

## INVITATION TO GENERAL CONTRACTORS TO PREQUALIFY TO OFFER PROPOSALS

The University of Connecticut is accepting Prequalification Applications limited to the following project:

### HILLTOP APARTMENT ROOF REPLACEMENT & BUILDING ENVELOPE REPAIR PROJECT NUMBER: 201629 STORRS CAMPUS

Completed Applications will be accepted until 2:00 PM, Thursday, February 26, 2015. Applications received after the time and date specified shall be returned unopened. Applications must be clearly marked with the project number on the outside of the submittal package. No responsibility will be attached to any person for the premature opening of any package that is not properly identified.

The Prequalification Application for this project must be retrieved by accessing the following web link: <http://www.cpcu.uconn.edu/construction/currentops.html> Click on the project number: 201629 for this information.

Applicants must provide a copy of their current approved prequalified status by the State of Connecticut Department of Administrative Services, (DAS), with their Application as an approved prequalified General Construction (Group B and C) Contractor. This certificate must be included in your application as of the application due date of Thursday, February 26, 2015.

Only Contractors pre-qualified by both the DAS, for the Classification of General Building Construction (Group B and C), and the University of Connecticut, for this specific project, will be invited to submit Proposals for this project.

#### **Project Description/Scope of Work:**

The Hilltop Apartment Complex is composed of fourteen (14) buildings; thirteen (13) apartment buildings plus a Community Center (not in this scope of work). The buildings were constructed in May of 2000 and subsequently renovated in April of 2005. There are five (5) different styles of buildings including five (5) Type I buildings, five (5) Type II buildings, and one (1) each of Type III, Type IV and Type V buildings. In response to numerous roof leaks, various repairs were made over the years however, water infiltration and leaks continue to plague the facility.

In September of 2013 a study of all thirteen (13) apartment buildings was conducted by Martin A. Benassi, AIA – Architect, LLC. A comprehensive report containing the findings of this study as well as recommendations for corrective action was issued in October 2013. The study revealed numerous defects in the construction of both the roofs and the exterior brick masonry, resulting in numerous leaks, caulking failures at control joints, cracking of bricks under windows, rusting of window head lintels and infiltration of water via various gaps in the brick. It shall remain the responsibility of the General Contractor to perform the Scope of Work as it is defined on the Contract Documents.

The purpose of this request is to qualify General Contracting firms for the installation of new asphalt roofs and correction of exterior building envelope problems on three (3) to four (4) apartment buildings at the Hilltop Apartment Complex. Work shall take place over the 2015 summer recess. The remaining buildings will be bid separately and replaced over the summer

recesses of 2016 and 2017. See attached investigative report dated September 17, 2013 for additional information. The following is an outline of the specific tasks required under this RFP.

1. Roofing – Remove and replace asphalt shingle roofs on (13) thirteen dormitory buildings located at the Hilltop Apartment Complex. Work includes the removal and replacement of deteriorated OSB decking and the installation of new waterproofing membrane, felt, asphalt shingles and ridge vent as well as the installation of all new flashings, copings, gutters and downspouts.
2. Carpentry – Remove and replace existing fascia board, soffit and trim. Provide roof blocking and miscellaneous carpentry as required.
3. Masonry – Remove and replace any damaged brick, counter flashing and weeps as required. Perform miscellaneous repointing and infill of missing brick. Install new control joints under windows and remove and replace any deteriorated exterior backer rod and caulk.
4. Mechanical Insulation – Insulate all exposed ductwork, dryer and bathroom vents within the attic space of each building.
5. EIFS – Repair existing damaged EIFS at exterior of buildings.
6. Painting – Paint all existing and repaired EIFS for a uniform appearance.
7. Electrical – Provide miscellaneous electrical work as required to perform the scope of work above.
8. Site Work – Restore all landscaping damaged by field operations.

**Schedule:**

The General Contractor will be required to commence work of three (3) to four (4) apartment buildings starting May 18, 2015 and be substantially complete no later than August 21, 2015.

**Additional Information:**

The Investigative Study prepared by Martin Benassi Architects dated September 17, 2013 is attached.

**General Contractor Qualifications:**

To be considered Prequalified, in addition to the DAS requirements noted above, the firm and the proposed staff must demonstrate the highest degree of ability through proven performance to successfully complete projects of **similar size, scope, nature, value and duration as the project listed.**, and deliver them on time and within budget as a General Contractor as outlined below.

The criteria for Prequalification for the project include, but are not limited to, the following:

1. Relevant Experience: The Firm must demonstrate experience acting as a General Contractor on recent comparable projects in progress (must be 75% or more complete) or completed preferably within the past five years, projects with a cost range of \$1,800,000.00.

Provide project information as required including but not limited to: original contract cost, final contract cost, original contract duration schedule, originally required substantial completion date, actual substantial completion date, and detailed description of work and roles of personnel assigned. Failure to provide accurate required information may lead to the rejection of the application.

2. The General Contractor must demonstrate the ability to staff the project with high quality, experienced personnel with at least 5 years technical experience in similar size, scope construction projects. A full time, on site, dedicated Project Superintendent and Project Engineer/Safety Officer is required as well as a Project Manager on site 2 days per week is mandatory. The Contractor must demonstrate adequate levels of staffing to oversee the project through completion, including subcontracted work. The firm must demonstrate the individual staff members' experience on past relevant projects performing work of a similar scope and nature to this project and in a comparable position as assigned on this

project.

- 3. The General Contractor must show that he or she is able to successfully complete fast track projects on an occupied campus. The project is expected to be completed in a three (3) month period. Additionally, the General Contractor must demonstrate the ability to successfully manage subcontractors and required contract paperwork, as required by contract and the State of Connecticut.**
- 4. The General Contractor will be the primary contractor (self-perform) responsible for site work to include excavation, soil/rock removal, and backfill as it pertains to the relocation of utilities and demolition of the old Coast Guard Building.**
- 5. The General Contractor must demonstrate the financial ability and bonding capacity to complete the demolition and relocation of site utilities project valued at \$1,800,000.00**
- 6. The General Contractor shall also demonstrate the ability to work safely and in harmonious, non-adversarial relationships with the owner and its agents in order to achieve successful completion of their project. Additionally, the Contractor must show past compliance with the State of Connecticut CHRO and Department of Labor requirements and regulations.**

**In the bidding of most deferred maintenance, major renovation, and new construction projects, contractors are advised that they must award twenty-five (25%) or more of the values of their awarded contracts to certified SBE's; and, of that amount, twenty five percent (6.25% of the total award) or more must be awarded to SBE's who are also MBE's. The contractors are responsible for ensuring that they and the SBE's they have selected are eligible contractors, and that they meet State requirements.**

**The right is reserved to reject any or all Applications, and to waive any informality or technical defects if it is deemed to be in the best interest of the University.**

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**Amy Allen  
Purchasing Agent II  
Capital Projects and Contract Administration**

## **INSTRUCTIONS FOR CONTRACTOR'S APPLICATION FOR PREQUALIFICATION**

- A. Submit one (1) original and five (5) copies and one (1) electronic disc of the completed and signed Application to the University of Connecticut. You must clearly identify which is your original application.
- B. Please include two (2) copies of your firm's Financial Statement under Tab 9 with your **original application only**. Include Interim Financials if required. Review the financial requirements in **Tab 9- Financials** for this information.
- C. The applications shall be submitted shall be submitted in a sealed package with the Project Name and Project Number identified on the package and addressed to:

Amy Allen, Purchasing Agent II  
University of Connecticut  
Capital Projects & Contract Administration  
3 North Hillside Road, Unit 6047  
Storrs, Connecticut 06269-6047

**Prequalification Application Due Date:**  
**Application Due Time:**

**Thursday, February 26, 2015**  
**2:00 p.m. EST**

Applications received after the due date shall not receive consideration and shall be returned to sender unopened.

- D. All questions pertaining to the information/documents asked for in the application must be received by **2:00 PM on Friday, February 13, 2015**. Questions must be in writing. Questions must be emailed to the attention of Amy Allen at [amy.allen@uconn.edu](mailto:amy.allen@uconn.edu) and must reference "RFI for Project Number: 201629" in the subject line. The University of Connecticut shall render any interpretations or clarifications in a form and manner which deems appropriate, given the nature and circumstances of the question involved. The University of Connecticut will not be responsible for any interpretations or instructions other than those issued in written form. No phone calls will be accepted.
- E. Insert all required information as specified for the cover page and each Tab for each of the six (6) Prequalification Applications. Address each Tab by number. A firm that does not submit any required information must insert a brief statement in its place in the appropriate Tab of the Application explaining why it was not used.
- F. If the Applicant is a Joint Venture identify the nature and percentage of the work of this project for which each joint venture partner will be primarily responsible. All information asked for must be responded to by each firm represented in the joint venture.
- G. Your Prequalification Application should be arranged in the following order:

**Cover Page:**

Provide a cover page reflecting the project name and project number for which you are applying. Also identify the name of the firm(s) submitting the application.

**Tab 1 - Table of Contents:**

Insert one (1) copy of your Table of Contents containing the ten (10) Tabs in the specified order behind this Tab 1 for each of the six (6) Prequalification Applications.

**Tab 2 – Contractor's Prequalification Screening Questionnaire Use Attachment A No substitution of format is allowed.**

**Tab 3 – Project Relevant Qualifications of the Proposed Team and Firm Use Attachment B**  
**No substitution of format is allowed.**

**Tab 4 – Litigation/Arbitration Record:** Identify all litigation or arbitration proceedings including out of court settlements initiated by or against you within the past five (5) years including all pending cases. List the name of the project, the project location and the court or arbitration number and location. Describe the circumstances and disposition of each case. Specifically identify and provide details of each instance of claims or legal proceedings by or against a public or private Owner. Please note that generalized responses such as “litigation arising in the ordinary course of doing business” are not acceptable. Also provide all details explaining the subject matter of any “yes” responses to any of the questions referenced under Section 3 “Claims & Suits and Compliance Record.”

**Tab 5 – OSHA:** Identify any OSHA citations within the past five (5) years under present business name or any past business name. Additionally list any criminal convictions related to the injury or death of any employee. (Connecticut General Statute 31-57b)

**Tab 6 – QA / QC:** A copy of your firm’s Quality Assurance/Quality Control/Code Compliance (“QA/QC/CC”) Program and Procedures which your firm typically uses on the type of project or projects for which this application for prequalification is submitted, in order to assure that the construction complies throughout with the requirements of the Contract Documents and complies with all applicable Building and Fire/Safety Code requirements. **If the document is more than 25 pages, provide a copy of the cover sheet and table of contents within the application and also provide the full document on electronic media.**

**Tab 7 – Health and Safety Plans:** A copy of your firm’s Health and Safety Plan which demonstrates your managerial commitment to the performance of the contract. **If the document is more than 25 pages, provide a copy of the cover sheet and table of contents within the application and also provide the full document on electronic media.**

**Tab 8 – Miscellaneous:** Provide a copy of the following documents:

1. A recent letter from the Connecticut Department of Revenue Services that your firm is currently in good standing as a corporation if applicable. This letter must be dated within the past three (3) months.
2. A copy of your firm’s current Prequalification Certificate issued by the State of Connecticut Department of Administration Services (DAS) as an approved prequalified General Construction (Group C) Contractor. This certificate must be included in your application as of the application due date of January 28, 2015.
3. Copies of your company’s current licenses, registrations, and/or certifications from the State of Connecticut.
4. Attach a sample copy of your Connecticut Workers Compensation Insurance Certificate. Also please provide your National Council on Compensation Insurance (NCCI) Experience Modification Sheet. If the Contractor’s workers compensation experience modification rating is in excess of 1.00, the Contractor shall demonstrate to the satisfaction of the University with their submission, a letter detailing the reasons why your rating is in excess and what managerial commitment your firm is taking to reduce its rating as necessary for and satisfactory to the University for the proper performance of the work for which it intends to bid.
5. Potential Conflicts of Interests.
6. The Applicant shall read the attached University Code of Conduct, understand, and attest to operating and maintaining business commitments to this Code of Conduct. This Code of Conduct is part of the prequalification documents and as a part of the prequalification, the Applicant will return the signed form as acknowledgement.

**Tab 9- Financials:** Provide a copy of the following documents:

Include two (2) copies of your firm's audited financial statement along with any applicable interim financial statement under Tab 9 with your **marked "original" application only.**

1. Financial requirements for Firm's submitting for pre-qualification with the University of Connecticut are as follows:
  - 1.1. **General Contractor Projects < (Less Than) \$10,000,000:** Most recent Audited Financial Statements are preferred, which must include the Independent Auditors Report; Balance Sheets; Income Statements; Cash Flow Statements; and Notes to the Financial Statements. **These Statements cannot be older than 15 months as of the application due date of February 26, 2015.**
  - 1.2. In addition you must supply Interim Financial Statements including Balance Sheets; Income Statements; Cash Flow Statements; and Notes to the Interim Financial Statements, if any. **These statements must be provided for consideration and should be no older than 6 months as of the application due date of February 26, 2015.**
  - 1.3. If Audited statements are not completed by the company, statements reviewed or compiled by an independent public accountant may be accepted for review and evaluation (these should include balance sheets, income statements, cash flow statements and notes to the financial statements, if available—if not available see 1.3 below).
  - 1.4. **General Contractor Projects >= (Greater Than or Equal To) \$10,000,000:** Most recent Audited Financial Statements are required, which must include the Independent Auditors Report; Balance Sheets; Income Statements; Cash Flow Statements; and Notes to the Financial Statements. **These statements cannot be older than 15 months as of the application due date of February 26, 2015.**
  - 1.5. In addition you must supply Interim Financial Statements including Balance Sheets; Income Statements; Cash Flow Statements; and Notes to the Interim Financial Statements, if any, by an outside CPA. These statements must be provided for consideration and should be no older than **6 months as of the application due date of February 26, 2015.**
  - 1.6. **If Notes to the Financial Statements are not available or inadequate disclosure is provided:** When submitting a compilation, if notes are not available, you are required to disclose the following. This detailed documentation, including the amount and description, must be included in your Pre-Qualification Application at the time of submission to the Office of Capital Projects and Contract Administration.
    1. Litigation that may result in a material adjustment to the financial statements.
    2. Other liabilities or contingencies not recorded in the financial statement.
    3. Financial commitments not recorded in the financial statements
    4. Related parties including:
      - Activities between a parent and its subsidiaries.
      - Activities between affiliates of the same parent company.
      - Joint ventures.
      - Relationships between the company and its major owners, management, or their immediate families.

- Company and employee trusts established & managed by the company, such as a profit sharing / pension plan.

You must disclose the following with respect to these related parties:

- Terms and settlements.
  - Nature and substance of relationship.
  - Description of the transactions, whether or not dollar amounts are involved.
  - Dollar figures for the applicable transactions.
  - Balances due from or owed to the related parties at year-end, including payment terms.
  - Nature of the control relationship between entities under common ownership or management control.
2. Provide a letter from your Bonding Company or its representative confirming bonding limits and if they ever had to complete or finance work on your behalf.
  3. Where applicable, detail any financial interest in any other construction business, including any financial interest of 25% or more, which any officer, principal or key employee of the firm have with the Construction Manager or other construction businesses. If there are none, please provide a statement to that effect.
  4. Where applicable, if company listed on the financial statement provided is not the applicant, provide statement from the company providing the financial statement that they will be the guarantor of the contract.
  5. Where applicable, provide a copy of the executed Joint Venture Agreement specific to this project and application.

**Tab 10 –Compliance Record:**

1. Identify any instances in which the Connecticut Commission of Human Rights and Opportunities (“CHRO”), pursuant to C.G.S. Section 46a-56 or any regulation, or a comparable agency of any other state pursuant to a statute or regulation of that state, has issued to the Applicant any order as a result of non-compliance with statutory affirmative action or non-discrimination requirements. Identify any instances in which the Applicant has been listed in any listing compiled by the CHRO or any other state’s commission, agency or department, of contractors found not to be in compliance with affirmative action or non-discrimination statutes. Identify all currently unabated or unexpired Notices of Non-Compliance issued by the CHRO or any similar commission, agency or department of another state. Provide a detailed description of the circumstances, status and disposition of each instance identified in response to the above.
2. Identify any instances within the previous five years in which the Applicant or any entity in which the Applicant has an interest, has appeared on a list published by the State of Connecticut Labor Department of persons or firms which the Labor Department has found to have disregarded or violated its obligations to employees and subcontractors on public works projects under Connecticut General Statutes 31-53 and 31-76c (i.e. payment of prevailing wages and overtime payments) or in which the Applicant has been barred from Federal government contracts in accordance with the provisions of the Davis Bacon Act, 40 U.S.C. 276a-2.
3. Identify any instances in which any complaint has been made to, or any investigation or inquiry has been conducted by, the State of Connecticut Department of Labor regarding any alleged non-compliance by the Applicant of any provision of Part III of Chapter 557 (CT General Statutes Sections 31-52 through 31-57i, prevailing wage and other requirements) and Chapter 558 (Connecticut General Statutes Sections 31-58 through 31-76m, minimum wage, overtime and other requirements) during the past five calendar

years.

