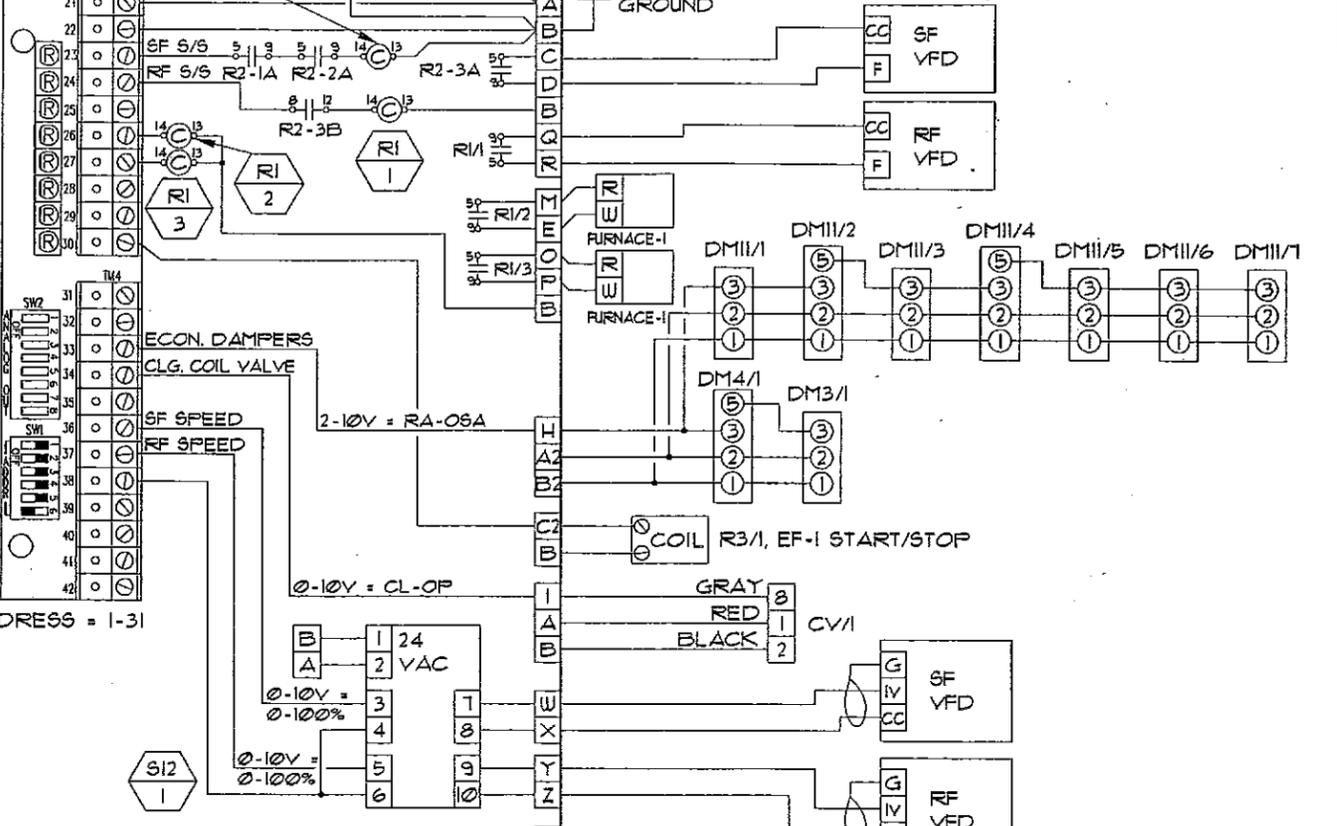
COM - 38

AO6 - 39

AO7 - 40

COM - 41

AO8 - 42



ALERTON TECHNOLOGIES, INC.

TX-653P
REV 2
MADE IN USA

24VAC LOAD 0.5A MAX

1 - SENS (B)

2 - COM. (W)

3 - SP (R)

4 - IN 3

5 - COM

6 - IN 4

7 - IN 5

8 - COM

9 - IN 6

10 - 24VDC @ 150mA MAX

11 - (B) COMM. TRUNK

12 - (W) TRUNK

13 - 24 VAC - 13

14 - GROUND - 14

15 - DO 1 - 15

16 - DO 2 - 16

17 - DO 3 - 17

18 - DO 4 - 18

19 - DO 5 - 19

20 - AO 1 - 20

21 - COM - 21

22 - AO 2 - 22

23 - COM - 23

24 - AO 3 - 24

INPUT SETUP

ON = THERMISTORS / DRY CONTACTS

OFF = 0-5VDC / 4-20mA

ANALOG OUTPUT

SW2

SW1

SWITCH VALUE

1 ON

2 OFF

3 ON

4 OFF

5 ON

6 OFF

7 ON

8 OFF

9 ON

10 OFF

11 ON

12 OFF

13 ON

14 OFF

15 ON

16 OFF

17 ON

18 OFF

19 ON

20 OFF

21 ON

22 OFF

23 ON

24 OFF

FUSE, AGC-4 AMP FAST CLASS 2 WIRING DEVICE

POWER: MAX LOAD - 70VA NO 00'S - 10VA

USE COPPER CONDUCTORS ONLY

SUITABLE FOR PLENUM MOUNTING

FOR INDOOR USE ONLY

AO SWITCH VALUE

ON = 4-20mA

OFF = 0-10VDC

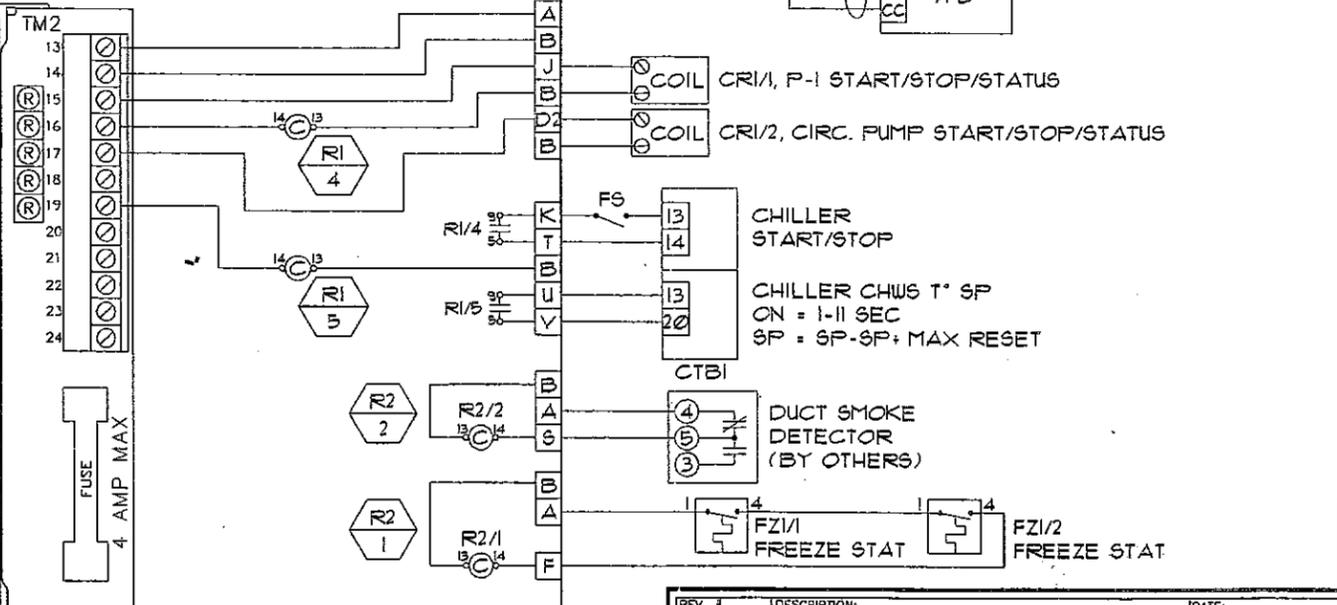
TX-653P Rev2

0 0 0 0 0

COMM RS-232

4 AMP MAX

ADDRESS = 1-32



JOB # - 301A

BILL OF MATERIAL

ITEM	QUAN.	MODEL NO.	MANUF.	DESCRIPTION
PANEL MATERIAL:				
DPT4	1	PR-275-R3-VDC	MAMAC SYSTEMS	DIFF. PRESS. TRANSM. 0-5" W.C. 0-10VDC, W/MTG. BKT.
R1	5	RH1B-UL-AC24	IDEC	RELAY, SPDT, 10A., 24VAC COIL W/SH18-05 BASE
R2	3	RH2B-UL-AC24	IDEC	RELAY, 2PDT, 24VAC COIL, 10A., W/SH28-05 BASE
SI2	1	DISM-E2	ATKINSON ELECTRONICS	DUAL INPUT/ DUAL OUTPUT SIGNAL ISOLATOR/ CONVERTOR
TR1	1	AP-10024 TFCB	PACIFIC ELECTRONICS	TRANSFORMER, 120/24VAC, 95 VA, 2 HUBS
TR3	1	7524CB2	PACIFIC ELECTRONICS	120/24 VAC TRANSFORMER, 75 VA, 2 HUBS
TX2	1	TX-APLC2	ALERTON TECH.	PROGRAMMABLE CONTROLLER, 11-IN, 8-DO, 8-AO
TX3	1	TX-653P	ALERTON TECH.	PROGRAMMABLE CONTROLLER, 8-IN, 5-DO, 3-AO
VS1	1	V130LA-1		VARISTOR TRANSIENT SUPPRESSOR, 120VAC/VDC
VS2	2	V39ZA-1		VARISTOR TRANSIENT SUPPRESSOR, 24VAC/VDC
FIELD MATERIAL:				
CP3	1	HCO-1016	KMG CONTRLS	CONTROL PANEL 24" x 36" x 8" W/HINGED, LOCKING DOOR

REV. #	DESCRIPTION:	DATE:
N/A	AS-BUILT	8/11/00
JOB NAME: WOODBURN PUBLIC LIBRARY		JOB NO: 301A
DATE: 6/5/00	DRAWN BY: TAN	ENG. BY: JA
CHK'D BY: PSB		
ENVIRONMENTAL CONTROL CORPORATION		
DWG. TITLE: AH-1/CHW SYSTEM PANEL WIRING		DWG. NO: 30106

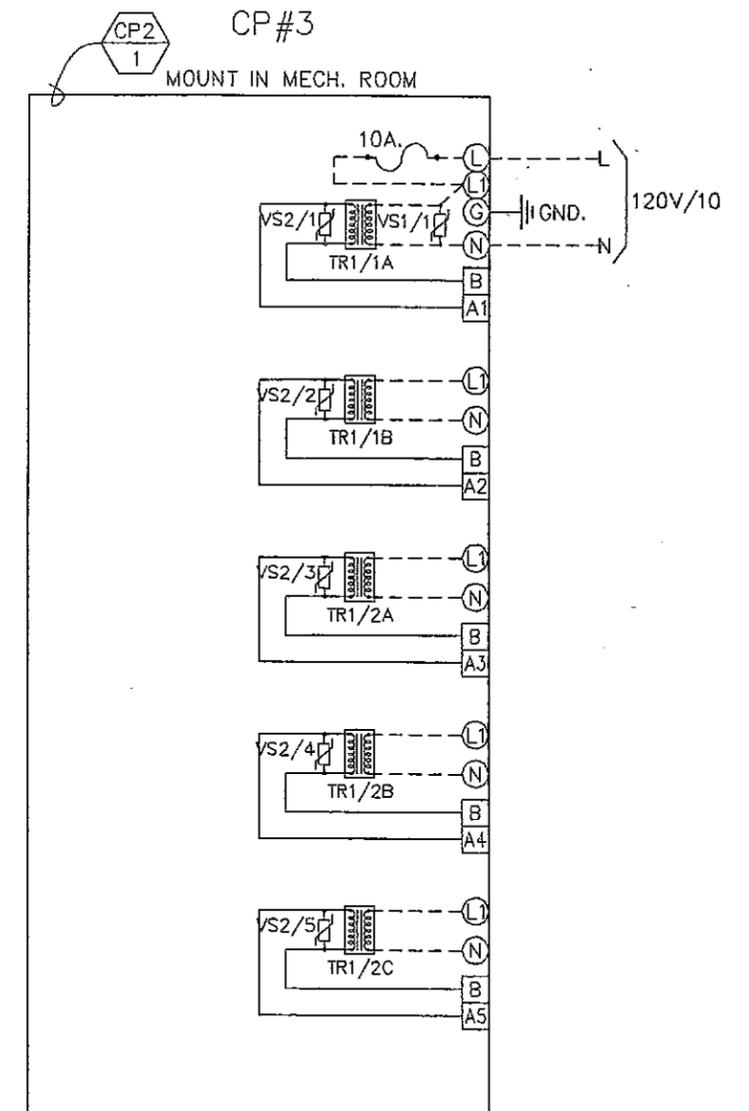
T.U. NUMBER	TUX ADDR.	BOX TYPE	HEAT TYPE	NO. STAGES	KW RATING	BOX SIZE (1)	MIN FLOW	MAX FLOW	TRANS. no. (2)	SENSOR LOCATION
TU-1-1	1-1	Reheat	Electric	2	3.1	11	700	1075	TR1/1A	1st Floor Hallway 104(W.)- Col 2.5/ Row A&B
TU-1-2	1-2	Reheat	Electric	2	2.5	12	595	900	TR1/1A	1st Floor Hallway 104 (E.)- Col 4/ Row B
TU-1-3	1-3	Reheat	Electric	2	1.5	9	290	440	TR1/1A	1st Floor Room 103
TU-1-4	1-4	Reheat	Electric	1	4.4	18	850	1300	TR1/1A	1st Floor Hallway/ Rest Rms
TU-1-5	1-5	Reheat	Electric	1	6.4	17	1250	1900	TR1/1B	1st Floor Room 101
TU-1-6	1-6	Reheat	Electric	2	5.0	16	850	1300	TR1/1B	1st Floor Room 127
TU-1-7	1-7	Reheat	Electric	2	2.2	10	290	450	TR1/1B	1st Floor Room 136
TU-1-8	1-8	Reheat	Electric	2	3.1	12	415	630	TR1/1B	1st Floor Room 130
TU-2-1	1-11	Reheat	Electric	1	2.4	12	590	900	TR1/2A	1st Floor Room 107 (W.)- Col 2/ Row B
TU-2-2	1-12	Reheat	Electric	1	2.4	10	590	900	TR1/2A	1st Floor Room 107 (S.)- Col 3/ Row C
TU-2-3	1-13	Reheat	Electric	1	5.0	22	900	1500	TR1/2A	1st Floor Room 107 (E.)- Col 4/ Row C
TU-2-4	1-14	Reheat	Electric	1	1.5	8	315	480	TR1/2A	1st Floor Room 107 (N.)- Col 5/ Row B
TU-2-5	1-15	Reheat	Electric	2	4.2	13	750	1150	TR1/2A	2nd Floor Room 204 (S.)
TU-2-6	1-16	Reheat	Electric	2	6.2	15	1100	1700	TR1/2B	2nd Floor Room 204 (N.)
TU-2-7	1-17	Reheat	Electric	2	1.2	8	300	475	TR1/2B	2nd Floor Room 207
TU-2-8	1-18	Reheat	Electric	1	2.8	10	460	700	TR1/2B	2nd Floor Room 209
TU-2-9	1-19	Reheat	Electric	2	6.3	21	1500	2300	TR1/2B	2nd Floor Room 215
TU-2-10	1-20	Reheat	Electric	2	6.2	13	790	1200	TR1/2C	2nd Floor Room 227
TU-2-11	1-21	Reheat	Electric	2	6.2	14	1100	1700	TR1/2C	2nd Floor Room 230
TU-2-12	1-22	Reheat	Electric	1	6.9	15	1180	1800	TR1/2C	1st Floor Room 113 (N.W.)- Col 8/ Row C
TU-2-13	1-23	Reheat	Electric	1	4.6	12	790	1200	TR1/2C	1st Floor Room 113 (S.E.)- Col 8/ Row D

