



**REQUEST FOR PROPOSAL  
No. BD156622P**

**Cooperative House Fire Alarms**

**PROPOSAL DUE DATE AND TIME:**  
February 13, 2012 (2:00 PM, PST)

OSU Procurement and Contract Services Offices are open from 8:00 am – 12:00 noon and 1:00 pm – 5:00 pm.  
Offices are closed during the 12:00 noon – 1:00 pm lunch hour.

**SUBMITTAL LOCATION:**

Oregon State University  
Procurement and Contract Services  
644 SW 13<sup>th</sup> Avenue  
Corvallis, Oregon 97333

## **1.0 GENERAL**

### 1.01 SCHEDULE OF EVENTS:

- Request for Proposal Issue Date..... January 24, 2012
- Deadline for Request for Clarification or Change..... February 6, 2012 (2:00 pm, PST)
- Proposal Due Date and Time..... February 13, 2012 (2:00 pm, PST)

This Schedule of Events is subject to change. Any changes will be made through the issuance of Written Addenda.

### 1.02 PRE-PROPOSAL CONFERENCE:

A Pre-Proposal Conference will not be held.

### 1.03 ISSUING OFFICE:

The Procurement and Contract Services (PaCS) department of Oregon State University (OSU) is the issuing office and is the sole point of contact for this Request for Proposal. Address all concerns or questions regarding this Request for Proposal to the Administrative Contact identified below:

### 1.04 ADMINISTRATIVE CONTACT:

Name: Brooke Davison  
Title: Construction Procurement Analyst  
Telephone: 541-737-7342  
Fax: 541-737-2170  
E-Mail: Brooke.Davison@oregonstate.edu

### 1.05 DEFINITIONS:

As used in this Request for Proposal, the terms set forth below are defined as follows:

- a. "Addenda" means an addition to, deletion from, a material change in, or general interest explanation of the Request for Proposal.
- b. "Exhibits" means those documents which are attached to and incorporated as part of the Request for Proposal.
- c. "Proposal" means an offer, binding on the Proposer and submitted in response to a Request for Proposal.
- d. "Proposer" means an entity that submits a Proposal in response to a Request for Proposal.
- e. "Proposal Due Date and Time" means the date and time specified in the Request for Proposal as the deadline for submitting Proposals.
- f. "Request for Proposal" (RFP) means a Solicitation Document to obtain Written, competitive Proposals to be used as a basis for making an acquisition or entering into a Contract when price will not necessarily be the predominant award criteria.
- g. "Responsible" means an entity that demonstrates their ability to perform satisfactorily under a Contract by meeting the applicable standards of responsibility outlined in OAR 580-061-0130.
- h. "Responsive" means a Proposal that has substantially complied in all material respects with the criteria outlined in the Request for Proposal.
- i. "Written or Writing" means letters, characters, and symbols inscribed on paper by hand, print, type, or other method of impression intended to represent or convey particular ideas or meanings.

## **2.0 INTRODUCTION AND BACKGROUND**

### 2.01 INTRODUCTION

Oregon State University (OSU) Procurement and Contract Services (PaCS) is seeking Responsive Responsible Proposers to submit Proposals to provide Main FACP Terminations, System Programming, Testing and Certification Documentation, Training and Materials for University Housing and Dining (UHDS) CO-OP Houses. Equipment to be furnished is Edwards Systems Technology ESTX3 equipment, as this is a University design standard, no substitutions allowed.

### 2.02 BACKGROUND:

University Housing and Dining (UHDS) strives to provide a living-learning environment as a gateway for academic and personal success through inclusive and innovation programs and services. UHDS presently requires the fire alarm systems to be updated at four of the Co-Op Houses (Avery Lodge, Dixon Lodge, Azalea Lodge, and Oxford House)

### 2.03 OREGON STATE UNIVERSITY:

Founded in 1868, Oregon State University is a comprehensive, research-extensive, public university located in Corvallis. OSU is a member of the Oregon University System and one of only two American universities to hold the Land Grant, Sea Grant, Space Grant and Sun Grant designations. OSU is also the only Oregon institution to hold the Carnegie Foundation's top ranking for research universities, a recognition of the depth and quality of OSU's graduate education and research programs.

Through its centers, institutes, Extension offices and Experiment Stations, OSU has a presence in almost every one of Oregon's 36 counties, including its main campus in Corvallis, the Hatfield Marine Sciences Center in Newport and OSU-Cascades Campus in Bend. OSU offers undergraduate, masters and doctoral degrees through 12 academic colleges enrolling more than 20,000 students from every county in Oregon, every state in the country and more than 90 nations.

## **3.0 SPECIFICATIONS / STATEMENT OF WORK**

### 3.01 REQUIRED SPECIFICATIONS:

- a. In order to qualify as a Responsive Proposer, the Proposal needs to meet the required specifications below. After verification that the required specifications have been met, OSU will award points based on the qualities of the specifications offered by the Proposer. Materials: For each Co-op House provide the specified materials (Exhibit E) Materials lists are based on EST-3X equipment. Drawings depict EST-3 equipment. Provide services based on the EST-3X requirements. No substitutions will be considered or accepted.
- b. Services:
  - a. FACP Terminations.
  - b. System Programming consistent with operational matrix provided in Construction Drawings (Exhibit F). Programming will utilize Contact ID protocol for digital alarm communicator transmitter.
  - c. Testing and Certification Documentation as required by NFPA72 and the City of Corvallis.
  - d. Provide 2 hours of hands on training on installed equipment.
  - e. Commissioning: Provide the services of a technician to perform a 10% test of the field devices and a 100% test of the fire/life safety functions.
- c. Compliance with Bureau of Labor and Industries

- a. Labor provided on site to support this IRFP falls under the Bureau of Labor Industries guidelines and as such, along with the Terms and Conditions in Exhibit A, the following is incorporated into this IRFP. Installation must be performed by a commercially licensed contractor or subcontractor. This license must be issued by the Oregon Construction Contractors Board prior to submitting a bid. Contractor and all subcontractors shall comply with the provisions of ORS 279C.800 through 279C.870, relative to Prevailing Wage Rates as outlined in Sections C.1 and C.2 of the General Conditions. This Solicitation and the resulting Purchase Order are subject to the following BOLI wage rate requirements, which are incorporated herein by Exhibit G.
  - i. These BOLI wage rates are available on line at:  
[http://www.boli.state.or.us/BOLI/WHD/PWR/pwr\\_state.shtml](http://www.boli.state.or.us/BOLI/WHD/PWR/pwr_state.shtml).
- d. Insurance Certificates and associated Endorsements will be required. Specifically required are
  - a. General Liability and associated Endorsement
  - b. Auto Liability and associated Endorsement
  - c. Workers Compensation
- e. Bonds will be required prior to any on-site work. Specifically required are:
  - a. \$30K Public Works Bond
  - b. Payment Bond
  - c. Performance Bond
    - i. The attached bond forms (Exhibit H) must be used for this project. The Payment and Performance Bonds must be signed by the president and attested and sealed by the corporation secretary. In addition, the bonds must be signed by the Attorney-in-Fact for the surety and sealed on their behalf. Be sure that a Power-of-Attorney accompanies each copy of the Bond.
      - 1. **Note: OSU must have the signed/sealed originals. No faxes or PDF copies will be accepted. Payment and Performance Bonds must be to OSU prior to execution of a contract.**

### 3.03 TERMS AND CONDITIONS:

OSU's terms and conditions governing the purchase resulting from this RFP are included at Exhibit A.

### 3.04 MANUFACTURER'S NAMES AND APPROVED EQUIVALENTS:

Unless qualified by the provision "NO SUBSTITUTE" any manufacturers' names, trade name, brand names, information and/or catalogue numbers listed in a specification are for information and not intended to limit competition. Proposers may offer any brand for which they are an authorized representative, which meets or exceeds the specification for any item(s). If proposals are based on equivalent products, indicate in the proposal form the manufacturers' name and number. Proposers shall submit with their proposal, sketches, and descriptive literature, and/or complete specifications. Reference to literature submitted with a previous proposal will not satisfy this provision. Proposers shall also explain in detail the reason(s) why the proposed equivalent will meet the specifications and not be considered an exception thereto. Proposals, which do not comply with these requirements, are subject to rejection. Proposals lacking any written indication of intent to provide an alternate brand will be received and considered in complete compliance with the specification as listed in the RFP.

## **4.0 PROPOSER QUALIFICATIONS**

### 4.01 MINIMUM QUALIFICATIONS:

In order to qualify as a Responsive Proposer, the Proposer needs to meet the minimum qualifications below. After verification that the minimum qualifications have been met, OSU will award points based on the level of the Proposer's qualifications.

- a. Firm Qualifications:
  - List specific experience and qualifications relevant to the project scope.
- b. Team Qualifications:
  - List staff proposed for this project including names, titles, and roles. Provide resumes.
- c. Project approach:
  - Cost saving measures.
  - Innovations for project delivery.
  - Steps implemented to improve quality.
  - Ability to work with local authorities.
- d. Schedule:
  - Time saving measures implemented.
  - Evaluation of detailed schedule.
- e. Service:
  - Ability to support and service the system.

## **5.0 REQUIRED SUBMITTALS**

### 5.01 QUANTITY OF PROPOSAL:

Submit one (1) original Proposal and 3 duplicate copies. Mark original Proposal as "ORIGINAL". Original should contain original signatures on any pages where a signature is required. Proposals should contain the submittals listed in this section below:

### 5.02 REQUIRED SUBMITTALS:

It is the Proposer's sole responsibility to submit information in fulfillment of the requirements of this Request for Proposal. If pertinent information or required submittals are not included within the Proposal, it may cause the Proposal to be rejected or have an adverse impact on evaluation.

Proposers should submit the following information:

- a. Responses to questions as listed in section 4.01. Responses shall not exceed 3 pages, single sided. Resumes will not be considered part of the 3 page limitation.
- b. Certifications
- c. References
- d. Exhibit D, Bid Price Sheets, fully completed.

## **6.0 EVALUATION AND AWARD**

### 6.01 EVALUATION:

The stages of review and evaluation are as follows:

- a. Determination of Responsiveness:

OSU will first review all Proposals to determine Responsiveness. Proposals that do not comply with the instructions or are incomplete may be deemed non-Responsive. Written notice will be sent to Proposers whose Proposal is deemed non-Responsive identifying the reason. A proposer has the right to appeal the decision pursuant to OAR 580-061-130(5)(a).

b. First Stage Evaluation:

Those Proposals determined to be Responsive will be evaluated using the required submittals. Proposals will be scored based on the evaluation criteria listed below in section 6.03. Scores will be used to determine Proposer's within a competitive range. The competitive range will be made of Proposers whose individual scores, when viewed together, form a group of the highest ranked Proposers above a natural break in the scores.

OSU may award after the first stage evaluation to the highest ranked Proposer without moving on to the second stage evaluation. If this option is selected, Written notice of intent to award the Contract to the highest ranked Proposer will be provided to all Responsive Proposers.

c. Second Stage Evaluation:

If award is not made after the first stage evaluation, OSU may choose any of the following methods in which to proceed:

- i. Issue a Written invitation to Proposers within the competitive range requesting an interview, presentation, site visit or any other evaluative method that is relevant to the goods or services solicited in the Request for Proposal. Written invitations will contain the evaluation criteria and scoring that will be used by the evaluation committee.
- ii. Engage in oral or Written discussions with and receive best and final Proposals from all Proposers in the Competitive Range or all Proposers submitting Responsive Proposals. Discussions may be conducted for the following purposes:
  - Informing Proposers of deficiencies in their initial Proposals;
  - Notifying Proposers of parts of their Proposals for which OSU would like additional information; or
  - Otherwise allowing Proposers to develop revised Proposals that will allow OSU to obtain the best Proposal based on the requirements set forth in this Request for Proposal.

The conditions, terms, or price of the Proposal may be altered or otherwise changed during the course of the discussions provided the changes are within the scope of the Request for Proposal. Best and final Proposals will be scored based on the evaluation criteria listed below in section 6.03.

Points awarded in the first stage evaluation will not be carried to the second stage evaluation. Contract will be awarded to the Proposer who in OSU's opinion, best meets the requirements and qualifications of the RFP and OSU's needs.

d. Additional Stages of Evaluation:

If after completion of the second stage of evaluation, an award is not made, OSU may add another stage of evaluation using any of the methods outlined in the second stage evaluation above.

6.02 NEGOTIATIONS:

OSU may commence serial negotiations with the highest-ranked Proposer or commence simultaneous negotiations with all eligible Proposers. OSU may negotiate:

- a. The statement of work;
- b. The Contract price as it is affected by negotiating the statement of work; and
- c. Any other terms and conditions determined by OSU in its sole discretion to be reasonably related to those expressly authorized for negotiation. Accordingly, Proposers will not submit and OSU will not accept for negotiation, any alternative terms and conditions that are not reasonably related to those expressly authorized for negotiation.

Terms and conditions within the sample contract that are unrelated to the statement of work or Contract price may be negotiated after award, but before legal sufficiency review or execution of the Contract.

**6.03 EVALUATION CRITERIA:**

Points will be given in each criteria and a total score will be determined. The maximum points available for each criteria are identified below.

<u>Evaluation Criteria:</u>	<u>Points:</u>
Proposal relative to the required Specifications 2.01	10
Proposers qualifications relative to the minimum qualifications	30
References	20
Price of the goods or services	<u>40</u>
<b>Total</b>	<b>100</b>

**6.04 INVESTIGATION OF REFERENCES:**

OSU reserves the right to investigate and to consider the references and the past performance of any Proposer with respect to such things as its performance or provision of similar goods or services, compliance with specifications and contractual obligations, and its lawful payment of suppliers, subcontractors, and workers. OSU further reserves the right to consider past performance, historical information and facts, whether gained from the Proposal, Proposer interviews, references, OSU or any other source in the evaluation process. OSU may postpone the award or execution of the Contract after the announcement of the notice of intent to award in order to complete its investigation.

<b>7.0 INSTRUCTIONS TO PROPOSERS</b>
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**7.01 APPLICABLE STATUTES AND RULES:**

This RFP is subject to the applicable provisions and requirements of the Oregon Revised Statutes, Oregon Administrative Rules, and OSU Policies and Procedures.

**7.02 REQUEST FOR CLARIFICATION OR CHANGE:**

Requests for clarification or change of the Request for Proposal must be in Writing and received by the Administrative Contact no later than the Deadline for Request for Clarification or Change as specified in the Schedule of Events. Such requests for clarification or change must include the reason for the Proposer's request. OSU will consider all timely requests and, if acceptable to OSU, amend the Request for Proposal by issuing an Addendum. Envelopes, e-mails or faxes containing requests should be clearly marked as a Request for Clarification or Change and include the RFP Number and Title.

**7.03 ADDENDA:**

Only documents issued as Written Addenda by PaCS serve to change the Request for Proposal in any way. No other direction received by the Proposer, written or verbal, serves to change the Request for Proposal. PaCS will notify potential Proposers through publication of the Addenda on the OUS procurement website. If you have received a Request for Proposal you should consult the OUS procurement website, prior to Proposal submittal, to assure that you have not missed any Addenda. Proposers are not required to return Addenda with their Proposal. However, Proposers are responsible for obtaining and incorporating any changes made by the Addendum into their Proposal. Failure to do so may, in effect, make the Proposal non-Responsive, which may cause the Proposal to be rejected.

#### 7.04 PREPARATION AND SIGNATURE:

All Required Submittals must be Written or prepared in ink and signed in ink by an authorized representative with authority to bind the Proposer. Signature certifies that the Proposer has read, fully understands, and agrees to be bound by the Request for Proposal and all Exhibits and Addenda to the Request for Proposal.

#### 7.05 PUBLIC RECORD:

Upon completion of the Request for Proposal process, information in your Proposal will become subject records under the Oregon Public Records Law. Only those items considered a "trade secret" under ORS 192.501(2), may be exempt from disclosure. If a Proposal contains what the Proposer considers a "trade secret" the Proposer must mark each sheet of information as such. Only bona fide trade secrets may be exempt and only if public interest does not require disclosure.

#### 7.06 SUBMISSION:

Proposals must be submitted in a sealed envelope and be delivered to the submittal location listed on the Request for Proposal cover sheet no later than the Proposal Due Date and Time. Proposer must specify on the outside of the envelope the Request for Proposal number, the Request for Proposal title and the Proposal Due Date and Time. **E-MAIL OR FACSIMILE PROPOSALS WILL NOT BE ACCEPTED.**

#### 7.07 MODIFICATION:

Prior to submittal, Proposers should initial modifications or erasures in ink by the person signing the Proposal. After submittal but prior to the Proposal Due Date and Time, Proposals may be modified by submitting a Written notice indicating the modifications and a statement that the modification amends and supersedes the prior Proposal. After the Proposal Due Date and Time, Proposers may not modify their Proposal.

#### 7.08 WITHDRAWALS:

A Proposer may withdraw their Proposal by submitting a Written notice to the Administrative Contact identified in this Request for Proposal prior to the Proposal Due Date and Time. The Written notice must be on the Proposer's letterhead and signed by an authorized representative of the Proposer. The Proposer, or authorized representative of the Proposer, may also withdraw their Proposal in person prior to the Proposal Due Date and Time, upon presentation of appropriate identification and evidence of authority to withdraw the Proposal satisfactory to OSU.

#### 7.09 LATE SUBMITTALS:

Proposals and Written notices of modification or withdrawal must be received no later than the Proposal Due Date and Time. OSU may not accept or consider late Proposals, modifications, or withdrawals except as permitted in OAR 580-061-0120.

#### 7.10 PROPOSAL OPENING:

Proposals will be opened immediately following the Proposal Due Date and Time at the Submittal Location. Proposer may attend the Proposal opening. Only the names of the Proposers submitting Proposals will be announced. No other information regarding the content of the Proposals will be available.

#### 7.11 PROPOSALS ARE OFFERS:

The Proposal is the Proposer's offer to enter into a Contract pursuant to the terms and conditions specified in the Request for Proposal, its Exhibits, and Addenda. The offer is binding on the Proposer for one hundred twenty (120) days. OSU's award of the Contract constitutes acceptance of the offer and binds the Proposer. The Proposal must be a complete offer and fully Responsive to the Request for Proposal.

#### 7.12 CONTINGENT PROPOSALS:

Proposer shall not make its Proposal contingent upon OSU's acceptance of specifications or contract terms that conflict with or are in addition to those in the Request for Proposal, its Exhibits, or Addenda.



7.13 RIGHT TO REJECT:

OSU may reject, in whole or in part, any Proposal not in compliance with the Request for Proposal, Exhibits, or Addenda, if upon OSU's Written finding that it is in the public interest to do so. OSU may reject all Proposals for good cause, if upon OSU's Written finding that it is in the public interest to do so. Notification of rejection of all Proposals, along with the good cause justification and finding of public interest, will be sent to all who submitted a Proposal.

7.14 AWARDS:

OSU reserves the right to make award(s) by individual item, group of items, all or none, or any combination thereof. OSU reserves the right to delete any item from the award when deemed to be in the best interest of OSU.

7.15 LEGAL SUFFICIENCY REVIEW:

Prior to execution of any Contract resulting from this Request for Proposal, the Contract may be reviewed for legal sufficiency by a qualified attorney for OSU pursuant to the applicable Oregon Revised Statutes and Oregon Administrative Rules. Legal sufficiency review may result in changes to the terms and conditions specified in the Request for Proposal, Exhibits, and Addenda.

7.16 PROPOSAL RESULTS:

A notice of intent to award containing the Proposal results will be issued to all Proposers. The Proposal file will be available for Proposer's review during the protest period at the PaCS Department. Proposers must make an appointment with the Administrative Contact to view the Proposal file. After the protest period, the file will be available by making a Public Records Request to OSU.

7.17 PROPOSAL PREPARATION COST:

OSU is not liable for costs incurred by the Proposer during the Request for Proposal process.

7.18 PROPOSAL CANCELLATION:

If a Request for Proposal is cancelled prior to the Proposal Due Date and Time, all Proposals that may have already been received will be returned to the Proposers. If a Request for Proposal is cancelled after the Proposal Due Date and Time or all Proposals are rejected, the Proposals received will be retained and become part of OSU's permanent Proposal file.

7.19 PROTEST OF CONTRACTOR SELECTION, CONTRACT AWARD:

Any Proposer who feels adversely affected or aggrieved may submit a protest within seven (7) calendar days after OSU issues a notice of intent to award a Contract. The protest must be clearly identified as a protest, identify the type and nature of the protest, and include the Request for Proposal number and title. The rules governing protests are at OAR 580-061-0145.

**EXHIBIT A**  
**TERMS AND CONDITIONS**

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**OREGON STATE UNIVERSITY**  
**GENERAL CONDITIONS**  
**FOR PURCHASE ORDER CONSTRUCTION CONTRACTS**

**2010**

INSTRUCTIONS: The attached **Oregon State University General Conditions for Purchase Order Construction Contracts ("OSU General Conditions")** apply to all designated purchase order contracts. Changes to the OSU General Conditions (including any additions, deletions or substitutions) should only be made by attaching Supplemental General Conditions. The text of these OSU General Conditions should not otherwise be altered.

**TABLE OF SECTIONS**

**SECTION A**

**GENERAL PROVISIONS**

- A.1 DEFINITION OF TERMS
- A.2 SCOPE OF WORK
- A.3 INTERPRETATION OF CONTRACT DOCUMENTS
- A.4 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE
- A.5 INDEPENDENT CONTRACTOR STATUS
- A.6 RETIREMENT SYSTEM STATUS AND TAXES
- A.7 GOVERNMENT EMPLOYMENT STATUS

**SECTION B**

**ADMINISTRATION OF THE CONTRACT**

- B.1 OWNER'S ADMINISTRATION OF THE CONTRACT
- B.2 CONTRACTOR'S MEANS AND METHODS
- B.3 MATERIALS AND WORKMANSHIP
- B.4 PERMITS
- B.5 COMPLIANCE WITH GOVERNMENT REGULATIONS
- B.6 SUPERINTENDENCE
- B.7 INSPECTION
- B.8 SEVERABILITY
- B.9 ACCESS TO RECORDS
- B.10 WAIVER
- B.11 SUBCONTRACTS AND ASSIGNMENT
- B.12 SUCCESSORS IN INTEREST
- B.13 OWNER'S RIGHT TO DO WORK
- B.14 GOVERNING LAW
- B.15 LITIGATION
- B.16 SUBMITTALS, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES
- B.17 USE OF PLANS AND SPECIFICATIONS
- B.18 FUNDS AVAILABLE AND AUTHORIZED

**SECTION C**

**WAGES AND LABOR**

- C.1 MINIMUM WAGES RATES ON PUBLIC WORKS
- C.2 PAYROLL CERTIFICATION AND FEE REQUIREMENTS
- C.3 PROMPT PAYMENT AND CONTRACT CONDITIONS
- C.4 PAYMENT FOR MEDICAL CARE
- C.5 HOURS OF LABOR

**SECTION D**

**CHANGES IN THE WORK**

- D.1 CHANGES IN THE WORK
- D.2 CLAIMS REVIEW PROCESS

**SECTION E**

**PAYMENTS**

- E.1 APPLICATIONS FOR PAYMENT
- E.2 DUAL PAYMENT SOURCES
- E.3 FINAL PAYMENT

**SECTION F**

**JOB SITE CONDITIONS**

- F.1 USE OF PREMISES
- F.2 PROTECTION OF WORKERS, PROPERTY AND THE PUBLIC
- F.3 CUTTING AND PATCHING
- F.4 CLEANING UP
- F.5 ENVIRONMENTAL CONTAMINATION
- F.6 ENVIRONMENTAL CLEAN-UP
- F.7 FORCE MAJEURE

**SECTION G**

**INDEMNITY, BONDING AND INSURANCE**

- G.1 RESPONSIBILITY FOR DAMAGES/INDEMNITY
- G.2 PERFORMANCE AND PAYMENT SECURITY
- G.3 INSURANCE

**SECTION H**

**SCHEDULE OF WORK**

- H.1 SCHEDULE
- H.2 CONTRACT PERIOD
- H.3 PARTIAL OCCUPANCY OR USE

**SECTION I**

**CORRECTION OF WORK**

- I.1 CORRECTIONS OF WORK BEFORE FINAL PAYMENT
- I.2 WARRANTY WORK

**SECTION J**

**SUSPENSION AND/OR TERMINATION OF THE WORK**

- J.1 OWNER'S RIGHT TO SUSPEND THE WORK
- J.2 CONTRACTOR'S RESPONSIBILITIES
- J.3 COMPENSATION FOR SUSPENSION
- J.4 OWNER'S RIGHT TO TERMINATE CONTRACT
- J.5 TERMINATION FOR CONVENIENCE
- J.6 ACTION UPON TERMINATION

**SECTION K**

**CONTRACT CLOSE-OUT**

- K.1 RECORD DRAWINGS
- K.2 OPERATION AND MAINTENANCE MANUALS
- K.3 TRAINING
- K.4 EXTRA MATERIALS
- K.5 OTHER CONTRACTOR RESPONSIBILITIES
- K.6 SURVIVAL

**OREGON STATE UNIVERSITY GENERAL CONDITIONS FOR PURCHASE ORDER CONTRACTS  
("OSU General Conditions")**

**SECTION A  
GENERAL PROVISIONS**

**A.1 DEFINITION OF TERMS**

In the Contract Documents the following terms shall be as defined below:

**CHANGE ORDER**, means a written order issued by the Owner's Authorized Representative to the Contractor requiring a change in the Work within the general scope of the Contract Documents, issued under the changes provisions of Section D.1 in administering the Contract, including Owner's written change directives as well as changes reflected in a writing executed by the parties to this Contract and, if applicable, establishing a Contract Price or Contract Time adjustment for the changed Work.

**CLAIM**, means a demand by Contractor pursuant to Section D.2 for review of the denial of Contractor's initial request for an adjustment of Contract terms, payment of money, extension of Contract Time or other relief, submitted in accordance with the requirements and within the time limits established for review of Claims in these General Conditions.

**CONTRACT**, means the written agreement between the Owner and the Contractor comprised of the Contract Documents which describe the Work to be done and the obligations between the parties.

**CONTRACT DOCUMENTS**, means the Solicitation Document and addenda thereto, Purchase Order, OSU General Conditions, Supplemental General Conditions, if any, the accepted Offer, Plans, Specifications, amendments and change orders.

**CONTRACT PERIOD**, as set forth in the Contract Documents, means the total period of time beginning with the issuance of the Notice to Proceed and concluding upon Final Completion.

**CONTRACT PRICE**, means the total of the awarded Offer amount, as increased or decreased by the price of approved alternates and change orders.

**CONTRACTOR**, means the Person awarded the Contract for the Work contemplated.

**DAYS**, are calendar days, including weekdays, weekends and holidays, unless otherwise specified.

**DIRECT COSTS**, means, unless otherwise provided in the Contract Documents, the cost of materials, including sales tax, cost of delivery; cost of labor, including social security, old age and unemployment insurance, and fringe benefits required by agreement or custom; worker's compensation insurance; project specific insurance; bond premiums, rental cost of equipment, and machinery required for execution of the work; and the additional costs of field personnel directly attributable to the Work.

**FINAL COMPLETION**, means the final completion of all requirements under the Contract, including Contract Closeout as described in Section K but excluding Warranty Work as described in Section I.2, and the final payment, released.

**FORCE MAJEURE**, means an act, event or occurrence caused by fire, riot, war, acts of God, nature, sovereign, or public enemy, strikes, freight embargoes or any other act, event or occurrence that is beyond the control of the party to this Contract who is asserting Force Majeure.

**NOTICE TO PROCEED**, means the official written notice from the Owner stating that the Contractor is to proceed with the Work defined in the Contract Documents. Notwithstanding the Notice to Proceed, Contractor shall not be authorized to proceed with the Work until all initial Contract requirements, including the Contract, performance bond and payment bond if required, and certificates of

insurance, have been fully executed and submitted to Owner in a suitable form.

**OFFER**, means a bid or quote.

**OVERHEAD**, means those items which may be included in the Contractor's markup (general and administrative expense and profit) and that shall not be charged as Direct Cost of the Work, including without limitation such Overhead expenses as wages or salary of personnel above the level of foreman (i.e., superintendents and project managers), and expenses of Contractor's offices at the job site (e.g. job trailer) including expenses of personnel staffing the job site office.

**OWNER**, means the State of Oregon acting by and through the Oregon State Board of Higher Education, in its own right or on behalf of Oregon State University.

**OWNER'S AUTHORIZED REPRESENTATIVE**, means those individuals identified in writing by the Owner to act on behalf of the Owner for this project. Owner may elect, by written notice to Contractor, to delegate certain duties of the Owner's Authorized Representative to more than one party, including without limitation, to an Architect/Engineer. However, nothing in these General Conditions is intended to abrogate the separate design professional responsibilities of Architects under ORS Chapter 671 or of Engineers under ORS Chapter 672.

**PERSON**, means an entity doing business as a sole proprietorship, a partnership, a joint venture, a corporation, a limited liability company or partnership, or any other entity possessing the legal capacity to contract.

**PLANS**, means the drawings which show the location, type, dimensions, and details of the Work to be done under the Contract.

**PRODUCT DATA**, means illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

**PUNCHLIST**, means the list of Work yet to be completed or deficiencies which need to be corrected in order to achieve Final Completion of the Contract.

**PURCHASE ORDER**, means the purchase order issued by the Owner in which these OSU General Conditions and other Contract Documents are incorporated by reference.

**RECORD DOCUMENT**, means the as-built Plans, Specifications, testing and inspection records, product data, samples, manufacturer and distributor/supplier warranties evidencing transfer to Owner, operational and maintenance manuals, shop drawings, Change Orders, correspondence, certificate(s) of occupancy, and other documents listed in Subsection B.9.1 of these General Conditions, recording all Services performed.

**SAMPLES**, means physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

**SHOP DRAWINGS**, means drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

**SOLICITATION DOCUMENT**, means a Request for Quotes or Invitation to Bid.

**SPECIFICATION**, means any description of the physical or functional characteristics of the Work, or of the nature of a supply, service or construction item. Specifications may include a

description of any requirement for inspecting, testing or preparing a supply, service or construction item for delivery and the quantities or qualities of materials to be furnished under the Contract. Specifications generally will state the results or products to be obtained and may, on occasion, describe the method and manner of doing the work to be performed. Specifications may be incorporated by reference and/or may be attached to the Contract.

**SUBCONTRACTOR**, means a Person having a direct contract with the Contractor, or another Subcontractor, to perform one or more items of the Work.

**SUPPLEMENTAL GENERAL CONDITIONS**, means those conditions that remove from, add to, or modify these OSU General Conditions for Purchase Order Contracts. Supplemental General Conditions may be included in the Solicitation Document or may be a separate attachment to the Contract.