- 3.1. Describe in detail the circumstances of each violation, including but not limited to, the date and nature of the violation, the project on which the violation occurred, the source, if known, of any complaint giving rise to any Department of Labor investigation, the results of any such investigation, the penalty imposed or other action taken by the Department of Labor, any remedial action which was taken and any other resolution of any such complaint or violation. Describe the policies and procedures that the Applicant would implement on this project to ensure that it and its subcontractors will remain in compliance with the statutory requirements for wage rates and payment of wages as noted above.
4. Identify any instances during the five calendar years immediately preceding the current date in which any complaint has been made to, or any investigation or inquiry has been conducted by the State of Connecticut Ethics Commission, or by any other State of Connecticut Agency or Department, regarding any alleged non-compliance by you, or anyone employed by you or acting in your behalf, with Connecticut General Statutes Sections 1-79 through 1-101, pertaining to Codes of Ethics for Public Officials and Lobbyists, and particularly Section 1-84, listing prohibited activities including the giving of "gifts" as defined therein to public officials and employees. Describe in detail each alleged violation and the circumstances pertaining thereto, including but not limited to the date or dates of such alleged violation, the factual background, nature and specifics of the alleged violation, the source, if known, of any complaint giving rise to the investigation, the penalty, if any, imposed or other action taken by the investigating agency or any other agency to which the matter was referred, any remedial action which has been taken and any other resolution of any such complaint or alleged violation.

## **OBJECTIVE CRITERIA FOR EVALUATING QUALIFICATIONS OF APPLICANTS**

Each Applicant shall demonstrate, to the satisfaction of the University, that it is able to post surety bonds satisfactory for the project and required by the contract and that it possesses the financial, managerial and technical ability, and the integrity necessary to faithfully and efficiently perform the work for which it intends to bid, without conflict of interest. The University shall evaluate whether the Applicant is qualified based upon the Applicant's experience with projects similar to that for which the bid is to be submitted, the nature of the University's experience, if any, with the Applicant on prior or ongoing University of Connecticut projects, and upon the above-stated and following objective criteria:

### **PREVIOUS EXPERIENCE**

A. The Applicant must show or be able to demonstrate to the satisfaction of the University that it possesses the ability and capacity to successfully complete the project through the satisfactory past performance of work of a similar nature, size, scope, and comparable dollar value to that of the subject work/projects.

B. The Applicant shall demonstrate to the satisfaction of the University that it has maintained a satisfactory level of performance on such similar work continuously over a 5 year period preceding the date of the Application. If the Applicant is unable to do so, it must include in the Application any and all information demonstrating its ability and capacity to perform the work.

C. The Applicant shall be able to furnish references from owners, architects, or engineers indicating that it has satisfactorily and timely completed work similar to the project being bid. If delays occurred, evidence explaining and exonerating the Applicant shall also be provided.

D. The Applicant shall demonstrate to the satisfaction of the University that it has utilized on projects similar in nature, scope, and dollar value to the work/project or projects for which this Application is submitted and has currently in place the capability to implement and utilize, a Quality Assurance/Quality Control/Code Compliance program and set of procedures appropriate for the work/project or projects for which this Application is submitted.

E. The Applicant shall demonstrate that it is prequalified by the Department of Administrative Services (DAS) for the specified classification required in the Invitation to Pre-Qualify.

### **FINANCIAL ABILITY/BONDING CAPACITY**

A. The Applicant shall demonstrate that it has sufficient bonding capacity to perform the work in question, is bonded through a surety or sureties possessing a history of responsibility, financial stability and resources satisfactory to the University, and is able to post surety bonds which may be required by any contract for which it intends to submit a bid.

B. The Applicant shall demonstrate, through the materials submitted in its Application, that it possesses sufficient financial resources and stability, and is otherwise financially responsible and able to satisfactorily perform and complete the work for which it intends to submit a bid.

C. Financial Requirements for Firm's Submitting Applications for Pre-Qualification with The University of Connecticut are as follows:

**C1. General Contractor Projects < (Less Than) \$10,000,000:** Most recent Audited Financial Statements are preferred, which must include the Independent Auditors Report; Balance Sheets; Income Statements; Cash Flow Statements; and Notes to the Financial Statements. These statements cannot be older than 15 months as of the date of the application. **In addition you must supply Interim financial statements including Balance Sheets; Income Statements;**

**Cash Flow Statements; and Notes to the Interim Financial Statements, if any.**

These statements must be provided for consideration and should be no older than 6 months as of the date of application. If Audited statements are not completed by the company, statements reviewed or compiled by an independent public accountant may be accepted for review and evaluation (these should include balance sheets, income statements, cash flow statements and notes to the financial statements, if available—if not available see C3 below.)

**C2. General Contractor Projects >= (Greater Than or Equal To) \$10,000,000:** Most recent Audited Financial Statements are required, which must include the Independent Auditors Report; Balance Sheets; Income Statements; Cash Flow Statements; and Notes to the Financial Statements. These statements cannot be older than 15 months as of the date of the application. In addition you must supply Interim financial statements including Balance Sheets; Income Statements; Cash Flow Statements; and Notes to the Interim Financial Statements, if any, by an outside CPA. These statements must be provided for consideration and should be no older than 6 months as of the date of application.

**C3. If Notes to the Financial Statements are not available or inadequate disclosure is provided:** When submitting a compilation, if notes are not available, you are required to disclose the following. This detailed documentation, including the amount and description, must be included in your Pre-Qualification Application at the time of submission to the Office of Capital Projects and Contract Administration.

1. Litigation that may result in a material adjustment to the financial statements.
2. Other liabilities or contingencies not recorded in the financial statement.
3. Financial commitments not recorded in the financial statements
4. Related parties including:
  - Activities between a parent and its subsidiaries.
  - Activities between affiliates of the same parent company.
  - Joint ventures.
  - Relationships between the company and its major owners, management, or their immediate families.
  - Company and employee trusts established & managed by the company, such as a profit sharing / pension plan.

You must disclose the following with respect to these related parties:

- Terms and settlements.
- Nature and substance of relationship.
- Description of the transactions, whether or not dollar amounts are involved.
- Dollar figures for the applicable transactions.
- Balances due from or owed to the related parties at year-end, including payment terms.
- Nature of the control relationship between entities under common ownership or management control.

**MANAGERIAL ABILITY**

A. The Applicant shall have on its payroll, or must be able to prove that it customarily employs managerial and supervisory personnel of the type qualified to perform the kind of work which may be called for on any project for which it intends to submit a bid.

B. The Applicant shall demonstrate, through the information submitted in its Application, that it possesses the managerial resources, capability and commitment necessary for and satisfactory to the University for the proper performance of the work for which it intends to bid.

C The Contractor shall demonstrate, through the information submitted in its Qualification Statement, that they have a Quality Assurance/Quality Control Plan that possesses the managerial commitment necessary for and satisfactory to the University for the proper performance of the work for which it intends to bid.

D. The Contractor shall demonstrate, through the information submitted , that they have their own Health and Safety Plan that possesses the managerial commitment necessary for and satisfactory to the University for the proper performance of the work for which it intends to bid.

E. If the Contractor's workers compensation experience modification rating is in excess of 1.00, the Contractor shall demonstrate to the satisfaction of the University with their submission, a letter detailing the reasons why your rating is in excess and what managerial commitment your firm is taking to reduce its rating as necessary for and satisfactory to the University for the proper performance of the work for which it intends to bid.

#### **TECHNICAL ABILITY**

A. The Applicant shall demonstrate, through the information submitted in its Application, that it possesses the technical capacity, resources, capability, and commitment necessary for and satisfactory to the University for the proper performance of the work for which it intends to bid.

#### **INTEGRITY**

A. The Applicant shall have a record of harmonious, cooperative, non-adversarial and honest relationships with Owners, including the University of Connecticut and the State of Connecticut if the Applicant has performed work on prior University or State projects, as well as with Architects, Engineers, Consultants, Subcontractors and Suppliers on prior State projects or other projects.

B. The Applicant shall demonstrate that it has not been cited for three or more willful or serious violations of any OSHA, or of any standard, order or regulations promulgated pursuant to such act, during the 5-year period preceding any bid which may be submitted, which violations were cited in accordance with the provisions of any State Occupational Safety and Health Act or the Occupational Safety and Health Act of 1970 and which were not abated within the time fixed by the citation; which citations have not been set aside following appeal to the appropriate agency or court having jurisdiction.

C. The Applicant shall not have received one or more criminal convictions related to the injury or death of any employee in the 5-year period preceding any bid which may be submitted.

D. The Applicant shall not have appeared on any list published by the Connecticut State Labor Commission of persons or firms that have been found in violation of the National Labor Relations Act, 29 U.S.C. 151 et. seq., by the National Labor Relations Board and by a final decision rendered by a federal court or that have been found in contempt of court by a final decision of a federal court for failure to correct a violation of said National Labor Relations Act on three or more occasions involving different violations during the five preceding calendar years, if the first day of July following publication of said list has occurred less than three years prior to the award of any contract to the Applicant.

E. The Applicant, or any entity in which the Applicant has an interest, shall not have appeared on any list published by the Connecticut State Labor Commissioner pursuant to Connecticut General Statute's Section 31-53a(a) of persons or firms whom he or she has found to have disregarded their obligations under Connecticut General Statute's Sections. 31-53 and 31-76c to employees and subcontractors on public works projects or to have been barred from federal government contracts in accordance with the provisions of the Davis Bacon Act, 40 U.S.C. 276a-2, if said list has been published less than three (3) years prior to the award of any contract to the Applicant.

F. The Applicant shall demonstrate that it and its subcontractors on its previous projects have a satisfactory record of compliance with the provisions of Part III of Chapter 557 and Chapter 558;

(Connecticut General Statute's Sections 31-52 through 31-57i and 31-58 through 31-76m respectively) during the five calendar years immediately preceding this Application.

G. The Applicant shall demonstrate that it has a satisfactory record of compliance with Connecticut General Statute's Sections 1-79 through 1-101, pertaining to Codes of Ethics for Public Officials and Lobbyists, including but not limited to Section 1-84, listing prohibited activities including the giving of "gifts", as defined therein, to public officials and employees during the five years immediately preceding this Application.

H. The Applicant or its principals shall not have been convicted of, nor entered any plea of guilty, or nolo contendere, or otherwise have been found civilly liable for any criminal offense or civil action involving embezzlement; forgery; bribery; falsification or destruction of records; receipt of stolen property; collusion, antitrust, conspiracy or other offenses arising out of the submission of bids or proposals on public works projects or contracts.

I. The Applicant shall not be the subject of any order in effect which has been issued by the Commission of Human Rights and Opportunities, pursuant to Connecticut General Statute's Section 46a-56 or any regulation, prohibiting any contracting agency of the State of Connecticut from entering into contracts with the Applicant. The Applicant shall also not be listed in any current list compiled by the Commission of contractors whom it has found to be in non-compliance with anti-discrimination or contract compliance statutes, nor shall the Applicant be the subject of any unabated or unexpired Notice of Non-Compliance issued by the Commissioner.

#### **CONFLICT OF INTEREST**

A. The Applicant shall disclose and identify to the University, with its Application, any relationships which may constitute a potential conflict of interest with Purchasing, Architectural & Engineering Services, Capital Project & Contract Administration or any other University organizations or departments; or any architect, engineer, consultant, or designer of the proposed projects for the purpose of determining whether a conflict of interest exists. All such disclosures require acceptance/approval action on the part of the University, which shall determine whether an impermissible conflict exists.

B. The University also reserves the right to find any Contractor to be non-responsible or non-qualified with respect to a specific project, notwithstanding the fact that it may have previously been selected for previous projects for the University.

#### **THE UNIVERSITY OF CONNECTICUT EXPRESSLY RESERVES THE FOLLOWING RIGHTS:**

A. To reject any and all Applications and to waive any informalities, irregularities or technical defects in the Application if it is deemed to be in the best interest of the University of Connecticut.

B. To solicit, receive and/or utilize information from any persons or entities identified in the Application as references, or from persons or entities having knowledge of the Applicant's experience, abilities, past performance, integrity, financial status or any other item referenced in the pre-qualification documents.

C. Evaluation: Applicants and their Applications will be evaluated in conjunction with the objective criteria referred to herein, on the basis of the information provided in the individual Applications, as well as any information obtained in follow up to same from references, persons or other sources identified in the Application, or otherwise obtained by or known to the University.

D. Notification: All prospective Bidders who submit Applications will be notified of their standings as soon as practical after determination by phone, fax, or letter.

E. Reconsideration: In the event that an Applicant is not found to be pre-qualified, it may, within three (3) business days of the date of oral, faxed or written notice, of the determination, request in writing (which must be received by the University within those three (3) business days) that the University reconsider its

Application. No request received after that date shall be given consideration. The University shall again consider the matter and may either adhere to or modify its previous decision. The University shall give prompt notice to the Applicant of the action taken.

F. Authorization: The submission of a completed Application by an Applicant shall constitute an express authorization by the Applicant to the University to obtain all information it deems pertinent with respect to the financial worth and assets and liabilities of the Applicant, as well as its experience, abilities, past performance, integrity or any other item referenced in the pre-qualification documents from banks or other financial institutions, sureties, dealers in materials, equipment or supplies, any person identified in the Application as references, or any other persons having business transactions with the Applicant, and shall expressly authorize all such financial institutions or other persons or entities to furnish any such information requested from them by the University. The Applicant, by submission of a completed Application, also acknowledges that any information provided to or obtained by the University in the Pre-Qualification process, whether related to financial matters as noted in this Paragraph or otherwise, may be subject to disclosure under the Connecticut Freedom of Information Act; provided, however, that if the Applicant indicates that certain financial documentation, as required, is submitted in confidence, by specifically and clearly marking and identifying said documentation as CONFIDENTIAL, the University will endeavor to keep said data confidential to the extent permitted by law.

**TAB 3: ATTACHMENT A**  
**Contractor Prequalification Screening Questionnaire**

Project Name: \_\_\_\_\_

Project Number: \_\_\_\_\_

**Submit two Attachment A's, one for each firm, if you are submitting as a Joint Venture**

General Information

Application Submitted By: \_\_\_\_\_

Name of Company: \_\_\_\_\_

Street Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

- Headquarters                       Branch Office
- Corporation    Partnership    Sole Proprietorship    LLC    Joint Venture

Phone: \_\_\_\_\_                      Email of Contact Person: \_\_\_\_\_

**Section 1.      Company Information**

1.1      Name of President/General Partners/Owner:  
\_\_\_\_\_

1.1.1      List of Corporate Officers, Partners, Proprietors, & Members of your Organization:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

1.2      Parent Company:  
\_\_\_\_\_

1.3      Year Current Company Name was Started: \_\_\_\_\_

1.3.1      State of Incorporation: \_\_\_\_\_ Date of Incorporation: \_\_\_\_\_

1.4      Other names your Company has operated under:  
\_\_\_\_\_  
\_\_\_\_\_

1.5      List any Subsidiaries and Affiliates of your Company:  
\_\_\_\_\_

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1.6 Contractor's Licensing: It is mandatory that the firm be legally qualified to do business in Connecticut. If the applicant is a joint venture, all joint venture partners must be qualified to do business in the State of Connecticut. If more than a few, provide complete list in Tab 9.