Note (1) : At the time of updating this schedule, based on data form balancer

Note (2) : This is a **suggested** transformer schedule .

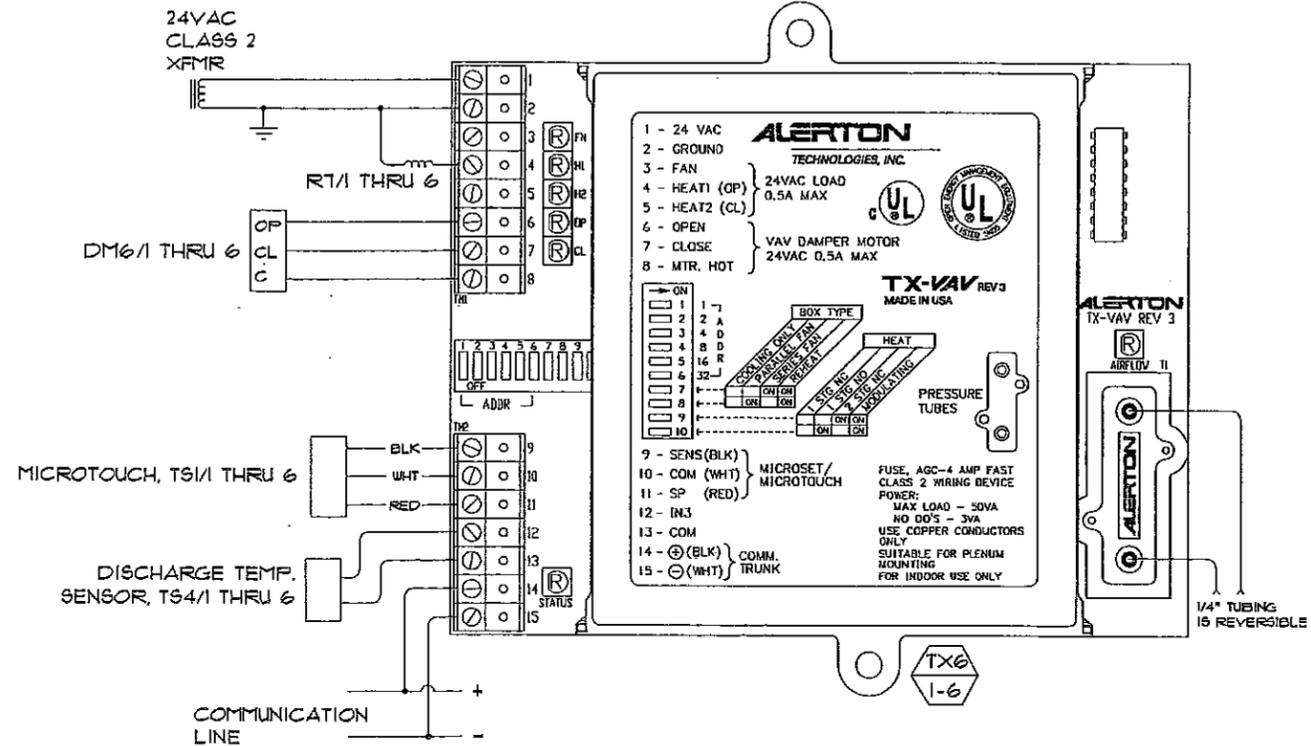
TU'S TYPICAL B.O.M.

JOB # - 301A		BILL OF MATERIAL		
ITEM	QUAN.	MODEL NO.	MANUF.	DESCRIPTION
VS1	1	V130LA-1	-	VARISTOR TRANSIENT SUPPRESSOR, 120VAC/VDC
VS2	5	V39ZA-1	-	VARISTOR TRANSIENT SUPPRESSOR, 24VAC/VDC
FIELD MATERIAL:				
CP2	1	HCO-1005	KMC CONTROLS	CONTROL PANEL 20" x 24" x 6" W/HINGED, LOCKING DOOR
TR1	5	AP-10024 TF/CB	PACIFIC ELECTRONICS	TRANSFORMER, 120/24VAC, 95 VA, 2 HUBS



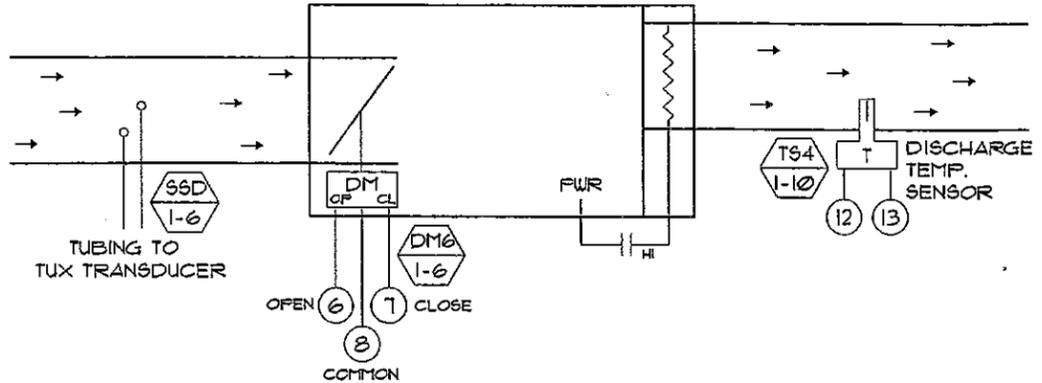
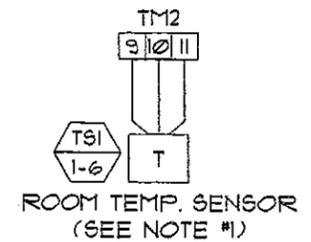
REV. #	DESCRIPTION:	DATE:
N/A	AS-BUILT	8/11/00
JOB NAME:	WOODBURN PUBLIC LIBRARY	JOB NO: 301A
DATE:	DRAWN BY:	ENG. BY:
6/5/00	TAN	JA
ENVIRONMENTAL CONTROL CORPORATION		CHK'D BY: PBG
DWG. TITLE:	TERMINAL UNITS SCHEDULE	DWG. NO: 3C107

24VAC TO VAV'S AS SCHEDULED
SEE NOTE #1 & #2



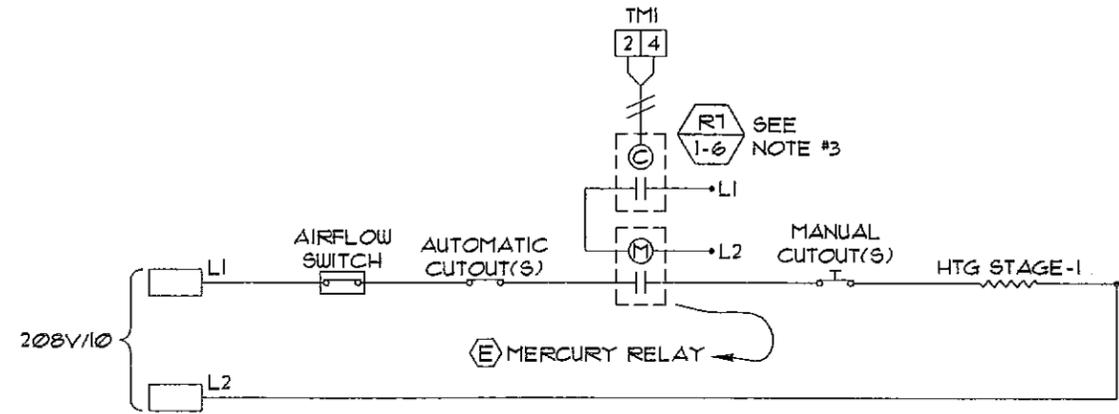
BOX TYPE		HEAT TYPE	
SWITCH #	REHEAT	SWITCH #	1 STEP
1	ON	9	OFF
8	ON	10	OFF

NOTE: TERMINALS ACCEPT #14-24 GAUGE WIRE



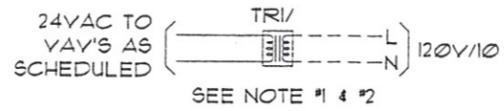
VAV TERMINAL UNITS WITH ELECTRIC HEAT - 1 STAGE
TU 1-4, 1-5, 2-1, 2-3, 2-12 & 2-13 (TYPICAL OF 6)

- NOTES:
- REFER TO TERMINAL UNIT/ROOM SCHEDULE FOR SPECIFIC ROOM SENSOR/ZONE COMBINATIONS & 24VAC POWER SOURCES.
 - UTILIZE #16/2 CABLE FOR ALL 24VAC POWER DISTRIBUTION.
 - REPLACES EXISTING P.E. SWITCH.

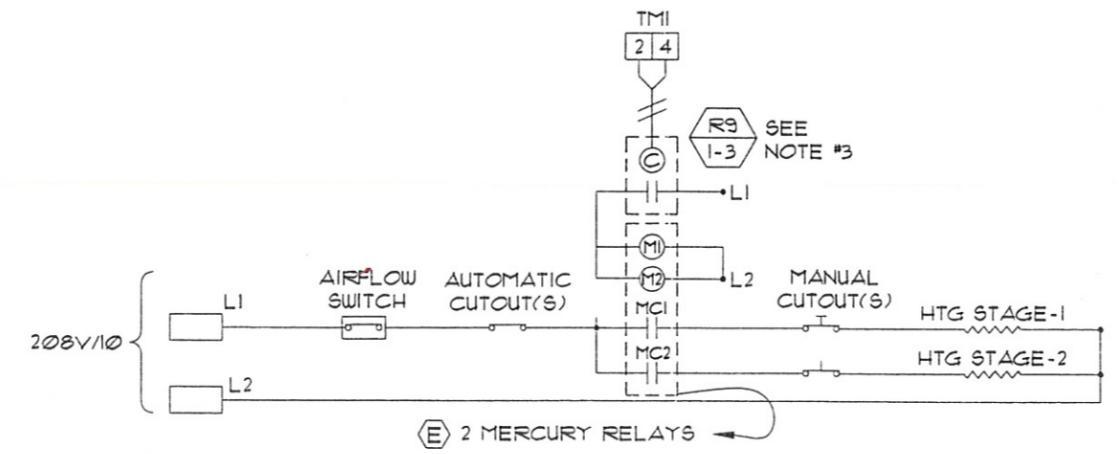
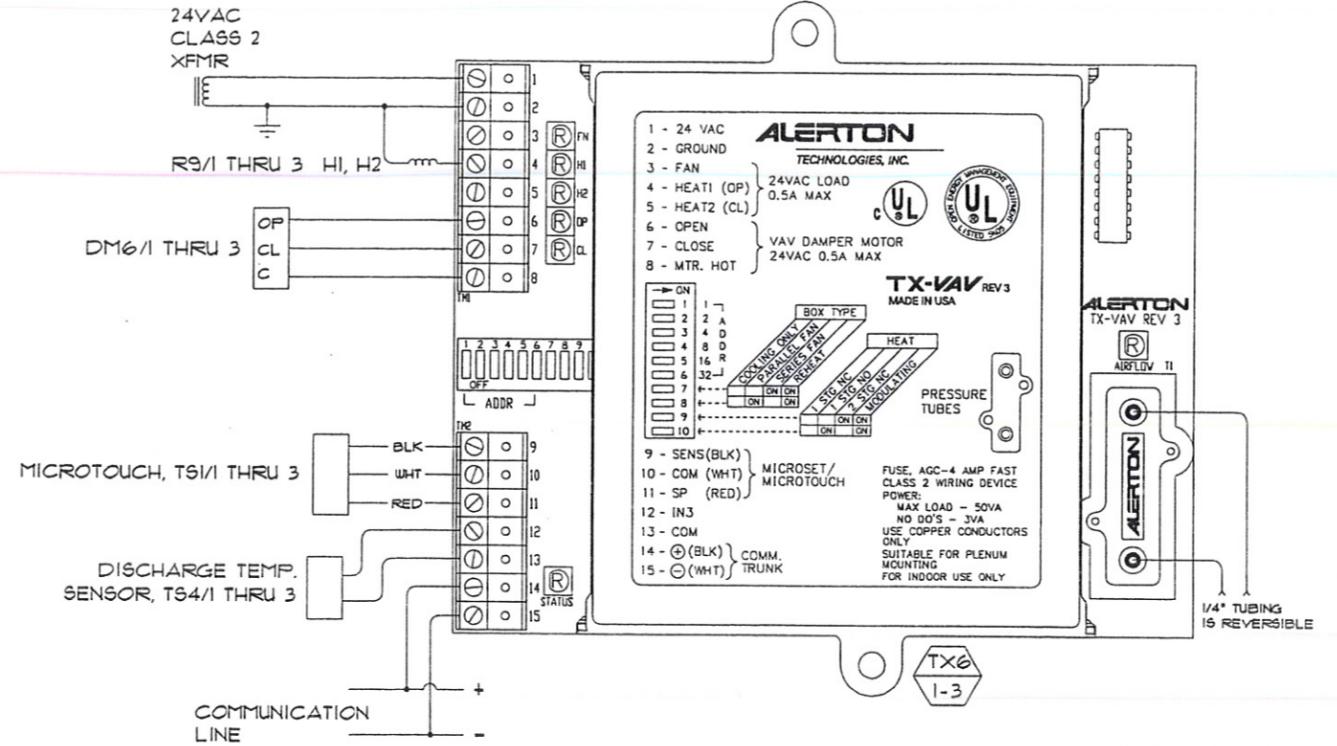