**WORK**, means the furnishing of all materials, equipment, labor, transportation, services and incidentals necessary to successfully complete any individual item or the entire Contract and the carrying out of duties and obligations imposed by the Contract Documents.

## **A.2 SCOPE OF WORK**

The Work contemplated under this Contract includes all labor, materials, transportation, equipment and services for, and incidental to, the completion of all construction work in connection with the project described in the Contract Documents. The Contractor shall perform all Work necessary so that the project can be legally occupied and fully used for the intended use as set forth in the Contract Documents.

## **A.3 INTERPRETATION OF CONTRACT DOCUMENTS**

- A.3.1 In the case of an inconsistency between Plans and Specifications or within either document not clarified by addendum, the better quality or greater quantity of Work shall be provided in accordance with the Owner or Owner's Authorized Representative's interpretation in writing.
- A.3.2 If the Contractor finds discrepancies in, or omissions from the Contract Documents, or if the Contractor is in doubt as to their meaning, the Contractor shall at once notify the Owner or Owner's Authorized Representative. Matters concerning performance under, and interpretation of requirements of, the Contract Documents will be decided by the Owner's Authorized Representative. Responses to Contractor's requests for interpretation of Contract Documents will be made in writing by Owner's Authorized Representative within any time limits agreed upon or otherwise with reasonable promptness. Interpretations and decisions of the Owner's Authorized Representative will be consistent with the intent of and reasonably inferable from the Contract Documents. Contractor shall not proceed without direction in writing from the Owner's Authorized Representative.
- A.3.3 References to standard specifications, manuals, codes of any technical society, organization or association, to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, laws or regulations in effect in the jurisdiction where the project is occurring on the first published date of the Solicitation Document, except as may be otherwise specifically stated.

## **A.4 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE**

- A.4.1 It is understood that the Contractor, before submitting an Offer, has made a careful examination of the Contract Documents; has become fully informed as to the quality and quantity of materials and the character of the Work required; and has made a careful examination of the location and conditions of the Work and the sources of supply for materials. The Owner will in no case be responsible for any loss or for any unanticipated costs that may be suffered by the Contractor as a result of the Contractor's failure to

acquire full information in advance in regard to all conditions pertaining to the Work. No oral agreement or conversation with any officer, agent, or personnel of the Owner, either before or after the execution of this Contract, shall affect or modify any of the terms or obligations herein contained.

- A.4.2 Should the Plans or Specifications fail to particularly describe the materials, kind of goods, or details of construction of any aspect of the Work, Contractor shall have the duty to make inquiry of the Owner as to what is required prior to performance of the Work. Absent Specifications to the contrary, the materials or processes that would normally be used to produce first quality finished Work shall be considered a part of the Contract requirements.
- A.4.3 Any design errors or omissions noted by the Contractor shall be reported promptly to the Owner's Authorized Representative, including without limitation, any nonconformity with applicable laws, statutes, ordinances, building codes, rules and regulations.
- A.4.4 If the Contractor believes that additional cost or Contract Time is involved because of clarifications or instructions issued by the Owner's Authorized Representative (or Architect/Engineer) in response to the Contractor's notices or requests for information, the Contractor must submit a written request to the Owner's Authorized Representative, setting forth the nature and specific extent of the request, including all time and cost impacts against the Contract as soon as possible, but no later than thirty (30) Days after receipt by Contractor of the clarifications or instructions issued. If the Owner's Authorized Representative denies Contractor's request for additional compensation, additional Contract Time, or other relief that Contractor believes results from the clarifications or instructions, the Contractor may proceed to file a Claim under Section D.3, Claims Review Process. If the Contractor fails to perform the obligations of Sections A.4.1 to A.4.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations.

## **A.5 INDEPENDENT CONTRACTOR STATUS**

The service or services to be performed under this Contract are those of an independent contractor. Contractor represents and warrants that it is not an officer, employee or agent of the Owner as those terms are used in ORS 30.265.

## **A.6 RETIREMENT SYSTEM STATUS AND TAXES**

Contractor represents and warrants that it is not a contributing member of the Public Employees' Retirement System and will be responsible for any federal or state taxes applicable to payment received under this Contract. Contractor will not be eligible for any benefits from these Contract payments of federal Social Security, employment insurance, workers' compensation or the Public Employees' Retirement System, except as a self-employed individual. Unless the Contractor is subject to backup withholding, Owner will not withhold from such payments any amount(s) to cover Contractor's federal or state tax obligations.

## **A.7 GOVERNMENT EMPLOYMENT STATUS**

- A.7.1 If this payment is to be charged against federal funds, Contractor represents and warrants that it is not currently employed by the Federal Government. This does not preclude the Contractor from holding another contract with the Federal Government.
- A.7.2 Contractor represents and warrants that Contractor is not an employee of the State of Oregon for purposes of performing Work under this Contract

**SECTION B**  
**ADMINISTRATION OF THE CONTRACT**

**B.1 OWNER'S ADMINISTRATION OF THE CONTRACT**

The Owner's Authorized Representative will visit the site at appropriate intervals to endeavor to guard the Owner against defects and deficiencies in the Work. The Owner's Authorized Representative will neither have control over or charge of, nor be responsible for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work.

**B.2 CONTRACTOR'S MEANS AND METHODS; MITIGATION OF IMPACTS**

- B.2.1 The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures.
- B.2.2 The Contractor is responsible to protect and maintain the Work during the course of construction and to mitigate any adverse impacts to the project, including those caused by authorized changes, which may affect cost, schedule, or quality.
- B.2.3 The Contractor is responsible for the actions of all its personnel, laborers, suppliers, and Subcontractors on the project. The Contractor shall enforce strict discipline and good order among Contractor's employees and other persons carrying out the Work.

**B.3 MATERIALS AND WORKMANSHIP**

All Work shall be performed in a professional manner and, unless the means or methods of performing a task are specified elsewhere in the Contract Documents, Contractor shall employ methods that are generally accepted and used by the industry, in accordance with industry standards.

**B.4 PERMITS**

Unless otherwise stated, Contractor shall obtain and pay for all necessary permits and licenses, except for those specifically excluded in the Supplemental General Conditions, for the construction of the Work, for temporary obstructions, enclosures, opening of streets for pipes, walls, utilities, environmental Work, etc., as required for the project. Contractor shall be responsible for all violations of the law, in connection with the construction or caused by obstructing streets, sidewalks or otherwise. Contractor shall give all requisite notices to public authorities. The Contractor shall pay all royalties and license fees. The Contractor shall defend all suits or claims for infringement of any patent or other proprietary rights and save harmless and blameless from loss, on account thereof, the State of Oregon, and its departments, divisions, members and employees.

**B.5 COMPLIANCE WITH GOVERNMENT REGULATIONS**

- B.5.1 Contractor shall comply with all federal, state and local laws, codes, regulations and ordinances applicable to the Work. Failure to comply with such requirements shall constitute a breach of Contract and shall be grounds for Contract termination. Damages or costs resulting from noncompliance shall be the responsibility of Contractor. Contractor shall comply with all federal, state and local laws, regulations, executive orders and ordinances applicable to

the Contract. Without limiting the generality of the foregoing, Contractor expressly agrees to comply with the following, as applicable: :

- (i) Title VI and VII of Civil Rights Act of 1964, as amended;
- (ii) Section 503 and 504 of the Rehabilitation Act of 1973, as amended;
- (iii) the Health Insurance Portability and Accountability Act of 1996;
- (iv) the Americans with Disabilities Act of 1990, as amended;
- (v) ORS Chapter 659A; as amended;
- (vi) all regulations and administrative rules established pursuant to the foregoing laws; and
- (vii) all other applicable requirements of federal and state civil rights and rehabilitation statutes, rules and regulations.

- B.5.2 Contractor shall comply with all applicable requirements of federal and state civil rights and rehabilitation statutes, rules and regulations; and
- (a) Contractor shall not discriminate against Disadvantaged, Minority, Women or Emerging Small Business enterprises, as those terms are defined in ORS 200.005, in the awarding of subcontracts.
  - (b) Contractor shall maintain, in current and valid form, all licenses and certificates required by law, regulation, or this Contract when performing the Work.
- B.5.3 Unless contrary to federal law, Contractor shall certify that it shall not accept a bid from Subcontractors to perform Work as described in ORS 701.005 under this Contract unless such Subcontractors are registered with the Construction Contractors Board in accordance with ORS 701.035 to 701.055 at the time they submit their bids to the Contractor.
- B.5.4 Unless contrary to federal law, Contractor shall certify that each landscape contractor, as defined in ORS 671.520(2), performing Work under this Contract holds a valid landscape contractor's license issued pursuant to ORS 671.560.
- B.5.5 The following notice is applicable to Contractors who perform excavation Work. ATTENTION: Oregon law requires you to follow rules adopted by the Oregon Utility Notification Center. Those rules are set forth in OAR 952-001-0010 through OAR 952-001-0090. You may obtain copies of the rules by calling the center at (503)232-1987.
- B.5.6 Failure to comply with any or all of the requirements of B.5.1 through B.5.5 shall be a breach of Contract and constitute grounds for Contract termination. Damages or costs resulting from such noncompliance shall be the responsibility of Contractor.

**B.6 SUPERINTENDENCE**

Contractor shall keep on the site, during the progress of the Work, a competent superintendent and any necessary assistants who shall be satisfactory to the Owner and who shall represent the Contractor on the site. Directions given to the superintendent by the Owner's Authorized Representative shall be confirmed in writing to the Contractor.

**B.7 INSPECTION**

- B.7.1 Inspection of the Work will be made by the Owner's Authorized Representative at its discretion. The Owner's Authorized Representative will have authority to reject Work that does not conform to the Contract Documents. Any Work found to be not in conformance with the Contract Documents, in the discretion of the Owner's Authorized Representative, shall be removed and replaced at the Contractor's expense.
- B.7.2 Contractor shall make or obtain at the appropriate time all tests, inspections and approvals of portions of the Work required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to

the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work. The Contractor shall give the Owner's Authorized Representative timely notice of when and where tests and inspections are to be made so that the Owner's Authorized Representative may be present for such procedures. Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Owner's Authorized Representative.

B.7.3 If directed to do so any time before the Work is accepted, the Contractor shall uncover portions of the completed Work for inspection. After inspection, the Contractor shall restore such portions of Work to the standard required by the Contract. If the Work uncovered is unacceptable or was done without sufficient notice to the Owner's Authorized Representative, the uncovering and restoration shall be done at the Contractor's expense. If the Work uncovered is acceptable and was done with sufficient notice to the Owner's Authorized Representative, the uncovering and restoration will be paid for as a change order.

B.7.4 If any testing or inspection reveals failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Owner's Authorized Representative's services and expenses, shall be at the Contractor's expense.

#### **B.8 SEVERABILITY**

If any provision of this Contract is declared by a court to be illegal or in conflict with any law, the validity of the remaining terms and provisions shall not be affected and the rights and obligations of the parties shall be construed and enforced as if the Contract did not contain the particular provision held to be invalid.

#### **B.9 ACCESS TO RECORDS**

B.9.1 Contractor shall keep, at all times on the Work site, one record copy of the complete Contract Documents, including the Plans, Specifications, change orders and addenda, in good order and marked currently to record field changes and selections made during construction, and one record copy of Shop Drawings, Product Data, Samples and similar submittals, and shall at all times give the Owner's Authorized Representative access thereto.

B.9.2 The Owner and its duly authorized representatives shall have access, for a period not less than six (6) years, to books, documents, papers and records of Contractor which are pertinent to the Contract costs, for the purpose of making audit, examination, excerpts and transcripts. If for any reason, any part of the Contract is involved in litigation, Contractor shall retain all pertinent records until all litigation is resolved. The Owner or its agents will continue to be provided full access to the records during litigation.

#### **B.10 WAIVER**

Failure of the Owner to enforce any provision of this Contract shall not constitute a waiver or relinquishment by the Owner of the right to such performance in the future nor of the right to enforce any other provision of this Contract.

#### **B.11 SUBCONTRACTS AND ASSIGNMENT**

B.11.1 Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound by the terms and conditions of these OSU General Conditions, and to assume toward the Contractor all of the obligations and responsibilities which the Contractor assumes toward the Owner thereunder, unless (1) the same are clearly inapplicable to the subcontract at issue because of legal requirements or industry practices, or (2) specific

exceptions are requested by Contractor and approved in writing by Owner. Where appropriate, Contractor shall require each Subcontractor to enter into similar agreements with sub-subcontractors at any level.

B.11.2 Contractor shall not assign, sell, or transfer its rights, or delegate its responsibilities under this Contract, in whole or in part, without the prior written approval of the Owner. No such written approval shall relieve Contractor of any obligations of this Contract, and any transferee shall be considered the agent of the Contractor and bound to perform in accordance with the Contract Documents. Contractor shall remain liable as between the original parties to the Contract as if no assignment had occurred.

#### **B.12 SUCCESSORS IN INTEREST**

The provisions of this Contract shall be binding upon and shall accrue to the benefit of the parties to the Contract and their respective permitted successors and assigns.

#### **B.13 OWNER'S RIGHT TO DO WORK**

Owner reserves the right to perform other or additional work at or near the project site with other forces than those of the Contractor. If such work takes place within or next to the project site, Contractor will coordinate work with the other contractors or forces, cooperate with all other contractors or forces, carry out the Work in a way that will minimize interference and delay for all forces involved, place and dispose of materials being used so as not to interfere with the operations of another, and join the Work with the work of the others in an acceptable manner and perform it in proper sequence to that of the others. The Owner's Authorized Representative will resolve any disagreements that may arise between or among Contractor and the other contractors over the method or order of doing all work (including the Work). In case of unavoidable interference, the Owner's Authorized Representative will establish work priority (including the Work) which generally will be in the sequence that the contracts were awarded.

#### **B.14 GOVERNING LAW**

This Contract shall be governed by and construed in accordance with the laws of the State of Oregon without regard to principles of conflict of laws.

#### **B.15 LITIGATION**

Any Claim between Owner and Contractor that arises from or relates to this Contract and that is not resolved through the Claims Review Process in Section D.2 shall be brought and conducted solely and exclusively within the Circuit Court of Marion County for the State of Oregon; provided, however, if a Claim must be brought in a federal forum, then it shall be brought and conducted solely and exclusively within the United States District Court for the District of Oregon. In no event shall this section be construed as a waiver by the State of Oregon of any form of defense or immunity, whether sovereign immunity, governmental immunity, immunity based on the Eleventh Amendment to the Constitution of the United States or otherwise, from any claim or from the jurisdiction of any court. CONTRACTOR BY EXECUTION OF THIS CONTRACT HEREBY CONSENTS TO THE IN PERSONAM JURISDICTION OF THE COURTS REFERENCED IN THIS SECTION.

#### **B.16 SUBMITTALS, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

B.16.1 The Contractor shall review for compliance with the Contract Documents, and approve and submit to the Owner's Authorized Representative, Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals which are not marked as reviewed for compliance with the Contract Documents and approved by the Contractor may be returned by the Owner's Authorized Representative without action.

B.16.2 By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

B.16.3 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Owner's Authorized Representative.

B.16.4 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Owner's Authorized Representative's review or approval of Shop Drawings, Product Data, Samples or similar submittals. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Owner's Authorized Representative's review or approval thereof.

### **B.17 USE OF PLANS AND SPECIFICATIONS**

Plans, Specifications and related Contract Documents furnished to Contractor by Owner shall be used solely for the performance of the Work under this Contract. Contractor and its Subcontractors and suppliers are authorized to use and reproduce applicable portions of such documents appropriate to the execution of the Work, but shall not claim any ownership or other interest in them beyond the scope of this Contract, and no such interest shall attach. Unless otherwise indicated, all common law, statutory and other reserved rights, in addition to copyrights, are retained by Owner.

### **B.18 FUNDS AVAILABLE AND AUTHORIZED**

Owner reasonably believes at the time of entering into this Contract that sufficient funds are available and authorized for expenditure to finance the cost of this Contract within the Owner's appropriation or limitation. Contractor understands and agrees that, to the extent that sufficient funds are not available and authorized for expenditure to finance the cost of this Contract, Owner's payment of amounts under this Contract attributable to services performed after the last day of the current biennium is contingent on Owner receiving from the Oregon Legislative Assembly appropriations, limitations or other expenditure authority sufficient to allow Owner, in the exercise of its reasonable administrative discretion, to continue to make payments under this Contract.

## **SECTION C WAGES AND LABOR**

### **C.1 MINIMUM WAGE RATES ON PUBLIC WORKS**

Contractor shall comply fully with the provisions of ORS 279C.800 through 279C.870. Documents establishing those conditions, as determined by the Commissioner of the Bureau of Labor and Industries (BOLI), are included as attachments to or are incorporated by reference in the Contract Documents the Contract Documents. Contractor shall pay workers at not less than the specified minimum hourly rate of wage, and shall include that requirement in all subcontracts.

### **C.2 PAYROLL CERTIFICATION AND FEE REQUIREMENTS**

C.2.1 In accordance with ORS 279C.845, the Contractor and every Subcontractor shall submit written certified statements to the Owner's Authorized Representative, on the form prescribed by the Commissioner of the Bureau of Labor and Industries, certifying the hourly rate of wage paid each worker which

the Contractor or the Subcontractor has employed on the project and further certifying that no worker employed on the project has been paid less than the prevailing rate of wage or less than the minimum hourly rate of wage specified in the Contract, which certificate and statement shall be verified by the oath of the Contractor or the Subcontractor that the Contractor or Subcontractor has read the certified statement, that the Contractor or Subcontractor knows the contents of the certified statement, and, that to the Contractor's or Subcontractor's best knowledge and belief, the certified statement is true. The certified statements shall set out accurately and completely the payroll records for the prior week, including the name and address of each worker, the worker's correct classification, rate of pay, daily and weekly number of hours worked, deductions made, and actual wages paid. Certified statements for each week during which the Contractor or Subcontractor has employed a worker on the project shall be submitted once a month, by the fifth business day of the following month. The Contractor and Subcontractors shall preserve the certified statements for a period of ten (10) years from the date of completion of the Contract.

C.2.2 Pursuant to ORS 279C.845(7), the Owner shall retain 25 percent of any amount earned by the Contractor on this public works project until the Contractor has filed the certified statements required by section C.2.1. The Owner shall pay to the Contractor the amount retained under this subsection within 14 days after the Contractor files the required certified statements, regardless of whether a Subcontractor has failed to file certified statements.

C.2.3 Pursuant to ORS 279C.845(8), the Contractor shall retain 25 percent of any amount earned by a first-tier Subcontractor on this public works project until the first-tier Subcontractor has filed with the Owner the certified statements required by C.2.1. Before paying any amount retained under this subsection, the Contractor shall verify that the first-tier Subcontractor has filed the certified statement. Within 14 days after the first-tier Subcontractor files the required certified statement the Contractor shall pay the first-tier Subcontractor any amount retained under this subsection.

C.2.4 In accordance with statutory requirements, and administrative rules promulgated by the Commissioner of the Bureau of Labor and Industries, the fee required by ORS 279C.825(1) will be paid by Owner to the Commissioner at the time Owner enters into the Contract

### **C.3 PROMPT PAYMENT AND CONTRACT CONDITIONS**

C.3.1 As a condition to Owner's performance hereunder, the Contractor shall:

C.3.1.1 Make payment promptly, as due, to all persons supplying to Contractor labor or materials for the prosecution of the Work provided for in this Contract.

C.3.1.2 Pay all contributions or amounts due the State Industrial Accident Fund from such Contractor or Subcontractor incurred in the performance of the Contract.

C.3.1.3 Not permit any lien or claim to be filed or prosecuted against the Owner on account of any labor or material furnished. Contractor will not assign any claims that Contractor has against Owner, or assign any sums due by Owner, to Subcontractors, suppliers, or manufacturers, and will not make any agreement or act in any way to give Subcontractors a claim or standing to make a claim against the Owner.

C.3.1.4 Pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.



C.3.2 As a condition to Owner's performance hereunder, if Contractor fails, neglects or refuses to make prompt payment of any claim for labor or services furnished to the Contractor of a Subcontractor by any person in connection with the project as such claim becomes due, the proper officer(s) representing the Owner may pay the claim and charge the amount of the payment against funds due or to become due Contractor under this Contract. Payment of claims in this manner shall not relieve the Contractor or the Contractor's surety from obligation with respect to any unpaid claims.

C.3.3 Contractor shall include in each subcontract for property or services entered into by the Contractor and a first-tier subcontractor, including a material supplier, for the purpose of performing a construction contract, a payment clause that obligates the Contractor to pay the first-tier Subcontractor for satisfactory performance under its subcontract within ten (10) Days out of such amounts as are paid to the Contractor by the public contracting agency under such contract.

C.3.4 All employers, including Contractor, that employ subject workers who work under this contract in the State of Oregon shall 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 complies with these requirements.

**C.4 PAYMENT FOR MEDICAL CARE**

As a condition to Owner's performance hereunder, Contractor shall promptly, as due, make payment to any person, partnership, association or corporation furnishing medical, surgical, and hospital care or other needed care and attention, incident to sickness or injury, to the employees of such Contractor, all sums of which the Contractor agrees to pay for such services and all moneys and sums which the Contractor has collected or deducted from the wages of personnel pursuant to any law, contract or agreement for the purpose of providing or paying for such services.

**C.5 HOURS OF LABOR**

As a condition to Owner's performance hereunder, no person shall be employed to perform Work under this Contract for more than ten (10) hours in any one day or forty (40) hours in any one week, except in cases of necessity, emergency or where public policy absolutely requires it. In such instances, Contractor shall pay the employee at least time and a half pay:

- (a) For all overtime in excess of eight (8) hours a day or forty (40) hours in any one week when the work week is five consecutive Days, Monday through Friday; or
- (b) For all overtime in excess of ten (10) hours a day or forty (40) hours in any one week when the work week is four consecutive Days, Monday through Friday; and
- (c) For all Work performed on Saturday and on any legal holiday specified in ORS 279C.540.

This section C.5 will not apply to Contractor's Work under this Contract if Contractor is currently a party to a collective bargaining agreement with any labor organization.

This Section C.5 shall not excuse Contractor from completion of the Work within the time required under this Contract.

**SECTION D  
CHANGES IN THE WORK**

**D.1 CHANGES IN WORK**

D.1.1 The terms of this Contract shall not be waived, altered, modified, supplemented or amended in any manner whatsoever, without prior written approval of the Owner's Authorized Representative, and then only in a manner consistent with the Change Order provisions of this Section D.1 and after any necessary approvals required by public contracting laws have been obtained. Otherwise, a formal contract amendment is required, which shall not be effective until its execution by the parties to this Contract and all approvals required by public contracting laws have been obtained.

D.1.2 It is mutually agreed that changes in Plans, quantities, or details of construction are inherent in the nature of construction and may be necessary or desirable during the course of construction. Within the general scope of this Contract, the Owner's Authorized Representative may at any time, without notice to the sureties and without impairing the Contract, require changes consistent with this Section D.1. All Change Order Work shall be executed under the conditions of the Contract Documents. Such changes may include, but are not limited to:

- (a) Modification of specifications and design.
- (b) Increases or decreases in quantities.
- (c) Increases or decreases to the amount of Work.
- (d) Addition or elimination of any Work item.
- (e) Change in the duration of the project.
- (f) Acceleration or delay in performance of Work.
- (g) Deductive changes.

Deductive changes are those that reduce the scope of the Work, and shall be made by mutual agreement whenever feasible. In cases of suspension or partial termination under Section J, Owner reserves the right to unilaterally impose a deductive change and to self perform such Work, for which the provisions of B.13 (Owner's Right to Do Work) shall then apply. Adjustments in compensation shall be made under the provisions of D.1.3, in which costs for deductive changes shall be based upon a Direct Costs adjustment together with the related percentage markup specified for profit, Overhead and other indirect costs, unless otherwise agreed to by Owner.

D.1.3 The Owner and Contractor agree that change order Work shall be administered and compensated according to the following:

- (a) Change order Work shall be performed on a cost reimbursement basis for Direct Costs. Such Work shall be compensated on the basis of the actual, reasonable and allowable cost of labor, equipment, and material furnished on the Work performed. In addition, the following markups shall be added to the Contractor's or Subcontractor's Direct Costs as full compensation for profit, Overhead and other indirect costs for Work directly performed with the Contractor's or Subcontractor's own forces:

On Labor.....	15%
On Equipment.....	10%
On Materials.....	10%

When change order Work under D.1.3(a) is invoiced by an authorized Subcontractor at any level, each ascending tier Subcontractor or Contractor will be allowed a supplemental mark-up on each piece of subcontract Work covered by such change order as follows:

\$0.00 - \$5,000.00	10%, and then
Over \$5,000.00	5%

Payments made to the Contractor shall be complete compensation for Overhead, profit, and all costs that were incurred by the Contractor or by other forces furnished by the Contractor, including Subcontractors, for change order Work. Owner may establish a maximum cost for change order Work under this Section D.1.3(a), which shall not be exceeded for reimbursement without additional written authorization from Owner. Contractor shall not be required to complete such change order Work without additional authorization.

- D.1.4 If any Change Order Work under Section D.1.3 causes an increase or decrease in the Contractor's cost of, or the Contract Time required for the performance of, any other part of the Work under this Contract, the Contractor must submit a written request to the Owner's Authorized Representative, setting forth the nature and specific extent of the request, including all time and cost impacts against the Contract as soon as possible, but no later than thirty (30) Days after receipt of the Change Order by Contractor.

The thirty (30) Day time limit applies to claims of Subcontractors, suppliers, or manufacturers who may be affected by the Change Order and who request additional compensation or an extension of Contract Time to perform; Contractor has responsibility for contacting its Subcontractors, suppliers, or manufacturers within the thirty (30) Day time limit, and including their requests with Contractor's requests. If the request involves Work to be completed by Subcontractors, or materials to be furnished by suppliers or manufacturers, such requests shall be submitted to the Contractor in writing with full analysis and justification for the compensation and additional Contract Time requested. The Contractor will analyze and evaluate the merits of the requests submitted by Subcontractors, suppliers, and manufacturers to Contractor prior to including those requests and Contractor's analysis and evaluation of those requests with Contractor's requests for additional compensation or Contract Time that Contractor submits to the Owner's Authorized Representative. Failure of Subcontractors, suppliers, manufacturers or others to submit their requests to Contractor for inclusion with Contractor's requests submitted to Owner's Authorized Representative within the time period and by the means described in this section shall constitute a waiver of these Subcontractor claims. The Owner's Authorized Representative and the Owner will not consider direct requests or claims from Subcontractors, suppliers, manufacturers or others not a party to this Contract. The consideration of such requests and claims under this section does not give any person, not a party to the Contract the right to bring a claim against the State of Oregon, whether in this claims process, in litigation, or in any dispute resolution process.

If the Contractor does not concur with the decision of the Owner's Authorized Representative, the Contractor may proceed to file a Claim under Section D.2, Claims Review Process.

- D.1.5 No request or Claim by the Contractor for additional costs shall be allowed if made after receipt of final payment application under this Contract.
- D.1.6 It is understood that changes in the Work are inherent in construction of this type. The number of changes, the scope of those changes, and the effect they have on the progress of the original Work cannot be defined at this time. The Contractor is notified that numerous changes are anticipated and that there will be no compensation made to the Contractor directly related to the number of changes. Each change will be evaluated for extension of Contract time and increase or decrease in compensation based on its own merit.

## **D.2 CLAIMS REVIEW PROCESS**

- D.2.1 All Contractor Claims shall be referred to the Owner's Authorized Representative for review. Contractor's Claims, including Claims for additional compensation or additional

Contract Time, shall be submitted in writing by Contractor to the Owner's Authorized Representative within five (5) Days after a denial of Contractor's initial request for an adjustment of Contract terms, payment of money, extension of Contract Time or other relief, provided that such initial request has been submitted in accordance with the requirements and within the time limits established in these General Conditions. Within thirty (30) Days after the initial Claim, Contractor shall submit to the Owner's Authorized Representative, a complete and detailed description of the Claim (the "Detailed Notice") that includes all information required by Section D.3.2. Unless the Claim is made in accordance with these time requirements, it shall be waived.

- D.2.2 The Detailed Notice of the Claim shall be submitted in writing by Contractor and shall include a detailed, factual statement of the basis of the Claim, pertinent dates, Contract provisions which support or allow the Claim, reference to or copies of any documents which support the Claim, the dollar value of the Claim, and the Contract Time extension requested for the Claim. If the Claim involves Work to be completed by Subcontractors, the Contractor will analyze and evaluate the merits of the Subcontractor claim prior to forwarding it and that analysis and evaluation to the Owner's Authorized Representative. The Owner's Authorized Representative and the Owner will not consider direct claims from Subcontractors, suppliers, manufacturers, or others not a party to this Contract. Contractor agrees that it will make no agreement, covenant, or assignment, nor will it commit any other act that will permit or assist any Subcontractor, supplier, manufacturer, or other to directly or indirectly make a claim against Owner.
- D.2.3 The Owner's Authorized Representative will review all Claims and take one or more of the following preliminary actions within ten (10) Days of receipt of the Detailed Notice of a Claim: (1) request additional supporting information from the Contractor; (2) inform the Contractor and Owner in writing of the time required for adequate review and response; (3) reject the Claim in whole or in part and identify the reasons for rejection; (4) based on principles of equitable adjustment, recommend approval of all or part of the Claim; or (5) propose an alternate resolution.
- D.2.4 The Owner's Authorized Representative's decision shall be final and binding on the Contractor unless appealed by written notice to the Owner within fifteen (15) Days of receipt of the decision. The Contractor must present written documentation supporting the Claim within fifteen (15) Days of the notice of appeal. After receiving the appeal documentation, the Owner shall review the materials and render a decision within thirty (30) Days after receiving the appeal documents.
- D.2.5 The decision of the Owner shall be final and binding unless the Contractor delivers to the Owner its request for mediation, which shall be a non-binding process, within fifteen (15) Days of the date of the Owner's decision. The mediation process will be considered to have commenced as of the date the Contractor delivers the request. Both parties acknowledge and agree that participation in mediation is a prerequisite to commencement of litigation of any disputes relating to the Contract. Both parties further agree to exercise their best efforts in good faith to resolve all disputes within sixty (60) Days of the commencement of the mediation through the mediation process set forth herein.

In the event that a lawsuit must be filed within this sixty (60) Day period in order to preserve a cause of action, the parties agree that notwithstanding the filing, they shall proceed diligently with the mediation to its conclusion prior to actively prosecuting the lawsuit, and shall seek from the Court in which the lawsuit is pending such stays or extensions, including the filing of an answer, as may be necessary to facilitate the mediation process. Further, in the event settlements are reached on any issues through mediation, the parties agree to promptly submit the

appropriate motions and orders documenting the settlement to the Court for its signature and filing.