License Number: \_\_\_\_\_ State: \_\_\_\_\_ Expiration Date: \_\_\_\_\_

License Number: \_\_\_\_\_ State: \_\_\_\_\_ Expiration Date: \_\_\_\_\_

License Number: \_\_\_\_\_ State: \_\_\_\_\_ Expiration Date: \_\_\_\_\_

## **Section 2. Litigation/Arbitration/ Record**

**If the answer is "yes" to any of the following questions, on a separate sheet, state the details and outcome of the claim, conviction, plea, citation, protest, decision or record and provide in Tab 5.**

**Has your firm or any part of your firm, any owner, or partial owner of your firm, or any person in any way associated with or employed by your firm ever:**

2.1 Within the past 5 years has your firm or any part of your firm; any owner, or partial owner of your firm; or any other person in any way associated with or employed by your firm ever been barred, suspended, disqualified or otherwise precluded from bidding or offering a proposal on contracts by any municipality or any agency of the State of Connecticut, other states, or the Federal Government? **YES / NO**

2.2 State whether within the past 5 years you have been defaulted, terminated, or have had any liquidated damages or other contractual penalties for failures to timely or properly perform a contract assessed against you and indicate the current status of any litigation involving those transactions. **YES / NO**

2.3 State whether within the past 5 years you have been declared to be a non-responsible bidder or proposer on any public work project? **YES / NO**

2.4 Had a conviction or entry of a plea of guilty or nolo contendere for commission of a criminal offense as an incident to obtaining or attempting to obtain a public or private contract or subcontract or in the performance of such contract or subcontract? (Connecticut General Statute 31-57c) **YES / NO**

2.5 Had a conviction or entry of a plea of guilty or nolo contendere under state or federal law for embezzlement, theft, forgery, bribery, falsification or destruction of records, receiving stolen property, or any other offense indicating a lack of business integrity or business honesty which affects responsibility as a contractor? (Connecticut General Statute 31-57c) **YES / NO**

2.6 Had a conviction or entry of a plea of guilty or nolo contendere under state or federal antitrust, collusion or conspiracy statutes arising out of the submission of bids or proposals? (Connecticut General Statute 31-57c) **YES / NO**

2.7 Been cited for noncompliance with contract provisions on a public project, of a character regarded by the awarding authority to be of such gravity as to indicate a lack of responsibility to perform as a state contractor, including deliberate failure, without good cause, to perform in accordance with specifications or time limits provided in a contract? **YES / NO**

2.8 Within the previous 5 years compiled a record of failure to perform or of unsatisfactory performance in accordance with the terms of one or more contracts, unless such failure to perform or unsatisfactory performance was caused by acts beyond your control? **YES / NO**

2.9 On a public project or contract, been cited for any other cause the awarding authority determined to be so serious or compelling as to affect responsibility as a state contractor, including disqualification by another governmental entity, having caused financial loss to the state or having caused a serious delay or inability of state officials to carry out their duties on a past contract or contracts? **YES / NO**

2.10 Have you appeared on any list published by the Connecticut State Labor Department of persons or firms that have been found by the National Labor Relations Board and by a final decision rendered by a Federal Court to have been in violation of the National Labor Relations Act, 29USC 151 et. seq. or to have been found in contempt of court by a final decision of a Federal Court for failure to correct a violation of the National Labor Relations Act on three or more occasions involving different violations? (Connecticut General Statute 31-57a) **YES / NO**

**If the answer to the preceding question is "yes" state the date of publication of such list by the Connecticut State Labor Department.**

2.11 Have you ever been found by the Connecticut Department of Public Works, or another State Agency to be in violation of the subcontractor listing requirements or other provisions of Connecticut General Statutes Section 4b-95? **YES / NO**

2.12 Have you ever been cited for or been the subject of a civil or criminal court proceeding alleging that you have violated the provisions of Connecticut General Statutes Sections 31-52 or 31-52a regarding providing preference to Connecticut citizens or residents in the construction of public buildings or works? **YES / NO**

2.13 Has your firm engaged in any bid or proposal protests over the past five years? **YES / NO**

2.14 Has any officer or principal of your organization ever been an officer or principal of another organization when it failed to complete a construction contract during the past 5 years? **YES / NO**

**Section 3. Disclosure**

3.1 Disclose and identify any relationship and/or potential conflicts of interest which the Applicant may have with Purchasing, Planning Architectural and Engineering Services, Capital Project and Contract Administration, or any other University organization or department; or any Architect, Consultant, Engineer or Designer of the proposed project for the purpose of determining whether a conflict of interest exists.

\_\_\_\_\_ Applicant has no conflict of interest

\_\_\_\_\_ Applicant has a potential conflict of interest and herewith has attached a full disclosure of said potential conflict of interest. **If Applicable Provide Information in Tab 9**

**Section 4. Signature**

We have attempted to answer all questions in a full and complete manner to assure that our answers are not in any respect misleading either by expressing ourselves in a misleading or ambiguous manner or omitting information. We recognize that the University will be relying on the accuracy of the information and our responses in this questionnaire in deciding whether to permit us to bid and in awarding work to our Company.

Dated at \_\_\_\_\_ this \_\_\_\_\_ day of Two Thousand and \_\_\_\_\_ (\_\_\_\_\_)

Name of Company: \_\_\_\_\_

Completed by: \_\_\_\_\_

(Must be an Officer of the Company)

Title: \_\_\_\_\_

Signature: \_\_\_\_\_

Print Name \_\_\_\_\_

\_\_\_\_\_ being duly sworn deposes and says that the information provided herein is true and sufficiently complete so as to not be misleading.

Subscribed and sworn before me this \_\_\_\_\_ Day of \_\_\_\_\_, \_\_\_\_\_

Notary Public: \_\_\_\_\_

My Commission Expires: \_\_\_\_\_



**D. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS PROJECT**

***(Complete one Section D for each key personnel.)***

10. NAME OF PERSON: \_\_\_\_\_

11. STAFF POSITION FOR THIS PROJECT: \_\_\_\_\_

12. YEARS EXPERIENCE: TOTAL YEARS: \_\_\_\_\_ YEARS WITH CURRENT FIRM: \_\_\_\_\_

13. EDUCATION ( <i>DEGREE AND SPECIALIZATION</i> )	14. CURRENT PROFESSIONAL REGISTRATION ( <i>STATE AND DISCIPLINE</i> )
--	---

15. OTHER PROFESSIONAL QUALIFICATIONS (*Organizations, Training, Awards, etc.*)

**16. PROJECT RELEVANT EXPERIENCE**

(1) PROJECT NAME, LOCATION ( <i>City and State</i> ) and Project Owner	(2) CONTRACT DURATION	
	DATE OF NOTICE TO PROCEED	DATE OF SUBSTANTIAL COMPLETION
(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE <span style="float: right;">PERFORMED WITH CURRENT FIRM: Yes / No</span>		
(1) PROJECT NAME, LOCATION ( <i>City and State</i> ) and Project Owner	(2) CONTRACT DURATION	
	DATE OF NOTICE TO PROCEED	DATE OF SUBSTANTIAL COMPLETION
(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE <span style="float: right;">PERFORMED WITH CURRENT FIRM: Yes / No</span>		
(1) PROJECT NAME, LOCATION ( <i>City and State</i> ) and Project Owner	(2) CONTRACT DURATION	
	DATE OF NOTICE TO PROCEED	DATE OF SUBSTANTIAL COMPLETION
(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE <span style="float: right;">PERFORMED WITH CURRENT FIRM: Yes / No</span>		

**17. E.. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROJECT RELEVANT EXPERIENCE**

The Proposed Firm must ideally demonstrate experience on at least 3 recent comparable projects in progress (must be 75% or more complete) or completed preferably within the past 5 years.

**(Complete one Section E for each Project.)**

1. Project Name:
2. Project Location:
3. Project Owner:
4. Project Architect:
5. Project Engineer(s):
Civil
Structural
Mechanical
Electrical
6. Contracted Role: <input type="checkbox"/> CMA <input type="checkbox"/> CMR <input type="checkbox"/> GC <input type="checkbox"/> Subcontractor <input type="checkbox"/> Trade Contractor <input type="checkbox"/> Prime Contractor
7. Percentage of work performed by Own forces
If less than 100% indicate dollar value performed \$
8. Contract Dates: Date of Notice to Proceed:
Date of Substantial Completion:
9. Contract Times: Original Contract Time:
Final Contract Time:
If the "Final Contract Time" stated above is in excess of 45 days of the "Original Contract Time", please provide a brief explanation.
10. Contract Cost: Original Contract Cost: \$
Final Contract Cost: \$
If the "Final Contract Cost" exceeds the "Original Contract Cost" By more than 3%, please provide a brief explanation.
11. Owner Reference:
Name:
Telephone:
12. Architect Reference:
Name:
Telephone:
13. Engineer References:
Civil:
Name:
Telephone:
Structural:





## **VENDOR CODE OF CONDUCT:**

The University of Connecticut (“UConn”) has a longstanding commitment to the protection and advancement of socially responsible practices that reflect respect for fundamental human rights and the dignity of all people. UConn strives to promote basic human rights and appropriate labor standards for all people throughout its supply chain. Promoting these values in concrete practice is the central charge of the President’s Committee on Corporate Social Responsibility (<http://csr.uconn.edu/>).

UConn is also committed to building a safe, healthy and sustainable environment through the conservation of natural resources, increasing its use of environmentally responsible products, materials and services (including renewable resources), and preventing pollution and minimizing waste through reduction, reuse and recycling. UConn is proactive about purchasing products that have these environmental attributes or meet recognized environmental standards, when practicable, and buying from entities committed to the support of campus sustainability goals. The University seeks to partner and contract with vendors that demonstrate a similar commitment to these values. Selected vendors may be required to provide a comprehensive summary report of their corporate social and environmental practices.

**Principal Expectations.** The principal expectations set forth below reflect the minimal standards UConn's vendors are required to meet.

**Nondiscrimination.** It is expected that vendors will not discriminate in hiring, employment, salary, benefits, advancement, discipline, termination or retirement on the basis of race, color, religion, gender, nationality, ethnicity, alienage, age, disability or marital status, and will comply with all federal nondiscrimination laws and state nondiscrimination laws<sup>1</sup>, including Chapter 814c of the Connecticut General Statutes (Human Rights and Opportunities), as applicable, and further will provide equal employment opportunity irrespective of such characteristics, including complying, if applicable, with Federal Executive Order 1124b, and the Rehabilitation Act of 1973.

**Freedom of Association and Collective Bargaining.** It is expected that vendors will respect their employees’ rights of free association and collective bargaining, including, if applicable, complying with the National Labor Relations Act, and, if applicable, Chapters 561 and 562 of the Connecticut General Statutes (Labor Relations Act, Labor Disputes) and Chapters 67 and 68 of the Connecticut General Statutes (State Personnel Act, Collective Bargaining for State Employees).

**Labor Standard Regarding Wages, Hours, Leaves and Child Labor.** It is expected that vendors will respect their employees’ rights regarding minimum and prevailing wages, payment of wages, maximum hours and overtime, legally mandated family, child birth and medical leaves, and return to work thereafter, and limitations on child labor, including, if applicable, the

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<sup>1</sup> *Wherever this code refers to compliance with federal or state laws, that term includes compliance with any regulations duly promulgated pursuant to such laws.*

rights set forth in the Federal Fair Labor Standards Act, the Federal Family and Medical Leave Act, the Federal Davis-Bacon Act and Chapters 557 and 558 of the Connecticut General Statutes (Employment Regulation, Wages).

**Health and Safety.** It is expected that vendors will provide safe and healthful working and training environments in order to prevent accidents and injury to health, including reproductive health, arising out of or related to or occurring during the course of the work vendors perform or resulting from the

operation of vendors' facilities. Accordingly, it is expected that vendors and their subcontractors will perform work pursuant to UConn contracts in compliance with, as applicable, the Federal Occupational Safety and Health Act and Chapter 571 of the Connecticut General Statutes (Occupational Safety and Health Act).

**Forced Labor.** It is expected that vendors will not use or purchase supplies or materials that are produced using any illegal form of forced labor.

**Harassment or Abuse.** It is expected that vendors will treat all employees with dignity and respect, and that no employee will be subjected to any physical, sexual, psychological or verbal abuse or harassment. It is further expected that vendors will not use or tolerate the use of any form of corporal punishment.

**Environmental Compliance.** It is expected that vendors will comply with all applicable federal and state environmental laws and Executive Orders, including but not limited to Titles 22a and 25 of the Connecticut General Statutes (Environmental Protection and Water Resources protection) and Executive Order 14 (concerning safe cleaning products and services). UConn expects vendors will employ environmentally responsible practices in the provision of their products and services.

**Preferential Standards.** The preferential standards set forth below reflect UConn's core values. UConn will seek to uphold these values by considering them as relevant factors in selecting vendors.

**Living Wages.** UConn recognizes and affirms that reasonable living wages are vital to ensuring that the essential needs of employees and their families can be met, and that such needs include basic food, shelter, clothing, health care, education and transportation. UConn seeks to do business with vendors that provide living wages so as to meet these basic needs, and further recognizes that compensation may need to be periodically adjusted to ensure maintenance of such living wages. Vendors are encouraged to demonstrate that they pay such living wages.

**International Human Rights.** For UConn, respect for human rights is a core value. UConn seeks to do business with vendors who do not contribute to or benefit from systemic violations of recognized international human rights and labor standards, as exemplified by the Universal Declaration of Human Rights.

**Foreign Law.** UConn encourages vendors and vendors' suppliers operating under foreign law to comply with those foreign laws that address the subject matters of this code, provided such foreign laws are consistent with this code. Vendors and their suppliers operating under foreign law are similarly encouraged to comply with the provisions of this code to the extent they can do so without violating the foreign law(s) they operate under.

**Environmental Sustainability.** UConn will prefer products and services that conserve resources, save energy and use safer chemicals, such as recycled, recyclable, reusable, energy efficient, carbon-neutral, organic, biodegradable or plant-based, in addition to products that are durable and easily repairable, and that meet relevant certification standards above and beyond those required by law. While UConn is not legally bound to comply with Connecticut General Statutes 4a-67a through 4a-67h concerning environmental sustainability standards in purchasing, it will nevertheless consider vendors' ability to meet those standards in rendering its purchasing decisions. Vendors are encouraged to demonstrate their commitment to environmental sustainability.

**Compliance Procedures.** Anyone who believes a vendor doing business with UConn has not complied or is not complying with this code may report such concerns to UConn's Office of Audit, Compliance and Ethics (OACE) at 1-888-685-2637 or <https://www.compliance-helpline.com>.

OACE has the authority to investigate such matters, and if warranted, recommend remedial action to the UConn administration.

Please review the material listed and per the signature of the authorized Company Official, all Expectations, Standards, and Procedures listed above will be in compliance in regards to this Contract.

\_\_\_\_\_  
Name of Company

\_\_\_\_\_  
Signature of Authorized Company Official

\_\_\_\_\_  
Date

**General Architectural Review  
Hilltop Apartments  
University of Connecticut**

**Storrs, Connecticut**

**Project No. 13-25**



**Contract:**  
UCONN

Office of Capital Projects & Contract Administration  
3 North Hillside Road, Unit 6047  
Storrs, CT 06269-6047

**Architect:**

Martin A. Benassi, AIA - Architect, LLC  
Two Broadway  
Hamden, CT 06518

**Date:**

October 4, 2013

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- A-3 Details - Roofing/Venting/Sheet Metal/Gutters
- A-4 Masonry and Miscellaneous

#### Appendix B - Drawings

##### **Type I Buildings**

- SK-1 Mary McLeod Bethune Roof Plan
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SK-2A	Mildred French Elevations
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SK-6A	Mary Ritter Beard Elevations
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SK-10A	Antonia Novello Elevations

**Type III Buildings**

SK-11	Chien-Shiung Wu Roof Plan (ventilation calculations similar to building type V see Wheeler Roof Plan)
SK-11A	Chien-Shiung Wu Elevations

**Type IV Building**

SK-12	Chase Going Woodhouse Roof Plan (with ventilation calculations)
SK-12A	Chase Going Woodhouse Elevations

**Type V Building**

SK-13	Maude Knapp Wheeler Roof Plan (with ventilation calculations per attic area for Type III and V buildings)
SK-13A	Maude Knapp Wheeler Elevations

Appendix C - Cost Estimate

C-1	Building Type I
C-2	Building Type II
C-3	Building Type III
C-4	Building Type IV
C-5	Building Type V

Appendix D - Dormer Vent

Appendix E - Cor-A-Vent

Appendix F - Cobra Exhaust Vent

Appendix G - Structurwood OSB board



- D. Martin B received electronic copies of the as-built (dated 05/09/00) and renovation drawings (dated 04/01/05) of the facility. The architect of record is noted as:

Demarest & Associates  
2923 Canton Street  
Dallas, Texas 75228

2. Description:

- A. Hilltop Apartments (HAC) is a 14-building apartment complex (13 apartment buildings and a community center NIC). Each fully furnished apartment includes a living room, bathroom, kitchen, dining area, and laundry room. The apartments accommodate approximately 1,200 students. The apartments are named after notable women - Ella Grasso, Harriet Beecher Stowe, Antonia Novello, Mildred French, Mary Ritter Beard, Susette LaFlesche, Prudence Crandall, Mary McLeod Bethune, Alice Pattison Merritt, Chien-Shiung Wu, Maude Knapp Wheeler, Sara Buek Crawford, and Chase Going Woodhouse.
- B. A list outlining apartments with past or active leaks was provided in the Request for Proposal for our reference. It included the following:

Building:	10	Grasso	RM 307A
	11	Stowe	RM 301A, 302A, 307D
	12	Novello	RM 301A, 302A and B, 303A, 304C
	14	Beard	RM 302A, 303C
	15	La Flesche	RM 308A
	16	Crandall	RM 303A
	18	Merritt	RM 302A, 307A
	19	Wu	RM 303B, 307A
	20	Wheeler	RM 312A
	21	Crawford	RM 302A, 308A
	22	Woodhouse	Community room

In total, there were over fifty-three (53) rooms listed which showed evidence of current or past leaks.