JOB # - 301A				BILL OF MATERIAL	
ITEM	QUAN.	MODEL NO.	MANUF.	DESCRIPTION	
FIELD MATERIAL:					
DM6	6	NM24-AL	BELIMO AIRCONTROL	DAMPER ACTUATOR, 75 IN. LBS. TRI-STATE, 24VAC	
R7	6	RIBT24B	FUNCTIONAL DEVICES	RELAY, SPDT, 20A., 24 VAC/VDC COIL	
SSD	6	SSD	ENVIRO. TECH.	1/4" AIR FLOW SENSOR TUBE	
TS1	6	TS-1050	ALERTON TECH.	TEMP. SENSOR, 3K, ROOM, W/SETPOINT ADJ. & PB OVR.	
TS4	6	ACI/3K-D-4"	ACI	TEMP. SENSOR, 3K, DUCT, 4 IN. PROBE	
TX6	6	TX-VAV	ALERTON TECH.	TERMINAL UNIT CONTROLLER	

REV. #	DESCRIPTION:	DATE:
N/A	AS-BUILT	8/11/00
JOB NAME:	WOODBURN PUBLIC LIBRARY	JOB NO: 301A
DATE: 6/5/00	DRAWN BY: TAN	ENG. BY: JA
		CHKD BY: FBG
ENVIRONMENTAL CONTROL CORPORATION		
DWG. TITLE:	VAV TERMINAL UNITS WITH 1 STAGE ELECTRIC HEAT	DWG. NO: 30103

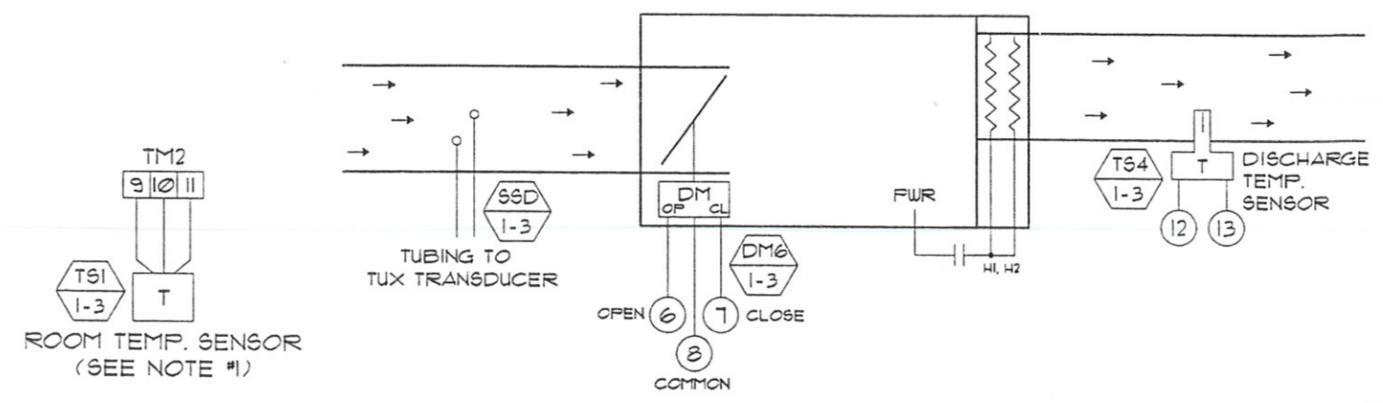


- NOTES:
- 1) REFER TO TERMINAL UNIT/ROOM SCHEDULE FOR SPECIFIC ROOM SENSOR/ZONE COMBINATIONS & 24VAC POWER SOURCES.
 - 2) UTILIZE #16/2 CABLE FOR ALL 24VAC POWER DISTRIBUTION.
 - 3) REPLACES EXISTING P.E. SWITCH.



NOTE: TERMINALS ACCEPT #14-24 GAUGE WIRE

BOX TYPE		HEAT TYPE	
SWITCH *	REHEAT	SWITCH *	I STEP
1	ON	9	OFF
8	ON	10	OFF

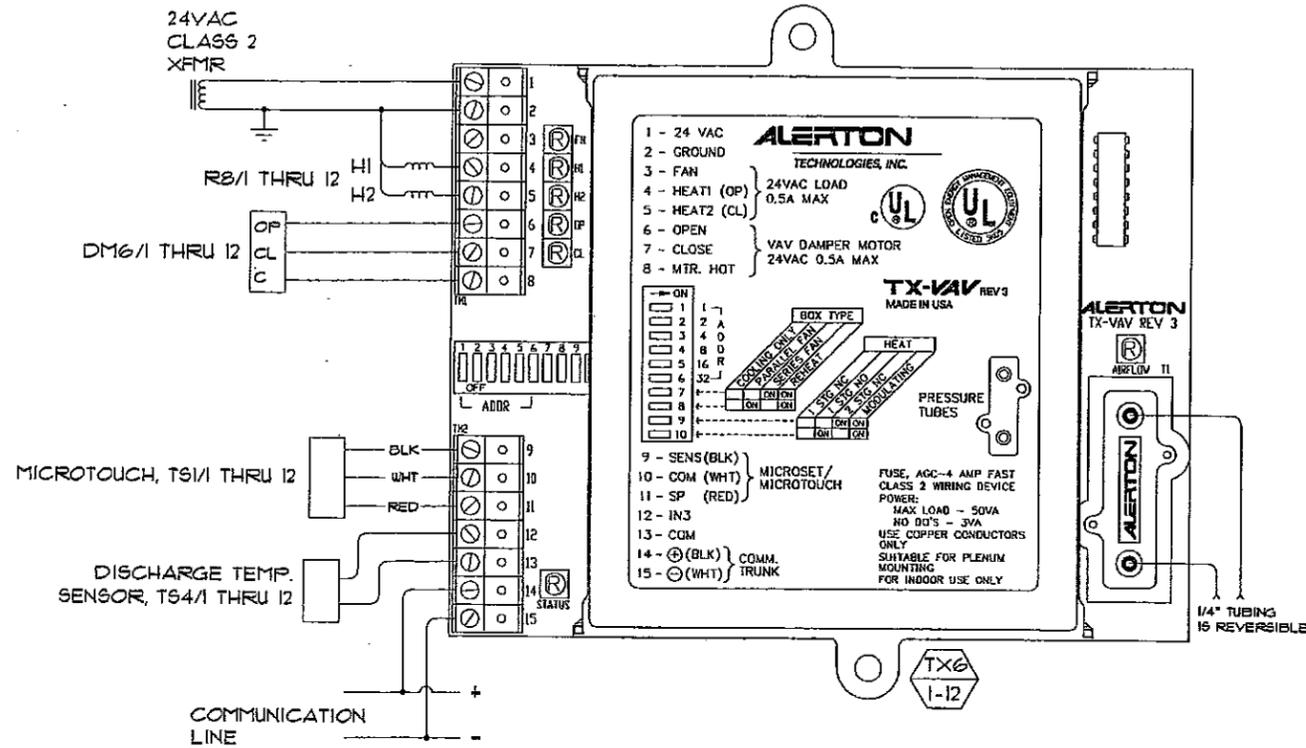


JOB # - 301A			BILL OF MATERIAL	
ITEM	QUAN.	MODEL NO.	MANUF.	DESCRIPTION
FIELD MATERIAL:				
DM6	3	NM24-AL	BELIMO AIRCONTROL	DAMPER ACTUATOR, 75 IN. LBS. TRI-STATE, 24VAC
R9	3	RIBT24P	FUNCTIONAL DEVICES	RELAY, DPDT, 20A., 24 VAC/VDC COIL
SSD	3	SSD	ENVIRO. TECH.	1/4" AIR FLOW SENSOR TUBE
TS1	3	TS-1050	ALERTON TECH.	TEMP. SENSOR, 3K, ROOM, W/SETPOINT ADJ. & PB OVR.
TS4	3	ACI/3K-D-4"	ACI	TEMP. SENSOR, 3K, DUCT, 4 IN. PROBE
TX6	3	TX-VAV	ALERTON TECH.	TERMINAL UNIT CONTROLLER

VAV TERMINAL UNITS WITH ELECTRIC HEAT - 2 STAGE COMBINED
 TU 2-2, 2-4, 2-8 (TYPICAL OF 3)

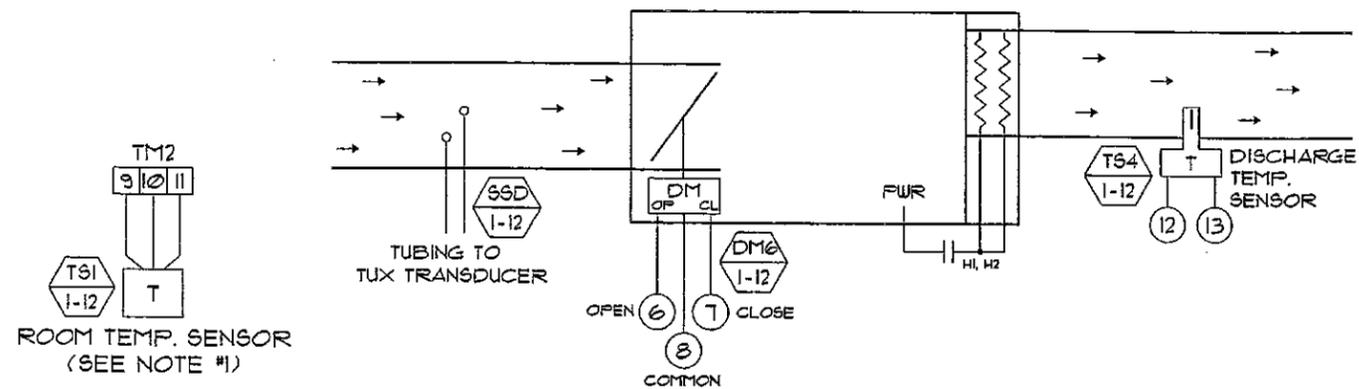
REV. #	DESCRIPTION:	DATE:
N/A	AS-BUILT	3/11/00
JOB NAME:	WOODBURN PUBLIC LIBRARY	JOB NO: 301A
DATE: 6/5/00	DRAWN BY: BMG	ENG. BY: JA
		CHK'D BY: PBG
ENVIRONMENTAL CONTROL CORPORATION		
DWG. TITLE:	VAV TERMINAL UNITS WITH 2 STAGE COMBINED ELECTRIC HEAT	DWG. NO: 30103

24VAC TO VAV'S AS SCHEDULED (TR1/ L N) 120V/10
SEE NOTE #1 & #2



BOX TYPE		HEAT TYPE	
SWITCH #	REHEAT	SWITCH #	2 STEP
7	ON	9	ON
8	ON	10	OFF

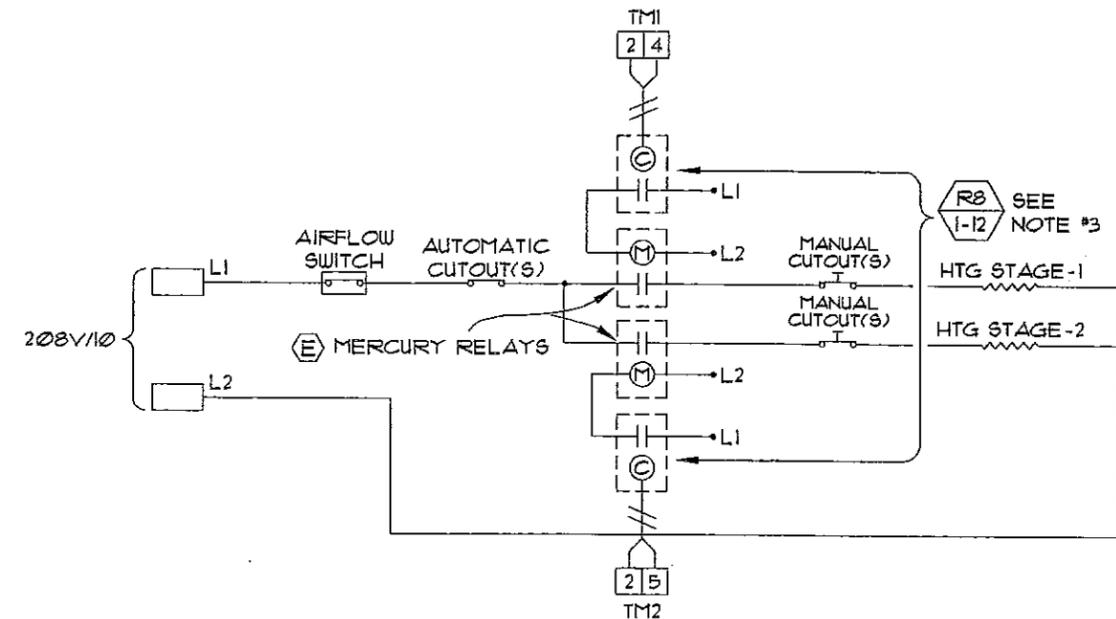
NOTE: TERMINALS ACCEPT #14-24 GAUGE WIRE



VAV TERMINAL UNITS WITH ELECTRIC HEAT - 2 STAGE
TU 1-1, 1-2, 1-3, 1-6, 1-7, 1-8, 2-5, 2-6, 2-7, 2-9, 2-10, 2-11 (TYPICAL OF 12)