D.2.6 Should the parties arrive at an impasse regarding any Claims or disputed Claims, it is agreed that the parties shall participate in mediation as specified in Section D.3.5. The mediation process will be considered to have been commenced as of the date one party delivers to the other its request in writing to mediate. The mediator shall be an individual mutually acceptable to both parties, but in the absence of agreement each party shall select a temporary mediator and the temporary mediators shall jointly select the permanent mediator. Each party shall pay its own costs for the time and effort involved in mediation. The cost of the mediator shall be split equally between the two parties. Both parties agree to exercise their best effort in good faith to resolve all disputes in mediation. Participation in mediation is a mandatory requirement of both the Owner and the Contractor. The schedule, time and place for mediation will be mutually acceptable, or, failing mutual agreement, shall be as established by the mediator. The parties agree to comply with Owner's administrative rules governing the confidentiality of mediation, if any, and shall execute all necessary documents to give effect to such confidentiality rules. In any event, the parties shall not subpoena the mediator or otherwise require the mediator to produce records, notes or work product, or to testify in any future proceedings as to information disclosed or representations made in the course of mediation, except to the extent disclosure is required by law.

D.2.7 Unless otherwise directed by Owner's Authorized Representative, Contractor shall proceed with the Work while any Claim of Contractor is pending, including a Claim for additional compensation or additional Contract Time resulting from Change Order Work. Regardless of the review period or the final decision of the Owner's Authorized Representative, the Contractor shall continue to diligently pursue the Work as identified in the Contract Documents. In no case is the Contractor justified or allowed to cease Work without a written stop work order from the Owner or Owner's Authorized Representative.

## **SECTION E PAYMENTS**

### **E.1 APPLICATIONS FOR PAYMENT**

E.1.1 Owner shall make progress payments on the Contract once monthly as Work progresses. Payments shall be based upon estimates of Work completed. All payments shall be approved by the Owner's Authorized Representative. A progress payment shall not be considered acceptance or approval of any Work or waiver of any defects therein. Owner shall pay to Contractor interest at the rate of two-thirds of one percent per month on the progress payment due the Contractor. The interest shall commence forty-five (45) Days from the date of the receipt of a correct invoice from the Contractor.

E.1.2 Contractor shall submit to the Owner's Authorized Representative, an application for each payment and, if required, receipts or other vouchers showing payments for materials and labor including payments to Subcontractors, and shall include, on the face of each copy thereof, a certificate in substantially the following form:

"I, the undersigned, hereby certify that the above bill is true and correct, and the payment therefore, has not been received.

Signed: \_\_\_\_\_"

E.1.3 The Owner reserves the right to withhold all or part of a payment, or may nullify in whole or part any payment previously made, to such extent as may be necessary in the Owner's opinion to protect the Owner from loss because of:

- (a) Work that is defective and not remedied, or that has been demonstrated or identified as failing to conform with the Contract Documents;
- (b) third party claims filed or evidence reasonably indicating that such claims will likely be filed unless security acceptable to the Owner is provided by the Contractor;
- (c) failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment (in which case Owner may issue checks made payable jointly to Owner and such unpaid persons under this provision, or directly to Subcontractors and suppliers at any level under Section C.3.1.1);
- (d) reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Price;
- (e) damage to the Owner or another contractor;
- (f) reasonable evidence that the Work will not be completed within the time required by the Contract, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- (g) failure to carry out the Work in accordance with the Contract Documents.

E.1.4 If Contractor disputes any determination by Owner's Authorized Representative with regard to any application for payment, Contractor nevertheless shall continue to prosecute expeditiously the Work. No payment made hereunder shall be or be construed to be final acceptance or approval of that portion of the Work to which such partial payment relates or shall relieve Contractor of any of its obligations hereunder.

### **E.2 PAYROLL CERTIFICATION REQUIREMENT**

Payroll certification is required before payments are made on the Contract. Refer to Section C.2 for this information.

### **E.3 DUAL PAYMENT SOURCES**

Contractor shall not be compensated for Work performed under this Contract from any state agency other than the agency that is a party to this Contract.

### **E.4 FINAL PAYMENT**

E.4.1 Upon completion of all the Work under this Contract, the Contractor shall notify the Owner's Authorized Representative, in writing, that Contractor has completed Contractor's part of the Contract and shall request final payment. Upon receipt of such notice the Owner's Authorized Representative will inspect the Work, and if acceptable, submit to the Owner a recommendation as to acceptance of the completed Work. If the Work is not acceptable, Owner will notify Contractor within fifteen (15) Days of Contractor's request for final payment.

E.4.2 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final application for payment.

**SECTION F  
JOB SITE CONDITIONS**

**F.1 USE OF PREMISES**

Contractor shall confine equipment, storage of materials and operation of Work to the limits indicated by Contract Documents, law, ordinances, permits or directions of the Owner's Authorized Representative. Contractor shall follow the Owner's Authorized Representative's instructions regarding use of premises, if any.

**F.2 PROTECTION OF WORKERS, PROPERTY AND THE PUBLIC**

- F.2.1 Contractor shall maintain continuous and adequate protection of all of the Work from damage, and shall protect the Owner's Authorized Representative, Owner's workers and property, and the public from injury or loss arising in connection with this Contract. Contractor shall adequately protect adjacent property as provided by law and the Contract Documents.
- F.2.2 Contractor shall designate a responsible employee or associate on the Work site, whose duty shall be the prevention of accidents. The name and position of the person designated shall be reported to the Owner's Authorized Representative. The Owner's Authorized Representative has no responsibility for Work site safety. Work site safety is the responsibility of the Contractor.
- F.2.3 Contractor shall not enter upon private property without first obtaining permission from the property owner or its duly authorized representative. In the event the Contractor damages any property, the Contractor shall at once notify the property owner and make, or arrange to make full restitution. Contractor shall report, immediately in writing, to the Owner's Authorized Representative, all pertinent facts relating to such property damage and the ultimate disposition of the claim for damage.
- F.2.4 Contractor shall at all times direct its activities in such a manner as to minimize adverse effects on the environment. Handling of all materials will be conducted so no release will occur that may pollute or become hazardous.
- F.2.5 In an emergency affecting the safety of life or of the Work or of adjoining property, the Contractor, without special instruction or authorization from the Owner's Authorized Representative, shall act reasonably to prevent threatened loss or injury, and shall so act, without appeal, if instructed by the Owner's Authorized Representative. Any compensation claimed by the Contractor on account of emergency work shall be determined in accordance with section D.

**F.3 CUTTING AND PATCHING**

- F.3.1 Contractor shall be responsible for coordinating all cutting, fitting, or patching of the Work to make its several parts come together properly and fit to receive or be received by work of other contractors or Subcontractors shown upon, or reasonably implied by, the Contract Documents.
- F.3.2 Contractor shall be responsible for restoring all cut, fitted, or patched surfaces to an original condition; provided, however, that if a different condition is specified in the Contract Documents, then Contractor shall be responsible for restoring such surfaces to the condition specified in the Contract Documents.

**F.4 CLEANING UP**

From time to time as may be ordered by the Owner and, in any event, immediately after completion of the Work, the Contractor shall, at its own expense, clean up and remove all refuse and unused materials of any kind resulting from the Work. If Contractor fails to do so within twenty-four hours after notification

by the Owner the work may be done by others and the cost charged to the Contractor and deducted from payment due the Contractor.

**F.5 ENVIRONMENTAL CONTAMINATION**

- F.5.1 Contractor will be held responsible for and shall indemnify, defend (with counsel of Owner's choice) and hold harmless Owner from and against any costs, expenses, damages, claims, and causes of action, (including attorney fees), or any of them, resulting from all spills, releases, discharges, leaks and disposal of environmental pollution, including storage, transportation, and handling during the performance of the Contract which occur as a result of, or are contributed by, the negligence or actions of Contractor or its personnel, agents, or Subcontractors or any failure to perform in accordance with the Contract Documents. Nothing in this section F.5.1 shall limit Contractor's liability or responsibility under Section G.3 of this Contract.
- F.5.1.1 Contractor agrees to promptly dispose of such spills, releases, discharge or leaks to the satisfaction of Owner and proper regulatory agencies in a manner that complies with applicable federal, state, and local laws and regulations. Cleanup shall be at no cost to the Owner and be performed by properly qualified personnel.
- F.5.1.2 Contractor shall obtain the Owner's written consent prior to bringing onto the Work site any (i) environmental pollutants or (ii) hazardous substances or materials, as the same or reasonably similar terms are used in any applicable federal, state, or local statutes, rules or ordinances. Notwithstanding such written consent from the Owner, the Contractor, at all times, shall:
- (a) properly handle, use and dispose of all environmental pollutants and hazardous substances or materials brought onto the Work site, in accordance with all applicable federal, state, or local statutes, rules, or ordinances;
  - (b) be responsible for any and all spills, releases, discharges, or leaks of (or from) environmental pollutants or hazardous substances or materials which Contractor has brought onto the Work site; and
  - (c) promptly clean up, without cost to the Owner, such spills, releases, discharges, or leaks to the Owner's satisfaction and in compliance with all applicable federal, state, or local statutes, rules or ordinances.
- F.5.2 Contractor shall report all reportable quantity releases to applicable federal, state, and local regulatory and emergency response agencies. Reportable quantities are found in 40 CFR Part 302, Table 302.4 for hazardous substances and in OAR Chapter 340 Division 108 for all products addressed therein. Upon discovery, regardless of quantity, Contractor must telephonically report all releases to the Owner. A written follow-up report shall be submitted to Owner within 48 hours of the telephonic report. Such written report shall contain, as a minimum:
- (a) Description of items released (identity, quantity, manifest no., and all other documentation required by law.)
  - (b) Whether amount of items released is EPA/DEQ reportable, and, if so, when it was reported.
  - (c) Exact time and location of release, including a description of the area involved.
  - (d) Containment procedures initiated.
  - (e) Summary of communications about the release Contractor has had with members of the press or State officials other than Owner.

- (f) Description of cleanup procedures employed or to be employed at the site, including disposal location of spill residue.
- (g) Personnel injuries, if any, resulting from, or aggravated by, the release.

**F.6 ENVIRONMENTAL CLEAN-UP**

- F.6.1 Unless disposition of environmental pollution is specifically a part of this Contract, or was caused by the Contractor (reference F.5 Environmental Contamination), Contractor shall immediately notify Owner of any hazardous substance(s) which Contractor discovers or encounters during performance of the Work required by this Contract. "Hazardous substance(s)" means any hazardous, toxic and radioactive materials and those substances defined as "hazardous substances," "hazardous materials," "hazardous wastes," "toxic substances," or other similar designations in any federal, state, or local law, regulation, or ordinance, including without limitation asbestos, polychlorinated biphenyl (PCB), or petroleum, and any substances, materials or wastes regulated in 40 CFR, Part 261 and defined as hazardous in 40 CFR S 261.3. In addition to notifying Owner of any hazardous substance(s) discovered or encountered, Contractor shall immediately cease working in any particular area of the project where a hazardous substance(s) has been discovered or encountered if continued work in such area would present a risk or danger to the health or well being of Contractor's or any Subcontractor's work force.
- F.6.2 Upon being notified by Contractor of the presence of hazardous substance(s) on the project site, Owner shall arrange for the proper disposition of such hazardous substance(s).

**F.7 FORCE MAJEURE**

A party to this Contract shall not be held responsible for delay or default due to Force Majeure acts, events or occurrences unless they could have been avoided by the exercise of reasonable care, prudence, foresight, and diligence by that party. The Owner may terminate this Contract upon written notice after determining that delay or default caused by Force Majeure acts, events or occurrences will reasonably prevent successful performance of the Contract.

**SECTION G  
INDEMNITY, BONDING, AND INSURANCE**

**G.1 RESPONSIBILITY FOR DAMAGES / INDEMNITY**

- G.1.1 Contractor shall be responsible for all damage to property, injury to persons, and loss, expense, inconvenience, and delay that may be caused by, or result from, the carrying out of the Work to be done under this Contract, or from any act, omission or neglect of the Contractor, its Subcontractors, personnel, or agents.
- G.1.2 To the fullest extent permitted by law, Contractor shall indemnify, defend (with counsel approved by Owner) and hold harmless the Owner, Owner's Authorized Representative, Architect/Engineer, Architect/Engineer's consultants, and their respective officers, directors, agents, employees, partners, members, stockholders and affiliated companies (collectively "Indemnitees") from and against all liabilities, damages, losses, claims, expenses (including reasonable attorney fees), demands and actions of any nature whatsoever which arise out of, result from or are related to, (a) any damage, injury, loss, expense, inconvenience or delay described in this Section G.1.2, (b) any accident or occurrence which happens or is alleged to have happened in or about the project site or any place where the Work is being performed, or in the vicinity of either, at any time prior to the time the Work is fully completed in all respects, (c) any failure of the Contractor to observe or perform any duty

or obligation under the Contract Documents which is to be observed or performed by the Contractor, or any breach of any agreement, representation or warranty of the Contractor contained in the Contract Documents or in any subcontract, (d) the negligent acts or omissions of the Contractor, a Subcontractor or anyone directly or indirectly employed by them or any one of them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder (except to the extent otherwise void under ORS 30.140), and (e) any lien filed upon the project or bond claim in connection with the Work. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section G.1.2.

- G.1.3 In claims against any person or entity indemnified under this Section G.1.2 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section G.1.2 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

**G.2 PERFORMANCE AND PAYMENT SECURITY**

- G.2.1 If required by the Contract Documents, the Contractor shall furnish and maintain in effect at all times during the Contract Period, a performance bond in a sum equal to the Contract Price, and/or a separate payment bond also in a sum equal to the Contract Price.
- G.2.2 Bond forms furnished by the Owner and notarized by awarded Contractor's surety company authorized to do business in Oregon are the only acceptable forms of performance and payment security, unless otherwise specified in the Contract Documents.
- G.2.3 Before starting Work the Contractor shall file with the Construction Contractors Board, and maintain in full force and effect, the separate public works bond required by Oregon Laws 2005, Chapter 360, and OAR 839-025-0015, unless otherwise exempt under those provisions. The Contractor shall also include in every subcontract a provision requiring the Subcontractor to have a public works bond filed with the Construction Contractors Board before starting Work, unless otherwise exempt, and shall verify that the Subcontractor has filed a public works bond before permitting the Subcontractor to start Work.

**G.3 INSURANCE**

- G.3.1 Primary Coverage: Insurance carried by Contractor under this Contract shall be the primary coverage, and the Owner's insurance is excess and solely for damages or losses for which the Owner is responsible. The coverages indicated are minimums unless otherwise specified in the Contract Documents.
- G.3.2 Workers' Compensation: All employers, including Contractor, that employ subject workers who work under this Contract in the State of Oregon shall comply with ORS 656.017 and provide the required Workers' Compensation coverage, unless such employers are exempt under ORS 656.126. This shall include Employer's Liability Insurance with coverage limits of not less than \$100,000 for each accident. Contractors who perform the Work without the assistance or labor of any employee need not obtain such coverage if the Contractor certifies so in writing. Contractor shall ensure that each of its Subcontractors complies with these requirements. The Contractor shall require proof of such Workers' Compensation by receiving and keeping on file a certificate of insurance from each Subcontractor or anyone else directly employed by either the Contractor or its Subcontractors.

### G.3.3 Liability Insurance:

G.3.3.1 Contractor shall obtain, at Contractor's expense, and keep in effect during the term of this Contract, Commercial General Liability Insurance covering bodily injury and property damage in a form and with coverages that are satisfactory to the State. This insurance shall include personal injury liability, products and completed operations, and contractual liability coverage for the indemnity provided under this Contract (to the extent contractual liability coverage for the indemnity is available in the marketplace), and shall be issued on an occurrence basis. Combined single limit per occurrence shall not be less than \$1,000,000 for each job site or location. Each annual aggregate limit shall not be less than \$1,000,000.

G.3.3.2 Automobile Liability: Contractor shall obtain, at Contractor's expense, and keep in effect during the term of this Contract, Automobile Liability Insurance covering owned, non-owned and/or hired vehicles, as applicable. The coverage may be written in combination with the Commercial General Liability Insurance. Combined single limit per occurrence shall not be less than \$1,000,000.00, or the equivalent.

G.3.3.3 Professional Liability: Prior to the beginning of any work on Design Build Components, the Contractor shall provide to the Owner certificates of insurance for Commercial General Liability in an amount not less than \$1,000,000, including Product Liability and Completed Operations, from the manufacturers of Design Build components, unless such Design/Build components are "off-the-shelf" products purchased from a supplier. All such certificates shall be in compliance with the Owner's contract requirements.

For those elements requiring design or calculations performed by a professional engineer, the Contractor shall obtain from the Engineer, if not an employee of Contractor, and provide to the Owner, similar certificates of Commercial General Liability coverage. The Engineer shall also provide the Owner with proof of coverage for Professional Liability insurance covering any damages caused by any negligent error, omission, or any act for the project, its drawings and project manual, and all related work products of the Engineer. The policy may be either a practice based policy or a policy pertaining to the specific project. Professional Liability insurance to be provided shall have a combined single limit of not less than \$1,000,000.

G.3.3.4 "Tail" Coverage: If any of the required liability insurance is arranged on a "claims made" basis, "tail" coverage will be required at the completion of this Contract for a duration of 24 months or the maximum time period available in the marketplace if less than 24 months. Contractor will be responsible for furnishing certification of "tail" coverage as described or continuous "claims made" liability coverage for 24 months following Final Completion. Continuous "claims made" coverage will be acceptable in lieu of "tail" coverage, provided its retroactive date is on or before the effective date of this Contract. This will be a condition of the final acceptance of Work or services and related warranty (if any).

G.3.4 Additional Insured: The liability insurance coverage, except Professional Liability if included, required for performance of this Contract shall include the State of Oregon, its departments, divisions, officers, and employees, as Additional Insureds but only with respect to the Contractor's activities to be performed under this Contract.

If Contractor cannot obtain an insurer to name the State of Oregon, its departments, divisions, officers and employees as Additional Insureds, Contractor shall obtain at Contractor's expense, and keep in effect during the term of this Contract, Owners and Contractors Protective Liability Insurance, naming the State of Oregon, its departments,

divisions, officers and employees as Named Insureds with not less than a \$1,000,000.00 limit per occurrence. This policy must be kept in effect for 12 months following Final Completion. As evidence of coverage, Contractor shall furnish the actual policy to Owner prior to its issuance of a Notice to Proceed.

G.3.5 Notice of Cancellation or Change: There shall be no cancellation, material change, potential exhaustion of aggregate limits or intent not to renew insurance coverages without thirty (30) Days' written notice from the Contractor or its insurer(s) to the Owner. Any failure to comply with the reporting provisions of this insurance, except for the potential exhaustion of aggregate limits, shall not affect the coverages provided to the State of Oregon, its Owner and their divisions, officers, and employees.

G.3.6 Certificate(s) of Insurance: As evidence of the insurance coverage required by this Contract, the Contractor shall furnish certificate(s) of insurance to the Owner prior to its issuance of a Notice to Proceed. The certificate(s) will specify all of the parties who are Additional Insureds or Loss Payees. Insurance coverage required under this Contract shall be obtained from insurance companies or entities acceptable to Owner and authorized to do business in Oregon. The certificates will also specify that there shall be no cancellation, material change, potential exhaustion of aggregate limits or intent not to renew insurance coverages without thirty (30) Days' written notice from the insurer(s) to the Owner. To the extent Certificates of Insurance contain words to the effect that Contractor shall "endeavor to send notice of cancellation" or similar language, Contractor shall require its insurer to send such notice by making sure that the words "endeavor to" or similar words are removed from the Certificate. The Contractor shall be financially responsible for all deductibles, self-insured retentions and/or self-insurance included hereunder. Any deductible, self-insured retention and/or self-insurance in excess of \$50,000 shall be approved by the Owner in writing prior to issuance of a Notice to Proceed and is subject to Owner's approval.

## **SECTION H SCHEDULE OF WORK**

### **H.1 SCHEDULE**

Contractor shall provide, by or before the pre-construction conference, a detailed schedule for review and acceptance by the Owner. The submitted schedule must illustrate Work by significant project components, significant labor trades, long lead items, broken down by building and/or floor where applicable. Acceptance of the schedule by the Owner does not constitute agreement by the Owner as to the Contractor's sequencing, means, methods, or durations.

### **H.2 CONTRACT PERIOD**

Time is of the essence on this Contract. The Contractor shall at all times carry on the Work diligently, without delay and punctually fulfill all requirements herein. Contractor shall commence Work on the site within fifteen (15) Days of issuance of Notice to Proceed, unless directed otherwise. Unless specifically extended by a change order, all Work shall be completed by the end of the Contract Period.

### **H.3 PARTIAL OCCUPANCY OR USE**

The Owner may occupy or use any completed or partially completed portion of the Work at any stage, provided such occupancy or use is consented to by public authorities having jurisdiction over the Work. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have reasonably accepted in writing the responsibilities assigned to each of them for payments, security, insurance or self-insurance, maintenance, heat, utilities, and damage to the Work, and have agreed in writing concerning the period for correction of the Work and commencement of warranties

required by the Contract Documents with respect to such portion of the Work. Approval by the Contractor to partial occupancy or use shall not be unreasonably withheld. Immediately prior to such partial occupancy or use, the Owner and Contractor shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work. Partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

## **SECTION I CORRECTION OF WORK**

### **I.1 CORRECTION OF WORK BEFORE FINAL PAYMENT**

The Contractor warrants to the Owner that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects, and that the Work will conform to the requirements of the Contract Documents. Contractor shall be allowed a period of no longer than thirty (30) Days for completion of defective (Punchlist) work. At the end of the thirty-day period, or earlier if requested by the Contractor, Owner shall inspect the Work. Should the Work not be complete, and all corrections made, the costs for all subsequent reinspections shall be borne by the Contractor. If Contractor fails to complete the Punchlist work within the thirty (30) Day period, without affecting Contractor's obligations Owner may perform such work and Contractor shall reimburse Owner all costs of the same within ten (10) Days after demand.

### **I.2 WARRANTY WORK**

I.2.1 Neither the final certificate of payment nor any provision of the Contract Documents shall relieve the Contractor from responsibility for defective Work and, unless a longer period is specified, Contractor shall correct all defects that appear in the Work within a period of one year from the date of Substantial Completion except for latent defects which will be remedied by the Contractor at any time they become apparent. The Owner shall give Contractor notice of defects with reasonable promptness. Contractor shall perform such warranty work within a reasonable time after Owner's demand. If Contractor fails to complete the warranty work within such period as Owner determines reasonable, or at any time in the event of warranty work consisting of emergency repairs, without affecting Contractor's obligations, Owner may perform such work and Contractor shall reimburse Owner all costs of the same within ten (10) Days after demand. The Contractor shall perform the warranty Work by correcting defects within twenty-four (24) hours of notification by Owner, unless otherwise specified in the Contract Documents. Should the Contractor fail to respond within the specified response time, the Owner may, at its option, complete the necessary repairs using another contractor or its own forces. If Owner completes the repairs using Owner's own forces, Contractor shall pay Owner at the rate of one and one-half (1½) times the standard hourly rate of Owner's forces, plus related overhead and any direct non-salary costs. If Owner completes the repairs using another contractor, Contractor shall pay Owner the amount of Owner's direct costs billed by the other contractor for the work, plus the direct salary costs and related overhead and direct non-salary expenses of Owner's forces who are required to monitor that contractor's work. Work performed by Owner using Owner's own forces or those of another contractor shall not affect the Contractor's contractual duties under these provisions, including warranty provisions.

I.2.2 This provision does not negate guarantees or warranties for periods longer than one year including without limitation such guarantees or warranties required by other sections of the Contract Documents for specific installations, materials, processes, equipment or fixtures.

I.2.3 In addition to Contractor's warranty, manufacturer's warranties shall pass to the Owner and shall not take effect

until affected Work has been accepted in writing by the Owner's Authorized Representative.

I.2.4 Nothing contained in this Section I.2 shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the period for correction of Work as described in this Section I.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

I.2.5 If the Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Price will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

## **SECTION J SUSPENSION AND/OR TERMINATION OF THE WORK**

### **J.1 OWNER'S RIGHT TO SUSPEND THE WORK**

J.1.1 The Owner or the Owner's Authorized Representative has the authority to suspend portions or all of the Work due to the following causes:

- (a) Failure of the Contractor to correct unsafe conditions;
- (b) Failure of the Contractor to carry out any provision of the Contract;
- (c) Failure of the Contractor to carry out orders;
- (d) Conditions, in the opinion of the Owner's Authorized Representative, which are unsuitable for performing the Work;
- (e) Time required to investigate differing site conditions;
- (f) Any reason considered to be in the public interest.

J.1.2 Contractor and the Contractor's surety shall be notified in writing of the effective date and time of the suspension and shall be notified in writing to resume Work.

### **J.2 CONTRACTOR'S RESPONSIBILITIES**

J.2.1 During the period of the suspension, Contractor is responsible to continue maintenance at the project just as if the Work were in progress. This includes, but is not limited to, protection of completed Work, maintenance of access, protection of stored materials, temporary facilities, and clean-up.

J.2.2 When the Work is recommenced after the suspension, the Contractor shall replace or renew any Work damaged during the suspension, remove any materials or facilities used as part of temporary maintenance, and complete the project in every respect as though its prosecution had been continuous and without suspension.

### **J.3 COMPENSATION FOR SUSPENSION**

Depending on the reason for suspension of the Work, the Contractor or the Owner may be due compensation by the other party. If the suspension was required due to acts or omissions of Contractor, the Owner may assess the Contractor actual costs of the suspension in terms of administration, remedial work by the Owner's forces or another contractor to correct the problem associated with the suspension, rent of temporary facilities, and other actual costs related to the suspension. If the suspension was

caused by acts or omissions of the Owner, the Contractor shall be due compensation which shall be defined using Section D, Changes in Work. If the suspension was required through no fault of the Contractor or the Owner, neither party owes the other for the impact.

#### **J.4 OWNER'S RIGHT TO TERMINATE CONTRACT**

J.4.1 The Owner may, without prejudice to any other right or remedy, and after giving Contractor seven (7) Days' written notice and an opportunity to cure, terminate the Contract in whole or in part under the following conditions:

- (a) If Contractor should voluntarily or involuntarily, seek protection under the United States Bankruptcy Code and Contractor as debtor-in-possession or the Trustee for the estate fails to assume the Contract within a reasonable time;
- (b) If Contractor should make a general assignment for the benefit of Contractor's creditors;
- (c) If a receiver should be appointed on account of Contractor's insolvency;
- (d) If Contractor should repeatedly refuse or fail to supply an adequate number of skilled workers or proper materials to carry on the Work as required by the Contract Documents, or otherwise fail to perform the Work in a timely manner;
- (e) If Contractor should repeatedly fail to make prompt payment to Subcontractors or for material or labor, or should disregard laws, ordinances or the instructions of the Owner or its Authorized Representative; or
- (f) If Contractor is otherwise in material breach of any part of the Contract.

J.4.2 At any time that any of the above occurs, Owner may exercise all rights and remedies available to Owner at law or in equity, and in addition, Owner may take possession of the premises and of all materials and appliances and finish the Work by whatever method it may deem expedient. In such case, the Contractor shall not be entitled to receive further payment until the Work is completed. If the Owner's cost of finishing the Work exceeds the unpaid balance of the Contract Price, Contractor shall pay the difference to the Owner.

#### **J.5 TERMINATION FOR CONVENIENCE**

J.5.1 Owner may terminate the Contract in whole or in part whenever Owner determines that termination of the Contract is in the best interest of the public.

J.5.2 The Owner will provide the Contractor with seven (7) Days' prior written notice of a termination for public convenience. After such notice, the Contractor shall provide the Owner with immediate and peaceful possession of the premises and materials located on and off the premises for which the Contractor received progress payment under Section E. Compensation for Work terminated by the Owner under this provision will be according to Section E. In no circumstance shall Contractor be entitled to lost profits for Work not performed due to termination.

#### **J.6 ACTION UPON TERMINATION**

J.6.1 Upon receiving a notice of termination, and except as directed otherwise by the Owner, Contractor shall immediately cease placing further subcontracts or orders for materials, services, or facilities. In addition, Contractor shall terminate all subcontracts or orders to the extent they relate to the Work terminated and, with the prior written approval of the Owner, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontracts and orders.

J.6.2 As directed by the Owner, Contractor shall upon termination transfer title and deliver to the Owner all project documents, information, and other property that, if the Contract had been completed, would be required to be furnished to the Owner.

### **SECTION K CONTRACT CLOSE OUT**

#### **K.1 RECORD DRAWINGS**

As a condition of final payment (refer also to Section E.3), Contractor shall comply with the following: Contractor shall provide to Owner's Authorized Representative, record drawings of the entire project. Record drawings shall depict the project as constructed and shall reflect each and every change, modification, and deletion made during the construction. Record drawings are part of the Work and shall be provided prior to the Owner's issuance of final payment. Record drawings include all modifications to the Contract Documents unless otherwise directed.

#### **K.2 OPERATION AND MAINTENANCE MANUALS**

As part of the Work, Contractor shall submit two completed operation and maintenance manuals ("O & M Manuals"). The O & M Manuals shall contain a complete set of all submittals, all Product Data as required by the Specifications, training information, phone list of consultants, manufacturers, installer and suppliers, manufacturer's printed data, record and Shop Drawings, schematic diagrams of systems, appropriate equipment indices, warranties and bonds.

#### **K.3 TRAINING**

As part of the Work, and prior to submission of the request for final payment, the Contractor shall schedule with the Owner's Authorized Representative, training sessions for all equipment and systems, as required in the individual Specifications sections. Contractor shall schedule training sessions at least two weeks in advance of the date of training to allow Owner personnel adequate notice. The O & M Manual shall be used as a basis for training. Training shall be a formal session, held after the equipment and/or system is completely installed and operational in its normal operating environment.

#### **K.4 EXTRA MATERIALS**

As part of the Work, Contractor shall provide spare parts, extra maintenance materials, and other materials or products in the quantities specified in the Specifications, prior to final payment. Delivery point for extra materials shall be designated by the Owner's Authorized Representative.

#### **K.5 OTHER CONTRACTOR RESPONSIBILITIES**

The Contractor shall be responsible for returning to the Owner all items issued during construction such as keys, security passes, site admittance badges, and all other pertinent items. The Contractor shall be responsible for notifying the appropriate utility companies to transfer utility charges from the Contractor to the Owner.

#### **K.6 SURVIVAL**

All warranty and indemnification provisions of this Contract, and all of Contractor's other obligations under this Contract that are not fully performed by the time of Final Completion or termination, shall survive Final Completion or any termination of the Contract.