- C. Over the years, roof repairs were made by the University Facility Operations and Eagle Roofing. However, water infiltration and leaks continue to plague the facility.
- D. The apartment buildings are typically three story of Type 5A construction per Table 503 - 1996 BOCA code in five different footprints as follows:
- 1) Type I footprint  $\pm$  9,700 SF Stowe, French, LaFlesche, Bethune, Merritt
  - 2) Type II footprint  $\pm$  14,200 SF Grasso, Novello, Beard, Crandall, Crawford
  - 3) Type III footprint  $\pm$  8,900 SF Wu
  - 4) Type IV footprint  $\pm$  10,200 SF Woodhouse
  - 5) Type V footprint  $\pm$  13,600 SF Wheeler
- E. Drawings indicate typical exterior walls are of a cavity construction with 4-inch brick veneer, 1½-inch air space, 5/8-inch gypsum board sheathing on 6-inch stud framing with batt insulation and 5/8-inch gypsum board interior. Also, materials used as accents to clad the exterior of the building include concrete masonry units (CMU) and exterior insulation finish system (EIFS).
- F. Roof construction consists of asphalt shingles on #15 felt underlayment over 5/8-inch thick oriented strand board (OSB) secured to wood trusses set at 24 inches on center with a roof pitch of  $\pm$  26 degrees (6/12). There are both hip and gable ends on the roofs, depending upon the building type. See drawings attached for additional information (Appendix B).

- 1) Approved submittals indicate the asphalt shingles used were either Pinnacle Premier Designer Shingle® or GlassMaster®, both with a wind resistance rating of 60 mph and manufactured by Atlas Roofing Corporation. A #15 and #30 specification felt underlayment was submitted.
- 2) A copy of the asphalt shingle manufacturer's limited warranty indicates the Pinnacle® has a 30-year warranty and the GlassMaster® has a 25-year warranty.

G. The URS Corporation AES renovation specifications called for the following materials:

- 1) Sealant "...exterior joint surfaces, including porous joints surfaces such as concrete or masonry."
  - a. Silpruf, General Electric Co.
  - b. Spec Trem 1, Tremco.
  - c. Dow Corning 790, Dow Corning
- 2) Asphalt shingles "...that may be incorporated in the Work include, but are not limited to, the following:"
  - a. CertainTeed Corporation "Hatteras"
- 3) Roofing nails "Aluminum or hot-dip galvanized steel, 11- or 12-gauge, sharp-pointed, conventional roofing nails with barbed shanks, minimum 3/8-inch-diameter head, and of sufficient length to penetrate 3/4 inch into solid decking or to penetrate through plywood sheathing."
- 4) Metal flashing "Valley flashing shall be preformed with inverted v profile at center of valley."

3. Miscellaneous:

- A. The roofs were evaluated both visually and by means of roof cuts to determine the condition and composition of the existing materials and substrate. Samples of some of the roofing materials (shingles, nails, underlayment, waterproofing membrane) were retained for closer observation and evaluation back at the office.
  - B. It is our understanding that the University will have the existing materials tested for asbestos containing materials (ACM's). Therefore, this service was not included in our scope of work.
-

## II. OBSERVATIONS: (Photo references 1-74)

### 1. General:

- A. The HAC is composed of fourteen buildings - thirteen dormitory buildings (Photos 1-26) plus a clubhouse (not in the scope of work). There are five Type I buildings, five Type II buildings, and one of each Type III, IV, and V buildings. There are four to twelve units per floor per building with unit totals of 32, 36, 47 and 54 within three to five levels. The as-built documents by Capstone Development are dated 05/02/00, indicating the buildings are thirteen years old. The buildings were renovated by Dimeo Construction Company with drawings on file by URS Corporation AES of Rocky Hill, Connecticut, and these documents are dated April 1, 2005. All of the buildings have the same construction materials and methods.
- B. The roofer failed to bring the appropriate type of asphalt shingles so test cuts were limited. Martin B did bring back samples of loose roofing material collected from the limited number of roof cuts taken. Of the five different building types, Martin B was able to view the roof up close at Types I, II, III and V with the assistance of the lift. Since many problems were typical, MAB Architect expects these same problems exist in building Type IV, as well.
- C. Access to the attic is through a ceiling access hatch and ladder located in the public corridor. Interior damage includes water staining outside at the third floor mechanical closet floor. Several units have newly painted ceilings because of water stains. Other ceilings show water staining.

### 2. Roofing:

- A. The roof assembly consists of 25-year, three-tab fiberglass asphalt shingles over #15 felt underlayment on *Weyhaeuser Structurwood*® (TECO Tested NER QA 135 19/32 inch MILL 216) exterior sheathing, on 2x4 wood trusses which are 24 inches on center. See Appendix G.
  - 1) When viewed from the attic, gaps in the decking (some as large as 2 inches) where the decking was cut short were observed. Also, there were very few roofing nails penetrating the underside of the decking.
  - 2) Ridging was observed in the asphalt shingles. Several shingles were removed to observe the material assembly. The ridge aligned with the joint in the OSB decking below. The seams of the OSB decking were butted tightly together. The OSB board had "green" edging referring to the type and application of the board (Photos 27-31).
- B. There were numerous missing, cracked, and loose asphalt shingles observed throughout the roof area, most noticeably on the ridge vents (Photo 32). Repairs have been made over the years using a variety of shingles in various colors and grade (Photos 33 and 34).
  - 1) At one location along the ridge of the Stowe building, the original ridge was removed and covered with a sheet of aluminum (Photo 35).
- C. Each shingle is secured in place with four roofing nails. The roofing nails are smooth shank, electro-galvanized, coil packaged, measuring 1-1/4 inch in length with a 3/8-inch diameter head and a 0.120-gauge wire shank, with a diamond point (Photos 36 and 37).
- D. Several ridge and roof shingles can be found in the grass along the perimeter of the buildings. Many of the roof ridges are missing shingles and have been temporarily repaired with metal flashing which was face nailed. Some nails used to secure items to the roof were overly long, as seen from the attic. The excessively long nails have broken the surface of the engineered sheathing (Photo 38). There are also areas where the nails do not visibly penetrate the sheathing.
- E. We observed the following conditions with regard to the asphalt shingles:
  - 1) Valleys are detailed using a "closed-cut" assembly (Photos 39 and 40).

- a. Several shingles were removed along one valley to examine the materials and construction. The valley was lined with a single layer of waterproof membrane (36 inches wide - up 18 inches on each side of the valley). Felt underlayment overlapped the membrane and is secured in place by roofing nails set in plastic caps (Photo 41). Some of the valleys have been coated with roofing cement. The underlying shingle extended up onto the adjacent roof and was secured in place with several nails - some close to the centerline of the valley. The overlaying shingles were cut in a straight line close to the centerline of the valley.
- 2) The hips are shingled in a saddle type configuration. The nails are exposed on some of the shingles (Photo 42).
- 3) There is an aluminum drip edge along the rake and eaves of the buildings. The drip edge is set over the underlayment and secured with standard roofing nails set at approximately 8 to 10 inches on center. Some sections of drip edge are missing.
- 4) Aluminum shingle type step flashing is set at each shingle adjacent to a vertical wall or parapet. In some locations, there is a gap between the vertical flange of the flashing and the backup material, resulting in a large void (Photos 43-46).
- 5) There was mechanical damage to the asphalt shingles along the eave on the Wheeler Building (Photo 47).
- 6) The flashing flange on some of the miscellaneous appurtenances such as dryer vents and plumbing stacks were set directly on top of the asphalt shingles and secured in place with exposed roofing nails (Photos 48-51).

### 3. Venting:

#### A. Venting of the roof is accomplished through soffit vents and 'doghouse' style ridge vents (Photo 52).

- 1) The soffit vents along the eaves are similar to Natural Bend soffit vents made of vinyl in a double 6-inch vented style as manufactured by Hartland. Many of the soffit vents are blocked by batt insulation on the attic floor and/or miscellaneous construction materials such as wood blocking (Photo 53). In some areas, the soffit vent is visibly displaced.
- 2) Rectangular louvered vents in the gable end walls are for aesthetics only and offer no air circulation whatsoever. The wall sheathing seals the vents on the inside (Photo 54).
- 3) The ridge vents are field fabricated. In two locations, the original ridge vent was removed and replaced with a sheet of aluminum and in another location replaced with a roll type ridge vent similar to a GAF Cobra Ridge Vent. See Appendix F. The field fabricated ridge vent is constructed of 2x4 blocking with OSB decking. The openings on both sides align with the opening in the roof deck and have an aluminum soffit vent set vertically and covered with a continuous mesh material that is 1/2 inch thick by 2 inches high - often loose and falling out. There are numerous broken or missing shingles from the top of the ridge vent. An aluminum drip edge protects the face of the OSB board. The ends of the vent are sealed with aluminum sheet metal secured in place with roofing nails which are rusting. There are exposed nails along the base of the ridge vent securing the asphalt shingles (Photo 52).

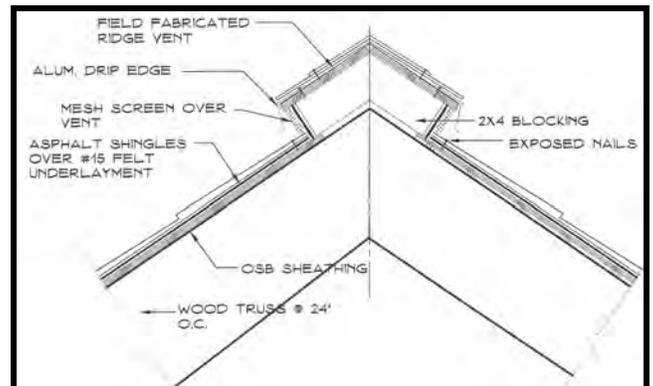


Figure 1 Existing ridge vent detail.

- 4) The building attic floor plans differ by type. Some of the larger buildings have smoke barriers or fire partitions which breakup the area of the attic into small chambers. These partitions interfere with the cross ventilation of the attic and need to be taken into account when calculating the size and location of the attic venting (Photo 54).
- 5) The thermal barrier is located on the attic floor. The attic floor is covered with approximately 10 inch thick batt insulation. The insulation is not evenly placed. In some locations, the batt insulation covers the soffit vent restricting the flow of air. In other locations, the insulation is pulled back exposing the gypsum board ceiling offering no thermal resistance to the rooms below (Photos 55 and 56).

#### 4. Sheet Metal:

A. There are basically two types of sheet metal observed on the building - aluminum and copper.

- 1) The fascia and copings are covered with sheet metal formed from roll stock aluminum coil with a painted finish. The thickness of the material was not verified, but it bends easily by hand; and we would estimate the thickness at approximately .024 inch thick. The roof base flashing is secured in place with cleats made of strips of aluminum bent up and over the flashing.

There were questionable details observed including:

- a. Joints in the fascia material align with the joints in the coping forming one continuous seam (Photo 63).
  - b. Flashing was surface nailed with non-compatible roofing nails which showed signs of rusting (Photo 52).
  - c. Often the hem of the fascia did not engage with the cleat below, allowing the fascia material to be easily lifted or pull away from the wall. On some buildings, the fascia has blown loose (Photo 57).
  - d. Aluminum counter flashings were set into reglets in the masonry wall along the shed roofs. In some locations, the reglet was not sealed or sealant was poorly installed (Photo 58).
  - e. There were numerous open ends on the sheet metal, especially along the shed roofs and gable ends. Gaps exist where there are steps in the masonry veneer and the sheet metal runs straight (Photo 59).
- 2) On some of the shed roofs over the entries, copper sheet metal was used. This installation appears to be detailed better.
    - a. The copper is set into a reglet which is caulked and sealed. The quality of the sealant work is questionable (Photo 60).
    - b. The seams in the copper counter flashing and base flashing are soldered watertight and bent back to seal the ends.
    - c. On one end, the flashing extends beyond the shed roof by approximately 6 inches while on the opposite end of the roof it stops flush with the edge of the roof.

#### 5. Gutters and Downspouts:

A. The gutters are 5-inch aluminum "K" style (Photo 61) secured with fascia strap hangers at 24 inches on center. The downspouts are aluminum rectangular 3-inch x 4-inch secured to the face of the building with aluminum straps. Observed defects related to the gutters and downspouts include the following:

- 1) Whole sections of missing gutter.

- 2) Several connections are completely disconnected at the gutter and at grade (Photo 62).
- 3) Some downspouts are clogged with debris.

B. Rain water is diverted away from the buildings by black corrugated flexible piping to either underground locations or simply further away from the building.

6. Masonry:

A. The exterior veneer of the building is masonry of brick and CMU/EIFS. There were numerous defects observed during our site visits including:

- 1) In some locations where trim and masonry meet, small areas of masonry are missing and daylight can be seen at the attic level (Photo 64).
- 2) From the ground, gaps are visible at the transition from vertical masonry wall to wood fascia.
- 3) There are step cracks in the concrete masonry units under the double windows typical at several ground level locations (Photo 65).
- 4) The window head steel lintels are rusting (Photo 66).
- 5) At walls the surface applied EIFS shows signs of damage with miscellaneous repairs. At several corners there is rusting metal lath (Photo 67).
- 6) The rope place holder at the masonry weep holes is still in place at several locations (Photo 68).
- 7) Some vertical masonry joints are missing mortar.
- 8) Many control/expansion joints are damaged or missing sealant (Photo 69).
- 9) A few vents on the elevations are missing the required sloped metal covers (Photo 70).
- 10) The foundation wall insulation is visible at grade and unprotected at the several mechanical rooms (Photo 71).

7. Miscellaneous:

- A. In the attic, there is a crisscross of circular metal ductwork (Photo 72). The ductwork doesn't run straight vertically, but instead, sections of ductwork jog randomly as it makes its way to the roof (Photo 73). The vent pipes do not take the most direct route to the roof.
  - B. Several rectangular air conditioner/heating trunk lines have been damaged. The joints between sections of ductwork are open.
  - C. Louvered vents (Photo 74) are blocked perpendicularly by the internal partitions and residual untrimmed air infiltration barrier. The louvers on the gable ends appear to be only decorative as noted under the VENTING section.
  - D. The steel lintels lack proper detailing of flashing and show signs of rusting.
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### III. EVALUATIONS:

#### 1. Code:

- A. There are several Code related issues that should be reviewed first:
- B. **1507.2.2 Slope.** *Asphalt shingles shall only be used on roof slopes of two units vertical in 12 units horizontal or greater. For roof slopes from two units vertical in 12 units horizontal up to four units vertical in 12 units horizontal, double underlayment application is required in accordance with Section 1507.2.8.<sup>1</sup>*
- 1) The roofs of the Hilltop Apartments have a slope of six and twelve and are, therefore, acceptable.
- C. **1507.2.6 Fasteners.** *Fasteners for asphalt shingles shall be galvanized, stainless steel, aluminum or copper roofing nails, minimum 12 gauge shank with a minimum 0.375 inch-diameter head, of a length to penetrate through the roofing materials and a minimum of 0.75 inch into the roofing sheathing.<sup>2</sup>*
- 1) The nails used to secure the shingles are not long enough to provide adequate penetration into the deck. Two layers of an architectural grade shingle are approximately ½-inch thick, leaving only 1/4-inch penetration into the deck. The Contractor used an incorrect fastener for securement of the shingles. This will result in shingles coming loose or blowing off in strong winds.
  - 2) Nail heads should lay flat against the shingle for proper securement. Nails set at an angle can cut through the shingle.
  - 3) The specifications call for the fasteners to be aluminum or hot-dipped galvanized steel. The nails used are electroplated steel, not hot-dipped, and therefore do not meet the specifications.
- D. **1507.2.7 Attachment.** *Asphalt shingles shall have the minimum number of fasteners required by the manufacturer and Section 1504.1. Asphalt shingles shall be secured to the roof with not less than four fasteners per strip shingle or two fasteners per individual shingle. Where the roof slope exceeds 20 units vertical in 12 units horizontal, special methods of fastening are required. For roofs located where the basic wind speed in accordance with Figure 1609 is 110 mph or greater, special methods of fastening are required. Special fastening methods shall be tested in accordance with ASTM D3161, modified to use a wind speed of 110 mph.<sup>3</sup>*
- 1) According to the Connecticut Supplement to the Code, Appendix K, the basic wind speed design for Storrs, Connecticut is 100 mph. The shingles require high wind resistance securement. Depending upon the manufacturer, this would require a minimum of 6 fasteners per shingle. In low slope conditions, additional fasteners are required along with additional adhesive along the rake and eave to seal the shingle tabs.
  - 2) The location of the fasteners should be in conformance with the manufacturer's specifications and NRCA standards.
  - 3) The existing shingles are inadequately attached with only four fasteners per shingle.
- E. **Section 1203 Ventilation; 1203.2:** *The net free ventilating area shall not be less than 1/150 of the area of the space ventilated, with 50 percent of the required ventilating area provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet (914 mm) above eave or cornice vents with the balance of the required ventilation provided by eave or cornice vents.<sup>4</sup>*

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<sup>1</sup> International Building Code 2003

<sup>2</sup> International Building Code 2003

<sup>3</sup> International Building Code 2003

<sup>4</sup> International Building Code 2003

- 1) Asphalt shingle manufacturers, NRCA, and Code require asphalt shingles be installed over a vented air space. The pitched wood truss roof provides an attic space for proper venting and air circulation if detailed properly. However, there are several problems with the venting based on building type. See the drawings in Appendix B for ventilation calculations, one per building type as noted in the Table of Contents. Attic partitions create separate attic areas and the calculations are per area.