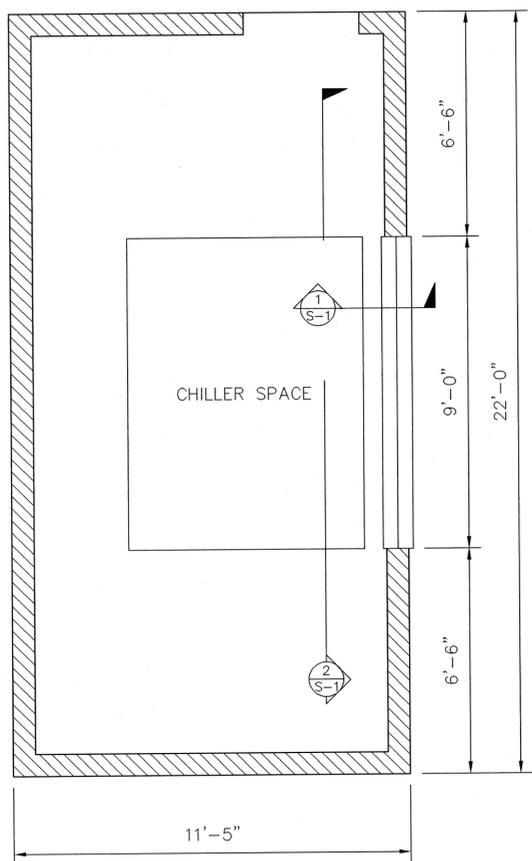
NOTES:

- 1) REFER TO TERMINAL UNIT/ROOM SCHEDULE FOR SPECIFIC ROOM SENSOR/ZONE COMBINATIONS & 24VAC POWER SOURCES.
- 2) UTILIZE #16/2 CABLE FOR ALL 24VAC POWER DISTRIBUTION.
- 3) REPLACES EXISTING P.E. SWITCH.



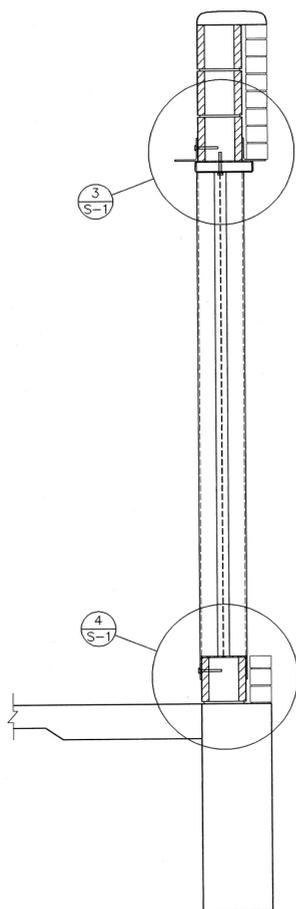
JOB # - 301A		BILL OF MATERIAL		
ITEM	QUAN.	MODEL NO.	MANUF.	DESCRIPTION
FIELD MATERIAL:				
DM6	12	NM24-AL	BELIMO AIRCONTROL	DAMPER ACTUATOR, 75 IN. LBS. TRI-STATE, 24VAC
R8	12	RIBT242B	FUNCTIONAL DEVICES	RELAY, TWO SPDT, 20A., 24 VAC/VDC COIL
SSD	12	SSD	ENVIRO. TECH.	1/4" AIR FLOW SENSOR TUBE
TS1	12	TS-1050	ALERTON TECH.	TEMP. SENSOR, 3K, ROOM, W/SETPOINT ADJ. & PB OVR.
TS4	12	ACI/3K-D-4"	ACI	TEMP. SENSOR, 3K, DUCT, 4 IN. PROBE
TX6	12	TX-VAV	ALERTON TECH.	TERMINAL UNIT CONTROLLER

REV. #	DESCRIPTION:	DATE:
N/A	AS-BUILT	8/11/00
JOB NAME:	WOODBURN PUBLIC LIBRARY	JOB NO: 301A
DATE: 6/5/00	DRAWN BY: BMG	ENG. BY: JA
		CHK'D BY: PEG
ENVIRONMENTAL CONTROL CORPORATION		
DWG. TITLE: VAV TERMINAL UNITS WITH 2 STAGE ELECTRIC HEAT	DWG. NO: 30110	



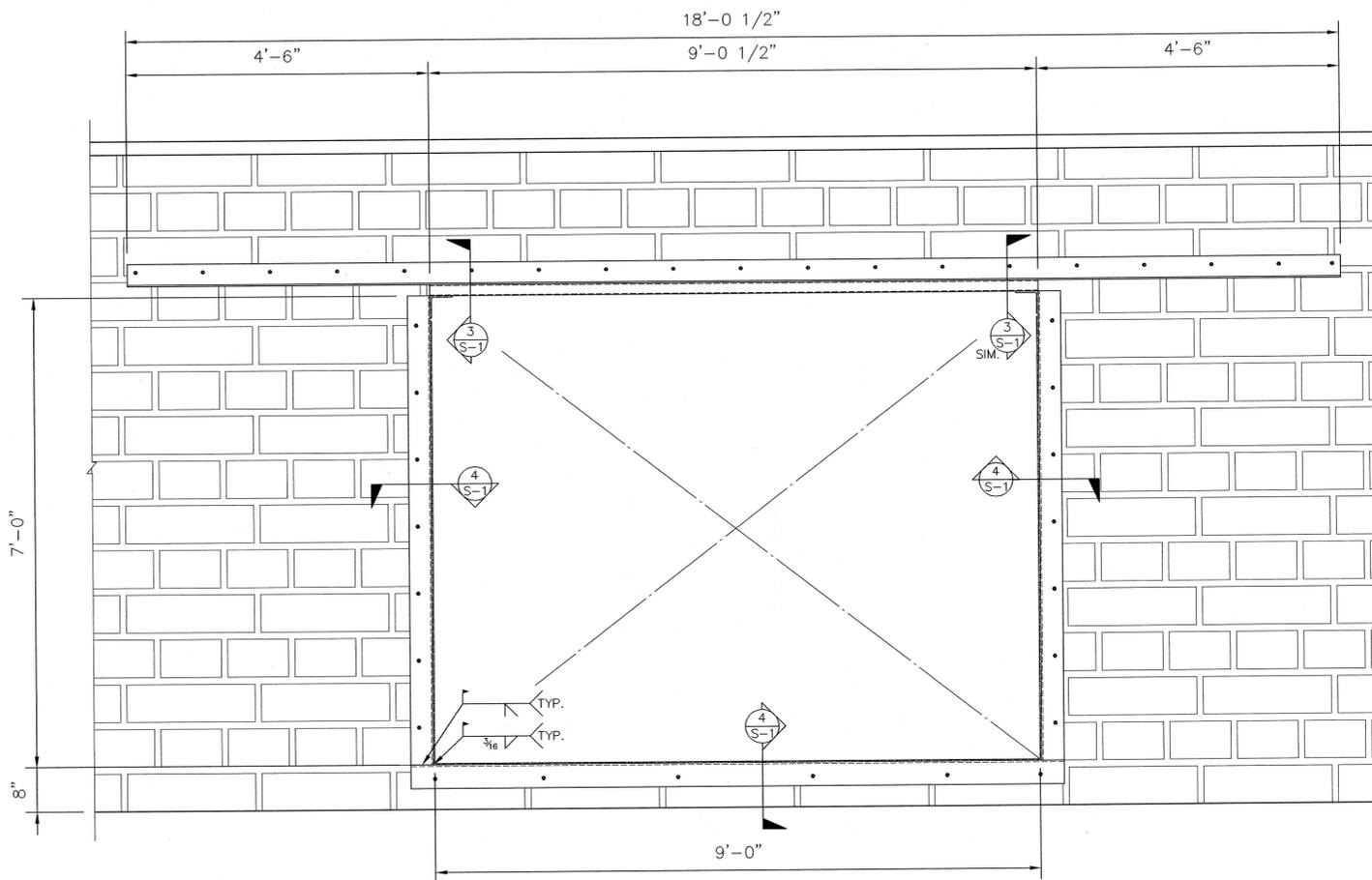
GENERAL PLAN

3/8" = 1'-0"



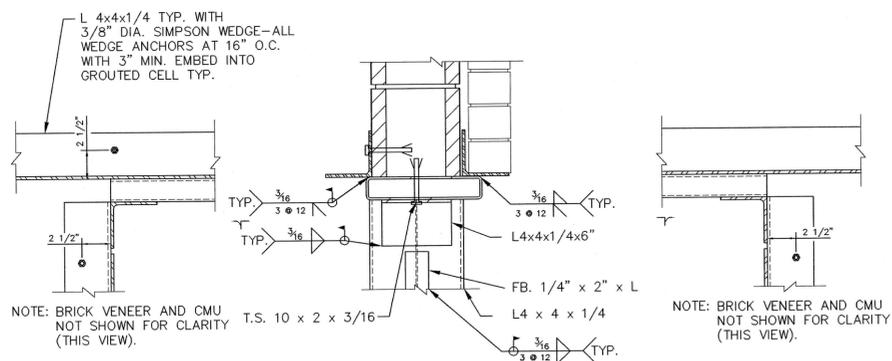
1 WALL SECTION

3/4" = 1'-0"



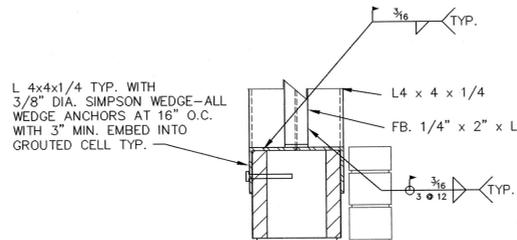
2 WALL ELEVATION

3/4" = 1'-0"



3 SECTION

1 1/2" = 1'-0"



4 SECTION

1 1/2" = 1'-0"

STRUCTURAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR VERIFICATION AND CORRELATION OF ALL ITEMS AND WORK NECESSARY FOR COMPLETION OF THE PROJECT AS INDICATED BY THE CONTRACT DOCUMENTS. SHOULD ANY QUESTION ARISE REGARDING THE CONTRACT DOCUMENTS OR SITE CONDITIONS, THE CONTRACTOR SHALL REQUEST INTERPRETATION AND CLARIFICATION FROM THE ENGINEER BEFORE BEGINNING THE PROJECT. THE ABSENCE OF SUCH REQUEST SHALL SIGNIFY THAT THE CONTRACTOR HAS TOTALLY REVIEWED AND FAMILIARIZED HIMSELF WITH ALL ASPECTS OF THE PROJECT AND HAS COMPLETE COMPREHENSION THEREOF. ALL PHASES OF THE WORK SHALL CONFORM TO THE STATE OF OREGON 1998 STRUCTURAL SPECIALTY CODE BASED ON THE 1997 UNIFORM BUILDING CODE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFORMANCE TO ALL SAFETY REGULATIONS DURING CONSTRUCTION.

2. THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. UNLESS OTHERWISE SPECIFICALLY NOTED, THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION OR CONSTRUCTION LOADS. THE CONTRACTOR SHALL PROVIDE ALL METHODS AND RELATED EQUIPMENT NECESSARY TO PROTECT THE STRUCTURE, WORKMEN AND OTHER PERSONS AND PROPERTY DURING CONSTRUCTION. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, ENGAGE PROPERLY QUALIFIED PERSONS TO DETERMINE WHERE AND HOW TEMPORARY PRECAUTIONARY MEASURES SHALL BE USED AND INSPECT SAME IN THE FIELD. ANY MATERIAL NOT AS SPECIFIED OR IMPROPER MATERIAL INSTALLATION OR WORKMANSHIP SHALL BE REMOVED AND REPLACED WITH SPECIFIED MATERIAL IN A WORKMANLIKE MANNER AT THE CONTRACTOR'S EXPENSE.

3. THESE PLANS, SPECIFICATIONS, ENGINEERING AND DESIGN WORK ARE INTENDED SOLELY FOR THE PROJECT SPECIFIED HEREIN. MILLER CONSULTING ENGINEERS DISCLAIMS ALL LIABILITY IF THESE PLANS AND SPECIFICATIONS OR THE DESIGN, ADVICE AND INSTRUCTIONS ATTENDANT THERETO ARE USED ON ANY PROJECT OR AT ANY LOCATION OTHER THAN THE PROJECT AND LOCATION SPECIFIED HEREIN. OBSERVATION VISITS TO THE JOB SITE AND SPECIAL INSPECTIONS ARE NOT PART OF THE STRUCTURAL ENGINEER'S RESPONSIBILITY UNLESS THE CONTRACT DOCUMENTS SPECIFY OTHERWISE.