**EXHIBIT B  
CERTIFICATIONS**

By signature on this certification the undersigned certifies that they are authorized to act on behalf of the Proposer and that under penalty of perjury the undersigned will comply with the following:

**SECTION I. OREGON TAX LAWS**

The undersigned hereby certifies under penalty of perjury that the undersigned is authorized to act on behalf of Proposer and that Proposer is, to the best of the undersigned's knowledge, not in violation of any Oregon Tax Laws. For purposes of this certification, "Oregon Tax Laws" means a state tax imposed by ORS 320.005 to 320.150 and 403.200 to 403.250 and ORS chapters 118, 314, 316, 317, 318, 321 and 323 and the elderly rental assistance program under ORS 310.630 to 310.706 and local taxes administered by the Department of Revenue under ORS 305.620.

**SECTION II. AFFIRMATIVE ACTION**

The undersigned hereby certifies that they have not discriminated against Minority, Women or Emerging Small Business Enterprises in obtaining any required subcontracts, pursuant to OAR 580-061-0030 (3).

**SECTION III. COMPLIANCE WITH SOLICITATION**

The undersigned agrees and certifies that they:

1. Have read, fully understands and agrees to be bound by the Request for Proposal and all Exhibits and Addenda to the Request for Proposal; and
2. Are an authorized representative of the Proposer, that the information provided is true and accurate, and that providing incorrect or incomplete information may be cause for rejection of the Proposal or Contract termination; and
3. Will furnish the designated item(s) and/or service(s) in accordance with the Request for Proposal and the Contract; and
4. Has provided a correct Federal Employer Identification Number or Social Security Number with the Proposal.

**SECTION IV. PERMISSIVE COOPERATIVE PROCUREMENTS**

If Proposer is awarded a contract from this Request for Proposal, Proposer hereby (check one)

- agrees
- disagrees

to offer the resulting contractual terms and prices to other public institutions.

Authorized Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name (Type or Print): \_\_\_\_\_ Telephone: (\_\_\_\_) \_\_\_\_\_

Title: \_\_\_\_\_ Fax: (\_\_\_\_) \_\_\_\_\_

FEIN ID# or SSN# (required): \_\_\_\_\_ Email: \_\_\_\_\_

Company: \_\_\_\_\_

Address, City, State, Zip: \_\_\_\_\_

Construction Contractors Board (CCB) License Number (if applicable): \_\_\_\_\_

Business Designation (check one):

- Corporation     Partnership     LLC     Sole Proprietorship     Non-Profit

Minority, Women & Emerging Small Business (MWESB) Certified Firm:  Yes  No

If yes, Minority, Women & Emerging Small Business (MWESB) Certification Number: \_\_\_\_\_

**EXHIBIT C  
REFERENCES**

**REFERENCE 1**

COMPANY: \_\_\_\_\_ CONTACT NAME: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_ PHONE NUMBER: \_\_\_\_\_  
CITY, STATE ZIP: \_\_\_\_\_ FAX NUMBER: \_\_\_\_\_  
WEBSITE: \_\_\_\_\_ E-MAIL: \_\_\_\_\_  
GOODS OR SERVICES PROVIDED: \_\_\_\_\_

---

**REFERENCE 2**

COMPANY: \_\_\_\_\_ CONTACT NAME: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_ PHONE NUMBER: \_\_\_\_\_  
CITY, STATE ZIP: \_\_\_\_\_ FAX NUMBER: \_\_\_\_\_  
WEBSITE: \_\_\_\_\_ E-MAIL: \_\_\_\_\_  
GOODS OR SERVICES PROVIDED: \_\_\_\_\_

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**REFERENCE 3**

COMPANY: \_\_\_\_\_ CONTACT NAME: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_ PHONE NUMBER: \_\_\_\_\_  
CITY, STATE ZIP: \_\_\_\_\_ FAX NUMBER: \_\_\_\_\_  
WEBSITE: \_\_\_\_\_ E-MAIL: \_\_\_\_\_  
GOODS OR SERVICES PROVIDED: \_\_\_\_\_

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**EXHIBIT D  
 BID PRICE SHEET**

Part Number	Description	Total Required	Price per Unit	Extended Price
EST 3X-SFS1R	FACP	3		
EST 3X-NET	Network Option Card	3		
EST 3-MODCOM	Modem	3		
EST 4X-12/S1GY	Switch Module	3		
EST 3-LRFM	Blank Local Rail Filler	3		
EST BC-1	Battery Cabinet	3		
EST RLCD-C	LCD Annunciator	3		
EST BPS6A	Booster Power Supply	7		
EST SIGA-270	Manual Pull Station	37		
EST SIGA-PS	Smoke Detector	75		
EST SIGA2-PS	Smoke Detector	61		
EST SIGA2-PCOS	Smoke/CO Detector	38		
EST 282B-PL	High Temp Heat Detector	6		
EST 281B-PL	Fixed Temp/ROR Heat Detector	57		
EST SIGA-SB	Standard Base	145		
EST SIGA-CT1	Single Monitor Module	11		
EST SIGA-CT2	Dual Monitor Module	5		
EST SIGA-CR	Control Relay Module	21		
EST SIGA-CC1S	Output Module	10		
EST G1-HDVM	Horn/Strobe	53		
EST G1-VM	Strobe	39		
EST GC-VM	Ceiling Strobe	13		
EST GC-HDVM	Ceiling Horn/Strobe	21		
EST GC-HDVMH	Ceiling High Output Horn/Strobe	31		
EST CS405-71-T	Weatherproof Strobe	13		
EST 757-7A-T	Weatherproof Horn/Strobe	2		
EST SIGA-MCR	UIO Mount Control Relay	1		
EST SIGA-MCC1S	UIO Mount Output Module	4		
EST SIGA-UIO6	UIO Motherboard 6 Position	1		

Services	Price per House
Avery Lodge	
Dixon Lodge	
Azalea Lodge	
Oxford House	

Installation	Price per House
Avery Lodge	
Dixon Lodge	
Azalea Lodge	
Oxford House	

<b>Grand Total Bid:</b>
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**EXHIBIT E  
MATERIALS LIST**

**Avery Lodge**

Part Number	Description	BSMNT	1ST	2ND	TOTAL
EST 3X-SFS1R	FACP		1		1
EST 3X-NET	Network Option Card		1		1
EST 3-MODCOM	Modem		1		1
EST 4X-12/S1GY	Switch Module		1		1
EST 3-LRFM	Blank Local Rail Filler		1		1
EST BC-1	Battery Cabinet		1		1
EST RLCD-C	LCD Annunciator		1		1
EST BPS6A	Booster Power Supply		2		2
EST SIGA-270	Manual Pull Station	4	6	2	12
EST SIGA2-PS	Smoke Detector	16	18	14	48
EST SIGA2-PCOS	Smoke/CO Detector	5	4	3	12
EST 282B-PL	High Temp Heat Detector		1		1
EST 281B-PL	Fixed Temp/ROR Heat Detector	1	1	1	3
EST SIGA-SB	Standard Base	21	22	17	60
EST SIGA-CT1	Single Monitor Module	1	1	1	3
EST SIGA-CT2	Dual Monitor Module		1		1
EST SIGA-CR	Control Relay Module	1			1
EST SIGA-CC1S	Output Module		1		1
EST G1-HDVM	Horn/Strobe	13	12	4	29
EST G1-VM	Strobe	1	2		3
EST GC-VM	Ceiling Strobe		2		2
EST GC-HDVM	Ceiling Horn/Strobe	3	3	1	7
EST GC-HDVMH	Ceiling High Output Horn/Strobe		1	8	9
EST CS405-71-T	Ceiling Weatherproof Strobe	1	2	1	4
EST 757-4A-T	Ceiling Weatherproof Horn/Strobe		1		1

**Azalea Lodge**

Part Number	Description	1ST	2ND	TOTAL
EST 3X-SFS1R	FACP	1		1
EST 3X-NET	Network Option Card	1		1
EST 3-MODCOM	Modem	1		1
EST 4X-12/S1GY	Switch Module	1		1
EST 3-LRFM	Blank Local Rail Filler	1		1
EST BC-1	Battery Cabinet	1		1
EST RLCD-C	LCD Annunciator	1		1
EST BPS6A	Booster Power Supply	2		2
EST SIGA-270	Manual Pull Station	4	6	10
EST SIGA-PS	Smoke Detector	19	19	38
EST SIGA2-PCOS	Smoke/CO Detector	4	7	11
EST 282B-PL	High Temp Heat Detector	2		2
EST 281B-PL	Fixed Temp/ROR Heat Detector	2	1	3
EST SIGA-SB	Standard Base	23	26	49
EST SIGA-CT1	Single Monitor Module	4	1	5
EST SIGA-CT2	Dual Monitor Module	1		1
EST SIGA-MCR	UIO Mount Control Relay	1		1
EST SIGA-MCC1S	UIO Mount Output Module	4		4

EST SIGA-UIO6	UIO Motherboard 6 Position	1		1
EST G1-HDVM	Horn/Strobe	2	21	23
EST G1-VM	Strobe	2		2
EST GC-VM	Ceiling Strobe	5		5
EST GC-HDVM	Ceiling Horn/Strobe	6		6
EST GC-HDVMH	Ceiling High Output Horn/Strobe	4	3	7
EST 757-7A-T	Weatherproof Horn/Strobe		1	1

### Dixon Lodge

Part Number	Description	1ST	2ND	TOTAL
EST 3X-SFS1R	FACP	1		
EST 3X-NET	Network Option Card	1		
EST 3-MODCOM	Modem	1		
EST 4X-12/S1GY	Switch Module	1		
EST 3-LRFM	Blank Local Rail Filler	1		
EST BC-1	Battery Cabinet	1		
EST RLCD-C	LCD Annunciator	1		
EST BPS6A	Booster Power Supply	2		2
EST SIGA-270	Manual Pull Station	5	2	7
EST SIGA2-PS	Smoke Detector	21	28	49
EST SIGA2-PCOS	Smoke/CO Detector	6	8	14
EST 282B-PL	High Temp Heat Detector	1		1
EST 281B-PL	Fixed Temp/ROR Heat Detector	1	1	2
EST SIGA-SB	Standard Base	27	36	63
EST SIGA-CT1	Single Monitor Module	1	1	2
EST SIGA-CT2	Dual Monitor Module	2		2
EST SIGA-CR	Control Relay Module	1		1
EST SIGA-CC1S	Output Module	1		1
EST G1-HDVM	Horn/Strobe	2	19	21
EST G1-VM	Strobe	2	3	5
EST GC-VM	Ceiling Strobe	5	1	6
EST GC-HDVM	Ceiling Horn/Strobe	7	1	8
EST GC-HDVMH	Ceiling High Output Horn/Strobe	7	8	15
EST CS405-71-T	Ceiling Weatherproof Strobe	1	1	2

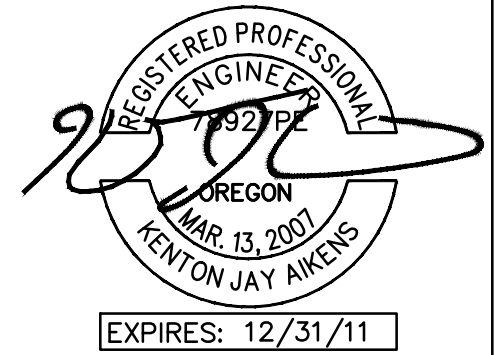
### Oxford House

Part Number	Description	B	1ST	2ND	3RD	TOTAL
EST 3X-SFS1R	FACP	1				1
EST 3X-NET	Network Option Card	1				1
EST 3-MODCOM	Modem	1				1
EST 4X-12/S1GY	Switch Module	1				1
EST 3-LRFM	Blank Local Rail Filler	1				1
EST BC-1	Battery Cabinet	1				1
EST RLCD-C	LCD Annunciator		1			1
EST BPS6A	Booster Power Supply	1				1
EST SIGA-270	Manual Pull Station	1	3	2	2	8
EST SIGA-PS	Smoke Detector	7	10	13	7	37
EST SIGA2-PCOS	Smoke/CO Detector	2	2	4	4	12
EST 282B-PL	High Temp Heat Detector		1			1
EST 281B-PL	Fixed Temp/ROR Heat Detector		1	1		2
EST SIGA-SB	Standard Base	9	12	17	11	49
EST SIGA-CT1	Single Monitor Module	1	1	1		3

EST SIGA-CT2	Dual Monitor Module		1			1
EST SIGA-CC1S	Output Module	1				1
EST G1-HDVM	Horn/Strobe		6	12	2	20
EST G1-VM	Strobe		3	4	1	8
EST GC-VM	Ceiling Strobe		2		1	3
EST GC-HDVM	Ceiling Horn/Strobe	4			4	8
EST GC-HDVMH	Ceiling High Output Horn/Strobe		1		2	3
EST CS405-71-T	Weatherproof Strobe				1	1
EST 757-7A-T	Weatherproof Horn/Strobe			1		1

**EXHIBIT F  
CONSTRUCTION DRAWINGS**

*[Remainder of this page left intentionally blank]*



**GENERAL FIRE ALARM NOTES**

- A. PROJECT CONSISTS OF THE INSTALLATION OF A MANUAL AND AUTOMATIC, ADDRESSABLE FIRE ALARM SYSTEM. MANUAL PULL STATIONS ARE PROVIDED AT EXITS. SMOKE DETECTORS ARE PROVIDED IN ALL HABITABLE SPACES. HEAT DETECTORS ARE PROVIDED WHERE THE ENVIRONMENT IS NOT SUITABLE FOR SMOKE DETECTORS, SUCH AS LOUNGES. DORM ROOMS ARE PROVIDED WITH INDIVIDUAL AUDIBLE SOUNDER BASES FOR SINGLE-STATION SMOKE ALARM FUNCTIONALITY. CONTROL OUTPUTS ARE PROVIDED FOR EMERGENCY CONTROL FUNCTIONS SUCH AS AIR HANDLER SHUT DOWN AND ELEVATOR RECALL. OCCUPANT NOTIFICATION IS PROVIDED THROUGHOUT THE BUILDING. SYSTEM ALARM, SUPERVISORY AND TROUBLE SIGNALS ARE MONITORED BY OSU CAMPUS SAFETY.
- B. REMOVE THE EXISTING FIRE ALARM SYSTEM AFTER COMPLETION AND ACCEPTANCE OF THE NEW FIRE ALARM SYSTEM.
- C. THE SYSTEM DESIGN AND INSTALLATION IS IN COMPLIANCE WITH THE FOLLOWING CODES AND STANDARDS:  
 2010 OSSC  
 2010 OFC  
 2010 OMSC  
 2008 OESC  
 2007 NFPA 72  
 OSU CONSTRUCTION STANDARDS

**FIRE ALARM SYMBOL LIST**

- EST 3 FIRE ALARM CONTROL PANEL
- EST 3-LCDANN FIRE ALARM ANNUNCIATOR
- EST BPS6A & BPS10A NOTIFICATION APPLIANCE CIRCUIT PANELS
- EST SIGA-270 MANUAL PULL STATION
- EST SIGA-PS SMOKE DETECTOR CEILING MOUNTED WITH SIGA-SB STANDARD BASE
- EST SIGA-PS SMOKE DETECTOR WALL MOUNTED SIGA-SB STANDARD BASE
- EST SIGA2-PCOS SMOKE/CO DETECTOR, CEILING MOUNTED WITH SIGA-SB STANDARD BASE
- EST SIGA2-PCOS SMOKE/CO DETECTOR, WALL MOUNTED WITH SIGA-SB STANDARD BASE
- EST PL SERIES HEAT DETECTOR CEILING MOUNTED (+F = 282B-PL HIGH TEMP, WP = 281B-PL)
- EST PL SERIES HEAT DETECTOR WALL MOUNTED (+F = 282B-PL HIGH TEMP, WP = 281B-PL)
- EST SIGA-MCC1S SYNCHRONIZATION OUTPUT MODULE
- EST SIGA-CT1 MONITOR MODULE
- EST SIGA-CT2 DUAL MONITOR MODULE
- EST SIGA-CR CONTROL RELAY MODULE
- EST G1F-HDVM GENESIS HORN STROBE APPLIANCE (# = MINIMUM CANDELA)
- EST GC-HDVMH GENESIS HIGH OUTPUT HORN STROBE APPLIANCE (# = MINIMUM CANDELA)
- EST 757-4A-T WEATHERPROOF CEILING MOUNT HORN STROBE APPLIANCE (# = MINIMUM CANDELA, WITH LKC-8 STROBE MOUNTING ACCESSORY)
- EST G1F-VM GENESIS STROBE APPLIANCE (# = MINIMUM CANDELA)
- EST CS405-7A-T WEATHERPROOF CEILING MOUNT STROBE (# = MINIMUM CANDELA, WITH LKC-8 STROBE MOUNTING ACCESSORY)
- FIRE ALARM JUNCTION BOX

**WIRING LEGEND**

- A = 16/2 TWISTED FPL - NETWORK/SIGNALING LINE CIRCUIT/INITIATING DEVICE CIRCUIT
- B = 14/2 TWISTED FPL - NOTIFICATION APPLIANCE CIRCUIT/24VDC POWER CIRCUIT

**SHEET INDEX**

- 1 COVER SHEET - FIRE ALARM
- 2 BASEMENT FLOOR - FIRE ALARM
- 3 FIRST FLOOR - FIRE ALARM
- 4 SECOND FLOOR - FIRE ALARM
- 5 CALCULATIONS AND DETAILS - FIRE ALARM

PROJECT 2010-0426  
 CONTACT Joe Ripp  
  
 708 SW Third Avenue  
 Suite 400  
 Portland, OR 97204  
 TEL 503.382.2266  
 FAX 503.382.2262  
 www.interfaceengineering.com

**FIRE ALARM SYSTEM OPERATIONAL MATRIX**

INPUT	OUTPUT																
	ALARM AT FACP	ALARM AT ANNUNCIATOR	ALARM AT SUPERVISING STATION	SUPERVISORY AT FACP	SUPERVISORY AT ANNUNCIATOR	SUPERVISORY AT SUPERVISING STATION	TROUBLE AT FACP	TROUBLE AT ANNUNCIATOR	TROUBLE AT SUPERVISING STATION	ACTIVATE NOTIFICATION APPLIANCES	ACTIVATE LOCAL APT. NOTIFICATION APPLIANCES	DEACTIVATE NOTIFICATION APPLIANCES	RESET CONTROL PANEL AND ALL DEVICES	SHUT DOWN HVAC FAN UNITS			
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
MANUAL PULL STATION	1	X	X	X						X	X			X			1
AREA SMOKE DETECTOR	2	X	X	X						X	X			X			2
AREA HEAT DETECTOR	3	X	X	X						X	X			X			3
AREA CARBON MONOXIDE	4	X	X	X						X	X			X			4
KITCHEN HOOD SUPPRESSION SYSTEM	5	X	X	X						X	X			X			5
APARTMENT ROOM SMOKE DETECTOR	6				X	X	X				X						6
POWER FAILURE	7						X	X	X								7
TROUBLE CONDITION	8						X	X	X								8
SYSTEM SILENCE	9											X					9
SYSTEM RESET	10												X				10

**AVERY LODGE**

**COVER SHEET - FIRE ALARM**



Oregon State University  
 100 Adams Hall  
 Corvallis, Oregon  
 97331-2001  
 (541) 737-4921

SCALE: **NTS**

SQ. FT. AREAS	
BUILDING NO.	xxxxx
GROSS	xxxxx SQ.FT.
NET USABLE	k,xxx
NET ASSIGN.	
NET UNASSIGN.	

Original 08/12/2011  
 Rev. A

REVISIONS

SHEET NO. **1**  
 OF **5**





# AVERY LODGE

## BASEMENT FLOOR - FIRE ALARM



Oregon State University  
100 Adams Hall  
Corvallis, Oregon  
97331-2001  
(541) 737-4921

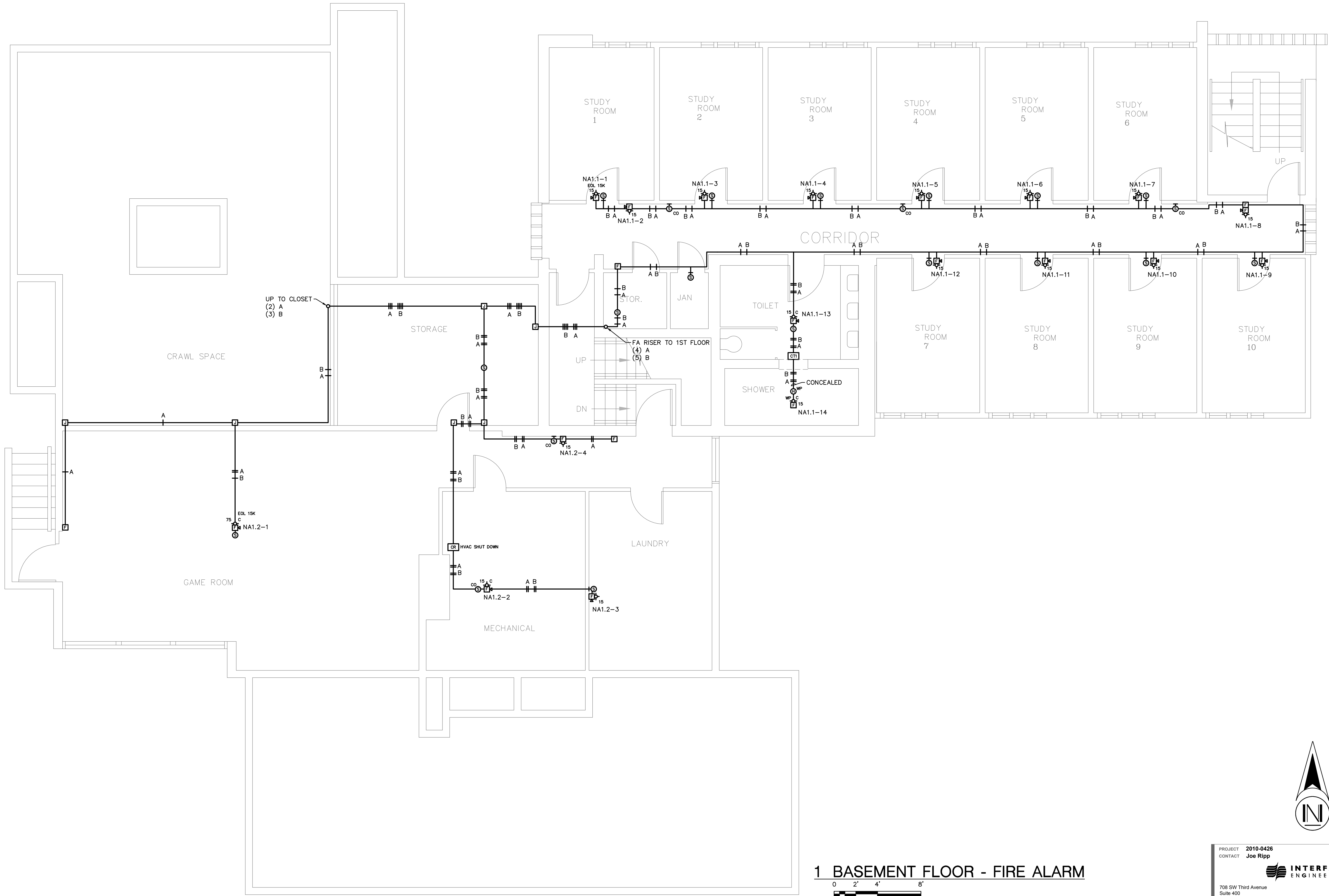
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SQ. FT. AREAS
BUILDING NO. _____
GROSS _____ SQ.FT.
NET USABLE _____ SQ.FT.
NET ASSIGN. _____
NET UNASSIGN. _____

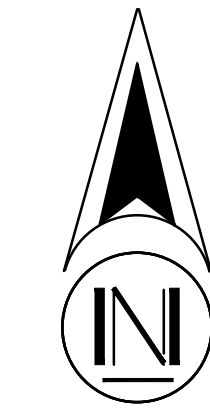
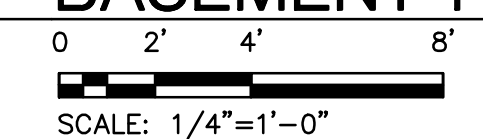
Original 08/12/2011  
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REVISIONS

SHEET NO. 2  
OF 5

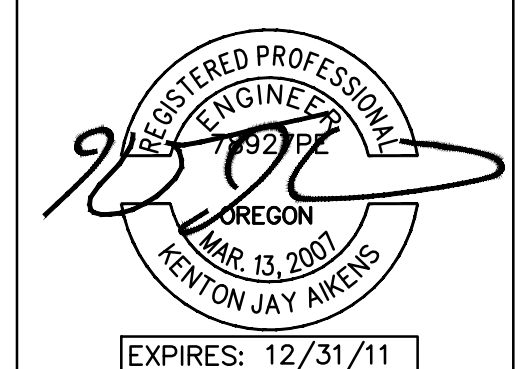


### 1 BASEMENT FLOOR - FIRE ALARM



PROJECT 2010-0426  
CONTACT Joe Ripp

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# AVERY LODGE

## FIRST FLOOR - FIRE ALARM



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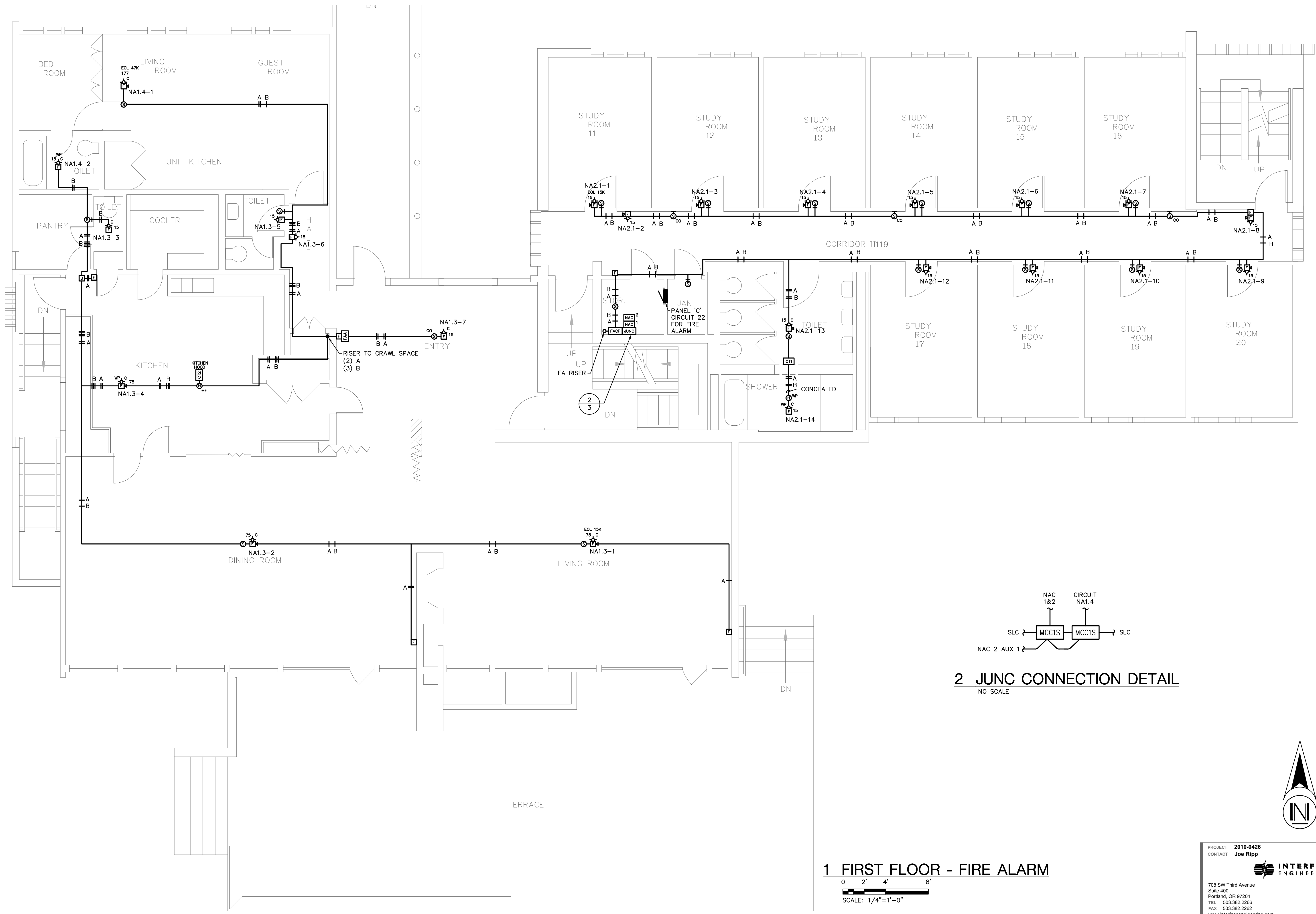
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SQ. FT. AREAS	
BUILDING NO.	xxxx
GROSS	xxxxx SQ.FT.
NET USABLE	k,xxx
NET ASSIGN.	
NET UNASSIGN.	