2. FM Global:

- A. Although FM Global is not a code requirement, the buildings are insured through FM Global; and therefore, certain requirements related to the roofing system are recommended. To be considered for FM Global's approval, roof assemblies must conform to one or more FM Approval Standards. There are numerous publications which FM Global publishes which relate to roof assemblies; however, there are two which are referenced most frequently. They include *FM 1-29 Roof Deck Securement and Above-Deck Roof Components* and *FM 1-49 Perimeter Flashing*.

FM 1-29: This document provides recommendations for the proper securement of various roof decks to supporting members and for the proper design and installation of above-deck roof components. Items covered include roof covers, insulation, vapor retarders, fasteners, and recover assemblies.

FM 1-49: This document deals primarily with wind uplift forces on the perimeter of industrial, commercial, and institutional buildings, and includes appropriate construction flashing details. Roofs considered in this standard are basically flat or slightly sloped, are not limited to any particular type of material, and are limited to Class 1-60, Class 1-75, and Class 1-90 wind rated designs. Basically, the objective is to provide some guidelines to assist in detailing perimeter flashing assemblies.

- B. All roof assemblies listed as FM Approved have been evaluated for performance criteria that include: interior fire exposure, exterior fire exposure, wind uplift resistance, corrosion resistance for roof fasteners, accelerated weathering, hail damage resistance, leakage resistance, and foot traffic resistance. All of these performance criteria must be met to be considered for approval as a roof assembly. In general, the manufacturer of the roofing material would provide the designer or contractor with the appropriate FM roof assembly number. These assembly numbers are posted on FM Global's web site under [www.roofnav.fmglobal.com](http://www.roofnav.fmglobal.com). The roof assemblies within RoofNav are FM Approved only when exactly assembled as listed for each specific cover, insulation, fastener, deck or structural substrate. Their compatibility with other roofing components within the construction is the responsibility of the listed manufacturer, who should be consulted prior to their use. Manufacturers are continually testing and applying for approvals on new and various roofing systems

- C. The roofing assemblies observed on this building may, at one time, have been in compliance with FM Global. Often, an inspection by FM Global will require additional repairs or upgrades to existing systems in an effort to maintain the standards imposed by the insurer. Any new roofing system will need to be installed to the latest FM Global standards. Drawings and Specifications should be reviewed by FM Global prior to requests for bids in case any changes or alterations are required by FM Global.

3. Decking:

- A. The use of OSB is acceptable for this type of construction and application. The manufacturer's specifications call for the "use of appropriate fasteners at the recommended schedule and gap panels 1/8" on the ends and edges of each panel."<sup>5</sup> See Appendix G.

- 1) Test cut taken at the ridging in the asphalt shingle indicated that the decking was not installed with the required 1/8-inch gap. The OSB boards are moving due to thermal expansion, causing the shingles to lift. OSB should be fastened at 6 inch on center at supported edges and 12 inches on

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<sup>5</sup> Weyerhaeuser OSB-109

center intermediate using minimum 8d nails.<sup>6</sup>

- 2) Proper securement of the existing OSB sheathing is questionable due to the movement observed.

#### 4. Roofing:

- A. In general, the overall quality of the roofing system is questionable.
- B. The "Hatteras" shingles specified are designed to withstand high wind, up to 110 mph. However, we do not believe these were the shingles installed on the roof. We presume a lower grade shingle such as the "Glass Master 25" was installed, which has a lower wind uplift rating of 60 mph.
- C. When replacing the roof, consideration should be given to upgrading the quality of the shingles. There are many products on the market today which would be acceptable, including GAF Timberline or CertainTeed Landmark series. We would recommend consideration of increasing the grade of the shingle to an architectural asphalt shingle with a 40+ life expectancy and that would meet the high wind requirement of at least 100 mph.
- D. The securement of the shingles must meet the high wind requirement of 100 mph. Therefore a minimum of 6 nails per shingle are required and of a length long enough to penetrate the substrate by 1/4 inch as noted above. Use of the specified hot-dipped galvanized roofing nails is recommended. Nails should be set just below the adhesive strip on the shingles so as to ensure the nail penetrates both layers of shingles. The nails we observed were set very close to the upper limit and may have missed the double coverage. They also were not long enough to penetrate the sheathing as required.
- E. Waterproofing membrane along the eave and valley conditions is acceptable along with the felt underlayment. The waterproofing membrane should also be used along the rake, ridge and around all penetrations. This was not verified in the field during our site visits. However, due to the amount of leaks occurring around penetrations such as vents and ridge line, one can assume the contractor omitted the waterproofing membrane during installation at these areas. The waterproofing membrane should be installed over the metal drip edge along the eave and under the metal drip edge along the rake. The project manual specifies the waterproofing membrane should be applied to the "...entire perimeter of surface to receive asphalt shingles, including ridges, valleys, and rakes."
- F. The closed-cut valley detail is acceptable. However, nails used to secure the shingles are set too close to the centerline of the valley. In a driving rainstorm, water can back up under the shingles and penetrate the assembly at the nails. A continuous bead of roofing cement should be applied along the leading edge of the cut shingles to prevent lifting in strong winds. Also, the shingles are cut too close to the centerline of the valley restricting the water flow.
  - 1) When replacing the roof, consideration should be given to installing an open valley fabricated from sheet metal such as lead coated copper as originally specified.
- G. All penetrations in the roof need to be reviewed and flashed to shed water. There are installations where the dryer vents are set directly on the asphalt shingles and surface nailed. This is totally unacceptable.
  - 1) All of the roof penetrations should be inspected and reset in accordance with trade standards such as the National Roofing Contractor's Association (NRCA) Roofing Manual: Steep-slope Roof System 2013 edition. The vents should be pre-fabricated with a "flange that extends around a penetration and is installed under shingles on the upslope side of a penetration and over the shingles on the downslope side."<sup>7</sup>
- H. The field fabricated ridge vent is a source of constant problems due to poor design and construction. Shingles have blown off, exposing the felt underlayment and fasteners on most of the ridge vents. The

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<sup>6</sup> Structural Board Association

<sup>7</sup> NRCA Roofing Manual: Steep-slope Roof Systems - 2013

project manual doesn't list any pre-fabricated ridge vent. The aluminum side ridge vent was not meant to be installed in a vertical application. Even with the mesh screening, a strong wind-driven rain can easily penetrate the assembly and leak into the attic space. The other issue is the fact that the vertical plane of the aluminum vent aligns with the end of the OSB sheathing. There should have been at least a 2-inch overlap.

- 1) Reusing the existing field fabricated ridge vent is not practicable. All ridge vents should be replaced with a pre-fabricated type unit such as a Cor-A-Vent V-400E Ridge Ventilation System <http://www.cor-a-vent.com/v400.cfm>. See Appendix E.

## 5. Venting:

A. In a cold climate, the main purpose of venting the attic is to prevent ice dams created by melting snow and to remove any moisture that moves from the conditioned living space below into the attic. In a hot climate, the primary purpose of ventilation is to expel solar-heated hot air from the attic or roof to reduce the building's cooling load on the air conditioning system.<sup>8</sup> The code specifies 1 square foot of net-free vent area for every 150 square feet of attic space.

- 1) See roof plans for specific amount of venting required by building type.
  - a. Calculation: attic area SF ÷ 150; convert to inches (x 144); divide between soffit 60% and ridge 40%.
  - b. Apply number to the particular manufacturer's specified air flow for soffit and ridge vent being used.

B. In addition to the above noted ridge vent issue, the entire area requirement needs to be evaluated by building type. The internal attic partitions and fire walls have an affect on the area being vented. They restrict the air flow and prevent the attic from breathing properly.

- 1) All soffit vents need to be inspected from both the interior and exterior. Where insulation or wood blocking is restricting the airflow, it needs to be removed.
- 2) Where additional venting is required along the ridge, but the roof profile (for example, at the hip roofs) limits the creation of additional venting, a pre-fabricated dormer roof vent pyramid should be installed. Typical manufacturer is Rutland Gutter Supply LLC <http://www.rutlandguttersupply.com/SoffitVents.asp>. See Appendix D.

## 6. Insulation:

A. We assume the amount of attic insulation meets or exceeds the building code at the time of construction. Any misplaced or disturbed insulation needs to be replaced so the coverage is uniform and complete.

B. Condensation occurs when warm moist air comes in contact with a cold surface. Often, condensation is mistaken for roof leaks and is never corrected, no matter how many times the roofing contractor visits the site. While on the roof, we felt warm moist air from a dryer coming out of the vent. This warm air travels from the dryer up through metal pipes in the attic that are not insulated. On very cold winter days, the ambient temperature of the attic is low enough that condensation will occur within the pipe and drip back down into the unit or onto the attic floor. This same condition will occur for all bathroom vents.

C. Some of the seams in the mechanical ductwork have split open and are forcing warm air into the attic, which can contribute to ice damming along the eave.

- 1) All mechanical ducts and exhaust vents which run in the attic should be properly insulated.

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<sup>8</sup> Fine Home Building - Taunton Press, August/September 2011

7. Sheet Metal:

- A. The existing aluminum sheet metal is of residential quality and not up to the commercial grade required on a building of this level. Fascia panels are lifting or pulling away from the facade. The copings are loose and not properly hemmed to the cleats. There are gaps in the shingle flashing, especially where the vertical leg abuts a masonry wall or parapet. Aluminum and steel should never be used as a counter flashing set into a masonry reglet. The lime in the mortar will deteriorate the sheet metal.
- 1) When replacing the roof, consideration should be given to replacing all of the sheet metal on the exterior of the building including counter flashing, copings, valleys, fascia, gutters, downspouts and drip edge. A higher grade material such as 16-oz or 20-oz lead coated copper should be used.

8. Miscellaneous:

- A. All through wall piping at mechanical units needs to be sealed in order to stop water from entering the building.
- B. Bird screen needs to be installed to deter nesting at any open vents. Any metal vent covers which are missing need to be replaced.
- C. All penetrations into the attic need to be sealed.

9. Sealant:

A. General information:

- 1) There are two main classifications of building joints: static and dynamic. Static joints are those where the joint is non-moving, such as the sealing of window sills and jambs. Dynamic joints are those which experience movement through expansion or contraction.
- 2) All dynamic joints exert a high degree of stress in tensile or shear upon the sealant. When excessive movement causes a sealant to break, tear, or disintegrate, it is known as cohesive failure. Where the bond is lost between the sealant and the surface, it is known as adhesive failure. The cause of this can be poor surface preparation and/or incompatible coatings. Whatever the surface, the main objective is to develop and maintain a watertight joint.
- 3) Control joints in the masonry relieve the stress caused by thermal movement. Without the joints, the masonry may crack or become displaced. It is the job of the sealant to absorb the movement of the masonry. To properly do this, the sealant should be applied to a profile resulting in the depth being half the width of the joint. For example, if the joint is 1-inch wide, the thickness of the sealant should be 1/2 inch. To prevent the sealant from being applied too thick or too thin, a continuous backer rod is inserted into the joint. The backer rod material can be closed or open cell, so long as it does not absorb moisture and the sealant does not adhere to it. Where examined, the sealant was bonding to the open cell backer rod, thereby jeopardizing the sealant.
- 4) According to ASTM C920 *Standard Specification for Elastomeric Joint Sealants*, sealants are to be classified by type, grade, class, and use.

Type	There are two types of sealant: Type S - single component and Type M - multicomponent sealant.
Grade	There are two grades of sealant: Grade P - pourable or self leveling and Grade NS - nonsag or gunnable sealant.
Class	There are several classes of sealant: Sealant when tested for cohesion and adhesion under cyclic movement shall withstand movement of up to 50% - Class 50; 25% - Class 25; or up to 12 ½% - Class 12 ½.

Use                      There are six classes of Use including:  
Use T -                traffic  
Use NT -              non-traffic  
Use M -                masonry  
Use G -                glass  
Use A -                aluminum  
Use O -                other than those listed above

- B. Most of the sealant failure observed is cohesive. This is especially true at the vertical control joints which are splitting, exposing the backer rod, and permitting moisture infiltration into the wall cavity.
- C. The best sealant for most applications would be one with a high Class rating to withstand the movement between the different substrates, is a single component, is non-sagging, and can adhere to as many different use groups as possible, such as the one-part natural silicone sealant originally specified - Dow 790.

10. EIFS System:

- A. A cursory review of the exterior insulation finish system (EIFS) siding on the building indicates problems which need to be addressed, such as vertical cracking along windows and corners and mechanical damage along the base.
- B. The siding has been patched at the vertical corners of the window oriels. There were some minor areas of cracking where the reinforcement mesh is exposed, such as that on the Wheeler and Wu Buildings. Water is getting into the system and may be damaging the gypsum sheathing below. Repairs should be made as soon as possible.
- C. Coating manufacturers such as STO and DRYVIT have updated their installation details and requirements for the system over time. Expansion and control joints are required in new construction at areas of high stress or movement, such as floor lines and window penetrations. This is due to shrinkage and movement which occurs at these critical locations. To accommodate this movement, the manufacturer recommends cutting grooves into the insulation board at select locations and filling the joint with backer rod and sealant. Where dissimilar substrates abut, such as wood or concrete, a control joint should be installed to accommodate varying rates of thermal expansion and contraction. Many of these joints in the EIFS system have failed and need to be properly repaired.
- D. Should moisture get behind the system, it will cause delimitation of the insulation boards. There is no way to tell the extent of damage without cutting out and replacing some of the EIFS system. A thermal imaging camera may be useful in detecting trapped moisture within the system.
- E. Any staining of the EIFS system, especially on the north elevations, is caused by mold; it is mostly cosmetic and can be washed off using specific manufacturer's cleaners. Once clean, the surface can be recoated and sealed.

11. Masonry:

- A. In general, the masonry work is on par with the roofing work. Cracks exist in the masonry below the center line of the first floor windows. At one location, bricks were missing at the corner of the entry dormer and we were able to insert a tape measure 24 inches into the void. At the header over openings, the steel angle is exposed and there are no signs of flashing. Ropes were used to form the weeps in lieu of prefabricated type plastic weeps. Some of the ropes were left in the mortar joints, restricting the flow of water.
- B. The exterior walls are constructed as cavity walls. Review of the *Brick Institute of America* (BIA) technical notes shows that *"successful performance of a masonry wall depends on limiting the amount of water that enters the wall system. If water penetration can be limited, for all practical purposes, the wall will remain dry. Water resistance of a masonry wall depends on four key factors:*

1. *Design, including detailing*

2. *Construction*
3. *Materials*
4. *Maintenance*

- C. All four of the above criteria must be given careful attention in order to produce a satisfactorily performing masonry wall.
- D. Design
- 1) It is nearly impossible to keep a heavy, wind-driven rain from penetrating a single wythe of brick. Therefore, control of this moisture is important. Water that does penetrate the exterior is absorbed by the brick. Freezing temperatures will cause the water to expand, resulting in spalling or cracking of the brick face. It is easier for water to penetrate the wall once the hard, baked face of the brick has been damaged by spalling. The damaged area will continue to increase over time until, eventually, the brick deteriorates.
  - 2) Wall flashing helps to divert water that penetrates the wall back to the exterior of the structure. This is important with respect to window and door heads where rusting of the jamb and frame would result. Flashing also protects steel lintels from rusting. Exfoliation will cause the steel to expand, damaging the brick while weakening the steel. Weeps permit water to escape.
  - 3) Control joints are critical on newer, larger, cavity-type wall construction. The joints allow for thermal movement between different materials and large expanses. There is an insufficient number of control joints for buildings of this size.
- E. Construction
- 1) Cavity-type wall construction is common today because it is less costly, quicker to construct, is more sound absorbent, and has a higher thermal resistance value than a solid masonry wall.
- F. Materials
- 1) The bricks used are general use extruded Type FBS, Grade Severe weather (SW), in accordance with ASTM C-216 *Standard Specification for Facing Brick*. This type of brick is acceptable for applications above grade. However, it is not acceptable for below or at grade line. Where snow buildup and water splashes against the face of the building, a more dense, less absorbent brick should have been used.
  - 2) Under normal conditions, water will not pass completely through a brick itself - unless the original backed-on facing has become defective due to spalling or splitting. Another avenue for water infiltration in a masonry wall is through hairline cracks between the brick and mortar.
  - 3) Mortar used to repair the masonry wall should not be harder than the surfaces it is bonding, in this case, the brick. Type N (750 psi) is the preferred standard for exterior above grade use according to ASTM C270. A Type S (1,800 psi) mortar is acceptable for below or at grade level. If the mortar is too hard, it will restrict the brick's movement.
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#### IV. RECOMMENDATIONS:

##### 1. General:

- A. It may be important that a majority of the work be performed during off-hours or when school is not in session due to noise and the function of the building and its occupants. Scheduling and coordination between the contractor and UCONN is necessary, and an open line of communication between both parties is important.
- B. Due to the magnitude of the work involved, the project will most likely need to be phased over several years. This can be by building type or location and is up to the University.
- C. The following recommendations are in addition to a regularly scheduled yearly maintenance program. We strongly recommend that you retain the services of a licensed roofing/restoration contractor, familiar with the various types of materials noted on the building, to inspect and maintain the roofs and facade. This will help extend the life expectancy of the various materials.
- D. See Appendix C for cost estimate of recommended repairs by building type.