4. DESIGN LOADS: LATERAL LOADING; WIND @ 80 MILES PER HOUR (MPH), EXPOSURE "B"; SEISMIC ZONE 3.

5. ALL STRUCTURAL AND MISCELLANEOUS STEEL TO BE ASTM A36-96. ALL BOLTS TO BE ASTM A325-96 WITH MATCHING NUTS. ALL STRUCTURAL STEEL SHALL HAVE ONE COAT OF PRIMER, EXCEPT SURFACES TO BE EMBEDDED IN CONCRETE OR MASONRY. EMBEDDED SURFACES SHALL BE FREE OF CONTAMINANTS. ALL WELDING TO CONFORM TO AMERICAN WELDING SOCIETY (AWS) D1.1-96 USING E70XX ELECTRODES. WELD LENGTHS SHOWN ARE EFFECTIVE AS SPECIFIED PER THE SPECIFICATIONS OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC). WHERE WELD LENGTHS ARE NOT SHOWN, THE WELD SHALL BE FULL LENGTH OF MEMBERS BEING JOINED. ALL BUTT WELDS SHALL BE FULL PENETRATION WELDS UNLESS NOTED OTHERWISE ON STRUCTURAL DRAWINGS. ALL WELDS TO BE PRIMERED. ALL EXPOSED STRUCTURAL STEEL TO HAVE ONE FINISH COAT OF RUST INHIBITING PAINT, COLOR BY OWNER. ALL STRUCTURAL STEEL TUBES SHALL BE ASTM A500-93, GRADE B, Fy= 46000 PSI. ALL STRUCTURAL STEEL PIPE SHALL BE ASTM A53-96, GRADE B, TYPE E OR S, Fy= 35000 PSI, ASTM A501-93, Fy= 36000 PSI, OR ASTM A500-93, GRADE B, Fy= 42000 PSI.

6. SPECIAL INSPECTION IS REQUIRED IN ACCORDANCE WITH UBC SECTION 1701 ON THE FOLLOWING ITEMS:
§ FIELD WELDS (BY AN APPROVED TESTING LAB)

THE CONTRACTOR SHALL PROVIDE SUFFICIENT NOTICE TO ALLOW SCHEDULING OF SPECIAL INSPECTION. IT IS THE OWNER'S RESPONSIBILITY TO PROVIDE SPECIAL INSPECTION BY A QUALIFIED THIRD PARTY, SUCH AS A TESTING AGENCY REVIEWED BY THE ENGINEER.

LINE IS 2 INCHES AT FULL SCALE (IF NOT 2" = SCALE ACCORDINGLY)



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MECH. OPENING
R&W ENGINEERING, INC.
WOODBURN PUBLIC LIBRARY
WOODBURN, OREGON

SHEET CONTENT
GENERAL PLAN
WALL SECTIONS
WALL ELEVATIONS
STRUCTURAL NOTES

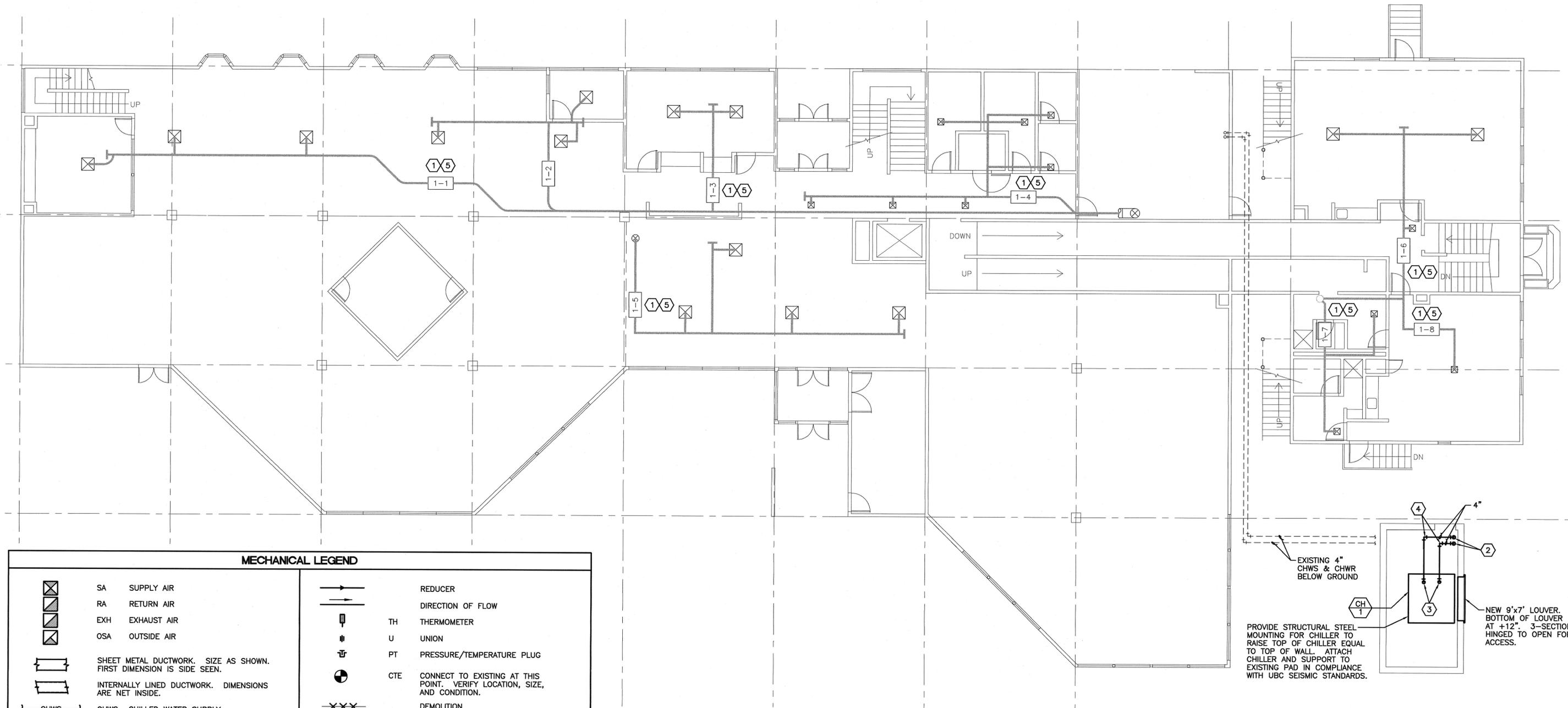
JOB No. 990873

DRAWN JSF CHECKED PRAM

DATE 10/7/99

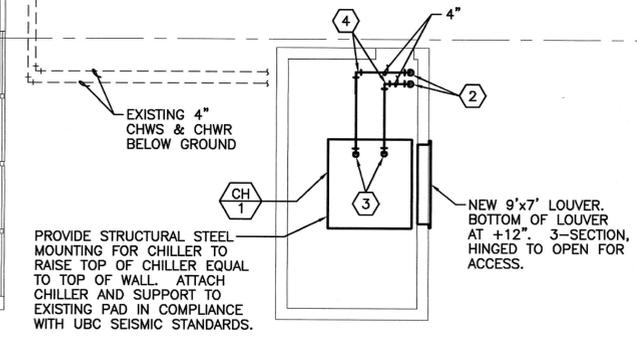
REVISIONS

SHEET S-1 of 1



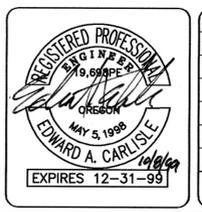
MECHANICAL LEGEND	
	SA SUPPLY AIR
	RA RETURN AIR
	EXH EXHAUST AIR
	OSA OUTSIDE AIR
	SHEET METAL DUCTWORK. SIZE AS SHOWN. FIRST DIMENSION IS SIDE SEEN.
	INTERNALLY LINED DUCTWORK. DIMENSIONS ARE NET INSIDE.
	CHWS CHILLED WATER SUPPLY
	CHWR CHILLED WATER RETURN
	BLV BALL VALVE
	BFV BUTTERFLY VALVE
	CAP
	GV GATE VALVE
	CKV CHECK VALVE
	PRV PRESSURE REDUCING VALVE
	FC PIPE FLEX CONNECTOR
	M MOTORIZED VALVE
	PG PRESSURE GAUGE
	REDUCER
	DIRECTION OF FLOW
	TH THERMOMETER
	U UNION
	PT PRESSURE/TEMPERATURE PLUG
	CTE CONNECT TO EXISTING AT THIS POINT. VERIFY LOCATION, SIZE, AND CONDITION.
	DEMOLITION
	EXISTING
	NEW
	KEY NOTE
	EQUIPMENT MARK NUMBER SEE SCHEDULES
	DIFFUSER/REGISTER MARK NUMBER
	DIFFUSER/REGISTER SCHEDULED TYPE
	NECK SIZE
	DIFFUSER/REGISTER SCHEDULED TYPE
	CFM

1 FIRST FLOOR HVAC PLAN
 SCALE: 1/8" = 1'-0"



- SHEET NOTES**
- ADDITIVE ALTERNATE #1 PROVIDE NEW CONTROLS FOR VAV BOX, SEE SPECIFICATION SECTION 15900.
 - CONNECT EXISTING 4" PVC PIPE.
 - CONNECT TO CHILLER, ROUTE UP TO TOP OF PIPE EQUAL TO TOP OF WALL (+124").
 - PROVIDE MANUAL AIR VENTS AT HIGH POINTS OF PIPE IN ENCLOSURE.
 - ADDITIVE ALTERNATE #3 PROVIDE NEW DDC CONTROL FOR VAV BOX, SEE SPECIFICATION SECTION 15900.

THIS LINE IS 2 INCHES
 AT FULL SCALE
 IF IT DOES NOT MEASURE 2 INCHES,
 SCALE ACCORDINGLY



REV	DATE	DESCRIPTION	BY

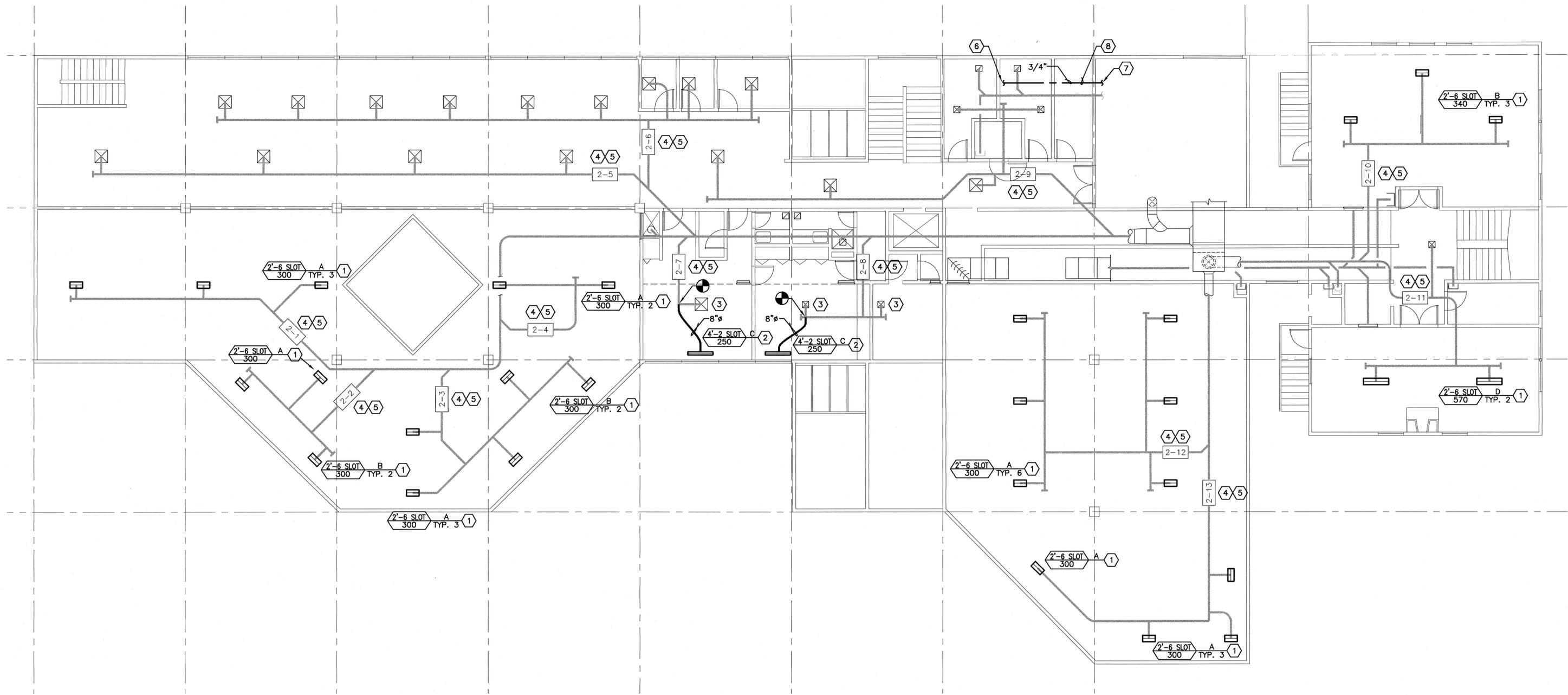
R&W
 ENGINEERING, INC.
 Engineering Integrated Solutions
 9400 SW Burn-Hill Hwy
 Suite 250
 Beaverton, Oregon 97005
 Phone: (503) 292-6000
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 E-mail: rewi@rewi.com

PROJECT NUMBER
 595-001-002

WOODBURN PUBLIC LIBRARY
 WOODBURN, OREGON

FIRST FLOOR HVAC PLAN

DES	EAC
DRN	JMJ
CHK	DJB
DATE	10-8-99
DRAWING NO.	M1
SHEET	3 OF 8

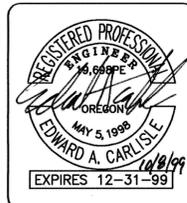


1 SECOND FLOOR HVAC PLAN
 M2 SCALE: 1/8"=1'-0"

SHEET NOTES

- ① REPLACE EXISTING DIFFUSER WITH NEW DIFFUSER. PROVIDE ADDITIONAL FRAMING & T-BAR AS REQUIRED. PATCH CEILING AND PAINT AS REQUIRED TO MATCH EXISTING.
- ② ADD NEW DIFFUSER. PROVIDE ADDITIONAL FRAMING AND T-BAR AS REQUIRED. PATCH CEILING AND PAINT AS REQUIRED TO MATCH EXISTING.
- ③ REBALANCE EXISTING DIFFUSER TO 225 CFM.
- ④ ADDITIVE ALTERNATE #1 PROVIDE NEW CONTROL FOR VAV BOX, SEE SPECIFICATION SECTION 15900.
- ⑤ ADDITIVE ALTERNATE #3 PROVIDE NEW DDC CONTROL FOR VAV BOX, SEE SPECIFICATION SECTION 15900.
- ⑥ CONNECT TO LARGEST AVAILABLE COLD WATER LINE AT TOILET ROOM CEILING.
- ⑦ MAKE UP WATER TO CHILLED WATER SYSTEM. SEE 2/M3 & 3/M4.
- ⑧ ROUTE ABOVE CEILING OF ELECT. ROOM. PROVIDE HEAT TRACE IF IF OUTSIDE INSULATION LINE.