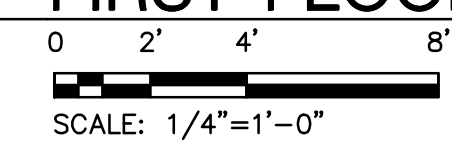
Original 08/12/2011  
Rev. A

REVISIONS

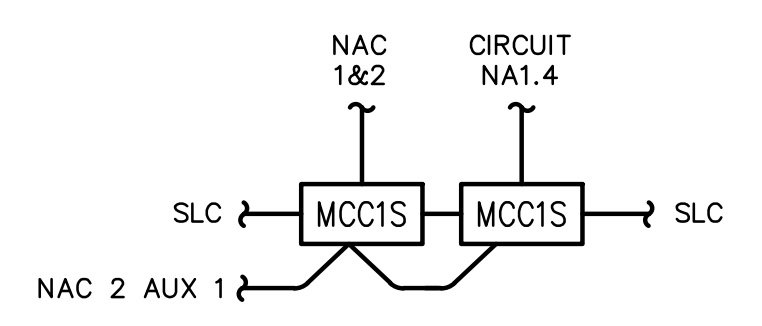
SHEET NO. 3  
OF 5



### 1 FIRST FLOOR - FIRE ALARM



### 2 JUNC CONNECTION DETAIL



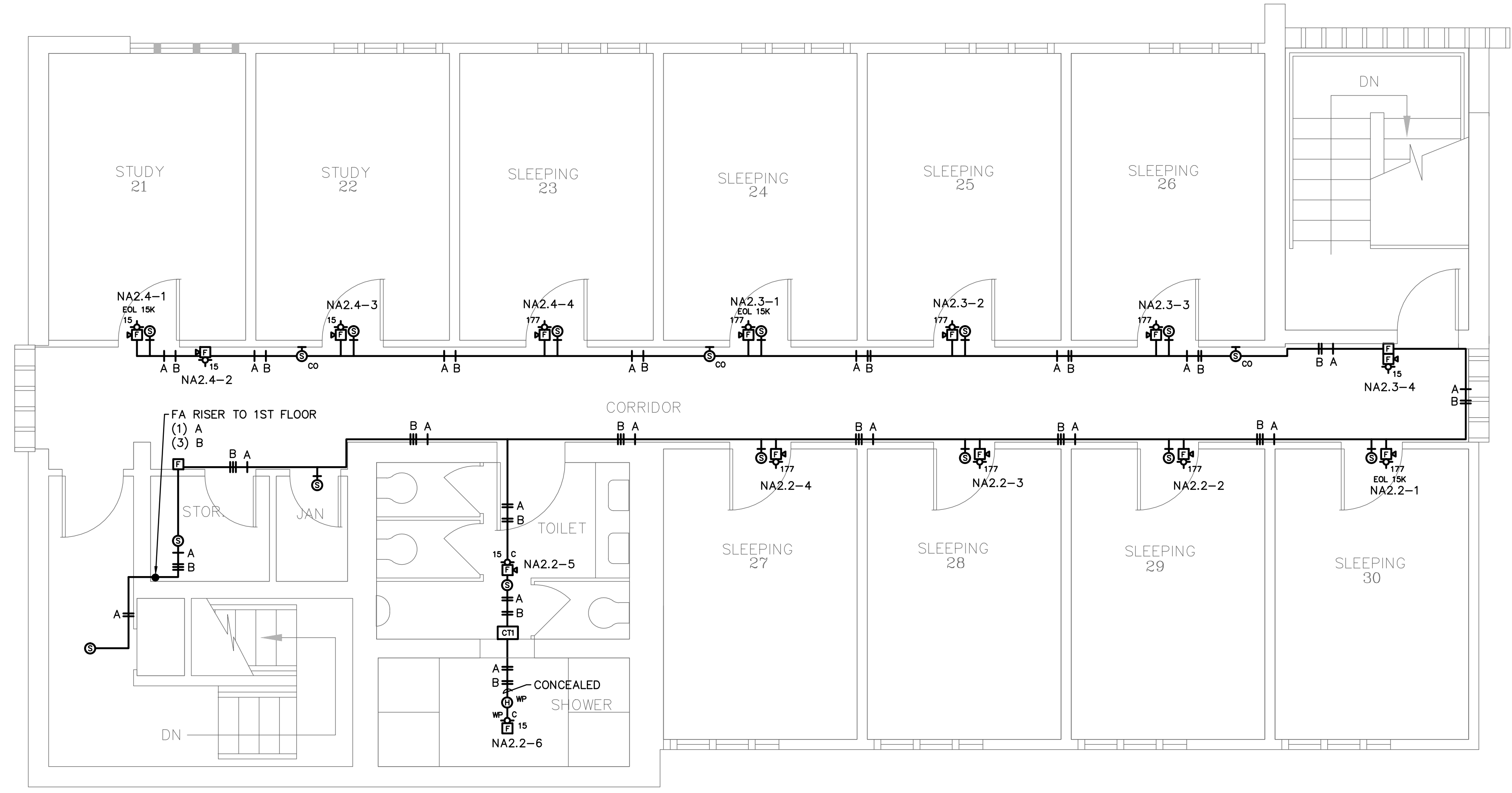
PROJECT 2010-0426  
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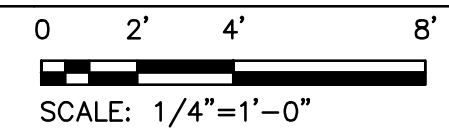


**AVERY LODGE**

**SECOND FLOOR - FIRE ALARM**



**1 SECOND FLOOR - FIRE ALARM**



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Corvallis, Oregon  
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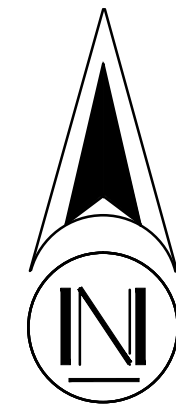
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SQ. FT. AREAS	
BUILDING NO.	xxxxx
GROSS	xxxxx SQ.FT.
NET USABLE	k,xxx
NET ASSIGN.	
NET UNASSIGN.	

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SHEET NO. **4**  
OF **5**



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NOTIFICATION CIRCUIT - NA11 VOLTAGE DROP CALCULATIONS. Table with 10 columns: DEVICE TYPE #, DEVICE #, TO DEVICE #, LINEAR FEET BETWEEN DEVICES (#14, #12, #10), RESISTANCE OF WIRES (CHMS), LOAD ON RUN (AMPS), VOLTAGE DROP (VOLTS), ACCUM. VOLTAGE DROP (V). Includes a summary row for Percent Loss: 8.02%.

NOTIFICATION CIRCUIT - NA13 VOLTAGE DROP CALCULATIONS. Table with 10 columns: DEVICE TYPE #, DEVICE #, TO DEVICE #, LINEAR FEET BETWEEN DEVICES (#14, #12, #10), RESISTANCE OF WIRES (CHMS), LOAD ON RUN (AMPS), VOLTAGE DROP (VOLTS), ACCUM. VOLTAGE DROP (V). Includes a summary row for Percent Loss: 7.38%.

NOTIFICATION CIRCUIT - NA21 VOLTAGE DROP CALCULATIONS. Table with 10 columns: DEVICE TYPE #, DEVICE #, TO DEVICE #, LINEAR FEET BETWEEN DEVICES (#14, #12, #10), RESISTANCE OF WIRES (CHMS), LOAD ON RUN (AMPS), VOLTAGE DROP (VOLTS), ACCUM. VOLTAGE DROP (V). Includes a summary row for Percent Loss: 7.56%.

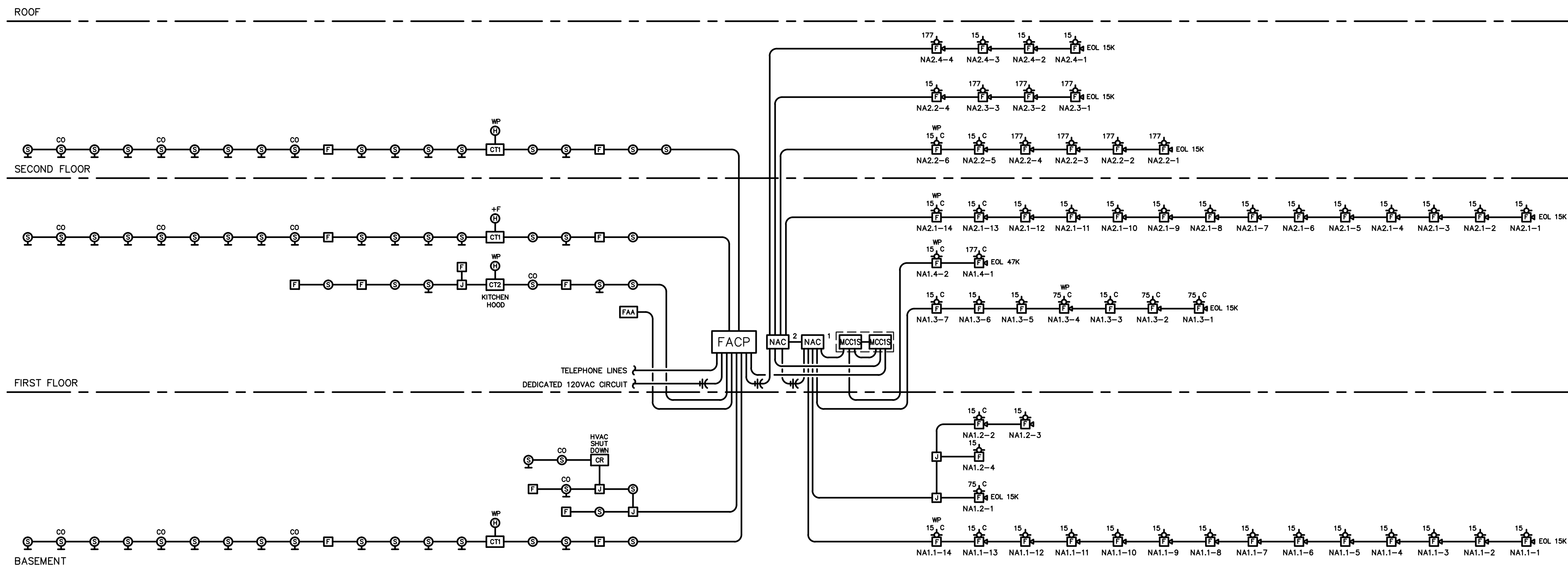
NOTIFICATION CIRCUIT - NA23 VOLTAGE DROP CALCULATIONS. Table with 10 columns: DEVICE TYPE #, DEVICE #, TO DEVICE #, LINEAR FEET BETWEEN DEVICES (#14, #12, #10), RESISTANCE OF WIRES (CHMS), LOAD ON RUN (AMPS), VOLTAGE DROP (VOLTS), ACCUM. VOLTAGE DROP (V). Includes a summary row for Percent Loss: 6.24%.

NOTIFICATION CIRCUIT - NA12 VOLTAGE DROP CALCULATIONS. Table with 10 columns: DEVICE TYPE #, DEVICE #, TO DEVICE #, LINEAR FEET BETWEEN DEVICES (#14, #12, #10), RESISTANCE OF WIRES (CHMS), LOAD ON RUN (AMPS), VOLTAGE DROP (VOLTS), ACCUM. VOLTAGE DROP (V). Includes a summary row for Percent Loss: 2.57%.

NOTIFICATION CIRCUIT - NA14 VOLTAGE DROP CALCULATIONS. Table with 10 columns: DEVICE TYPE #, DEVICE #, TO DEVICE #, LINEAR FEET BETWEEN DEVICES (#14, #12, #10), RESISTANCE OF WIRES (CHMS), LOAD ON RUN (AMPS), VOLTAGE DROP (VOLTS), ACCUM. VOLTAGE DROP (V). Includes a summary row for Percent Loss: 3.95%.

NOTIFICATION CIRCUIT - NA22 VOLTAGE DROP CALCULATIONS. Table with 10 columns: DEVICE TYPE #, DEVICE #, TO DEVICE #, LINEAR FEET BETWEEN DEVICES (#14, #12, #10), RESISTANCE OF WIRES (CHMS), LOAD ON RUN (AMPS), VOLTAGE DROP (VOLTS), ACCUM. VOLTAGE DROP (V). Includes a summary row for Percent Loss: 7.59%.

NOTIFICATION CIRCUIT - NA24 VOLTAGE DROP CALCULATIONS. Table with 10 columns: DEVICE TYPE #, DEVICE #, TO DEVICE #, LINEAR FEET BETWEEN DEVICES (#14, #12, #10), RESISTANCE OF WIRES (CHMS), LOAD ON RUN (AMPS), VOLTAGE DROP (VOLTS), ACCUM. VOLTAGE DROP (V). Includes a summary row for Percent Loss: 3.83%.



1 RISER DIAGRAM NO SCALE

AVERY LODGE

CALCULATIONS AND DETAILS - FIRE ALARM



Oregon State University 100 Adams Hall Corvallis, Oregon 97331-2001 (541) 737-4921

SCALE: NTS

Table with 2 columns: SQ. FT. AREAS, BUILDING NO., GROSS, NET USABLE, NET ASSIGN., NET UNASSIGN.

Original 08/12/2011 Rev. A

REVISIONS

Table with 2 columns: SHEET NO., OF. Values: 5, 5.

PROJECT 2010-0426 CONTACT Joe Ripp INTERFACE ENGINEERING 708 SW Third Avenue Suite 400 Portland, OR 97204 TEL 503.382.2266 FAX 503.382.2262 www.interfaceengineering.com



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OREGON  
STATE  
UNIVERSITY

AZALEA  
LODGE

### GENERAL FIRE ALARM NOTES

- A. PROJECT CONSISTS OF THE INSTALLATION OF A MANUAL AND AUTOMATIC, ADDRESSABLE FIRE ALARM SYSTEM. MANUAL PULL STATIONS ARE PROVIDED AT EXITS. SMOKE DETECTORS ARE PROVIDED IN ALL HABITABLE SPACES. HEAT DETECTORS ARE PROVIDED WHERE THE ENVIRONMENT IS NOT SUITABLE FOR SMOKE DETECTORS, SUCH AS JANITORS CLOSETS AND LOUNGES. CONTROL OUTPUTS ARE PROVIDED FOR EMERGENCY CONTROL FUNCTIONS SUCH AS AIR HANDLER SHUT DOWN AND ELEVATOR RECALL. OCCUPANT NOTIFICATION IS PROVIDED THROUGHOUT THE BUILDING. SYSTEM ALARM, SUPERVISORY AND TROUBLE SIGNALS ARE MONITORED BY OSU CAMPUS SAFETY.
- B. THE EXISTING FIRE ALARM SYSTEM WILL BE REMOVED AFTER COMPLETION AND ACCEPTANCE OF THE NEW FIRE ALARM SYSTEM.
- C. THE SYSTEM DESIGN AND INSTALLATION IS IN COMPLIANCE WITH THE FOLLOWING CODES AND STANDARDS:  
2010 OSSC  
2010 OFC  
2010 OMSC  
2008 OESC  
2007 NFPA 72  
OSU CONSTRUCTION STANDARDS

### FIRE ALARM SYMBOL LIST

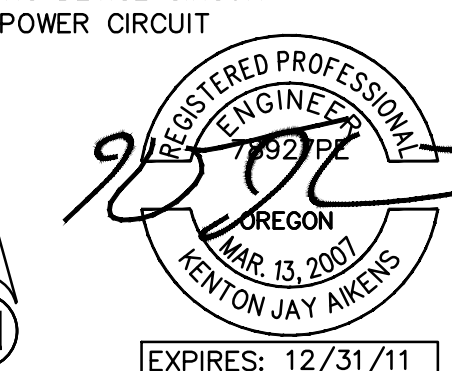
- EST 3 FIRE ALARM CONTROL PANEL
- EST 3-LCDANN FIRE ALARM ANNUNCIATOR
- EST BPS6A NOTIFICATION APPLIANCE CIRCUIT PANEL
- EST SIGA-270 MANUAL PULL STATION
- EST SIGA-PS SMOKE DETECTOR CEILING MOUNTED WITH SIGA-SB STANDARD BASE
- EST SIGA-PS SMOKE DETECTOR WALL MOUNTED SIGA-SB STANDARD BASE
- EST SIGA2-PCOS SMOKE/CO DETECTOR, CEILING MOUNTED WITH SIGA-SB STANDARD BASE
- EST SIGA2-PCOS SMOKE/CO DETECTOR, WALL MOUNTED WITH SIGA-SB STANDARD BASE
- EST SIGA-HRS HEAT DETECTOR CEILING MOUNTED WITH SIGA-SB STANDARD BASE (+F = 282B-PL HIGH TEMP, WP = 281B-PL)
- EST SIGA-HRS HEAT DETECTOR WALL MOUNTED WITH SIGA-SB STANDARD BASE (+F = 282B-PL HIGH TEMP, WP = 281B-PL)
- EST SIGA-MCC1S SYNCHRONIZATION OUTPUT MODULE
- EST SIGA-CT1 MONITOR MODULE
- EST SIGA-CT2 DUAL MONITOR MODULE
- EST SIGA-MCR CONTROL RELAY MODULE
- EST G1F-HDVM GENESIS HORN STROBE APPLIANCE (# = MINIMUM CANDELA) (C = GC-HDVM CEILING MOUNT)
- EST G1F-VM GENESIS STROBE APPLIANCE (# = MINIMUM CANDELA) (C = GC-VM CEILING MOUNT)
- EST 757-7A-T WEATHERPROOF HORN STROBE (# = MINIMUM CANDELA)

### WIRING LEGEND

- A = 16/2 TWISTED FPL - NETWORK/SIGNALING LINE CIRCUIT/INITIATING DEVICE CIRCUIT
- B = 14/2 TWISTED FPL - NOTIFICATION APPLIANCE CIRCUIT/24VDC POWER CIRCUIT

### SHEET INDEX

- 1 COVER SHEET - FIRE ALARM
- 2 FIRST FLOOR - FIRE ALARM
- 3 SECOND FLOOR - FIRE ALARM
- 4 CALCS AND DETAILS - FIRE ALARM



PROJECT: 2010-0427  
CONTACT: Joe Ripp

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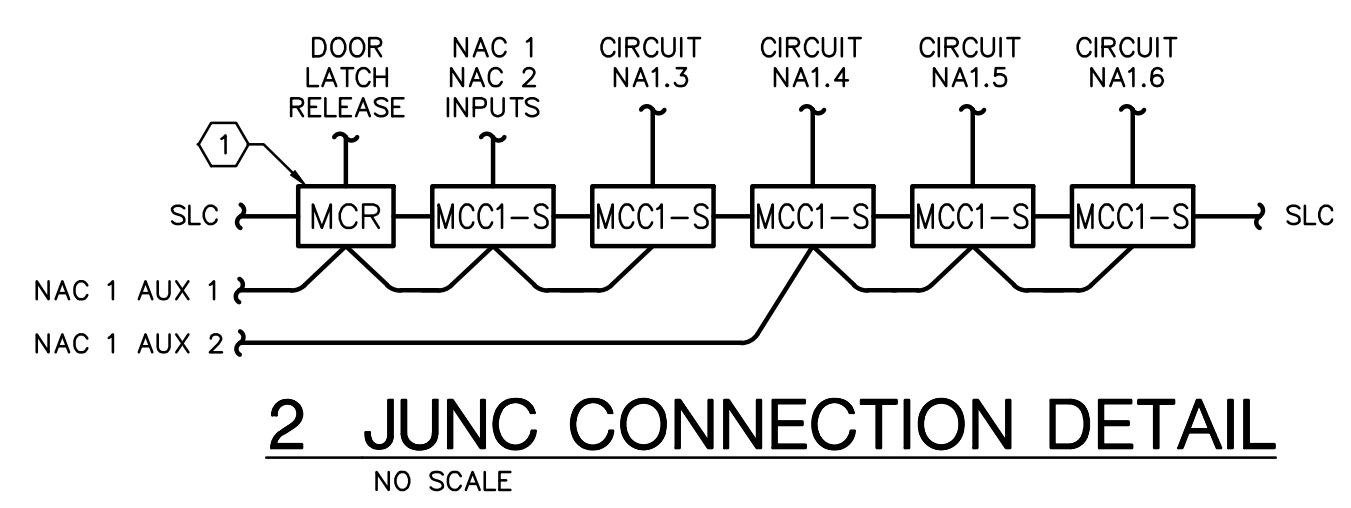
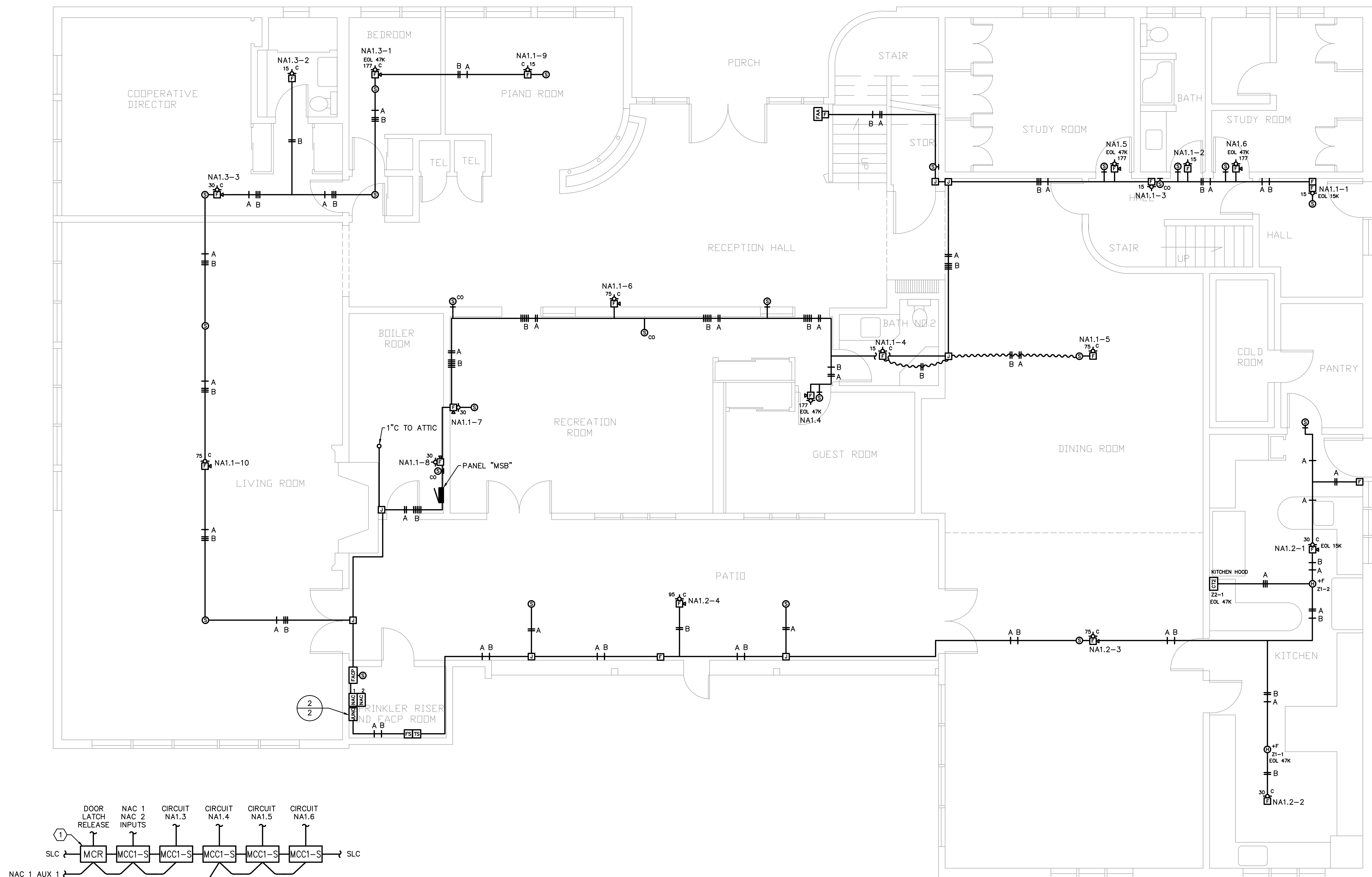
COVER SHEET - FIRE ALARM

SCALE: NTS	SO. FT. AREAS
BUILDING NO. 26	GROSS
NET USABLE	NET UNASSIGN.
ORIG. DWG. 06/03/11	SHEET NO. 1
LAST DWG. 06/03/11	NO.
REVISION	INITIALS
	JR BKPLN

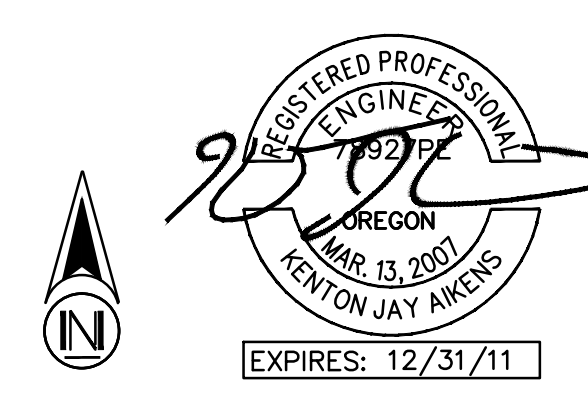
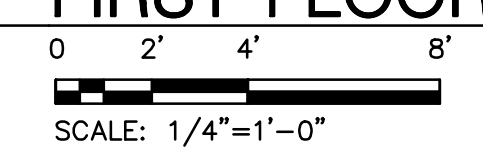
		FIRE ALARM SYSTEM OPERATIONAL MATRIX																		
		ALARM			SUPERVISORY			TROUBLE			NOTIFICATION			CONTROL			FIRE SAFETY FUNCTIONS			
INPUT		ALARM AT FACP	ALARM AT ANNUNCIATOR	ALARM AT SUPERVISING STATION	SUPERVISORY AT FACP	SUPERVISORY AT ANNUNCIATOR	SUPERVISORY AT SUPERVISING STATION	TROUBLE AT FACP	TROUBLE AT ANNUNCIATOR	TROUBLE AT SUPERVISING STATION	ACTIVATE NOTIFICATION APPLIANCES	ACTIVATE LOCAL APARTMENT NOTIFICATION APPLIANCES	DEACTIVATE NOTIFICATION APPLIANCES	RESET CONTROL PANEL AND ALL DEVICES	SHUT DOWN HVAC FAN UNITS	RELEASE 2ND FLR STUDY ROOM DOOR LATCHES				
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q		
MANUAL PULL STATION	1	X	X	X							X	X			X	X				1
AREA SMOKE DETECTOR	2	X	X	X							X	X			X	X				2
AREA HEAT DETECTOR	3	X	X	X							X	X			X	X				3
FIRE SPRINKLER FLOW SWITCH ACTIVATION	4	X	X	X							X	X			X	X				4
APARTMENT ROOM SMOKE DETECTOR	5				X	X	X					X								5
FIRE SPRINKLER TAMPER SWITCH ACTIVATION	6				X	X	X													6
POWER FAILURE	7							X	X	X										7
TROUBLE CONDITION	8							X	X	X										8
SYSTEM SILENCE	9												X							9
SYSTEM RESET	10													X						10
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q		

SHEET KEYNOTES

- 1 CONTROL RELAY TO RELEASE SECOND FLOOR ELECTRIC DOOR LATCHES UPON ACTIVATION OF FIRE ALARM.



**1 FIRST FLOOR - FIRE ALARM**



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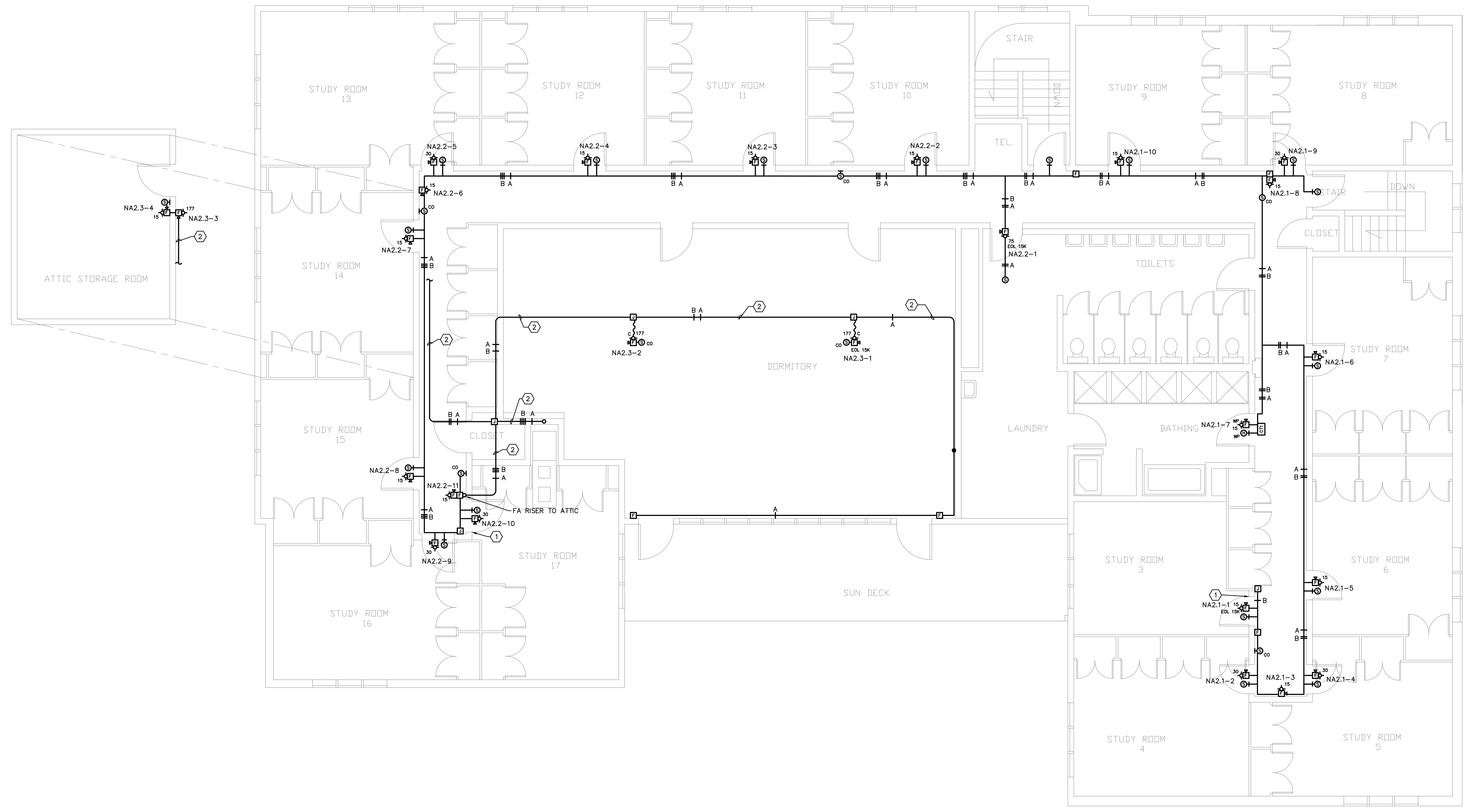
FIRST FLOOR - FIRE ALARM

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

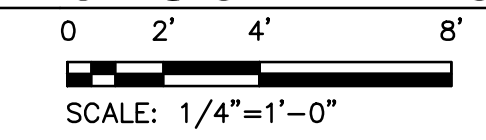
SO. FT. AREAS	BUILDING NO. 26
GROSS	NET USABLE
NET ASSIGN.	NET UNASSIGN.
ORIG. DWG. 06/03/11	SHEET NO. 2
LAST DWG. 06/03/11	REVISION
INITIALS	JJR BKPLN

**SHEET KEYNOTES**

- 1 STUDY ROOM WITH DOOR LATCH THAT RELEASES UPON ACTIVATION OF FIRE ALARM.
- 2 RACEWAY IN ATTIC SPACE.