##### 2. Roof:

- A. It is our professional opinion that the existing roofing system is inadequate for what is typically expected in this type of facility and for this client. The products are less than commercial grade and the installation is below trade standards. For this reason, we recommend that the entire roofing system including all related flashing and sheet metal be removed down to the OSB decking and replaced. This includes the following items:
  - 1) Removing the existing roofing will permit the inspection of the OSB decking and correct any defects such as inadequate fastening and gaps. We do not recommend roofing over the existing shingles. It lowers the life expectancy of the new asphalt shingle roof and does not permit inspection and repair to the substrate.
  - 2) Verification of waterproofing membrane (Ice and Water Shield) around all penetrations, perimeter (ridge) and terminations. Installation of new felt underlayment throughout.
  - 3) Installation of new architectural grade asphalt shingle with a minimum 100 mph wind test rating (minimum) and lifetime warranty (50-year minimum). Shingles need to be secured with the proper size roofing nail (hot dipped galvanized - 6 nails per shingle).
  - 4) All sheet metal should be replaced with new 16-oz lead coated copper. This includes copings, counter flashing, step flashing, drip edge and shingle flashing.
  - 5) Details and installation including roof penetrations and flashings should be in accordance with SMACNA and NRCA standards. This includes dryer vents, stack vents, and exhaust pipes.

##### 3. Venting:

- A. The existing venting system is inadequate for the size and configuration of the different building types. The installation of fire and smoke partitions in the attic restricts the air flow. Venting should be redesigned for each building type. See individual roof plans for additional information on venting.
  - 1) Installation of new pre-fabricated ridge vents such as; *Roof Ventilation Systems: Cor-A-Vent V-400E Ridge Ventilation System* <http://www.cor-a-vent.com/v400.cfm>. We do not recommend the use of the roll type venting system. They do not provide sufficient free air circulation needed on large roof areas. The gable end vents are sealed on the inside and offer no cross ventilation.
  - 2) Installation of additional lead coated copper attic dormer type vents as required where existing ridge and soffit venting is restricted due to interior smoke partitions or roof profile. See roof plans for additional information and quantities.

- 3) Replacement of soffit with new sheathing and individual soffit vents made of aluminum sized according to building type.

4. Insulation:

A. Insulation should be installed evenly over the entire attic floor with no gaps or penetrations for air transfer.

- 1) Seal all openings in attic that permits transfer of internal air to the cold attic space. This includes sealing all open seams in ductwork, resetting of batt insulation in areas where it was disturbed, and areas of exposed gypsum board ceilings.
- 2) Wrap all sheet metal exhaust pipes with insulation. This includes, but is not limited to, dryer vents and bathroom vents.

5. Sealant:

A. Sealant generally lasts between 5 and 8 years. All surfaces should be inspected on a regular basis, and the sealant replaced as needed.

- 1) Inspect all sealant and remove any dried or defective sealant. Clean contiguous surfaces and prime if required by sealant manufacturer. We recommend replacing the sealant with a high modulus single part silicone such as a [Dow 795 Silicone](#). Color to match adjacent material or existing sealant.
- 2) For EIFS repair, use a one-component, low-modulus, neutral cure silicone weatherproofing sealant such as [GE Advanced Materials SilPruf LM SCS2700](#).

6. Masonry:

A. The quality of the masonry work is fair at best. Most masonry issues such as settlement or thermal cracking take years before they appear and cause issues. However, we already see a settlement crack forming at the center of the CMU facade under the windows at first floor level. The best approach is to inspect the masonry facade on a regular basis and, should new defects occur, repair them quickly before they result in a more in-depth restoration type project.

- 1) We recommend inspecting the entire building facade and replace any damaged or defective masonry.
- 2) Install a soft joint at the centerline of the facade under the windows where cracking is occurring. This will require replacement of the cracked CMU blocks and installation of a compressible joint filler, backer rod and sealant. See Sealant section above for additional information.
- 3) Install brick where missing at junction of dormer roof to front facade on Wheeler Building.
- 4) Remove all aluminum counter flashing and install new lead coated copper flashing as per SMACNA recommended details secured in place with lead wedges. Seal reglet with backer rod and sealant.
- 5) Review all weeps and verify they have the originally specified pre-fabricated plastic type inserts. Remove all rope type weeps, clean out mortar joint, and install plastic weeps.

7. EIFS System:

A. Although there is a minimum amount of EIFS siding used on the buildings, repairs need to be made before the defective areas become too large and require total replacement of the siding. In general, the repairs should include the following:

- 1) Cutting out of defective soft joints, installation of a new closed cell backer rod, and caulking with a single-part, silicone sealant. Consideration should be given to the installation of soft joints at all floor lines and at corners to prevent future cracking from occurring. Patching of mechanical damage or where reinforcement mesh is exposed is required following manufacturer's specifications.
- 2) Areas where the moisture has gotten behind the insulation should be completely removed and replaced including any substrate materials. A thermal scan of the exterior facade may help to determine moisture location within the wall assembly.
- 3) All transitions between dissimilar materials such as coping, brick, concrete, and window frames should be caulked as noted above under Sealant section.
- 4) After repairs are made, paint the entire EIFS surface to make for a uniform color and textured appearance.

8. Miscellaneous:

- A. As part of the roof replacement project, consideration should be given to replacement of the residential style aluminum gutters and down spouts to a more commercial grade lead coated copper material to match the new sheet metal on the roof. Verify that all down spouts tie into the perimeter drainage system.
  - B. Custom fabricate bird screens and no-roost at selected areas to prevent birds from nesting at open vents and cornices.
-

**V. COST ESTIMATE:** (See Appendix C for additional information.)

Roof Type I	9,701 sf ±	\$ 355,957.00	\$ 36.00 per S.F.
Roof Type II	14, 222 sf ±	\$ 438,995.00	\$ 30.87 per S.F.
Roof Type III	8, 988 sf ±	\$ 366,387.00	\$ 40.76 per S.F.
Roof Type IV	10,231 sf ±	\$ 352,641.00	\$ 34.47 per S.F.
Roof Type V	13,568 sf ±	\$ 447,824.00	\$ 33.00 per S.F.

Some of the dollar figures used were calculated based on information obtained from the *2012 Building Construction Cost Data*, published by *Robert Snow Means Company, Inc., Kingston, Massachusetts*. Additional figures were obtained from similar active projects with inflation and geographical percentages included and manufacturer's pricing. The final dollar amount shown is for guidance only and is a "ball park" figure. An assumption is made that all work will be performed under one contract and not spaced out over a period of time. The amount does not include any Architectural/Engineering fees or contingencies.

None of the dollar figures listed above include additional structural reinforcement of the roof framing system should any be required.

---

**VI. REFERENCES:**

International Building Code (2003) with Connecticut Supplemental Codes  
SMACNA Architectural Sheet Metal Manual - sixth edition  
NRCA Roofing and Waterproofing Manual - third edition  
Fine Homebuilding A Crash Course in Roof Venting Copyright 2011  
Structural Board Association (OSB)  
Brick Institute of America - technical notes

---

Prepared by: Martin A. Benassi, AIA  
Martin A. Benassi, AIA - Architect, LLC  
Two Broadway  
Hamden, CT 06518

<u>Building Name</u>	<u>Photo Numbers</u>
Mary McLeod Bethune	1 and 2
Mildred French	3 and 4
Susette LaFlesche	5 and 6
Allison Pattison Merritt	7 and 8
Harriet Beecher Stowe	9 and 10
Mary Ritter Beard	11 and 12
Prudence Crandall	13 and 14
Sara Buek Crawford	15 and 16
Ella Grasso	17 and 18
Antonia Novello	19 and 20
Chien-Shiung Wu	21 and 22
Chase Going Woodhouse	23 and 24
Maude Knapp Wheeler	25 and 26

**Type I Buildings (Bethune, French, LaFlesche, Merritt, Stowe):**



#1 Bethune  
Front elevation.



#2 Bethune  
Left side elevation.



#3 French  
Front elevation.



#4 French  
Right side elevation.



#5 LaFlesche  
Front elevation.



#6 LaFlesche  
Right side elevation.



#7 Merritt  
Front elevation.



#8 Merritt  
Right side elevation.



#9 Stowe  
Front elevation.



#10 Stowe  
Right side elevation.

**Type II Buildings (Beard, Crandall, Crawford, Grasso, Novello):**



#11 Beard  
Front elevation.



#12 Beard  
Left side elevation.



#13 Crandall  
Front elevation.



#14 Crandall  
Right side elevation.



#15 Crawford  
Partial front elevation.



#16 Crawford  
Left side elevation.



#17 Grasso  
Front elevation.



#18 Grasso  
Right side elevation.



#19 Novello  
Front elevation.



#20 Novello  
Right side elevation.

**Type III Building (Wu):**



#21 Wu  
Front elevation



#22 Wu  
Right side elevation.

**Type IV Building (Woodhouse):**



#23 Woodhouse  
Partial front elevation.



#24 Woodhouse  
Right side elevation.

**Type V Building (Wheeler):**



#25 Wheeler  
Partial front elevation.



#26 Wheeler  
Right side elevation.

**Details - Roofing/Venting/Sheet Metal/Gutters**

**Roofing Details:**



#27 Grasso  
Ridge in shingles occurring along seam in OSB sheathing.



#28 Stowe  
Original ridge vent replaced with roll type vent.



#29 Stowe  
OSB roof sheathing label.

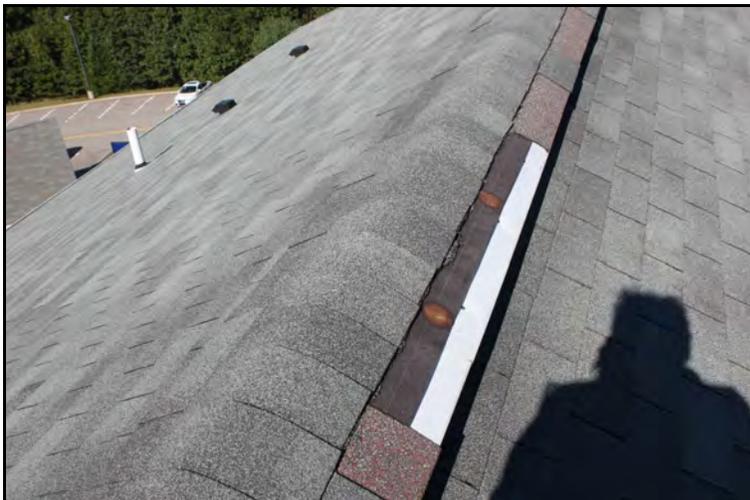
**Details - Roofing/Venting/Sheet Metal/Gutters**



#30 Stowe  
Ridge vent viewed from attic.



#31 Stowe  
Close up view of ridge vent  
viewed from attic.



#32 Stowe  
Original ridge vent with  
shingles missing.

**Details - Roofing/Venting/Sheet Metal/Gutters**



#33 Grasso  
Shingle cracked along ridge.



#34 Woodhouse  
Loose shingles and window screen on roof.



#35 Stowe  
Original ridge vent removed and sheet metal installed as temporary fix.

**Details - Roofing/Venting/Sheet Metal/Gutters**



#36 Grasso  
Typical 3 tab shingle secured  
with 4 nails.



#37 Grasso  
Shingle nail placement  
showing 4 nails per shingle.



#38 Stowe  
View of soffit in attic.

**Details - Roofing/Venting/Sheet Metal/Gutters**



#39 Wheeler  
Typical closed-cut valley.

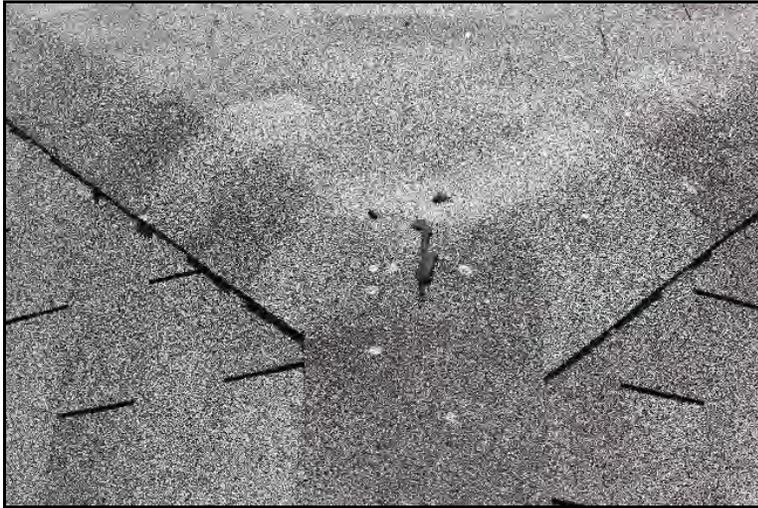


#40 Wheeler  
Roof cut along valley.



#41 Grasso  
Roof test cut at ridge in  
shingles.

**Details - Roofing/Venting/Sheet Metal/Gutters**



#42 Stowe  
Detail at ridge-hip connection  
with exposed nails.



#43 Grasso  
Open end of aluminum  
counter flashing.



#44 Grasso  
Counter flashing overlap.

**Details - Roofing/Venting/Sheet Metal/Gutters**



#45 Stowe  
Missing shingle at end wall  
shingle flashing at roof.



#46 Stowe  
Shingle flashing with open  
ends along wall.



#47 Wheeler  
Mechanical damage to  
shingles along eave.

**Details - Roofing/Venting/Sheet Metal/Gutters**

**Venting Details:**



#48 Wu  
Stack vent flange nailed to roof.



#49 Wu  
Overall view of roof showing dryer vents.



#50 Wu  
Dryer vent incorrectly flashed to roof.

**Details - Roofing/Venting/Sheet Metal/Gutters**



#51 Wu  
Photo showing dryer vent fixed with roofing cement.



#52 Wu  
End view of field fabricated ridge vent showing rusting nails.



#53 Stowe  
Close up view of soffit in attic.



#54 Stowe  
View of underside of decking along  
smoke partition.



#55 Stowe  
Batt insulation pulled back from  
around access panel.



#56 Stowe  
Attic access panel.

**Details - Roofing/Venting/Sheet Metal/Gutters**

**Sheet Metal Details/Gutters and Downspouts:**



#57 Novello  
Defective fascia panel.



#58 Grasso  
Close up photo of reglet at  
counter flashing.



#59 Wheeler  
Large void behind counter  
flashing which bricks were  
omitted.

**Details - Roofing/Venting/Sheet Metal/Gutters**



#60 Grasso  
Alignment of counter flashing.



#61 Grasso  
Correct placement of gutter  
along roof edge.



#62 Novello  
Mechanical room foundation.

**Masonry Details:**



#63 Beard  
Rear roof connections.



#64 Wheeler  
Gap in masonry.



#65 Typical step crack in CMU at  
center of facade under  
window.