THIS LINE IS 2 INCHES
 AT FULL SCALE
 IF IT DOES NOT MEASURE 2 INCHES,
 SCALE ACCORDINGLY



REV	DATE	DESCRIPTION	BY

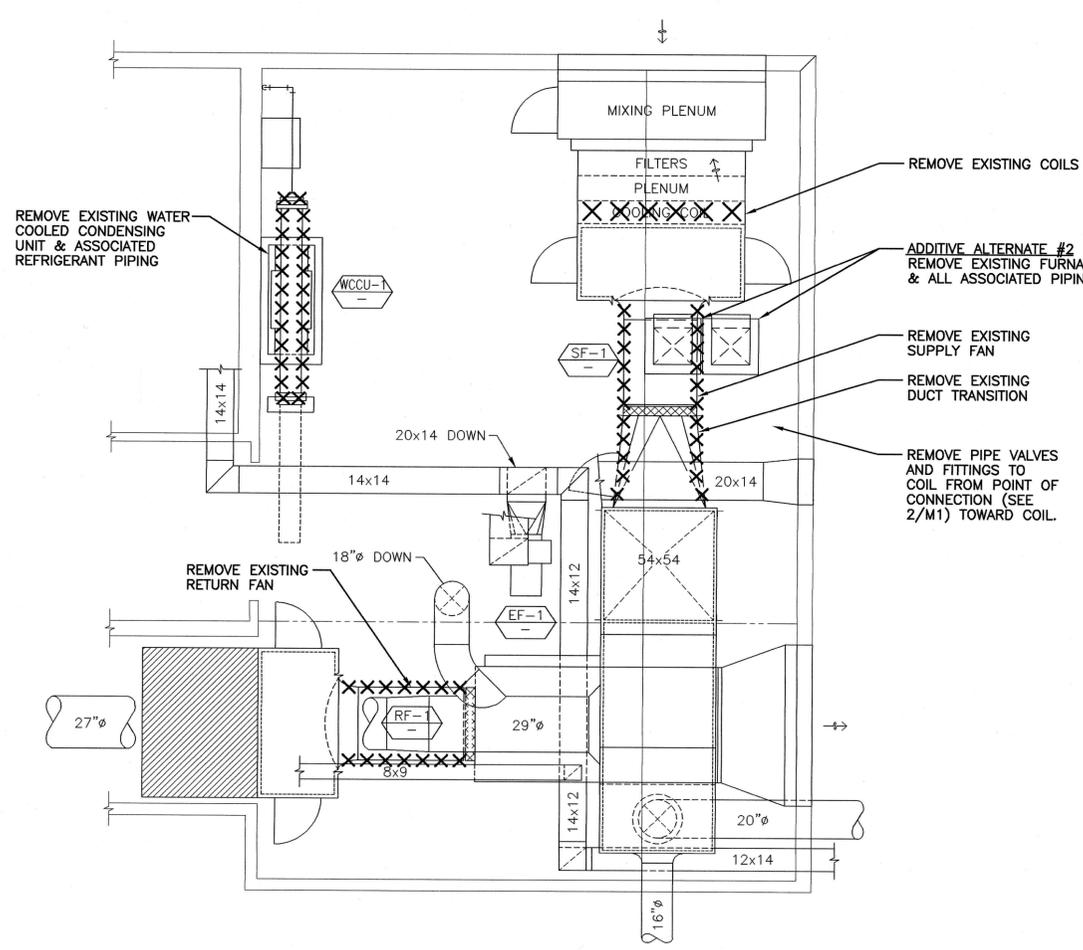
R&W
 ENGINEERING, INC.
 "Engineering Integrated Solutions"
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 FAX: (503) 292-1422
 E-mail: rwen@rwen.com

PROJECT NUMBER
 595-001-002

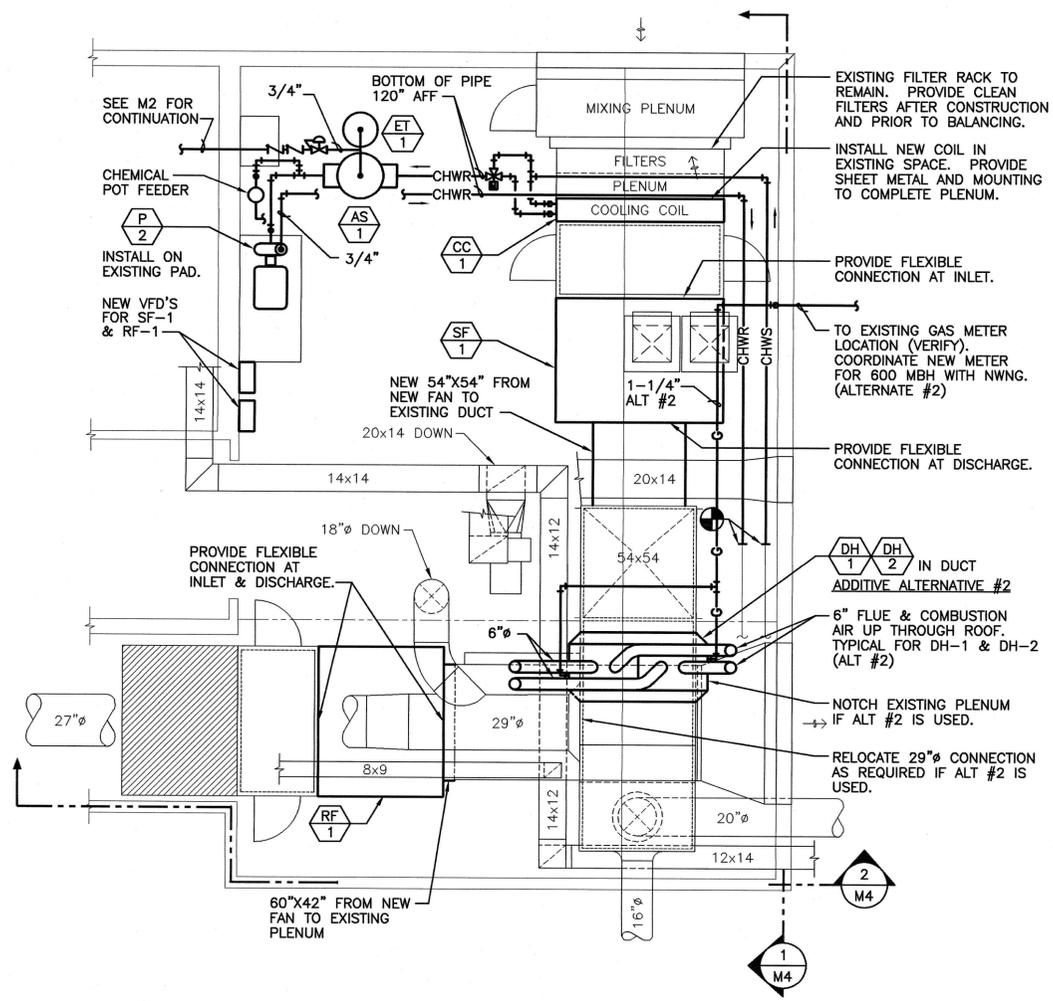
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WOODBURN, OREGON

SECOND FLOOR HVAC PLAN

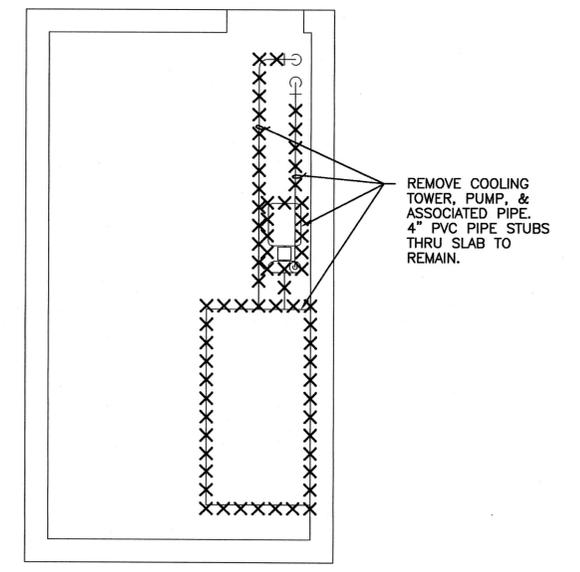
DES	EAC
DRN	SMB
CHK	EAC
DATE	10-8-99
DRAWING NO.	M2
SHEET	4 OF 8



1 MECHANICAL ROOM FLOOR PLAN - DEMOLITION
 M3 SCALE: 1/4"=1'-0"

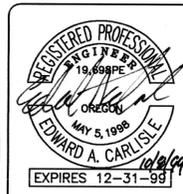


2 MECHANICAL ROOM FLOOR PLAN - HVAC
 M3 SCALE: 1/4"=1'-0"



3 MECHANICAL ENCLOSURE PLAN DEMOLITION
 M3 SCALE: 1/4"=1'-0"

THIS LINE IS 2 INCHES
 AT FULL SCALE
 IF IT DOES NOT MEASURE 2 INCHES,
 SCALE ACCORDINGLY



REV	DATE	DESCRIPTION	BY

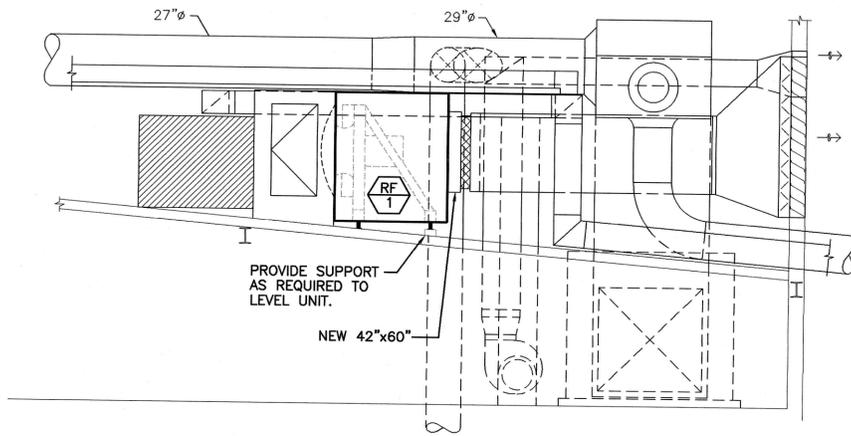


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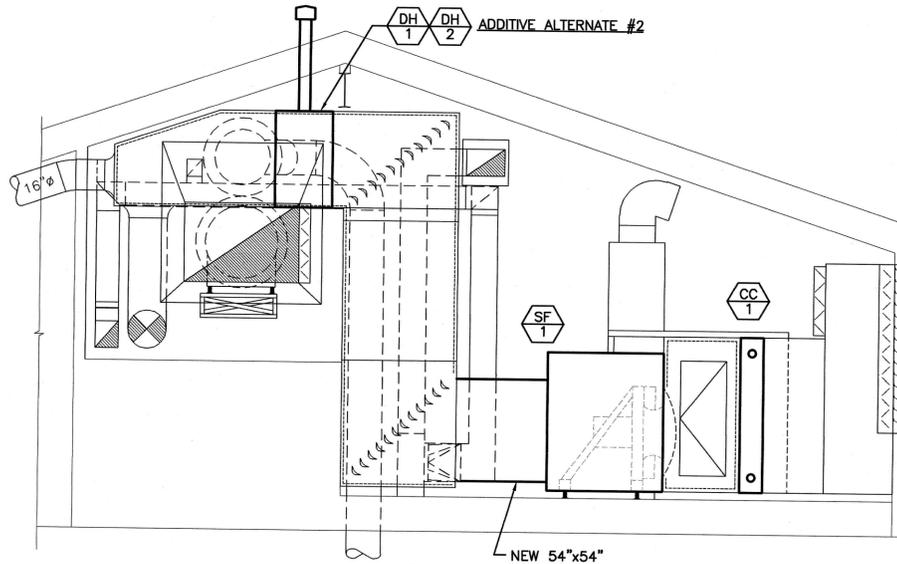
DEMOLITION PLAN
HVAC FLOOR PLAN