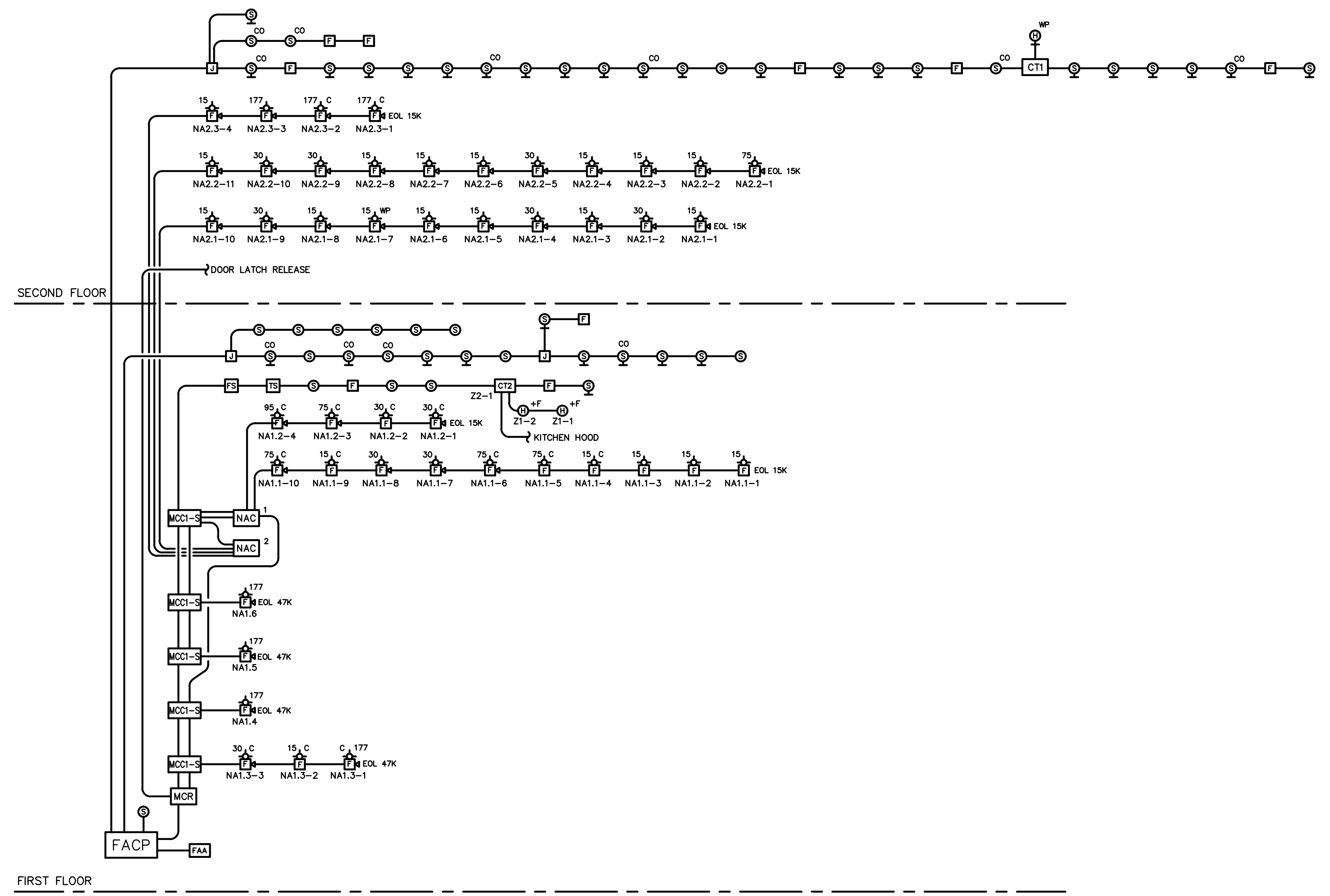
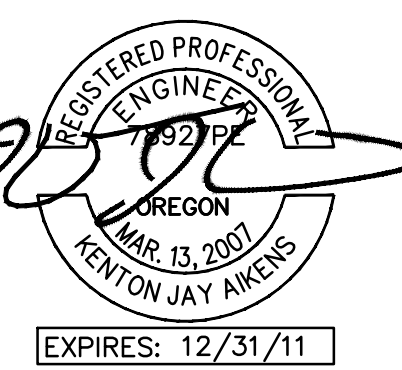


**1 SECOND FLOOR - FIRE ALARM**



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SO. FT. AREAS	
BUILDING NO. 26	
GROSS	
NET USABLE	
NET ASSIGN.	
NET UNASSIGN.	
ORIG. DWG. 06/03/11	SHEET NO. 3
LAST DWG. 06/03/11	
REVISION	
INITIALS	JJR BKPLN



### NOTIFICATION CIRCUIT - NA1.1 VOLTAGE DROP CALCULATIONS

BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT 10% ± 24V = 2.4 0MA0

CHMS = (84 FEET\* 3.07/1000 + 142 FEET\* 1.92/1000 + 80 FEET\* 1.2/1000) \* 2

1) A/V 15cod	0.129	2) A/V 30cod	0.167	3) A/V 75cod	0.281
4) A/V 10cod	0.337	5) V/O 15cod	0.103	6) V/O 30cod	0.141
7) V/O 75cod	0.255	8) V/O 10cod	0.311	9) Audible Base	0.066
10) A/V 177cod	0.551	10) V/O 177cod	0.565	12) Horn	0.026

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCUM. VOLTAGE DROP (V)
5	1	2	15	0.092	0.103	0.009	0.009
5	2	3	5	0.031	0.206	0.006	0.016
5	3	4	40	0.246	0.309	0.076	0.092
5	4	5	20	0.123	0.412	0.051	0.142
7	5	6	45	0.276	0.667	0.184	0.327
3	6	7	25	0.154	0.948	0.146	0.472
2	7	8	5	0.031	1.115	0.034	0.506
2	8	9	110	0.675	1.282	0.866	1.372
5	9	10	60	0.368	1.385	0.510	1.882
3	10	NAC	35	0.215	1.666	0.358	2.240

Percent Loss 9.34%

### NOTIFICATION CIRCUIT - NA1.6 VOLTAGE DROP CALCULATIONS

BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT 10% ± 24V = 2.4 0MA0

CHMS = (84 FEET\* 3.07/1000 + 142 FEET\* 1.92/1000 + 80 FEET\* 1.2/1000) \* 2

1) A/V 15cod	0.129	2) A/V 30cod	0.167	3) A/V 75cod	0.281
4) A/V 10cod	0.337	5) V/O 15cod	0.103	6) V/O 30cod	0.141
7) V/O 75cod	0.255	8) V/O 10cod	0.311	9) Audible Base	0.066
10) A/V 177cod	0.570	10) V/O 177cod	0.565	12) Horn	0.026

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCUM. VOLTAGE DROP (V)
10	1	MCC1-S	130	0.798	0.570	0.455	0.455

Percent Loss 1.90%

### NOTIFICATION CIRCUIT - NA1.2 VOLTAGE DROP CALCULATIONS

BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT 10% ± 24V = 2.4 0MA0

CHMS = (84 FEET\* 3.07/1000 + 142 FEET\* 1.92/1000 + 80 FEET\* 1.2/1000) \* 2

1) A/V 15cod	0.129	2) CEILING A/V 30cod	0.190	3) CEILING A/V 75cod	0.316
4) A/V 10cod	0.337	5) V/O 15cod	0.103	6) CEILING V/O 30cod	0.151
7) V/O 75cod	0.255	8) V/O 10cod	0.311	9) CEILING A/V 95cod	0.372
10) A/V 177cod	0.551	10) V/O 177cod	0.565	12) Horn	0.026

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCUM. VOLTAGE DROP (V)
2	1	2	30	0.184	0.190	0.035	0.035
6	2	3	35	0.215	0.341	0.073	0.108
3	3	4	45	0.276	0.657	0.182	0.290
9	4	NAC	50	0.307	1.029	0.316	0.606

Percent Loss 2.52%

### NOTIFICATION CIRCUIT - NA2.1 VOLTAGE DROP CALCULATIONS

BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT 10% ± 24V = 2.4 0MA0

CHMS = (84 FEET\* 3.07/1000 + 142 FEET\* 1.92/1000 + 80 FEET\* 1.2/1000) \* 2

1) A/V 15cod	0.129	2) A/V 30cod	0.167	3) A/V 75cod	0.281
4) A/V 10cod	0.337	5) V/O 15cod	0.103	6) V/O 30cod	0.141
7) V/O 75cod	0.255	8) V/O 10cod	0.311	9) Audible Base	0.066
10) A/V 177cod	0.551	10) V/O 177cod	0.565	12) Horn	0.026

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCUM. VOLTAGE DROP (V)
1	1	2	15	0.092	0.129	0.012	0.012
2	2	3	10	0.061	0.296	0.018	0.030
1	3	4	10	0.061	0.425	0.026	0.056
2	4	5	20	0.123	0.592	0.073	0.129
1	5	6	30	0.184	0.721	0.133	0.262
1	6	7	20	0.123	0.850	0.104	0.366
1	7	8	30	0.184	0.979	0.180	0.546
1	8	9	10	0.061	1.108	0.068	0.614
2	9	10	25	0.154	1.275	0.196	0.810
1	10	11	175	1.075	1.404	1.509	2.319

Percent Loss 9.66%

### NOTIFICATION CIRCUIT - NA1.3 VOLTAGE DROP CALCULATIONS

BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT 10% ± 24V = 2.4 0MA0

CHMS = (84 FEET\* 3.07/1000 + 142 FEET\* 1.92/1000 + 80 FEET\* 1.2/1000) \* 2

1) CEILING A/V 15cod	0.129	2) CEILING A/V 30cod	0.190	3) A/V 75cod	0.281
4) A/V 10cod	0.337	5) CEILING V/O 15cod	0.109	6) V/O 30cod	0.141
7) V/O 75cod	0.255	8) V/O 10cod	0.311	9) Audible Base	0.066
10) CEILING A/V 177cod	0.570	10) V/O 177cod	0.565	12) Horn	0.026

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCUM. VOLTAGE DROP (V)
10	1	2	30	0.184	0.570	0.105	0.105
5	2	3	20	0.123	0.679	0.083	0.188
2	3	MCC1-S	65	0.399	0.869	0.347	0.535

Percent Loss 2.23%

### NOTIFICATION CIRCUIT - NA2.2 VOLTAGE DROP CALCULATIONS

BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT 10% ± 24V = 2.4 0MA0

CHMS = (84 FEET\* 3.07/1000 + 142 FEET\* 1.92/1000 + 80 FEET\* 1.2/1000) \* 2

1) A/V 15cod	0.129	2) A/V 30cod	0.167	3) A/V 75cod	0.281
4) A/V 10cod	0.337	5) V/O 15cod	0.103	6) V/O 30cod	0.141
7) V/O 75cod	0.255	8) V/O 10cod	0.311	9) Audible Base	0.066
10) A/V 177cod	0.551	10) V/O 177cod	0.565	12) Horn	0.026

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCUM. VOLTAGE DROP (V)
3	1	2	20	0.123	0.281	0.035	0.035
1	2	3	20	0.123	0.410	0.050	0.085
1	3	4	20	0.123	0.539	0.066	0.151
1	4	5	20	0.123	0.668	0.082	0.233
2	5	6	10	0.061	0.835	0.051	0.284
1	6	7	10	0.061	0.964	0.059	0.344
1	7	8	30	0.184	1.093	0.201	0.545
1	8	9	15	0.092	1.222	0.113	0.657
2	9	10	10	0.061	1.389	0.085	0.743
2	10	11	10	0.061	1.556	0.096	0.838
1	11	12	65	0.399	1.685	0.672	1.511

Percent Loss 6.29%

### NOTIFICATION CIRCUIT - NA1.4 VOLTAGE DROP CALCULATIONS

BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT 10% ± 24V = 2.4 0MA0

CHMS = (84 FEET\* 3.07/1000 + 142 FEET\* 1.92/1000 + 80 FEET\* 1.2/1000) \* 2

1) A/V 15cod	0.129	2) A/V 30cod	0.167	3) A/V 75cod	0.281
4) A/V 10cod	0.337	5) V/O 15cod	0.103	6) V/O 30cod	0.141
7) V/O 75cod	0.255	8) V/O 10cod	0.311	9) Audible Base	0.066
10) A/V 177cod	0.570	10) V/O 177cod	0.565	12) Horn	0.026

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCUM. VOLTAGE DROP (V)
10	1	MCC1-S	90	0.553	0.570	0.315	0.315

Percent Loss 1.31%

### NOTIFICATION CIRCUIT - NA2.3 VOLTAGE DROP CALCULATIONS

BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT 10% ± 24V = 2.4 0MA0

CHMS = (84 FEET\* 3.07/1000 + 142 FEET\* 1.92/1000 + 80 FEET\* 1.2/1000) \* 2

1) A/V 15cod	0.129	2) A/V 30cod	0.167	3) A/V 75cod	0.281
4) A/V 10cod	0.337	5) V/O 15cod	0.103	6) V/O 30cod	0.141
7) V/O 75cod	0.255	8) V/O 10cod	0.311	9) Audible Base	0.066
10) CEILING A/V 177cod	0.570	10) A/V 177cod	0.570	12) Horn	0.026

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCUM. VOLTAGE DROP (V)
10	1	2	35	0.215	0.570	0.122	0.122
10	2	3	55	0.338	1.140	0.385	0.507
11	3	4	5	0.031	1.210	0.052	0.560
1	4	5	75	0.461	1.839	0.847	1.407

Percent Loss 5.86%

### NOTIFICATION CIRCUIT - NA1.5 VOLTAGE DROP CALCULATIONS

BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT 10% ± 24V = 2.4 0MA0

CHMS = (84 FEET\* 3.07/1000 + 142 FEET\* 1.92/1000 + 80 FEET\* 1.2/1000) \* 2

1) A/V 15cod	0.129	2) A/V 30cod	0.167	3) A/V 75cod	0.281
4) A/V 10cod	0.337	5) V/O 15cod	0.103	6) V/O 30cod	0.141
7) V/O 75cod	0.255	8) V/O 10cod	0.311	9) Audible Base	0.066
10) A/V 177cod	0.570	10) V/O 177cod	0.565	12) Horn	0.026

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCUM. VOLTAGE DROP (V)
10	1	MCC1-S	115	0.706	0.570	0.402	0.402

Percent Loss 1.68%

### FACP BATTERY CALCULATIONS

General Information	Job Name:	OSU Callahan Hall		
City	Cal No	Description	Ext'd SmA	Ext'd AhA
<b>EESTS Annunciator</b>				
1	3-LCDANN	LCD Annunciator /w CPU and Door	212	214
<b>EESTS System Components</b>				
<b>Local Rel Module</b>				
1	3-CPU3	Central Processor Module	155	165
1	3-RS485B	Network Communication Card, Class B	98	98
1	3-SSDC1	Signature Single Driver Controller (LRM)	147	207
1	3-MODCOM	Modem Communicator and Dialer	60	95
<b>User Interface Module</b>				
1	3-LCD	Liquid Crystal Display Module	40	42
1	3-12/SZY	12 Switch, 12 Yel LED Ctr/ Dis Mod	2	36
<b>Battery Calculations</b>				
Total Standby & Alarm Currents in mA			714	859
Calculated Battery Ampere Hours			(1.2*(24*Standby Current) + 1.4*Alarm Current)/1000	
Battery	2	12V40A	40 AH Battery	20.7

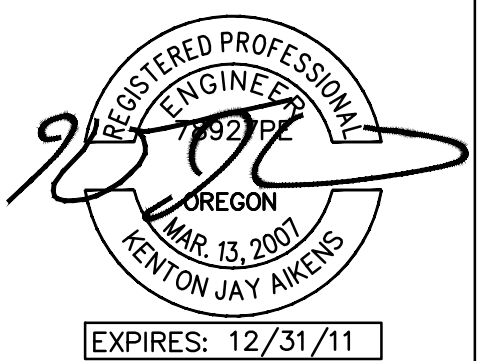
  

### NAC BATTERY CALCULATIONS

Booster Power Supply Calculations

Booster Supply	Remote Booster Power Supply, 6.5A, 120Vac, Red	Stby mA	Alm mA	
10	BPS6A	70	270	
Total Load		6000		
<b>Battery Calculations</b>				
Total Standby & Alarm Currents in mA			70	
Battery AH = 1.2*24 Hours*Standby Current + 1.2*Alarm Current			6270	
Battery	2	12VDA	10 AH Battery	9.54





**GENERAL FIRE ALARM NOTES**

- A. PROJECT CONSISTS OF THE INSTALLATION OF A MANUAL AND AUTOMATIC, ADDRESSABLE FIRE ALARM SYSTEM. MANUAL PULL STATIONS ARE PROVIDED AT EXITS. SMOKE DETECTORS ARE PROVIDED IN ALL HABITABLE SPACES. HEAT DETECTORS ARE PROVIDED WHERE THE ENVIRONMENT IS NOT SUITABLE FOR SMOKE DETECTORS, SUCH AS JANITORS CLOSETS AND LOUNGES. CONTROL OUTPUTS ARE PROVIDED FOR EMERGENCY CONTROL FUNCTIONS SUCH AS AIR HANDLER SHUT DOWN. OCCUPANT NOTIFICATION IS PROVIDED THROUGHOUT THE BUILDING. SYSTEM ALARM, SUPERVISORY AND TROUBLE SIGNALS ARE MONITORED BY OSU CAMPUS SAFETY.
- B. THE EXISTING FIRE ALARM SYSTEM WILL BE REMOVED AFTER COMPLETION AND ACCEPTANCE OF THE NEW FIRE ALARM SYSTEM.
- C. THE SYSTEM DESIGN AND INSTALLATION IS IN COMPLIANCE WITH THE FOLLOWING CODES AND STANDARDS:
  - 2010 OSSC
  - 2010 OFC
  - 2010 OMSC
  - 2008 OESC
  - 2007 NFPA 72
  - OSU CONSTRUCTION STANDARDS

**FIRE ALARM SYMBOL LIST**

- EST 3 FIRE ALARM CONTROL PANEL
- EST 3-LCDANN FIRE ALARM ANNUNCIATOR
- EST BPS6A NOTIFICATION APPLIANCE CIRCUIT PANEL
- EST SIGA-270 MANUAL PULL STATION
- EST SIGA-PS SMOKE DETECTOR CEILING MOUNTED WITH SIGA-SB STANDARD BASE
- EST SIGA-PS SMOKE DETECTOR WALL MOUNTED SIGA-SB STANDARD BASE
- EST SIGA2-PCOS SMOKE/CO DETECTOR, CEILING MOUNTED WITH SIGA-SB STANDARD BASE
- EST SIGA2-PCOS SMOKE/CO DETECTOR, WALL MOUNTED WITH SIGA-SB STANDARD BASE
- EST SIGA-HRS HEAT DETECTOR CEILING MOUNTED WITH SIGA-SB STANDARD BASE (+F = 282B-PL HIGH TEMP, WP = 281B-PL)
- EST SIGA-HRS HEAT DETECTOR WALL MOUNTED WITH SIGA-SB STANDARD BASE (+F = 282B-PL HIGH TEMP, WP = 281B-PL)
- EST SIGA-MCC1S SYNCHRONIZATION OUTPUT MODULE
- EST SIGA-CT1 MONITOR MODULE
- EST SIGA-CT2 DUAL MONITOR MODULE
- EST SIGA-CR CONTROL RELAY MODULE
- EST GIF-HDVM GENESIS HORN STROBE APPLIANCE (# = MINIMUM CANDELA) (C = GC-HDVM CEILING MOUNT)
- EST GIF-VM GENESIS STROBE APPLIANCE (# = MINIMUM CANDELA) (C = GC-VM CEILING MOUNT)
- EST CS405-7A-T WEATHERPROOF CEILING MOUNT STROBE (# = MINIMUM CANDELA, WITH LKC-8 STROBE MOUNTING ACCESSORY)
- JUNCTION BOX

**WIRING LEGEND**

A = 16/2 TWISTED FPL - NETWORK/SIGNALING LINE CIRCUIT/INITIATING DEVICE CIRCUIT  
 B = 14/2 TWISTED FPL - NOTIFICATION APPLIANCE CIRCUIT/24VDC POWER CIRCUIT

**SHEET INDEX**

- 1 COVER SHEET - FIRE ALARM
- 2 FIRST FLOOR - FIRE ALARM
- 3 SECOND FLOOR - FIRE ALARM
- 4 RISER DIAGRAM - FIRE ALARM
- 5 CALCULATIONS - FIRE ALARM

DIXON LODGE

COVER SHEET - FIRE ALARM



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SCALE: NTS

SQ. FT. AREAS
BUILDING NO. .xxxx
GROSS .xxxxx SQ.FT.
NET USABLE .k,xxx
NET ASSIGN. _____
NET UNASSIGN. _____

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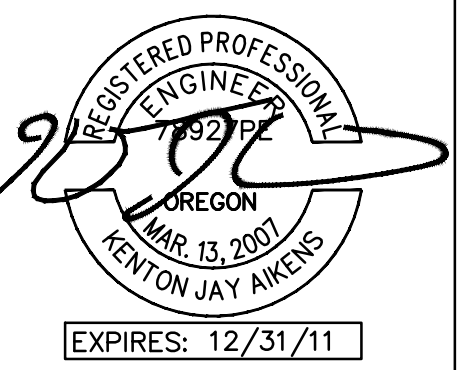
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 OF 5

**FIRE ALARM SYSTEM OPERATIONAL MATRIX**

	INPUT	OUTPUT																
		ALARM			SUPERVISORY			TROUBLE			NOTIFICATION		CONTROL		FIRE SAFETY FUNCTIONS			
		ALARM AT FACP	ALARM AT ANNUNCIATOR	ALARM AT SUPERVISING STATION	SUPERVISORY AT FACP	SUPERVISORY AT ANNUNCIATOR	SUPERVISORY AT SUPERVISING STATION	TROUBLE AT FACP	TROUBLE AT ANNUNCIATOR	TROUBLE AT SUPERVISING STATION	ACTIVATE NOTIFICATION APPLIANCES	ACTIVATE LOCAL APT. NOTIFICATION APPLIANCES	DEACTIVATE NOTIFICATION APPLIANCES	RESET CONTROL PANEL AND ALL DEVICES	SHUT DOWN HVAC FAN UNITS			
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
MANUAL PULL STATION	1	X	X	X							X	X			X			1
AREA SMOKE DETECTOR	2	X	X	X							X	X			X			2
AREA HEAT DETECTOR	3	X	X	X							X	X			X			3
FIRE SPRINKLER FLOW SWITCH ACTIVATION	4	X	X	X							X	X			X			4
KITCHEN HOOD SUPPRESSION SYSTEM	5	X	X	X							X	X			X			5
APARTMENT ROOM SMOKE DETECTOR	6				X	X	X					X						6
FIRE SPRINKLER TAMPER SWITCH ACTIVATION	7				X	X	X											7
POWER FAILURE	8							X	X	X								8
TROUBLE CONDITION	9							X	X	X								9
SYSTEM SILENCE	10												X					10
SYSTEM RESET	11													X				11

PROJECT 2010-0428  
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DIXON LODGE

FIRST FLOOR - FIRE ALARM



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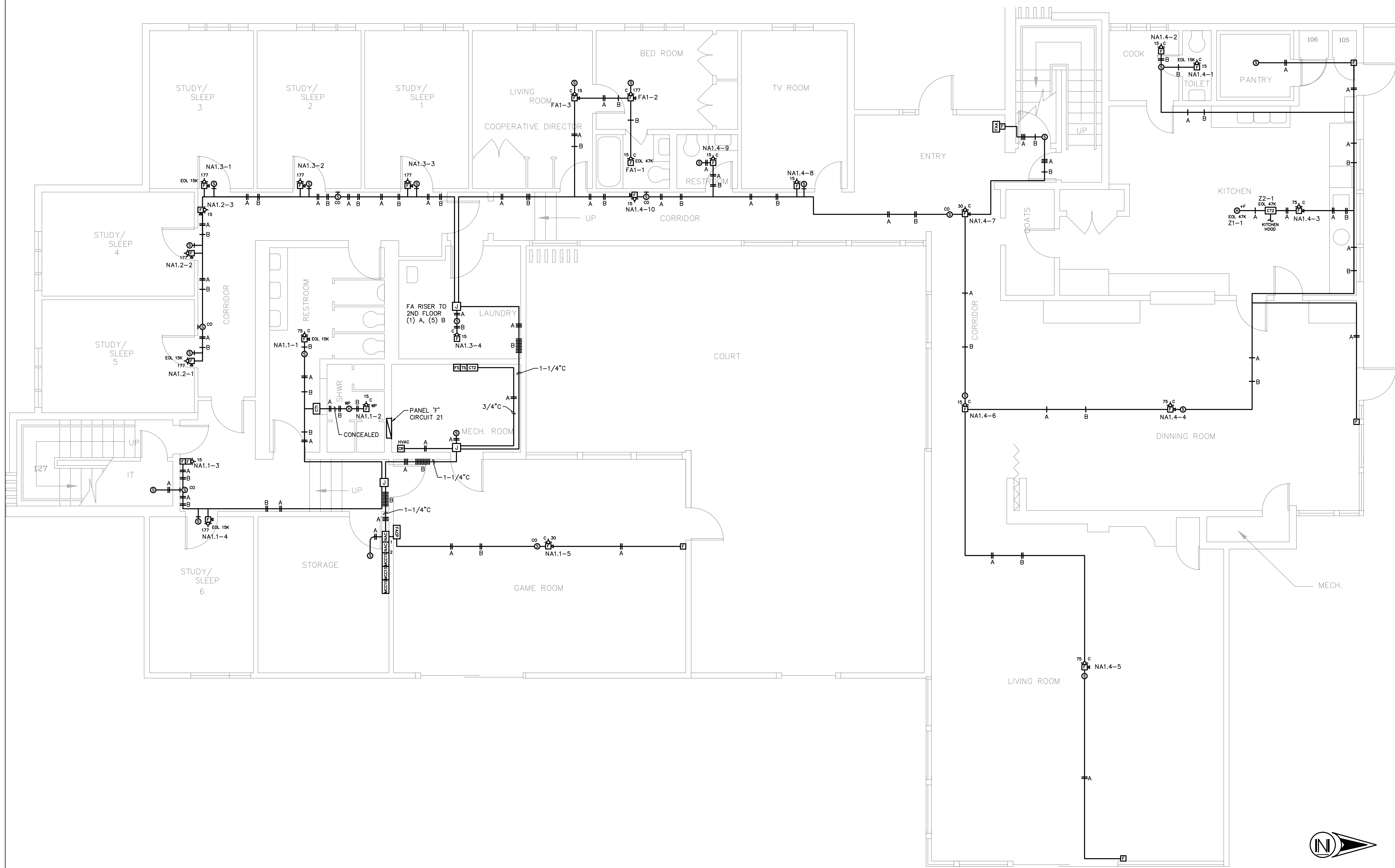
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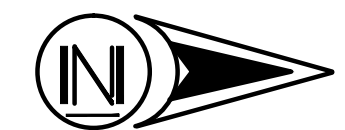
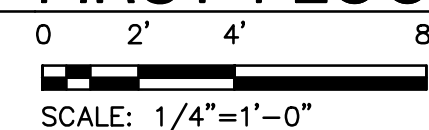
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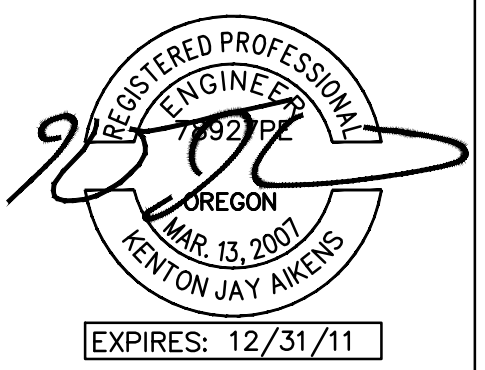


1 FIRST FLOOR - FIRE ALARM



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DIXON LODGE

SECOND FLOOR - FIRE ALARM



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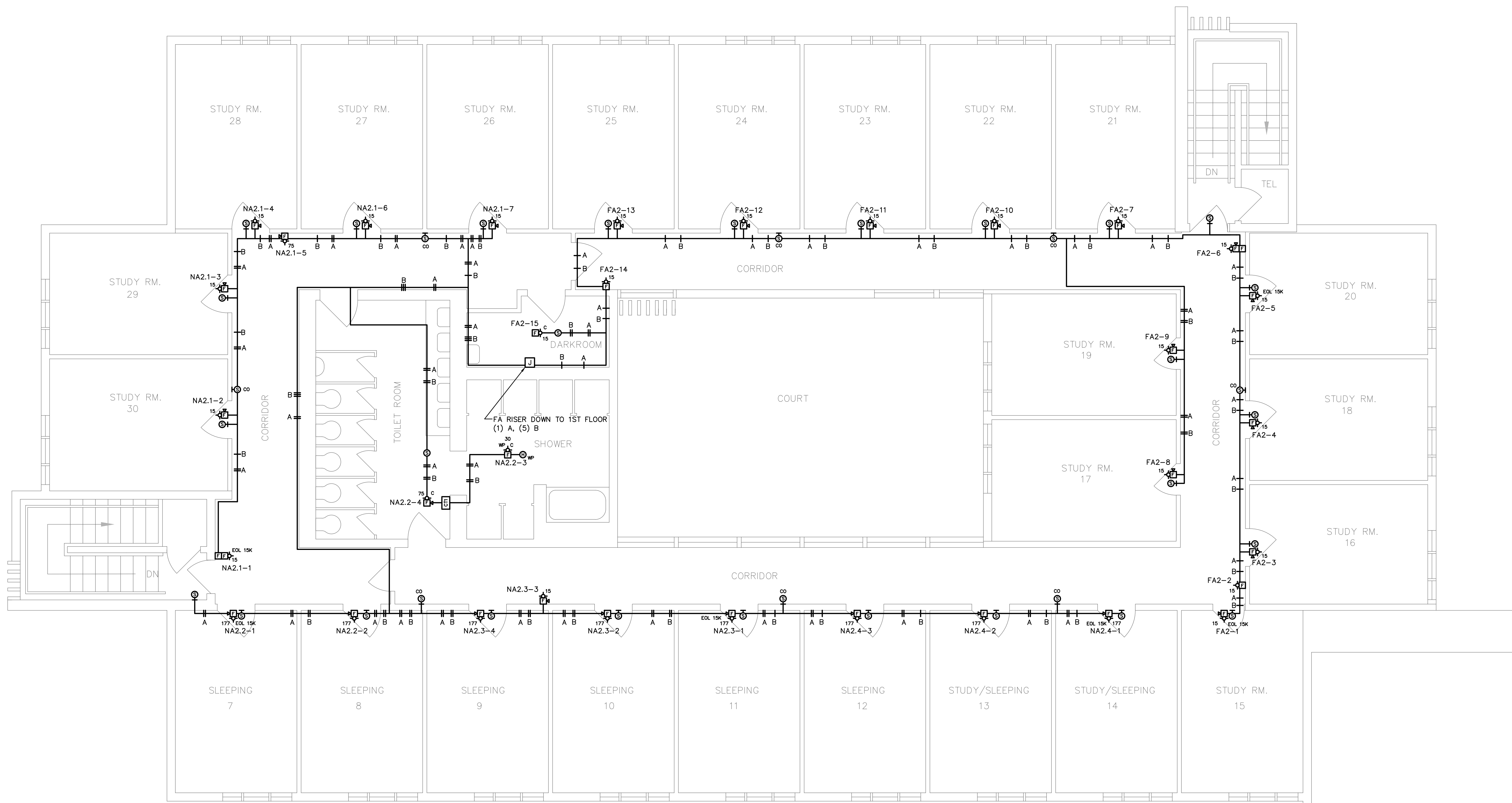
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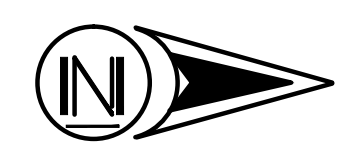
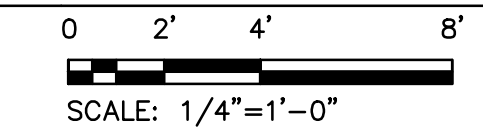
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SHEET NO. 3  
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1 SECOND FLOOR - FIRE ALARM