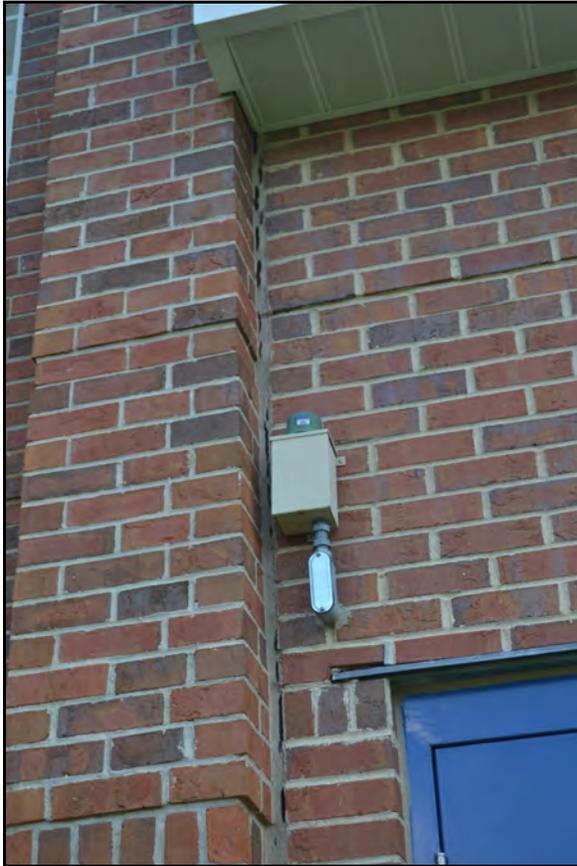
#66 Merritt  
Rusting at lintel along rear  
elevation.



#67 Wu  
EIFS damage.



#68 Stowe  
Rope weep.



#69 Merritt  
Defective sealant joint along  
rear elevation.



#70 Stowe  
Missing vent cover at front  
elevation.



#71 Crandall  
Exposed insulation along  
foundation.

**Miscellaneous Details:**



#72 Stowe  
Overall view of attic.

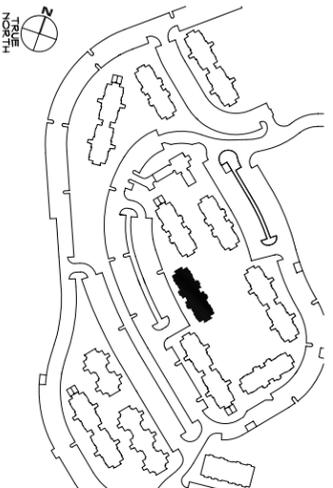
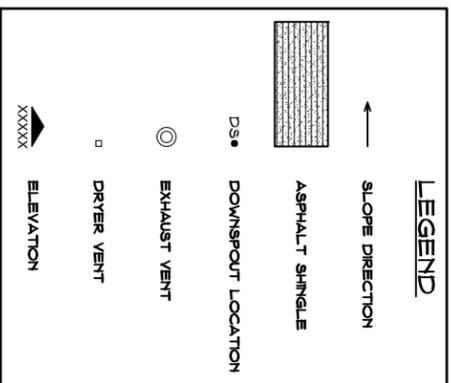
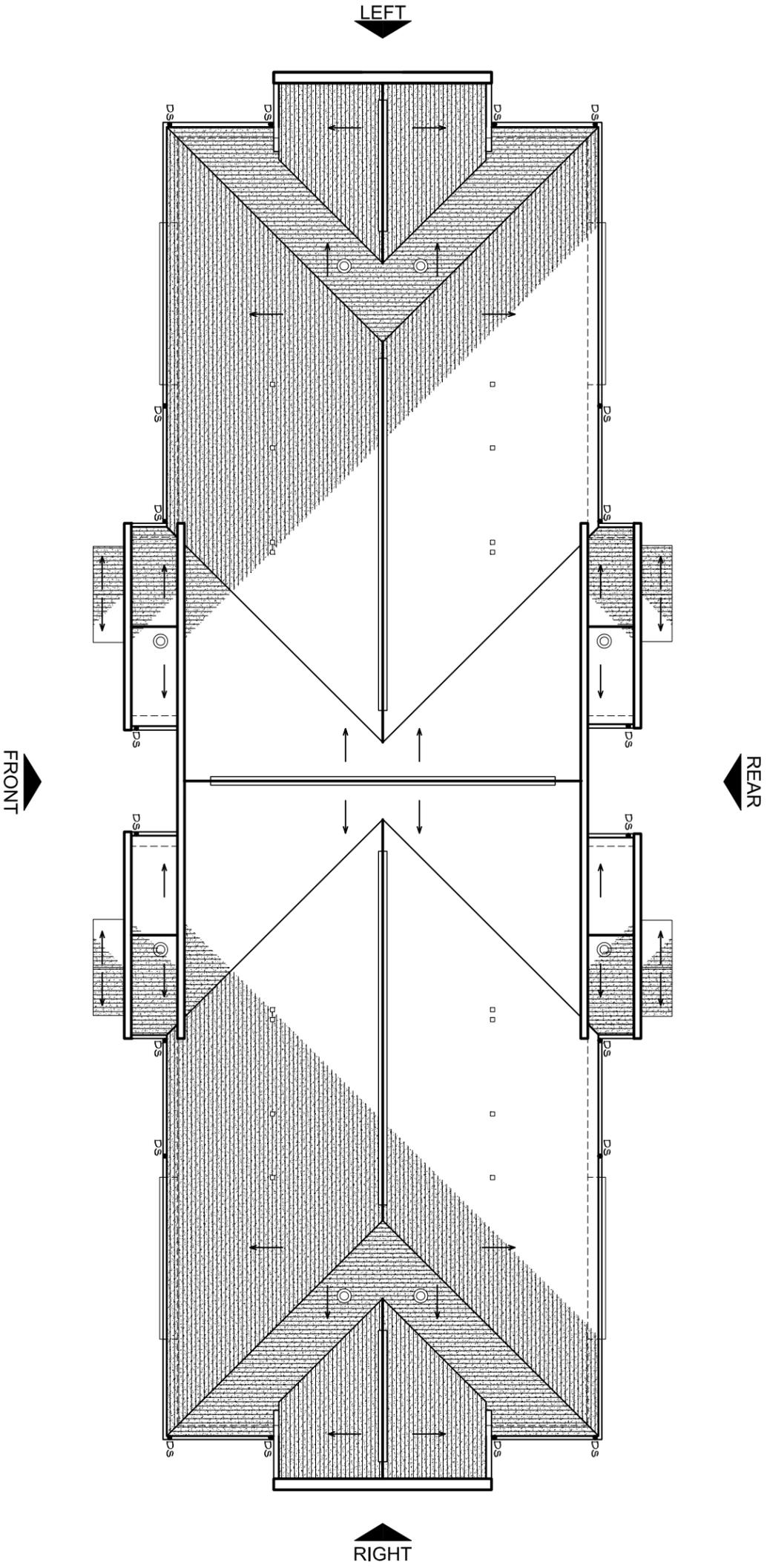
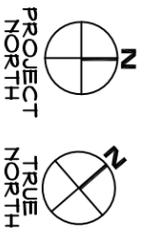


#73 Stowe  
Overall view of attic.



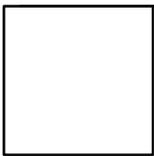
#74 Grasso  
Sealed Louver at gable end -  
typical.

BETHUNE  
SCHEMATIC ROOF PLAN  
BUILDING TYPE I-#17  
SCALE: 1/16" = 1'-0"



MARY McLEOD BETHUNE  
HILLTOP APARTMENTS  
STORRS, CONNECTICUT

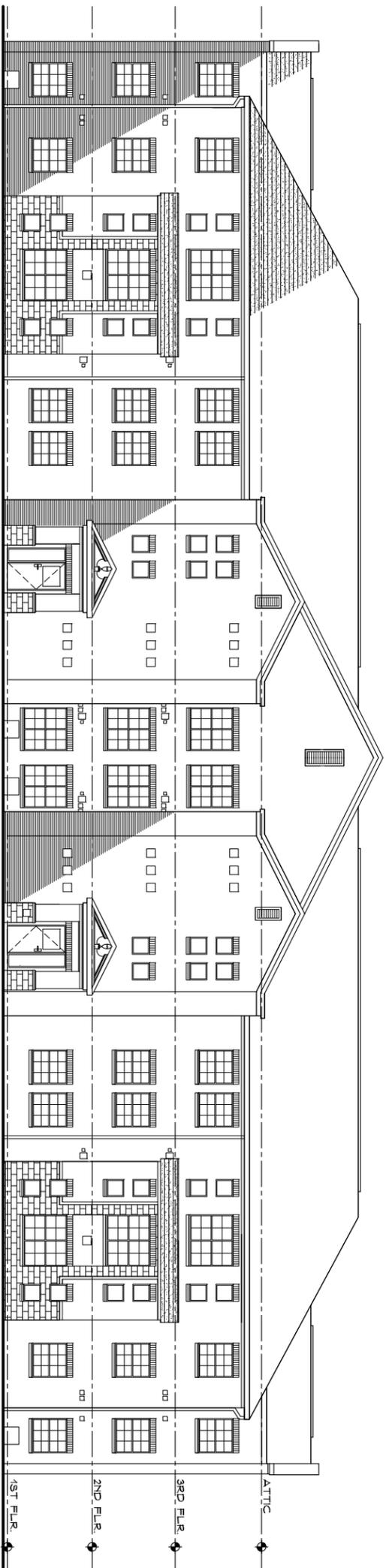
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Appendix B



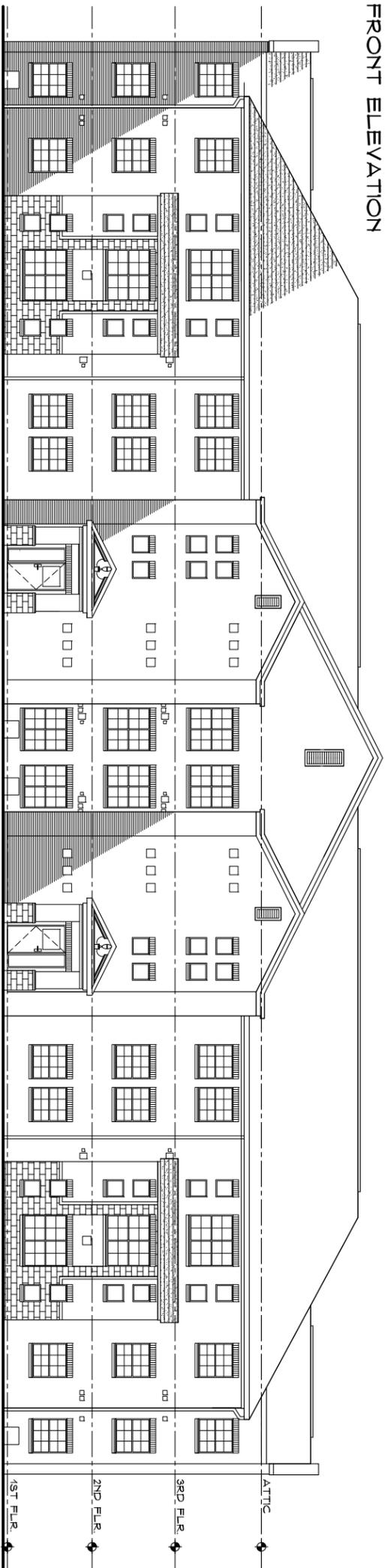
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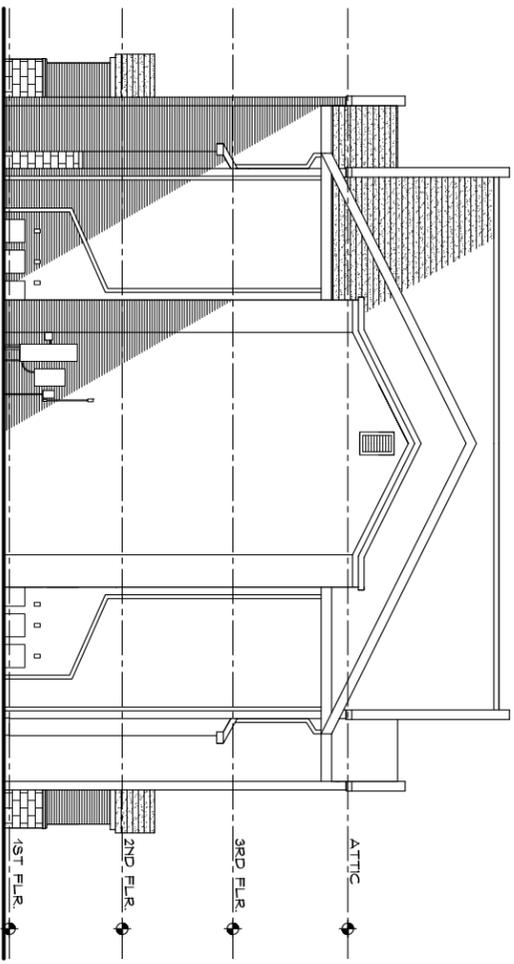
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revisions:



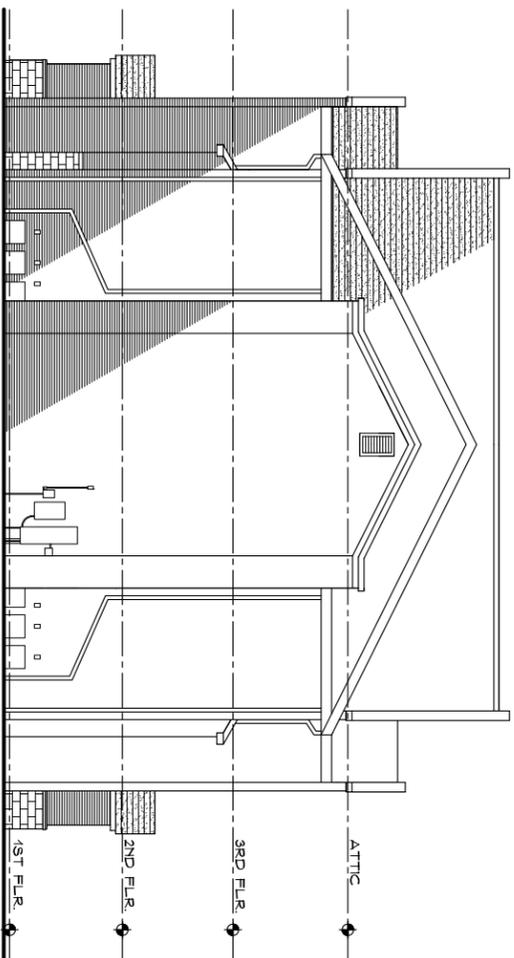
FRONT ELEVATION



REAR ELEVATION



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION

ELEVATIONS BUILDING TYPE 1-#17

SCALE: 1/16" = 1'-0"

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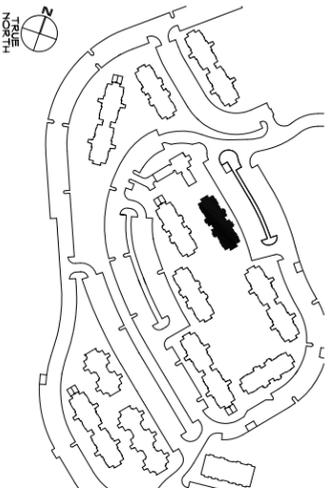
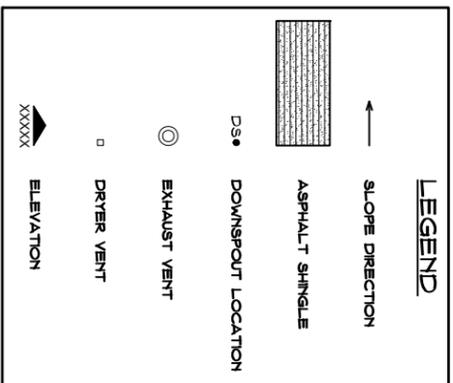
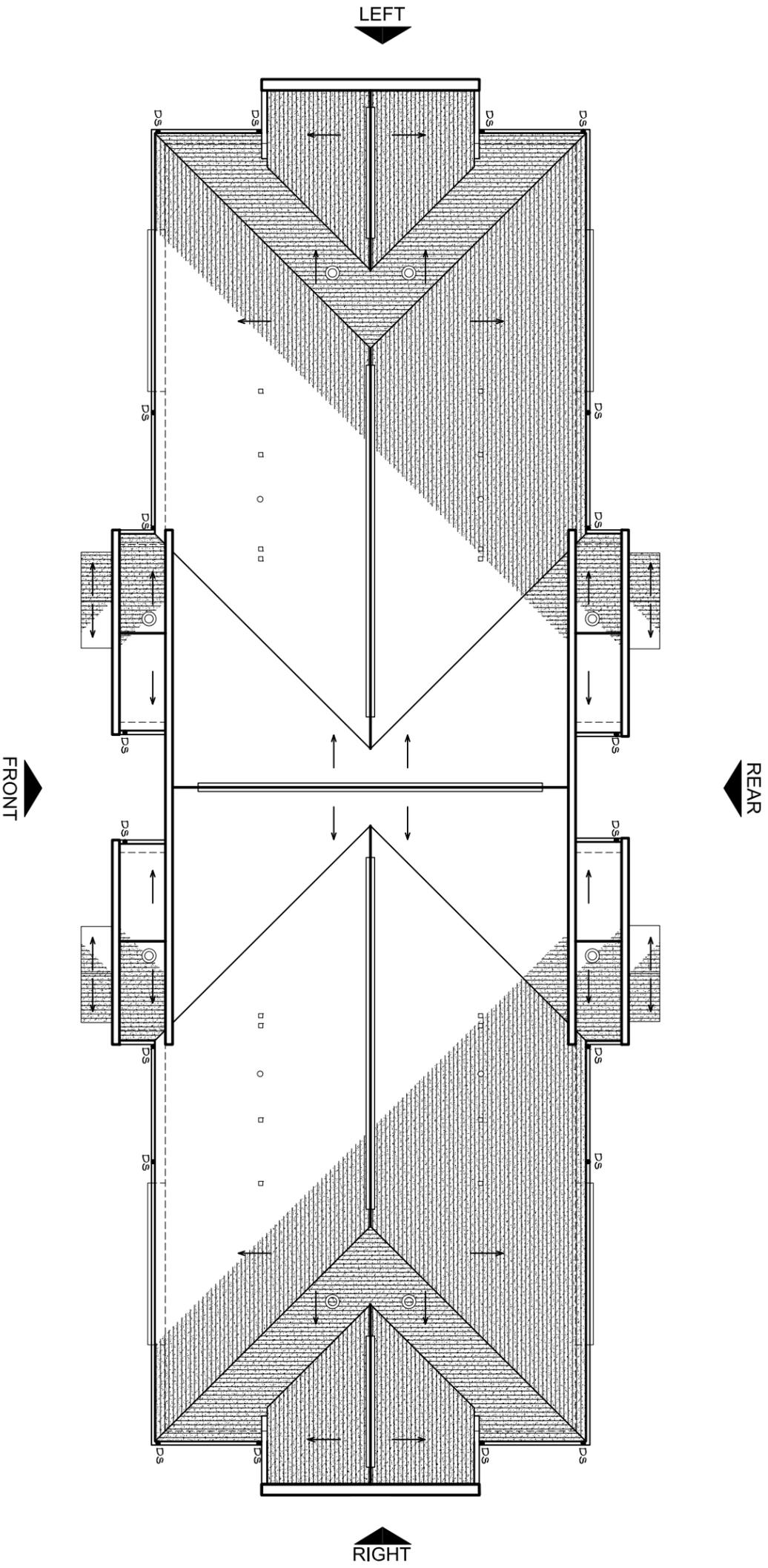
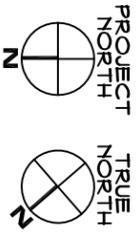
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MARY McLEOD BETHUNE  
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 STORRS, CONNECTICUT