PROJECT NUMBER
 595-001-002

DES	EAC
DRN	SMB
CHK	EAC
DATE	10-8-99
DRAWING NO.	M3
SHEET	5 OF 8



1 SECTION
M4 SCALE: 1/4"=1'-0"



2 SECTION
M4 SCALE: 1/4"=1'-0"

CHILLER	
MARK NUMBER	CH 1
TYPE	AIR COOLED
CAPACITY (TONS)	59.1
LEAVING WATER TEMP (°F)	42
AMBIENT AIR TEMP (°F)	95
GPM (30% PROPYLENE GLYCOL)	177
MAX WATER P.D. (FT.)	8
COMPRESSOR	RECIP
TOTAL CHILLER (KW)	7414
DESIGN WT (LBS)	4600
MINIMUM EFFICIENCY (ERR)	9.2
MANUFACTURER MODEL	McQUAY AGR-065

RETURN FAN	
MARK NUMBER	RF 1
CFM	23,000
T.S.P. ("H2O)	2.0
MOTOR (HP/V/φ)	15/208/3
WHEEL TYPE, DIA (IN)	33
FAN SPEED (RPM)	1020
INTERLOCKED WITH	SF-1
STARTER TYPE	SEE ELECT.
MFR/MODEL	PACE/PF-33

1 PROVIDE VFD TO MATCH MOTOR.

PUMP	
MARK NUMBER	P 1
SYSTEM	CHILLED WATER
TYPE	BASE MOUNT
FLOW RATE (GPM)	177
HEAD (FT)	35
MOTOR (HP/V/φ)	3/208/3
RPM	1750
DESIGN WT (LBS)	/
MANUFACTURER MODEL	B&G 1510-2 1/2 AB

AIR SEPARATOR	
MARK NUMBER	AS 1
SYSTEM	CHILLED WATER
CONNECTION SIZE	4"
DESIGN WT (LBS)	100
MANUFACTURER MODEL	B&G ROLAIRTROL RL-4

DIFFUSERS AND REGISTERS		
TAG	TYPE	MFR/MODEL
A	SUPPLY DIFFUSER - LAY IN 2'-6 SLOT	TITUS ML-39
B	SUPPLY DIFFUSER - SURFACE MOUNT 2'-6 SLOT	TITUS ML-39
C	SSUPPLY DIFFUSER - LAY IN 4'-2 SLOT	TITUS ML-39
D	RETURN/EXH REGISTER - SURFACE MOUNT 4'-6 SLOT	TITUS ML-39

SUPPLY FAN	
MARK NUMBER	SF 1
AIRFLOW (CFM)	23,000
MIN OSA CFM (LOW OCCUPANCY)	3900
T.S.P. ("H2O)	5.0
MOTOR (HP/V/φ)	30/208/3
WHEEL TYPE, DIA (IN)	36
FAN SPEED (RPM)	1262
STARTER TYPE	SEE ELECT.
MANUFACTURER MODEL	PACE PF-36

1 PROVIDE VFD TO MATCH MOTOR

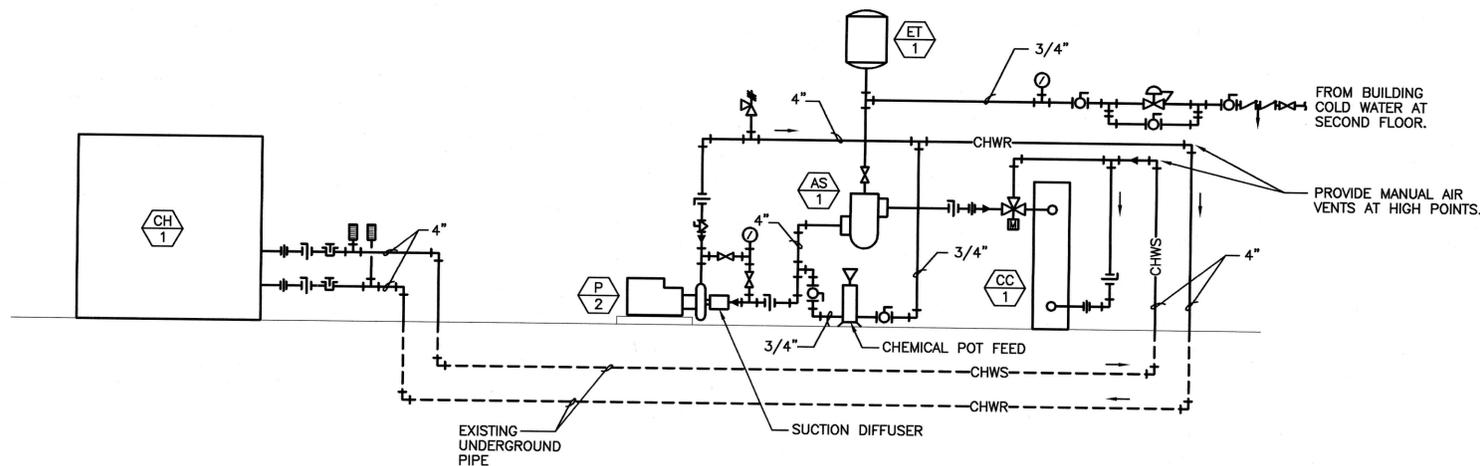
COOLING COIL	
MARK NUMBER	CC 1
COOLING CFM	23,000
ENT AIR (°F DB/WB)	78/65
LVG AIR (°F DB/WB)	55/54
ENT/LVG WATER (°F)	42/52
SENSIBLE CAP. (MBH)	630
TOTAL CAP. (MBH)	764
GPM (30% PROPYLENE GLYCOL)	177
MAX FACE VEL (FPM)	602
MAX AIR P.D. ("H2O)	1.5
MAX WATER P.D. (FT)	13.4
MIN NO. OF ROWS/TYPE	6

1 REPAIR EXISTING PLENUM AFTER INSTALLATION.

EXPANSION TANK	
MARK NUMBER	ET 1
SYSTEM	CHILLED WATER
TYPE	DIAPHRAGM
CAPACITY (GALLONS)	14
SIZE (DIA x LENGTH - IN)	15"x22"
ASME CODE	NO
DESIGN WT (LBS)	/
MANUFACTURER MODEL	AMTROL SX-30V

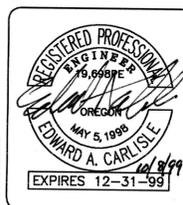
DUCT HEATER	
MARK NUMBER	DH 1, DH 2
SYSTEM	SUPPLY AIR
CAPACITY (IN/OUT)	300/231
MANUFACTURER MODEL	REZNR SC-300

ALTERNATE #1 & ALTERNATE #3 VAV SCHEDULE			
TAG	EXISTING CFM	NEW MAX. CFM	NEW MIN. CFM
1-1	920	1075	700
1-2	760	900	595
1-3	370	440	290
1-4	1160	1300	850
1-5	1640	1900	1250
1-6	1110	1300	850
1-7	380	450	290
1-8	530	630	415
2-1	665	900	590
2-2	660	900	590
2-3	1320	1500	900
2-4	410	480	315
2-5	1000	1150	750
2-6	1500	1700	1100
2-7	330	475	300
2-8	660	700	460
2-9	2000	2300	1500
2-10	1020	1200	790
2-11	1460	1700	1100
2-12	1560	1800	1180
2-13	1040	1200	790



3 CHILLED WATER PIPING DIAGRAM
M4 NOT TO SCALE

THIS LINE IS 2 INCHES
AT FULL SCALE
IF IT DOES NOT MEASURE 2 INCHES,
SCALE ACCORDINGLY



REV	DATE	DESCRIPTION	BY

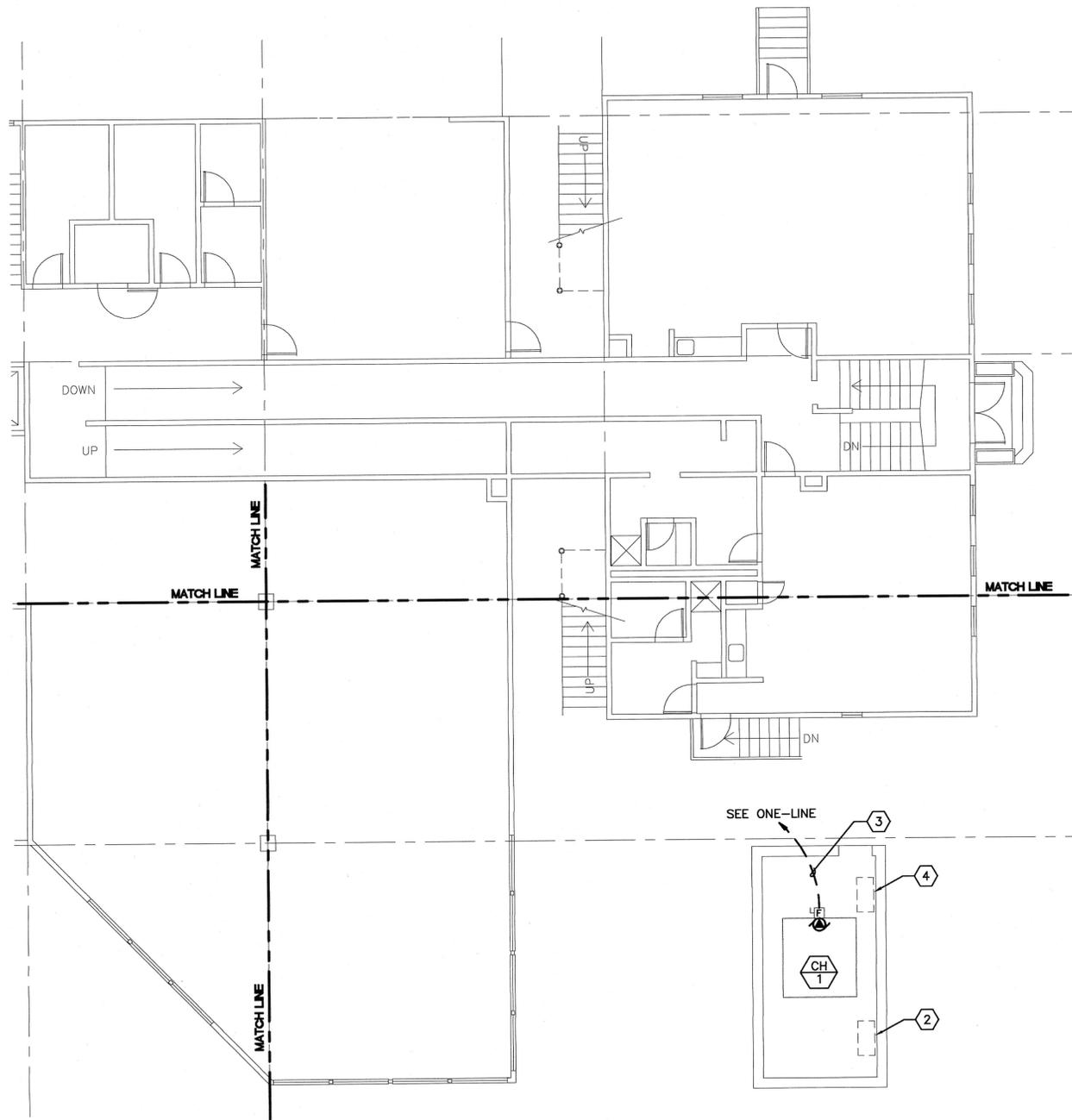
R&W
ENGINEERING, INC.
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Beaverton, Oregon 97005
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FAX: (503) 292-1422
E-mail: rwen@rweg.com

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SECTIONS / SCHEDULES / DIAGRAMS

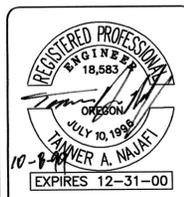
PIPING / HVAC

DES	EAC
DRN	SMB
CHK	EAC
DATE	10-8-99
DRAWING NO.	M4
SHEET	6 OF 8



1 FIRST FLOOR ELECTRICAL PLAN
E1 SCALE: 1/8" = 1'-0"

THIS LINE IS 2 INCHES
 AT FULL SCALE
 IF IT DOES NOT MEASURE 2 INCHES,
 SCALE ACCORDINGLY



REV	DATE	DESCRIPTION	BY

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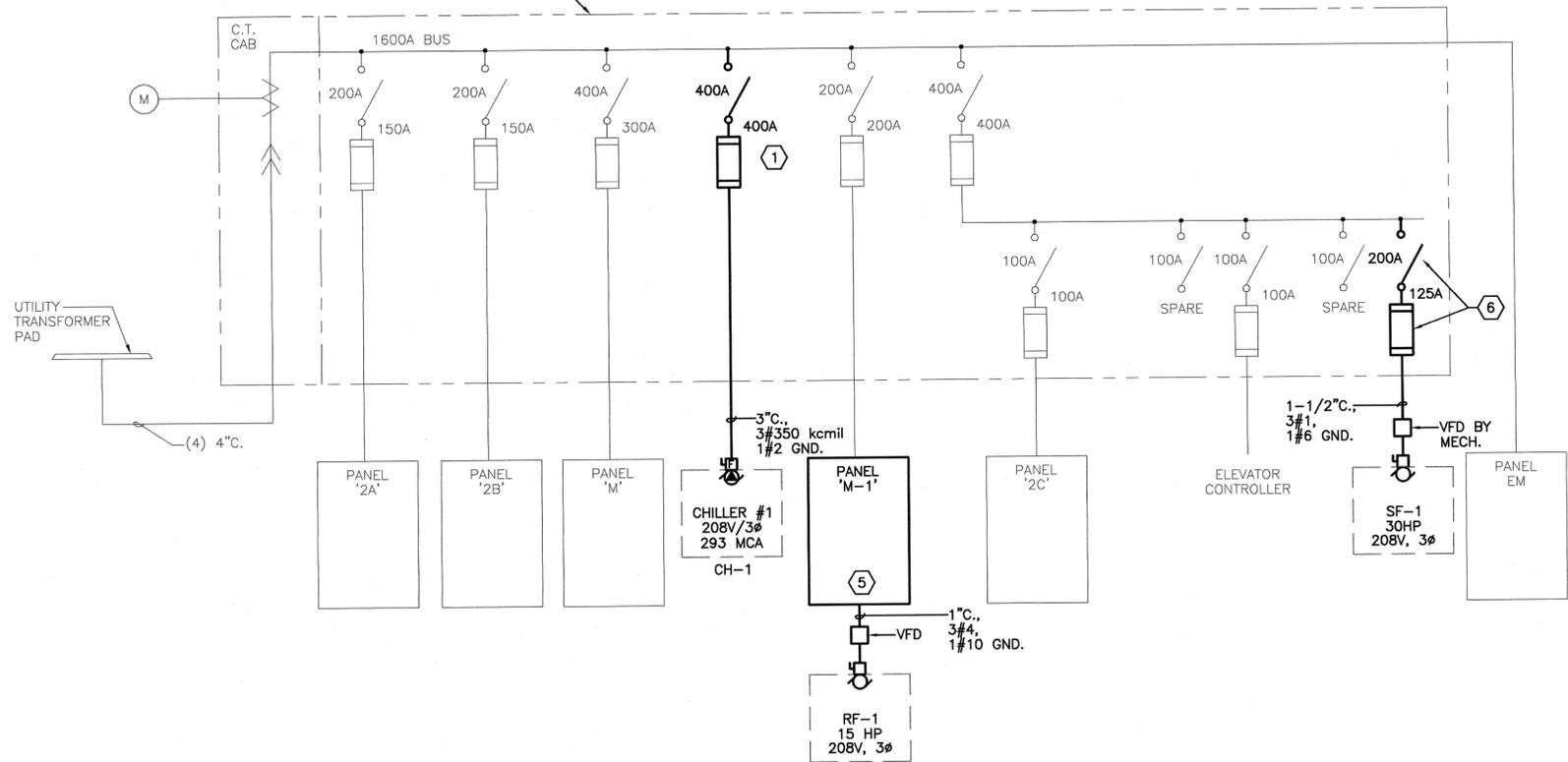
PROJECT NUMBER
 595-001-002