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# DIXON LODGE

## RISER DIAGRAM - FIRE ALARM



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(541) 737-4921

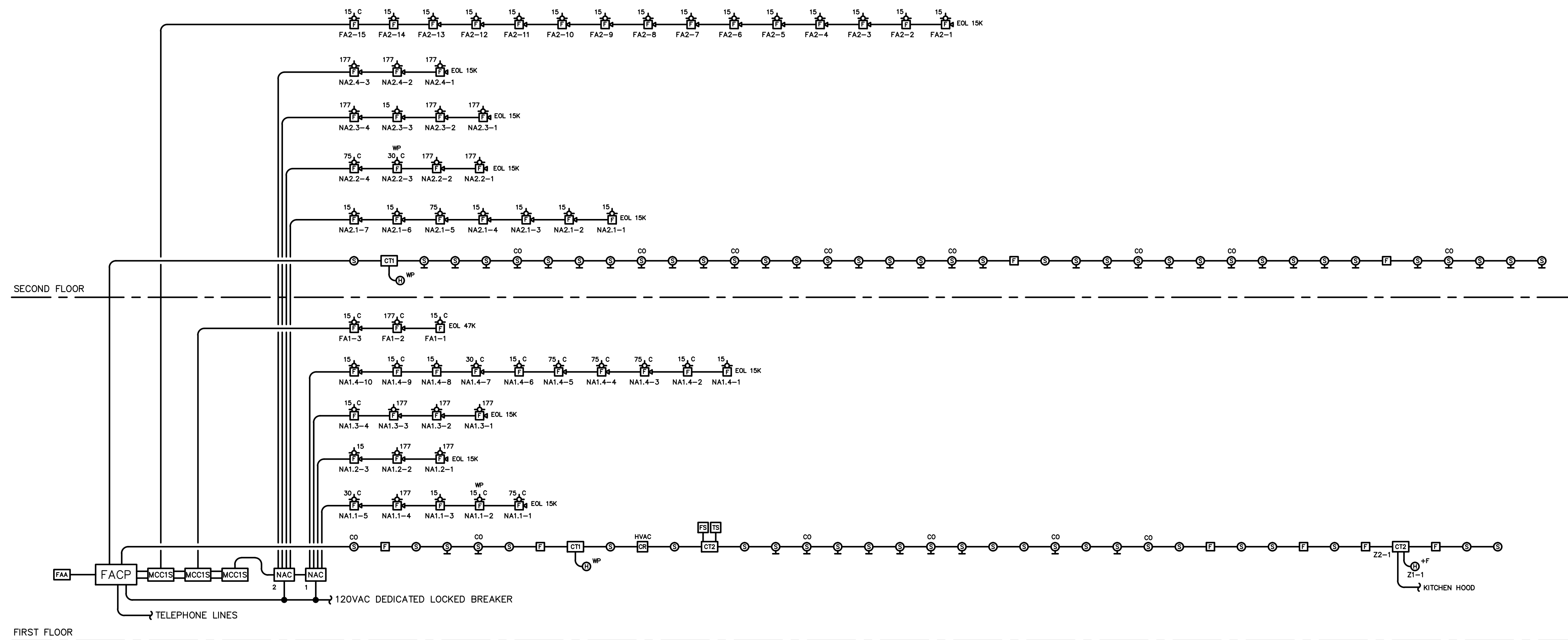
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SQ. FT. AREAS
BUILDING NO. .xxxx
GROSS .xxxxx SQ.FT.
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OF 5



1 RISER DIAGRAM  
NO SCALE

PROJECT 2010-0428  
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### NOTIFICATION CIRCUIT - NA1.1 VOLTAGE DROP CALCULATIONS

BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT: 10% ± 24V - 2.4 MAAX

CHMS = (M FEET\* 3.07/1000 + H FEET\* 182/1000 + #0 FEET\* 12/1000) \* 2

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCU. VOLTAGE DROP (V)
1	1	2	20	0.123	0.316	0.039	0.039
2	2	3	50	0.307	0.425	0.130	0.169
3	3	4	15	0.092	0.528	0.049	0.218
4	4	5	45	0.276	1.079	0.298	0.516
5	5	NAC	25	0.154	1.269	0.195	0.711

Percent Loss 2.96%

### NOTIFICATION CIRCUIT - NA2.1 VOLTAGE DROP CALCULATIONS

BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT: 10% ± 24V - 2.4 MAAX

CHMS = (M FEET\* 3.07/1000 + H FEET\* 182/1000 + #0 FEET\* 12/1000) \* 2

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCU. VOLTAGE DROP (V)
1	1	2	20	0.123	0.103	0.013	0.013
2	2	3	20	0.123	0.232	0.028	0.041
3	3	4	15	0.092	0.361	0.033	0.074
4	4	5	10	0.061	0.490	0.030	0.104
5	5	6	15	0.092	0.771	0.071	0.175
6	6	7	20	0.123	0.900	0.111	0.286
7	7	NAC	65	0.399	1.029	0.411	0.697

Percent Loss 2.90%

### NOTIFICATION CIRCUIT - FA1 VOLTAGE DROP CALCULATIONS

BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT: 10% ± 24V - 2.4 MAAX

CHMS = (M FEET\* 3.07/1000 + H FEET\* 182/1000 + #0 FEET\* 12/1000) \* 2

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCU. VOLTAGE DROP (V)
1	1	2	20	0.123	0.551	0.068	0.068
2	2	3	10	0.061	1.102	0.068	0.135
3	3	MCC1-S	85	0.522	1.231	0.642	0.778

Percent Loss 3.24%

### NOTIFICATION CIRCUIT - NA1.2 VOLTAGE DROP CALCULATIONS

BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT: 10% ± 24V - 2.4 MAAX

CHMS = (M FEET\* 3.07/1000 + H FEET\* 182/1000 + #0 FEET\* 12/1000) \* 2

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCU. VOLTAGE DROP (V)
1	1	2	20	0.123	0.551	0.068	0.068
2	2	3	10	0.061	1.102	0.068	0.135
3	3	NAC	85	0.522	1.231	0.642	0.778

Percent Loss 3.24%

### NOTIFICATION CIRCUIT - NA2.2 VOLTAGE DROP CALCULATIONS

BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT: 10% ± 24V - 2.4 MAAX

CHMS = (M FEET\* 3.07/1000 + H FEET\* 182/1000 + #0 FEET\* 12/1000) \* 2

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCU. VOLTAGE DROP (V)
1	1	2	15	0.092	0.551	0.051	0.051
2	2	3	80	0.491	1.102	0.541	0.592
3	3	4	15	0.092	1.253	0.115	0.707
4	4	NAC	90	0.553	1.569	0.867	1.574

Percent Loss 6.56%

### NOTIFICATION CIRCUIT - FA2 VOLTAGE DROP CALCULATIONS

BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT: 10% ± 24V - 2.4 MAAX

CHMS = (M FEET\* 3.07/1000 + H FEET\* 182/1000 + #0 FEET\* 12/1000) \* 2

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCU. VOLTAGE DROP (V)
1	1	2	10	0.061	0.129	0.008	0.008
2	2	3	10	0.061	0.232	0.014	0.022
3	3	4	20	0.123	0.361	0.044	0.066
4	4	5	20	0.123	0.490	0.060	0.127
5	5	6	10	0.061	0.619	0.038	0.165
6	6	7	20	0.123	0.748	0.092	0.257
7	7	8	40	0.246	0.877	0.215	0.472
8	8	9	20	0.123	1.006	0.124	0.595
9	9	10	30	0.184	1.135	0.209	0.805
10	10	11	20	0.123	1.264	0.155	0.960
11	11	12	20	0.123	1.393	0.171	1.131
12	12	13	20	0.123	1.522	0.187	1.318
13	13	14	15	0.092	1.651	0.152	1.470
14	14	15	15	0.092	1.754	0.162	1.631
15	15	MCC1-S	60	0.368	1.863	0.686	2.318

Percent Loss 9.66%

### NOTIFICATION CIRCUIT - NA1.3 VOLTAGE DROP CALCULATIONS

BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT: 10% ± 24V - 2.4 MAAX

CHMS = (M FEET\* 3.07/1000 + H FEET\* 182/1000 + #0 FEET\* 12/1000) \* 2

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCU. VOLTAGE DROP (V)
1	1	2	15	0.092	0.551	0.051	0.051
2	2	3	15	0.092	1.102	0.101	0.152
3	3	4	25	0.154	1.653	0.254	0.406
4	4	NAC	55	0.338	1.762	0.595	1.001

Percent Loss 4.17%

### NOTIFICATION CIRCUIT - NA2.3 VOLTAGE DROP CALCULATIONS

BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT: 10% ± 24V - 2.4 MAAX

CHMS = (M FEET\* 3.07/1000 + H FEET\* 182/1000 + #0 FEET\* 12/1000) \* 2

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCU. VOLTAGE DROP (V)
1	1	2	15	0.092	0.551	0.051	0.051
2	2	3	15	0.092	1.102	0.101	0.152
3	3	4	15	0.092	1.231	0.113	0.266
4	4	NAC	115	0.706	1.782	1.258	1.524

Percent Loss 6.35%

### NOTIFICATION CIRCUIT - NA1.4 VOLTAGE DROP CALCULATIONS

BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT: 10% ± 24V - 2.4 MAAX

CHMS = (M FEET\* 3.07/1000 + H FEET\* 182/1000 + #0 FEET\* 12/1000) \* 2

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCU. VOLTAGE DROP (V)
1	1	2	10	0.061	0.109	0.007	0.007
2	2	3	45	0.276	0.218	0.060	0.067
3	3	4	45	0.276	0.534	0.148	0.214
4	4	5	60	0.368	0.850	0.313	0.528
5	5	6	40	0.246	1.166	0.286	0.814
6	6	7	25	0.154	1.275	0.196	1.010
7	7	8	20	0.123	1.465	0.180	1.190
8	8	9	20	0.123	1.568	0.193	1.382
9	9	10	15	0.092	1.677	0.154	1.537
10	10	NAC	70	0.430	1.806	0.776	2.313

Percent Loss 9.64%

### NOTIFICATION CIRCUIT - NA2.4 VOLTAGE DROP CALCULATIONS

BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT: 10% ± 24V - 2.4 MAAX

CHMS = (M FEET\* 3.07/1000 + H FEET\* 182/1000 + #0 FEET\* 12/1000) \* 2

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCU. VOLTAGE DROP (V)
1	1	2	15	0.092	0.551	0.051	0.051
2	2	3	15	0.092	1.102	0.101	0.152
3	3	NAC	155	0.952	1.653	1.573	1.725

Percent Loss 7.19%

### FACP BATTERY CALCULATIONS

City	Call No	Description	Est'd mA	Est'd Ah/A
		Job Name: OSU Azalea House		
<b>ESTS Annunciator</b>				
1		3-LCDANN LCD Annunciator /w CPU and Door	212	214
<b>ESTS System Components</b>				
<b>Local Rail Modules</b>				
1	3-CPU3	Central Processor Module	155	165
1	3-RS485B	Network Communication Card, Class B	98	98
1	3-SSDC1	Signature Single Driver Controller (LRW)	147	207
1	3-MODCOM	Modem Communicator and Dialer	60	95
<b>User Interface Modules</b>				
1	3-LCD	Liquid Crystal Display Module	40	42
1	3-12/S2Y	12 Switch, 12 Yel LED Ctrl Dis Mod	2	38
<b>Battery Calculations</b>				
		Total Standby & Alarm Currents in mA	714	859
		(1.2*(24*Standby Current) + 1.4*Alarm Current)/1000		
		Calculated Battery Ampere Hours		20.7
2	12V40A	40 AH Battery		

### NAC BATTERY CALCULATIONS

Booster Supply	Booster Power Supply Calculations	Stby mA	Alm mA
1	BPS6A Remote Booster Power Supply, 6.5A, 120Vac, Red	70	270
Total Load			6000
<b>Battery Calculations</b>			
		Total Standby & Alarm Currents in mA	70
		Battery AH = 1.2*24 Hours*Standby Current + 1.2*Alarm Current	6270
		Calculated Battery Ampere Hours	9.54
2	12V10A	10 AH Battery	

DIXON LODGE

CALCULATIONS  
FIRE ALARM



Oregon State University  
100 Adams Hall  
Corvallis, Oregon  
97331-2001  
(541) 737-4921

SCALE: NTS

SQ. FT. AREAS	
BUILDING NO. .xxxx	
GROSS .xxxxx SQ.FT.	
NET USABLE k,xxx	
NET ASSIGN.	
NET UNASSIGN.	

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Rev. A

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SHEET NO. 5  
OF 5

PROJECT 2010-0428  
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**GENERAL FIRE ALARM NOTES**

- A. PROJECT CONSISTS OF THE INSTALLATION OF A MANUAL AND AUTOMATIC, ADDRESSABLE FIRE ALARM SYSTEM. MANUAL PULL STATIONS ARE PROVIDED AT EXITS. SMOKE DETECTORS ARE PROVIDED IN ALL HABITABLE SPACES. HEAT DETECTORS ARE PROVIDED WHERE THE ENVIRONMENT IS NOT SUITABLE FOR SMOKE DETECTORS, SUCH AS JANITORS CLOSETS AND LOUNGES. CONTROL OUTPUTS ARE PROVIDED FOR EMERGENCY CONTROL FUNCTIONS SUCH AS AIR HANDLER SHUT DOWN AND ELEVATOR RECALL. OCCUPANT NOTIFICATION IS PROVIDED THROUGHOUT THE BUILDING. SYSTEM ALARM, SUPERVISORY AND TROUBLE SIGNALS ARE MONITORED BY OSU CAMPUS SAFETY.
- B. REMOVE THE EXISTING FIRE ALARM SYSTEM AFTER COMPLETION AND ACCEPTANCE OF THE NEW FIRE ALARM SYSTEM.
- C. THE SYSTEM DESIGN AND INSTALLATION IS IN COMPLIANCE WITH THE FOLLOWING CODES AND STANDARDS:
  - 2010 OSSC
  - 2010 OFC
  - 2010 OMSC
  - 2008 OESC
  - 2007 NFPA 72
  - OSU CONSTRUCTION STANDARDS

**FIRE ALARM SYMBOL LIST**

- EST 3 FIRE ALARM CONTROL PANEL
- EST 3-LCDANN FIRE ALARM ANNUNCIATOR
- EST BPS6A NOTIFICATION APPLIANCE CIRCUIT PANEL
- EST SIGA-270 MANUAL PULL STATION
- EST SIGA-PS SMOKE DETECTOR CEILING MOUNTED WITH SIGA-SB STANDARD BASE (AB = EST SIGA-AB4G SOUNDER BASE)
- EST SIGA2-PCOS SMOKE/CO DETECTOR, CEILING MOUNTED WITH SIGA-SB STANDARD BASE
- EST SIGA-PS SMOKE DETECTOR WALL MOUNTED SIGA-SB STANDARD BASE (AB = EST SIGA-AB4G SOUNDER BASE)
- EST SIGA2-PCOS SMOKE/CO DETECTOR, WALL MOUNTED WITH SIGA-SB STANDARD BASE
- EST SIGA-HRS HEAT DETECTOR CEILING MOUNTED WITH SIGA-SB STANDARD BASE (+F = 282B-PL HIGH TEMP, WP = 281B-PL)
- EST SIGA-HRS HEAT DETECTOR WALL MOUNTED WITH SIGA-SB STANDARD BASE (+F = 282B-PL HIGH TEMP, WP = 281B-PL)
- EST SIGA-MCC1S SYNCHRONIZATION OUTPUT MODULE
- EST SIGA-CT1 MONITOR MODULE
- EST SIGA-CT2 DUAL MONITOR MODULE
- EST G1F-HDVM GENESIS HORN STROBE APPLIANCE (# = MINIMUM CANDELA) (C = GC-HDVM CEILING MOUNT)
- EST G1F-VM GENESIS STROBE APPLIANCE (# = MINIMUM CANDELA) (C = GC-VM CEILING MOUNT)
- EST 757-7A-T WEATHERPROOF HORN STROBE (# = MINIMUM CANDELA)
- EST CS405-7A-T WEATHERPROOF STROBE (# = MINIMUM CANDELA)
- FIRE ALARM JUNCTION BOX

		FIRE ALARM SYSTEM OPERATIONAL MATRIX																	
		ALARM			SUPERVISORY			TROUBLE			NOTIFICATION		CONTROL		FIRE SAFETY FUNCTIONS				
INPUT		ALARM AT FACP	ALARM AT ANNUNCIATOR	ALARM AT SUPERVISING STATION	SUPERVISORY AT FACP	SUPERVISORY AT ANNUNCIATOR	SUPERVISORY AT SUPERVISING STATION	TROUBLE AT FACP	TROUBLE AT ANNUNCIATOR	TROUBLE AT SUPERVISING STATION	ACTIVATE NOTIFICATION APPLIANCES	ACTIVATE LOCAL APT. NOTIFICATION APPLIANCES	DEACTIVATE NOTIFICATION APPLIANCES	RESET CONTROL PANEL AND ALL DEVICES					
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	
MANUAL PULL STATION	1	X	X	X							X	X							1
AREA SMOKE DETECTOR	2	X	X	X							X	X							2
AREA CARBON MONOXIDE DETECTOR	3	X	X	X							X	X							3
AREA HEAT DETECTOR	4	X	X	X							X	X							4
FIRE SPRINKLER FLOW SWITCH ACTIVATION	5	X	X	X							X	X							5
KITCHEN HOOD SUPPRESSION SYSTEM	6	X	X	X							X	X							6
APARTMENT ROOM SMOKE DETECTOR	7				X	X	X					X							7
FIRE SPRINKLER TAMPER SWITCH ACTIVATION	8				X	X	X												8
POWER FAILURE	9							X	X	X									9
TROUBLE CONDITION	10							X	X	X									10
SYSTEM SILENCE	11												X						11
SYSTEM RESET	12													X					12
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	

**WIRING LEGEND**

- A = 16/2 TWISTED FPL - NETWORK/SIGNALING LINE CIRCUIT/INITIATING DEVICE CIRCUIT
- B = 14/2 TWISTED FPL - NOTIFICATION APPLIANCE CIRCUIT/24VDC POWER CIRCUIT

**SHEET INDEX**

- 1 COVER SHEET - FIRE ALARM
- 2 BASEMENT FLOOR - FIRE ALARM
- 3 FIRST FLOOR - FIRE ALARM
- 4 SECOND FLOOR - FIRE ALARM
- 5 THIRD FLOOR - FIRE ALARM
- 6 CALCS AND DETAILS - FIRE ALARM

PROJECT 2010-0429  
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OXFORD HOUSE

COVER SHEET - FIRE ALARM



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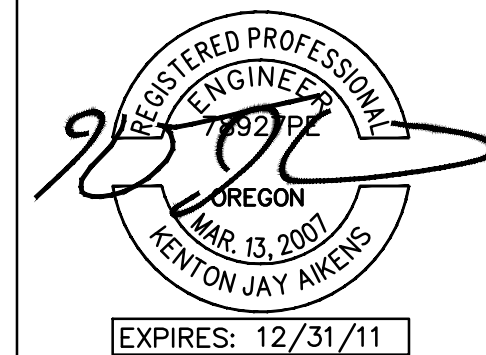
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SQ. FT. AREAS
BUILDING NO. .xxxx
GROSS .xxxxx SQ.FT.
NET USABLE .k,xxx
NET ASSIGN. _____
NET UNASSIGN. _____

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SHEET NO. 1  
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**OXFORD HOUSE**

**BASEMENT FLOOR - FIRE ALARM**



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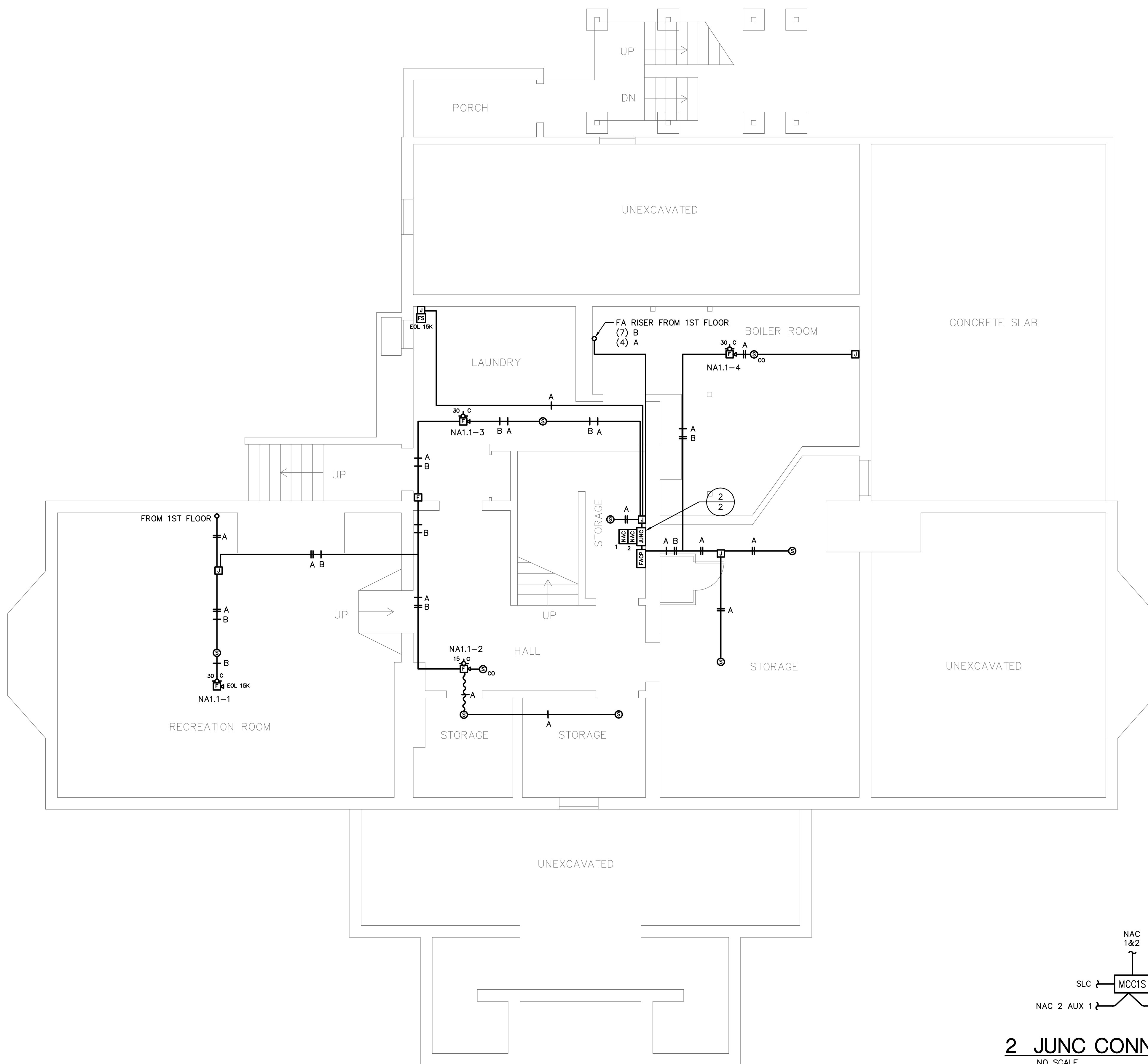
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SQ. FT. AREAS	
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GROSS	xxxxx SQ.FT.
NET USABLE	k,xxx
NET ASSIGN.	
NET UNASSIGN.	

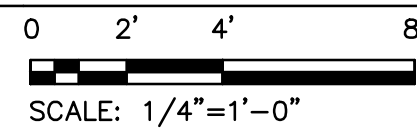
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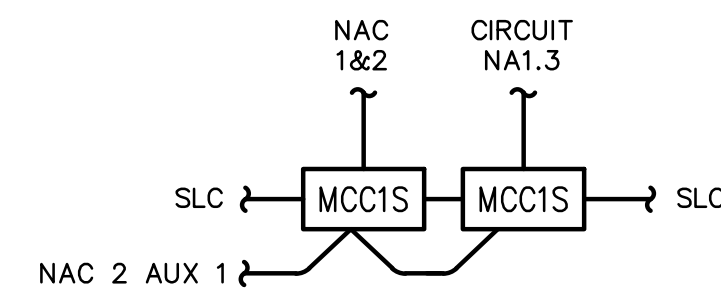
SHEET NO. **2**  
OF **6**



**1 BASEMENT FLOOR - FIRE ALARM**



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



**2 JUNC CONNECTION DETAIL**

NO SCALE



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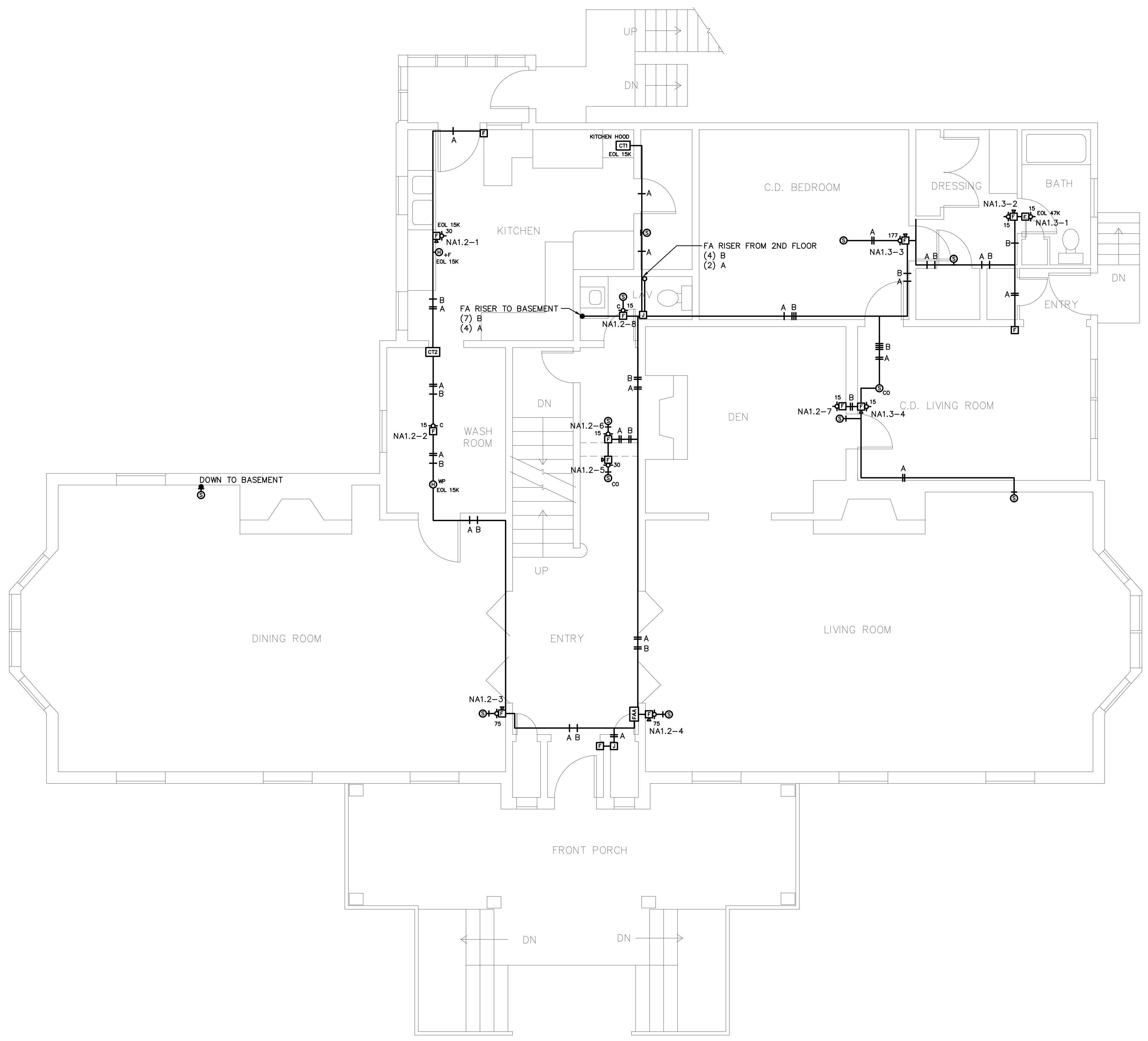
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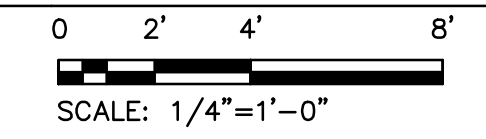


# OXFORD HOUSE

## FIRST FLOOR - FIRE ALARM



1 FIRST FLOOR - FIRE ALARM

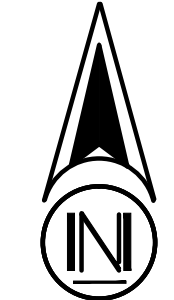


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SCALE: 1/4"=1'0"

SQ. FT. AREAS	
BUILDING NO.	xxxx
GROSS	xxxxx SQ.FT.
NET USABLE	k,xxx
NET ASSIGN.	
NET UNASSIGN.	