**WOODBURN PUBLIC LIBRARY
 WOODBURN, OREGON**

FIRST FLOOR ELECTRICAL PLAN

DES	JAF
DRN	DPR
CHK	JEM
DATE	9-16-99
DRAWING NO.	E1
SHEET	1 OF

MAIN DISTRIBUTION PANEL - 'MDP'
 1600A, 208Y/120V, 3Ø, 4W



2 REVISED ONE-LINE DIAGRAM
E1 1600A, 208Y/120V, 3Ø, 4W

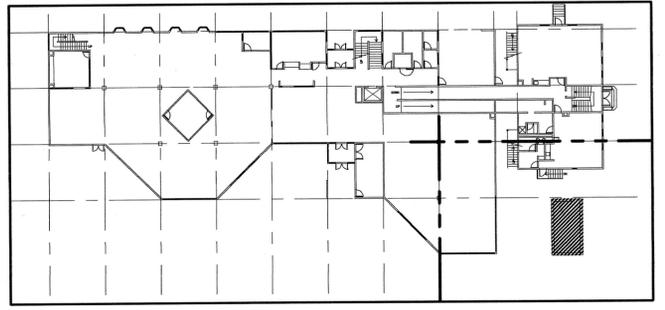
SHEET NOTES

- CONTRACTOR TO REMOVE EXISTING 400A/3P SWITCH AND 200A/3P FUSE AND REPLACE WITH NEW 400A/3P SWITCH AND 400A/3P FUSE.
- CONTRACTOR TO DISCONNECT AND REMOVE EXISTING 10HP FAN, AND ALL ASSOCIATED CONDUIT, WIRING, AND DEVICES BACK TO EXISTING PANEL 'M-1'.
- NEW UNDERGROUND CONDUIT TO EXISTING 'MDP'. SEE ONE-LINE DIAGRAM.
- CONTRACTOR TO DISCONNECT AND REMOVE EXISTING PUMP P-1 AND ALL ASSOCIATED CONDUIT AND WIRING BACK TO PANEL 'M-1'.
- SEE PANEL SCHEDULE FOR NEW BREAKER ARRANGEMENT.
- INSTALL NEW 200AS/125AF IN EXISTING SPACE AT TOP OF SECTION II OF THE EXISTING MDP.

GENERAL NOTES

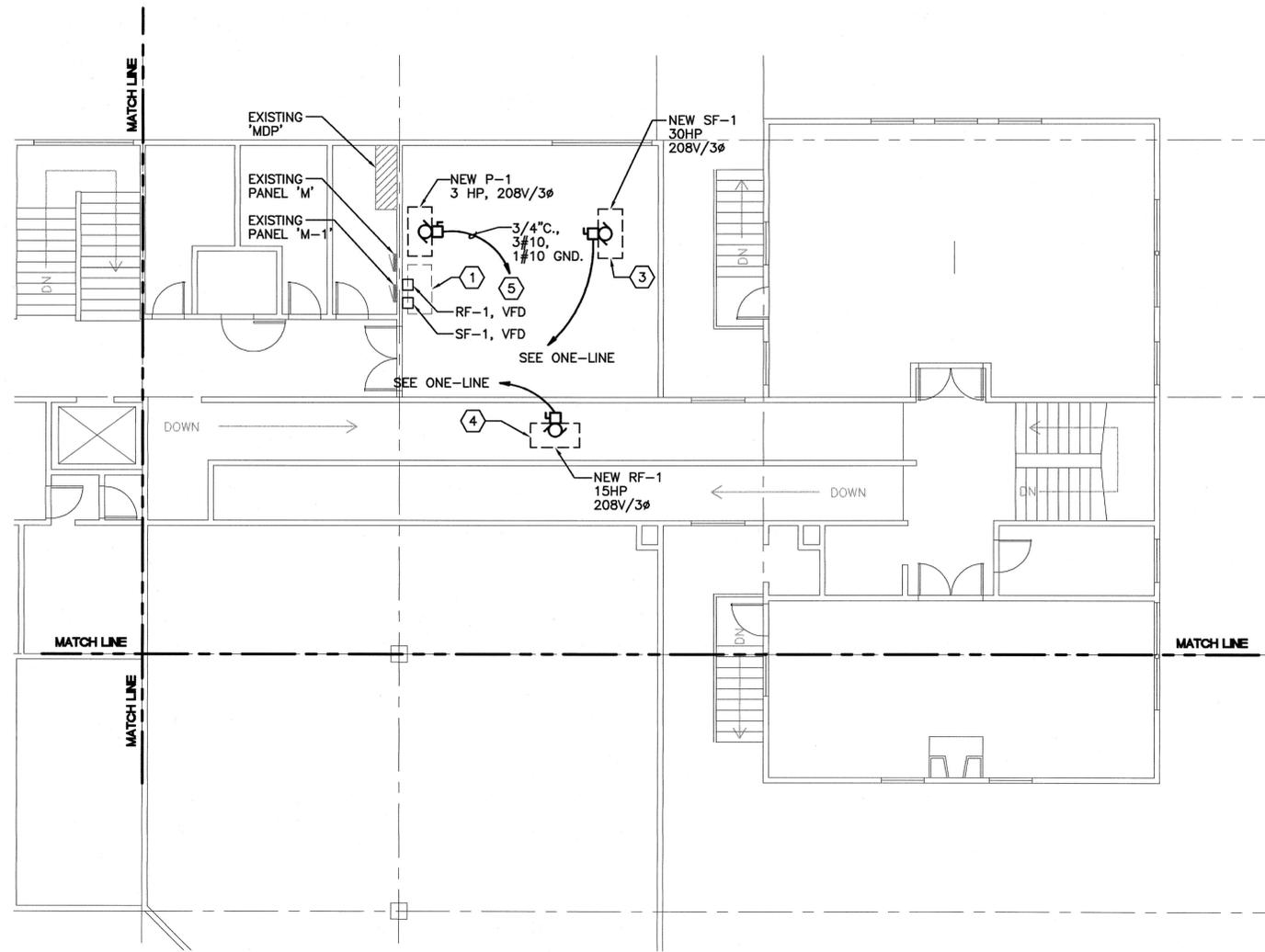
A. ALL ITEMS THAT ARE SCREENED ARE EXISTING TO REMAIN UNLESS NOTED OTHERWISE. ALL OTHER ITEMS ARE NEW.

REVISED LOAD SUMMARY 1600A, 208Y/120V, 3Ø, 4W	
EXISTING PEAK DEMAND:	170 KW
POWER FACTOR 0.91	188 KVA
DELETED LOADS:	109.3 KVA
NEW LOADS:	
CHILLER:	105.5 KVA
P-1:	3.8 KVA
SF-1:	31.7 KVA
RF-1:	16.6 KVA
TOTAL NEW LOAD:	157.6 KVA
TOTAL REVISED LOAD:	236.3 KVA
TOTAL AMPS @ 208V, 3Ø:	656.3 AMPS



FIRST FLOOR KEY PLAN

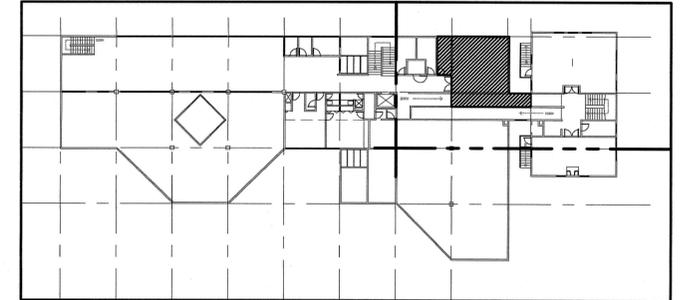
EXISTING				LOCATION: ELECTRICAL ROOM			
PANEL 208Y/120 CIR #	"M-1" VOLT		AMP LOAD TYPE	DESCRIPTION	3 PHASE		
	A	P			A	B	C
1	-	-	-	SPACE			
2	30	2	-	WATER HEATER			
3	-	-	-	EXHAUST FAN			
4	20	3	-	COMPRESSOR			
5	-	-	-	UNKNOWN			
6	20	3	-	UNKNOWN			
7	-	-	-	UNKNOWN			
8	15	3	-	UNKNOWN			
9	-	-	-	UNKNOWN			
10	-	-	-	UNKNOWN			
11	-	-	-	UNKNOWN			
12	-	-	-	UNKNOWN			
13*	20	3	-	NEW PUMP P-1	1,272		
14*	-	-	-			1,272	
15*	-	-	-				1,272
16	20	1	-	CONTROL CIRCUIT			
17	20	1	-	CONTROL CIRCUIT			
18	20	1	-	CIRC. PUMP			
19	20	3	-	FAN			
20	-	-	-				
21	-	-	-				
22	30	3	-	OVERHEAD DOOR			
23	-	-	-				
24	-	-	-				
25*	100	3	-	NEW RF-1	6,920		
26*	-	-	-			6,920	
27*	-	-	-				6,920
28	-	-	-	CONTROL CIRCUIT			
29	-	-	-	FURNACE			
30	-	-	-	FLOOD LIGHTS			
TOTAL KVA	0.00				0.00	0.00	0.00
TOTAL AMPS	0.00				0.00	0.00	0.00
MAIN BKR.							
BOTTOM							
TOP							
NOTES: 33 HP WAS DELETED FROM PANEL 'M-1' AND 18 HP WAS ADDED BACK IN.							
CONNECT LOAD SUMMARY (KVA)							
PANEL	GEN.	0.00	0.00	RECEPT	LTG	0.00	0.00
ELEC. HEAT	0.00	0.00	SIGNS				
MOTOR	0.00	0.00					



1 SECOND FLOOR ELECTRICAL PLAN
E2 SCALE: 1/8" = 1'-0"

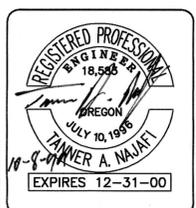
SHEET NOTES

- ① CONTRACTOR TO DISCONNECT AND REMOVE EXISTING CHILLER AND ALL ASSOCIATED CONDUIT AND WIRING BACK TO THE MDP.
- ② NOT USED.
- ③ CONTRACTOR TO DISCONNECT AND REMOVE EXISTING SF-1 AND ALL ASSOCIATED CONDUIT AND WIRING BACK TO PANEL 'M-1' AND REPLACE WITH NEW SF-1. PROVIDE NEW 110A/3P BREAKER IN PLACE ON OLD 'RF-1' BREAKER IN EXISTING PANEL 'M-1' AND CONNECT AS SHOWN. SEE PANEL SCHEDULE.
- ④ CONTRACTOR TO DISCONNECT AND REMOVE EXISTING RF-1 AND ALL ASSOCIATED CONDUIT AND WIRING BACK TO PANEL 'M' AND REPLACE WITH NEW RF-1. PROVIDE AND INSTALL NEW 60A/3P BREAKER IN PLACE ON OLD 'SF-1' BREAKER IN EXISTING PANEL 'M-1' AND CONNECT AS SHOWN. SEE PANEL SCHEDULE.
- ⑤ PROVIDE NEW 20A/3P BREAKER IN PLACE OF OLD MECHANICAL PAD 70A/3P BREAKER IN EXISTING PANEL 'M-1' AND CONNECT NEW 'P-1' AS SHOWN. CONTROLS BY MECHANICAL.



SECOND FLOOR KEY PLAN

THIS LINE IS 2 INCHES
AT FULL SCALE
IF IT DOES NOT MEASURE 2 INCHES,
SCALE ACCORDINGLY



REV	DATE	DESCRIPTION	BY

R&W
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"Engineering Integrated Solutions"
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PROJECT NUMBER
595-001-002

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SECOND FLOOR ELECTRICAL PLAN

DES	JAF
DRN	DPR
CHK	JEM
DATE	9-16-99
DRAWING NO.	E2
SHEET	2 OF