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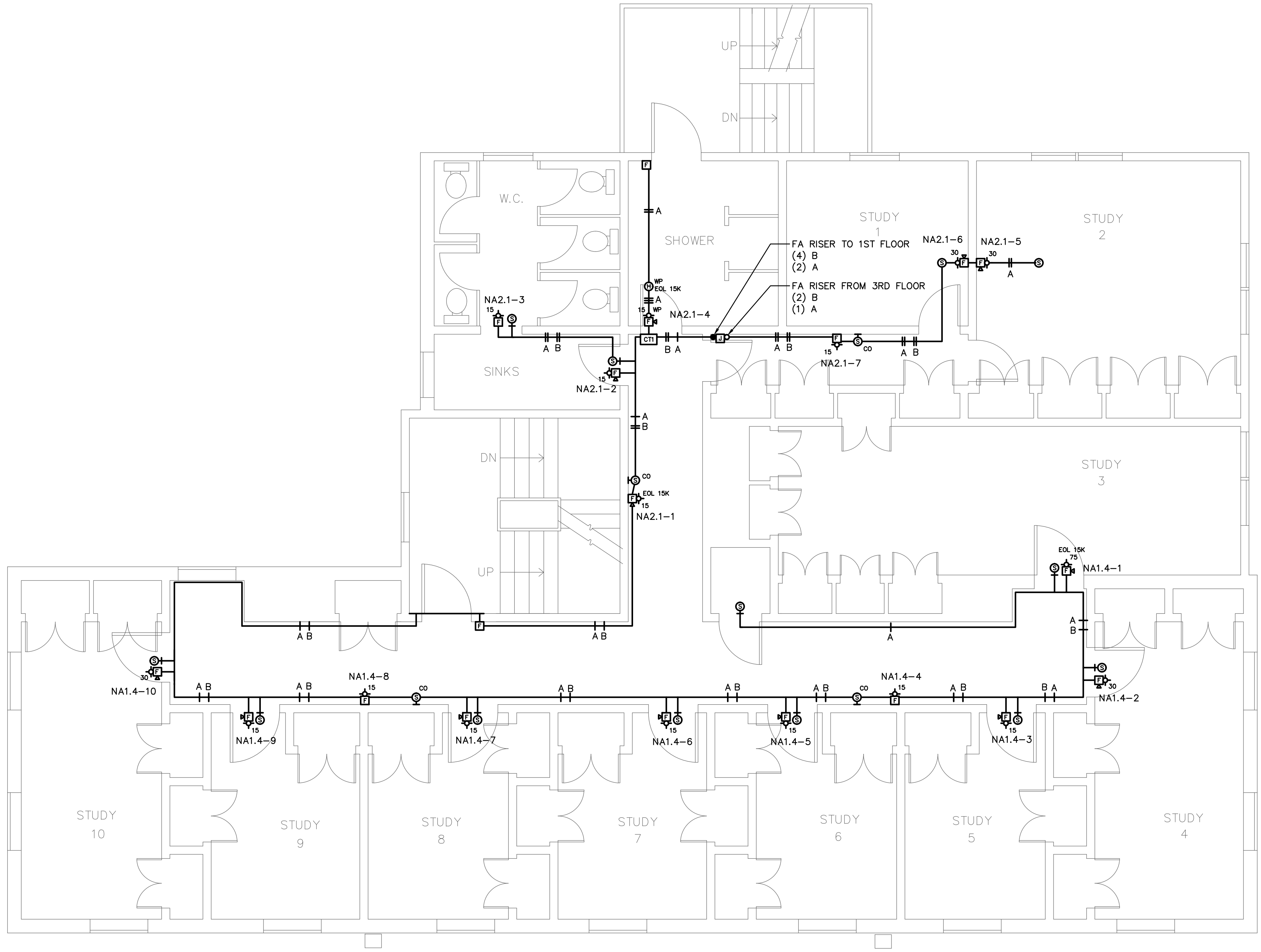
SHEET NO. 3  
OF 6



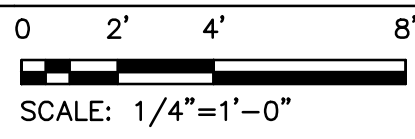


# OXFORD HOUSE

## SECOND FLOOR - FIRE ALARM



### 1 SECOND FLOOR - FIRE ALARM



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100 Adams Hall  
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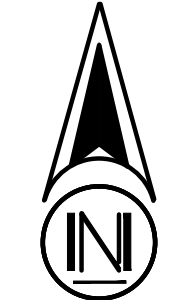
SCALE: 1/4"=1'0"

SQ. FT. AREAS	
BUILDING NO.	xxxxx
GROSS	xxxxx SQ.FT.
NET USABLE	k,xxx
NET ASSIGN.	
NET UNASSIGN.	

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SHEET NO. 4  
OF 6



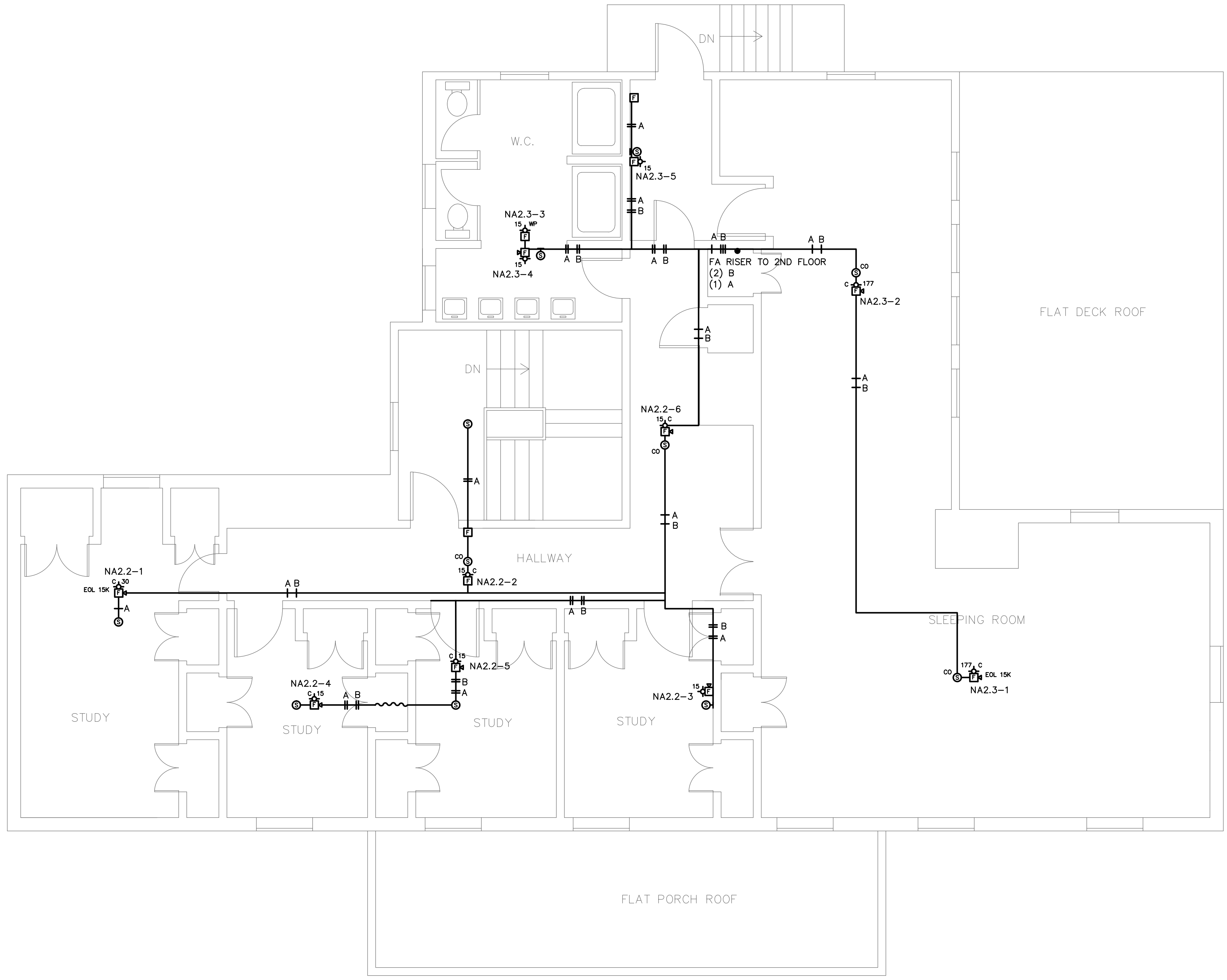
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# OXFORD HOUSE

## THIRD FLOOR - FIRE ALARM



**1 THIRD FLOOR - FIRE ALARM**  
SCALE: 1/4"=1'-0"

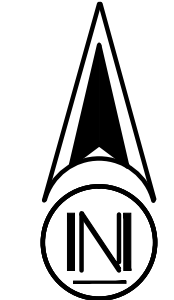


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(541) 737-4921

SCALE: 1/4"=1'0"

SQ. FT. AREAS	
BUILDING NO.	xxxxx
GROSS	xxxxx SQ.FT.
NET USABLE	k,xxx
NET ASSIGN.	
NET UNASSIGN.	

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OF 6



OXFORD HOUSE

CALCS AND DETAILS - FIRE ALARM



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97331-2001  
(541) 737-4921

SCALE: NTS

SQ. FT. AREAS  
BUILDING NO. \_\_\_\_\_  
GROSS \_\_\_\_\_ SQ.FT.  
NET USABLE \_\_\_\_\_ SQ.FT.  
NET ASSIGN. \_\_\_\_\_  
NET UNASSIGN. \_\_\_\_\_

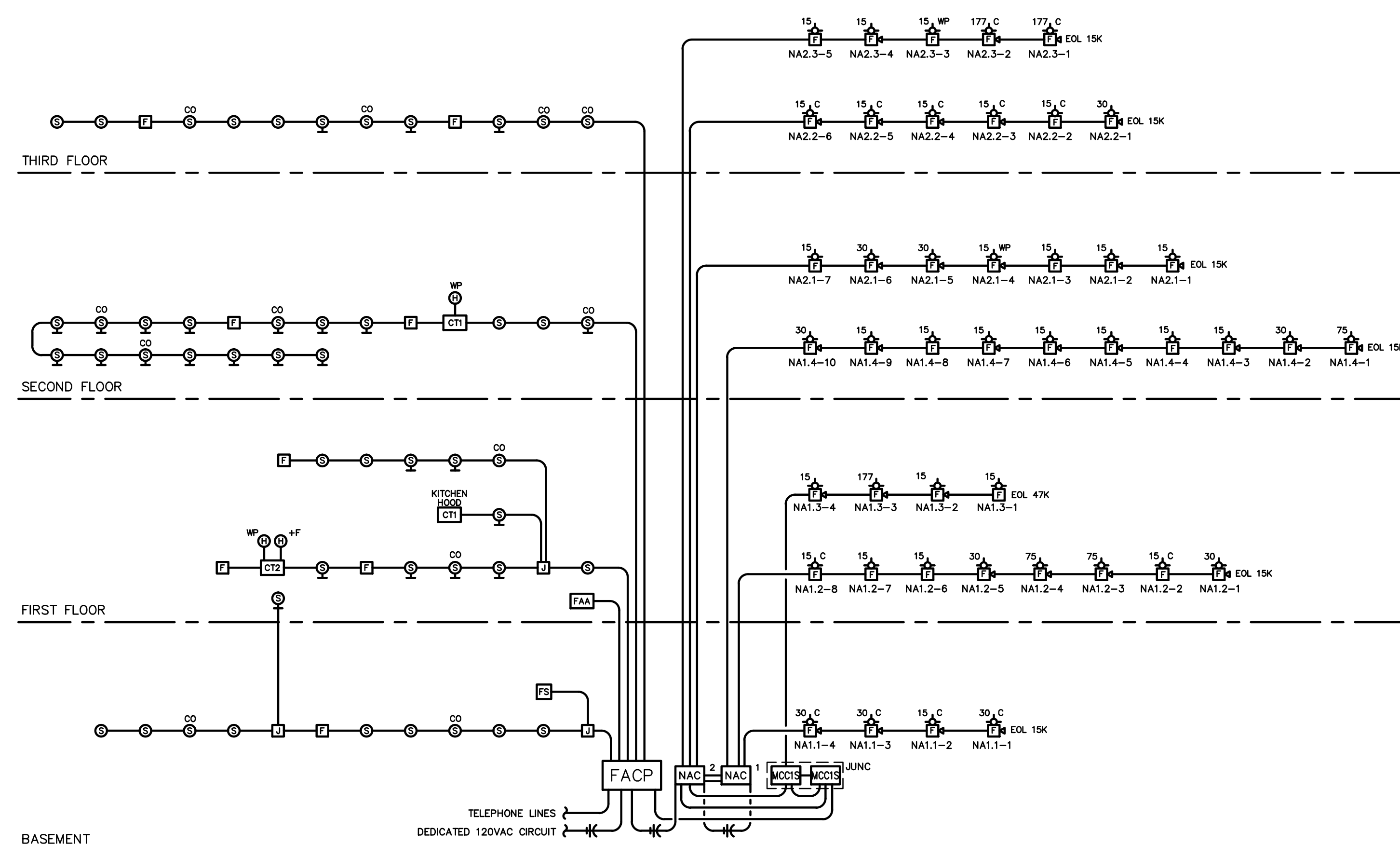
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PROJECT 2010-0429  
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**NOTIFICATION CIRCUIT - NA1.1**  
**VOLTAGE DROP CALCULATIONS**  
BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT: 10% ± 24V ± 2.4 0MAX

CHMS = (84 FEET \* 3.07/1000) + (42 FEET \* 180/1000) + (40 FEET \* 120/1000) \* 2

1) A/V 15cd CEILING	0.147	2) A/V 30cd	0.190	3) A/V 75cd	0.281
4) A/V 110cd	0.337	5) V/O 15cd	0.103	6) V/O 30cd	0.141
7) V/O 75cd	0.255	8) V/O 110cd	0.311	9) Audible Base	0.066
10) A/V 177cd	0.551	10) V/O 177cd	0.565	12) Horn	0.026

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCU. VOLTAGE DROP (V)
2	1	2	40	0.246	0.190	0.047	0.047
1	2	3	30	0.184	0.337	0.062	0.109
2	3	4	50	0.307	0.527	0.162	0.271
2	4	NAC	30	0.184	0.717	0.132	0.403

Percent Loss 1.68%

**NOTIFICATION CIRCUIT - NA2.1**  
**VOLTAGE DROP CALCULATIONS**  
BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT: 10% ± 24V ± 2.4 0MAX

CHMS = (84 FEET \* 3.07/1000) + (42 FEET \* 180/1000) + (40 FEET \* 120/1000) \* 2

1) A/V 15cd	0.129	2) A/V 30cd	0.167	3) A/V 75cd	0.281
4) A/V 110cd	0.337	5) V/O 15cd	0.103	6) V/O 30cd	0.141
7) V/O 75cd	0.255	8) V/O 110cd	0.311	9) Audible Base	0.066
10) A/V 177cd	0.551	10) V/O 177cd	0.565	12) Horn	0.026

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCU. VOLTAGE DROP (V)
1	1	2	20	0.123	0.129	0.016	0.016
1	2	3	25	0.154	0.258	0.040	0.055
5	3	4	25	0.154	0.361	0.055	0.111
1	4	5	40	0.246	0.490	0.120	0.231
2	5	6	10	0.061	0.657	0.040	0.272
2	6	7	25	0.154	0.824	0.126	0.398
5	7	NAC	70	0.430	0.927	0.398	0.796

Percent Loss 3.32%

**NOTIFICATION CIRCUIT - NA1.2**  
**VOLTAGE DROP CALCULATIONS**  
BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT: 10% ± 24V ± 2.4 0MAX

CHMS = (84 FEET \* 3.07/1000) + (42 FEET \* 180/1000) + (40 FEET \* 120/1000) \* 2

1) A/V 15cd	0.129	2) A/V 30cd	0.167	3) A/V 75cd	0.281
4) A/V 110cd	0.337	5) V/O 15cd CEILING	0.109	6) V/O 15cd	0.103
7) V/O 75cd	0.255	8) V/O 110cd	0.311	9) Audible Base	0.066
10) A/V 177cd	0.551	10) V/O 177cd	0.565	12) Horn	0.026

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCU. VOLTAGE DROP (V)
2	1	2	20	0.123	0.167	0.021	0.021
5	2	3	30	0.184	0.276	0.051	0.071
3	3	4	25	0.154	0.557	0.085	0.157
3	4	5	35	0.215	0.838	0.180	0.337
2	5	6	10	0.061	1.005	0.062	0.399
6	6	7	50	0.307	1.108	0.340	0.739
6	7	8	40	0.246	1.211	0.297	1.036
6	8	NAC	45	0.276	1.314	0.363	1.399

Percent Loss 5.83%

**NOTIFICATION CIRCUIT - NA2.2**  
**VOLTAGE DROP CALCULATIONS**  
BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT: 10% ± 24V ± 2.4 0MAX

CHMS = (84 FEET \* 3.07/1000) + (42 FEET \* 180/1000) + (40 FEET \* 120/1000) \* 2

1) A/V 15cd CEILING	0.147	2) A/V 30cd CEILING	0.190	3) A/V 15cd	0.129
4) A/V 110cd	0.337	5) V/O 15cd CEILING	0.109	6) V/O 30cd	0.141
7) V/O 75cd	0.255	8) V/O 110cd	0.311	9) Audible Base	0.066
10) CEILING A/V 177cd	0.570	10) V/O 177cd	0.565	12) Horn	0.026

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCU. VOLTAGE DROP (V)
2	1	2	30	0.184	0.190	0.035	0.035
5	2	3	35	0.215	0.299	0.064	0.099
1	3	4	50	0.307	0.446	0.137	0.236
1	4	5	20	0.123	0.593	0.073	0.309
1	5	6	35	0.215	0.740	0.159	0.468
1	6	NAC	85	0.522	0.887	0.463	0.931

Percent Loss 3.88%

**NOTIFICATION CIRCUIT - NA1.3**  
**VOLTAGE DROP CALCULATIONS**  
BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT: 10% ± 24V ± 2.4 0MAX

CHMS = (84 FEET \* 3.07/1000) + (42 FEET \* 180/1000) + (40 FEET \* 120/1000) \* 2

1) A/V 15cd	0.129	2) A/V 30cd	0.167	3) A/V 75cd	0.281
4) A/V 110cd	0.337	5) V/O 15cd	0.103	6) V/O 30cd	0.141
7) V/O 75cd	0.255	8) V/O 110cd	0.311	9) Audible Base	0.066
10) A/V 177cd	0.570	10) V/O 177cd	0.565	12) Horn	0.026

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCU. VOLTAGE DROP (V)
5	1	2	10	0.061	0.103	0.006	0.006
1	2	3	25	0.154	0.232	0.036	0.042
10	3	4	25	0.154	0.802	0.123	0.165
1	4	MCC1-S	70	0.430	0.931	0.400	0.565

Percent Loss 2.35%

**NOTIFICATION CIRCUIT - NA2.3**  
**VOLTAGE DROP CALCULATIONS**  
BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT: 10% ± 24V ± 2.4 0MAX

CHMS = (84 FEET \* 3.07/1000) + (42 FEET \* 180/1000) + (40 FEET \* 120/1000) \* 2

1) CEILING A/V 15cd	0.147	2) CEILING A/V 30cd	0.190	3) A/V 15cd	0.129
4) A/V 110cd	0.337	5) V/O 15cd	0.103	6) V/O 30cd	0.141
7) V/O 75cd	0.255	8) V/O 110cd	0.311	9) Audible Base	0.066
10) CEILING A/V 177cd	0.570	10) V/O 177cd	0.565	12) Horn	0.026

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCU. VOLTAGE DROP (V)
10	1	2	35	0.215	0.570	0.122	0.122
10	2	3	30	0.184	1.140	0.210	0.332
5	3	4	5	0.031	1.243	0.038	0.371
3	4	5	20	0.123	1.372	0.168	0.539
5	5	NAC	85	0.522	1.475	0.770	1.309

Percent Loss 5.45%

**NOTIFICATION CIRCUIT - NA1.4**  
**VOLTAGE DROP CALCULATIONS**  
BASED ON POINT-TO-POINT CHMS CALCULATIONS. ACCEPTABLE LIMIT: 10% ± 24V ± 2.4 0MAX

CHMS = (84 FEET \* 3.07/1000) + (42 FEET \* 180/1000) + (40 FEET \* 120/1000) \* 2

1) A/V 15cd	0.129	2) A/V 30cd	0.167	3) A/V 75cd	0.281
4) A/V 110cd	0.337	5) V/O 15cd	0.103	6) V/O 30cd	0.141
7) V/O 75cd	0.255	8) V/O 110cd	0.311	9) Audible Base	0.066
10) A/V 177cd	0.551	10) V/O 177cd	0.565	12) Horn	0.026

DEVICE TYPE #	DEVICE #	TO DEVICE #	LINEAR FEET BETWEEN DEVICES	RESISTANCE OF WIRES (CHMS)	LOAD ON RUN (AMPS)	VOLTAGE DROP (VOLTS)	ACCU. VOLTAGE DROP (V)
3	1	2	20	0.123	0.281	0.035	0.035
2	2	3	20	0.123	0.448	0.055	0.090
1	3	4	20	0.123	0.577	0.071	0.160
5	4	5	20	0.123	0.680	0.084	0.244
1	5	6	20	0.123	0.809	0.099	0.343
1	6	7	25	0.154	0.938	0.144	0.487
1	7	8	20	0.123	1.067	0.131	0.618
5	8	9	20	0.123	1.170	0.144	0.762
1	9	10	20	0.123	1.299	0.160	0.921
2	10	NAC	120	0.737	1.466	1.080	2.002

Percent Loss 8.34%

**FACP BATTERY CALCULATIONS**

General Information	Job Name	OSU Oxford House	Description	Est'd SmA	Est'd AhA
City					
EBTS Annunciator	1	3-LCDANN	LCD Annunciator /w CPU and Door	212	214
EBTS System Components					
Local Rail Modules					
1	3-CPU3	Central Processor Module		155	165
1	3-RS485B	Network Communication Card, Class B		98	98
1	3-SSDC1	Signature Single Driver Controller (LRM)		147	207
1	3-MODCOM	Modem Communicator and Dialer		60	95
User Interface Modules					
1	3-LCD	Liquid Crystal Display Module		40	42
1	3-12/S2Y	12 Switch, 12 Yel LED Ctrl Dis Mod		2	38
Battery Calculations					
	Total Standby & Alarm Currents in mA			714	859
	(1.2*(24*Standby Current) + 1.4*Alarm Current)/1000				
Battery	Calculated Battery Ampere Hours				20.7
2	12V40A	40 AH Battery			

**NAC BATTERY CALCULATIONS**

Booster Power Supply Calculations			
Booster Supply		Siby mA	Alm mA
1	BPSBA	Remote Booster Power Supply, 6.5A, 120Vac, Red	70 270
		Total Load	6000
Battery Calculations			
	Total Standby & Alarm Currents in mA		
	(1.2*(24H*Standby Current) + 1.2*Alarm Current)/1000		
Battery	Calculated Battery Ampere Hours		
2	12V10A	10 AH Battery	

**EXHIBIT G  
BOLI RATES**

**PREVAILING WAGE RATES**

In compliance with Oregon Prevailing Wage Law, the following is incorporated into this Purchase Order:

The Contractor and all subcontractors shall comply with the provisions of ORS 279C.800 through 279C.870, relative to Prevailing Wage Rates as outlined in Sections C.1 and C.2 of the General Conditions. This Purchase Order is subject to the following BOLI wage rate requirements, which are incorporated herein by reference:

- January 1, 2012 PWR Apprenticeship Rates
- January 1, 2012 Prevailing Wage Rates for Public Works Contracts in Oregon
- January 1, 2012 Definitions of Covered Occupations for Public Works Contracts in Oregon

These BOLI wage rates are available on line at:

**[http://www.boli.state.or.us/BOLI/WHD/PWR/pwr\\_state.shtml](http://www.boli.state.or.us/BOLI/WHD/PWR/pwr_state.shtml)**

**EXHIBIT H**  
**PAYMENT AND PERFORMANCE BOND FORMS**

*[Remainder of this page left intentionally blank]*

**OREGON UNIVERSITY SYSTEM**

**STANDARD PUBLIC IMPROVEMENT CONTRACT**

**PAYMENT BOND**

Bond No. \_\_\_\_\_  
Solicitation BD156622P  
Project Name Cooperative House Fire Alarms

\_\_\_\_\_(Surety #1)                      Bond Amount No. 1:                      \$ \_\_\_\_\_  
\_\_\_\_\_(Surety #2)\*                      Bond Amount No. 2:\*                      \$ \_\_\_\_\_  
\* *If using multiple sureties*                      Total Penal Sum of Bond:                      \$ \_\_\_\_\_

We, \_\_\_\_\_, as Principal, and the above identified Surety(ies), authorized to transact surety business in Oregon, as Surety, hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns firmly by these presents to pay unto the State of Oregon, Oregon State Board of Higher Education (OSBHE), the sum of (Total Penal Sum of Bond) \_\_\_\_\_ (Provided, that we the Sureties bind ourselves in such sum "jointly and severally" as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety), and

WHEREAS, the Principal has entered into a contract with the State of Oregon, the plans, specifications, terms and conditions of which are contained in above-referenced Solicitation;

WHEREAS, the terms and conditions of the contract, together with applicable plans, standard specifications, special provisions, schedule of performance, and schedule of contract prices, are made a part of this Payment Bond by reference, whether or not attached to the contract (all hereafter called "Contract"); and

WHEREAS, the Principal has agreed to perform the Contract in accordance with the terms, conditions, requirements, plans and specifications, and schedule of contract prices which are set forth in the Contract and any attachments, and all authorized modifications of the Contract which increase the amount of the work, or the cost of the Contract, or constitute authorized extensions of time for performance of the Contract, notice of any such modifications hereby being waived by the Surety:

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH that if the Principal shall faithfully and truly observe and comply with the terms, conditions and provisions of the Contract, in all respects, and shall well and truly and fully do and perform all matters and things by it undertaken to be performed under said Contract and any duly authorized modifications that are made, upon the terms set forth therein, and within the time prescribed therein, or as extended therein as provided in the Contract, with or without notice to the Sureties, and shall indemnify and save harmless the State of Oregon, OSBHE and Oregon State University, and members thereof, its officers, employees and agents, against any claim for direct or indirect damages of every kind and description that shall be suffered or claimed to be suffered in connection with or

arising out of the performance of the Contract by the Contractor or its subcontractors, and shall promptly pay all persons supplying labor, materials or both to the Principal or its subcontractors for prosecution of the work provided in the Contract; and shall promptly pay all contributions due the State Industrial Accident Fund and the State Unemployment Compensation Fund from the Principal or its subcontractors in connection with the performance of the Contract; and shall pay over to the Oregon Department of Revenue all sums required to be deducted and retained from the wages of employees of the Principal and its subcontractors pursuant to ORS 316.167, and shall permit no lien nor claim to be filed or prosecuted against the State on account of any labor or materials furnished; and shall do all things required of the Principal by the laws of this State, then this obligation shall be void; otherwise, it shall remain in full force and effect.

Nonpayment of the bond premium will not invalidate this bond nor shall the State of Oregon, or the above-referenced agency(ies), be obligated for the payment of any premiums.

This bond is given and received under authority of ORS Chapters 279C and 351, the provisions of which hereby are incorporated into this bond and made a part hereof.

IN WITNESS WHEREOF, WE HAVE CAUSED THIS INSTRUMENT TO BE EXECUTED AND SEALED BY OUR DULY AUTHORIZED LEGAL REPRESENTATIVES:

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

**PRINCIPAL:** \_\_\_\_\_

By \_\_\_\_\_  
Signature

\_\_\_\_\_  
Official Capacity

Attest: \_\_\_\_\_  
Corporation Secretary

**SURETY:** \_\_\_\_\_

*[Add signatures for each if using multiple bonds]*

**BY ATTORNEY-IN-FACT:**

*[Power-of-Attorney must accompany each bond]*

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Address

\_\_\_\_\_  
City State Zip

\_\_\_\_\_  
Phone Fax

**OREGON UNIVERSITY SYSTEM**  
**STANDARD PUBLIC IMPROVEMENT CONTRACT**  
**PERFORMANCE BOND**

Bond No. \_\_\_\_\_  
Solicitation BD156622P  
Project Name Cooperative House Fire Alarms

_____ (Surety #1)	Bond Amount No. 1:	\$ _____
_____ (Surety #2)*	Bond Amount No. 2:*	\$ _____
<i>* If using multiple sureties</i>	Total Penal Sum of Bond:	\$ _____

We, \_\_\_\_\_ as Principal, and the above identified Surety(ies), authorized to transact surety business in Oregon, as Surety, hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns firmly by these presents to pay unto the State of Oregon, Oregon State Board of Higher Education (OSBHE), the sum of (Total Penal Sum of Bond) \_\_\_\_\_ (Provided, that we the Sureties bind ourselves in such sum “jointly and severally” as well as “severally” only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety), and

WHEREAS, the Principal has entered into a contract with the State of Oregon, the plans, specifications, terms and conditions of which are contained in the above-referenced Solicitation;

WHEREAS, the terms and conditions of the contract, together with applicable plans, standard specifications, special provisions, schedule of performance, and schedule of contract prices, are made a part of this Performance Bond by reference, whether or not attached to the contract (all hereafter called “Contract”); and

WHEREAS, the Principal has agreed to perform the Contract in accordance with the terms, conditions, requirements, plans and specifications, and all authorized modifications of the Contract which increase the amount of the work, the amount of the Contract, or constitute an authorized extension of the time for performance, notice of any such modifications hereby being waived by the Surety:

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH that if the Principal herein shall faithfully and truly observe and comply with the terms, conditions and provisions of the Contract, in all respects, and shall well and truly and fully do and perform all matters and things undertaken by Contractor to be performed under the Contract, upon the terms set forth therein, and within the time prescribed therein, or as extended as provided in the Contract, with or



without notice to the Sureties, and shall indemnify and save harmless the State of Oregon, OSBHE, and Oregon State University, and members thereof, its officers, employees and agents, against any direct or indirect damages or claim of every kind and description that shall be suffered or claimed to be suffered in connection with or arising out of the performance of the Contract by the Principal or its subcontractors, and shall in all respects perform said contract according to law, then this obligation is to be void; otherwise, it shall remain in full force and effect.

Nonpayment of the bond premium will not invalidate this bond nor shall the State of Oregon, or the above-referenced agency(ies), be obligated for the payment of any premiums.

This bond is given and received under authority of ORS Chapters 279C and 351, the provisions of which hereby are incorporated into this bond and made a part hereof.

IN WITNESS WHEREOF, WE HAVE CAUSED THIS INSTRUMENT TO BE EXECUTED AND SEALED BY OUR DULY AUTHORIZED LEGAL REPRESENTATIVES.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

**PRINCIPAL:** \_\_\_\_\_

By \_\_\_\_\_  
Signature

\_\_\_\_\_  
Official Capacity

Attest: \_\_\_\_\_  
Corporation Secretary

**SURETY:** \_\_\_\_\_  
*[Add signatures for each surety if using multiple bonds]*

**BY ATTORNEY-IN-FACT:**  
*[Power-of-Attorney must accompany each surety bond]*

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Address

\_\_\_\_\_  
City State Zip

\_\_\_\_\_  
Phone Fax