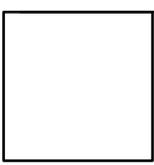
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 Appendix B

**FRENCH**  
**SCHEMATIC ROOF PLAN**  
**BUILDING TYPE 1-#13**  
 SCALE: 1/16" = 1'-0"



**MILDRED FRENCH**  
**HILLTOP APARTMENTS**  
**STORRS, CONNECTICUT**

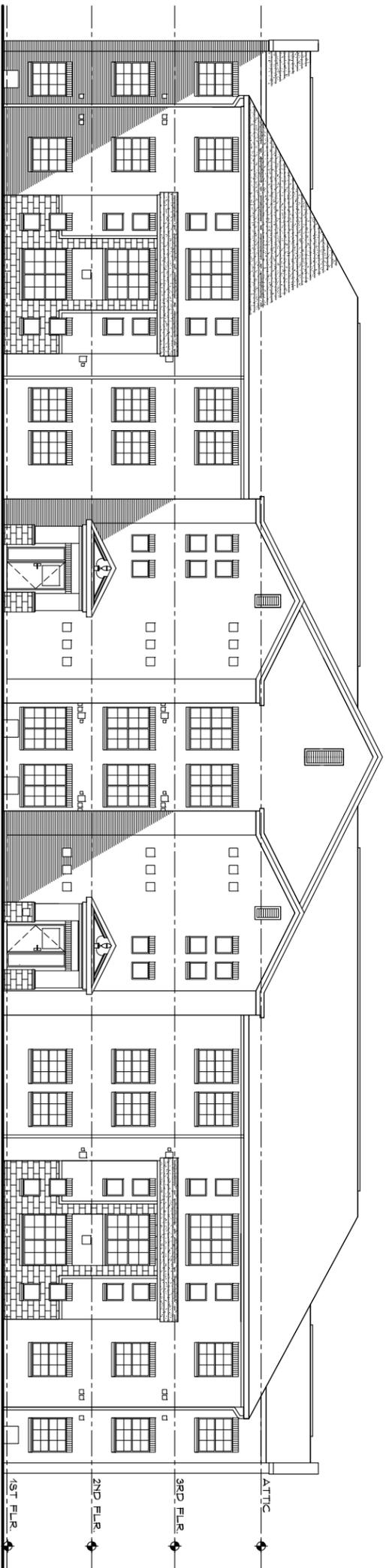
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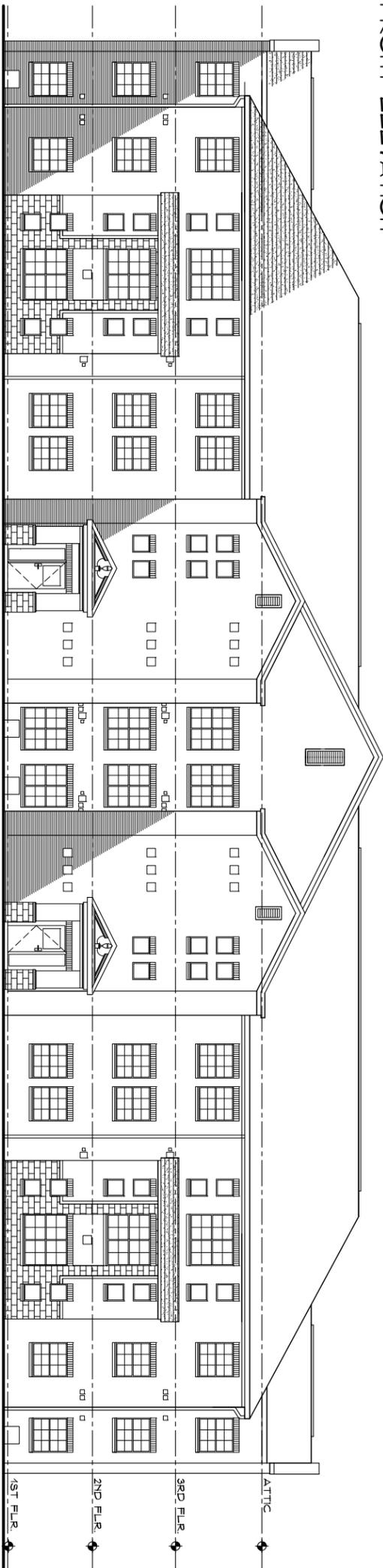
  
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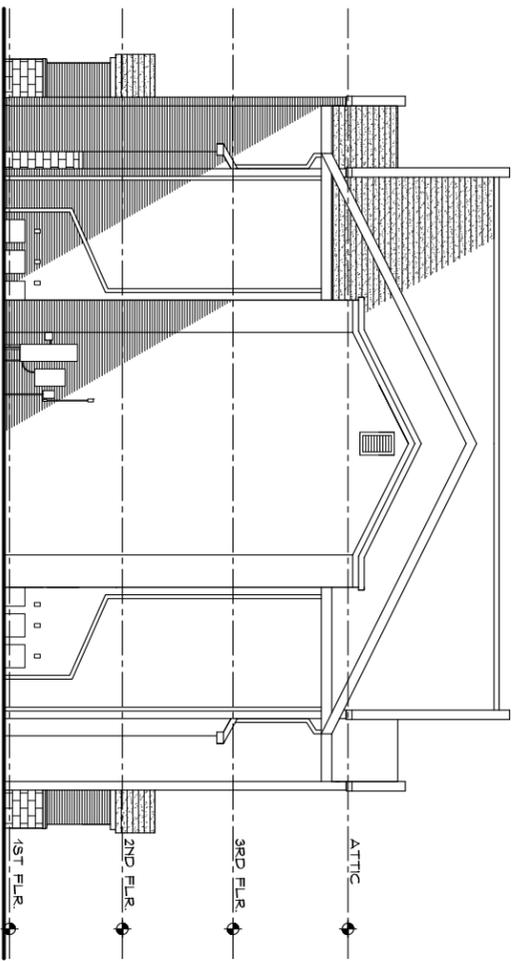
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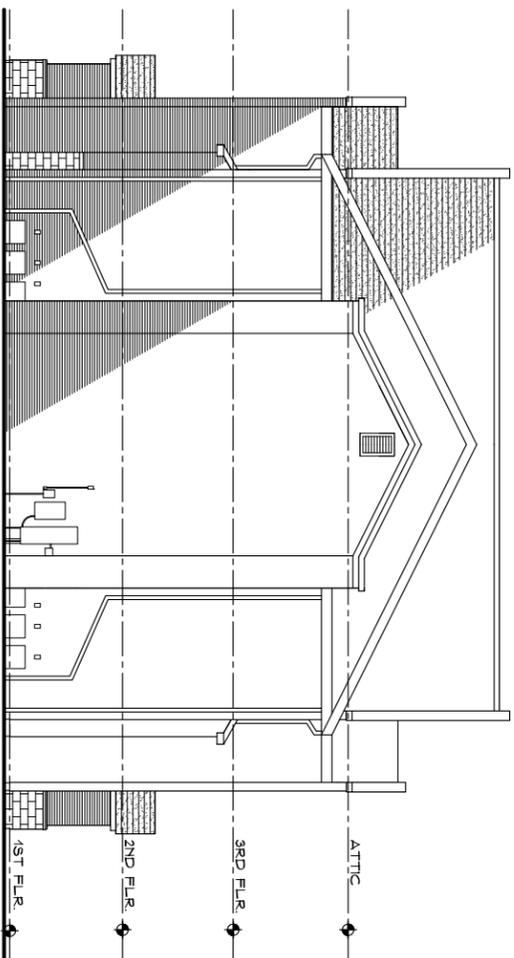
FRONT ELEVATION



REAR ELEVATION



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION

ELEVATIONS BUILDING TYPE 1-#13  
SCALE: 1/16" = 1'-0"

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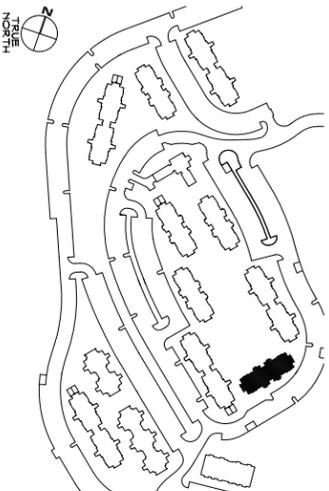
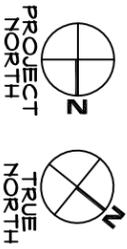
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MILDRED FRENCH  
HILLTOP APARTMENTS  
STORRS, CONNECTICUT

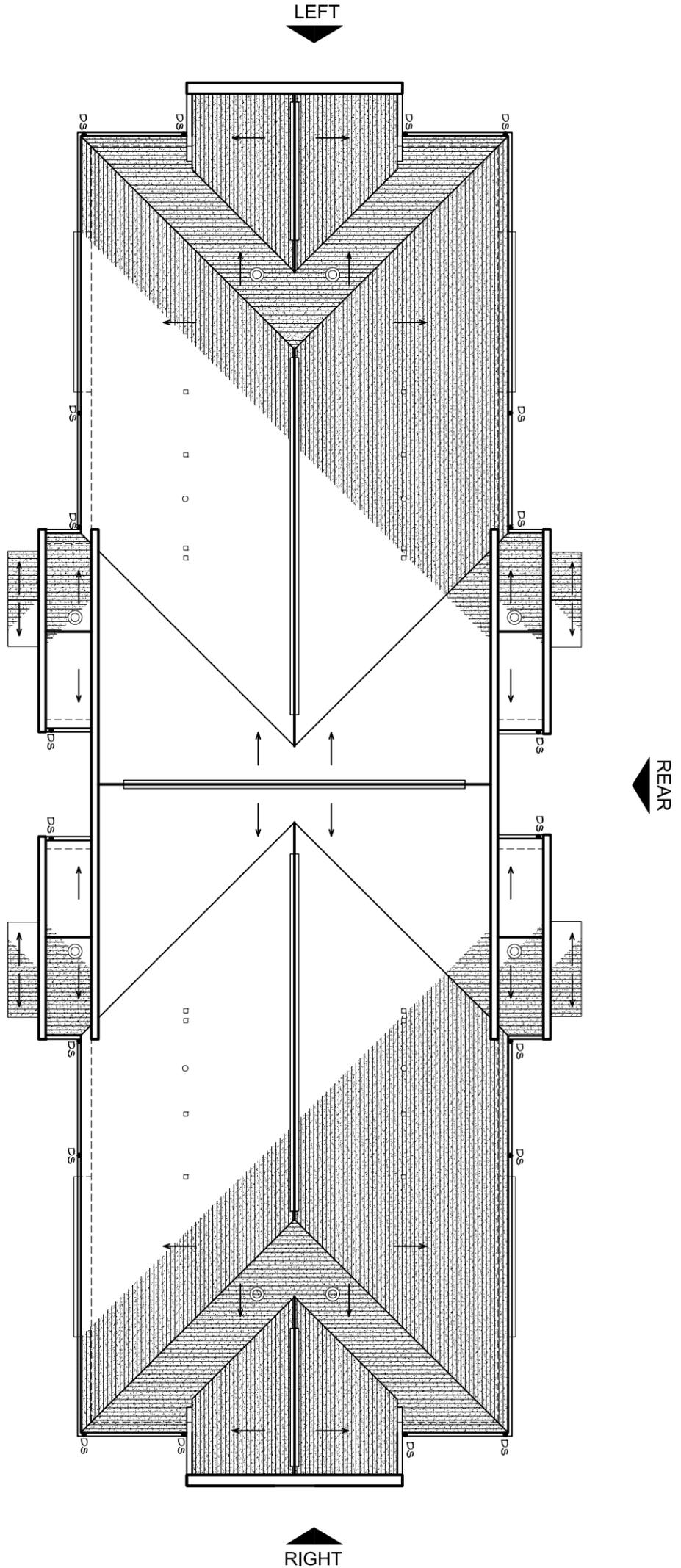
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Appendix B

LAFLESCHE  
SCHEMATIC ROOF PLAN  
BUILDING TYPE 1-#15  
SCALE: 1/16" = 1'-0"



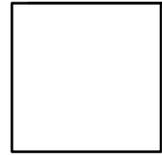
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SUSETTE LAFLESCHE  
HILLTOP APARTMENTS  
STORRS, CONNECTICUT



**LEGEND**

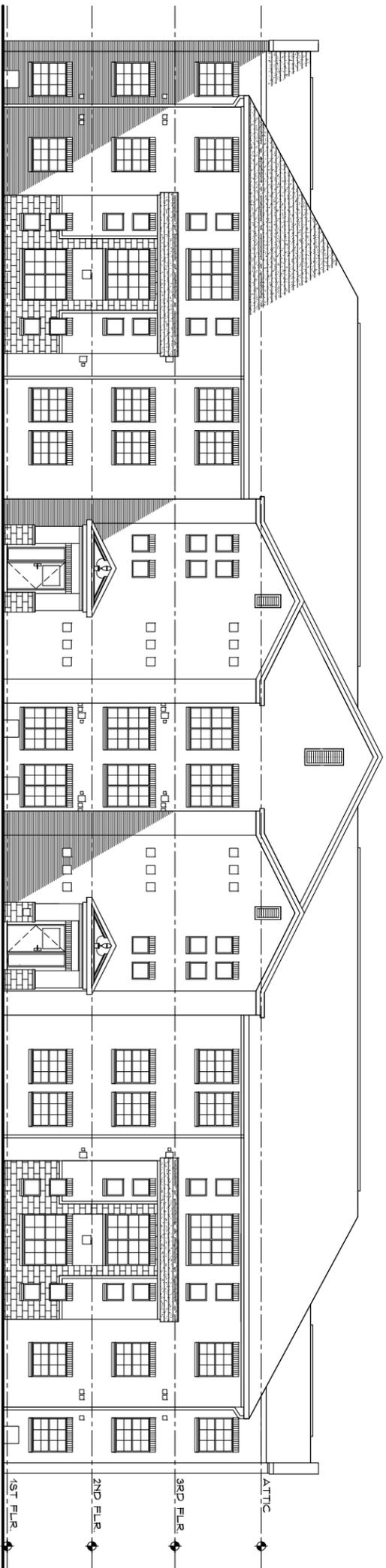
- ↑ SLOPE DIRECTION
- ▨ ASPHALT SHINGLE
- DS● DOWNSPOUT LOCATION
- ⊙ EXHAUST VENT
- DRYER VENT
- XXXXX ELEVATION



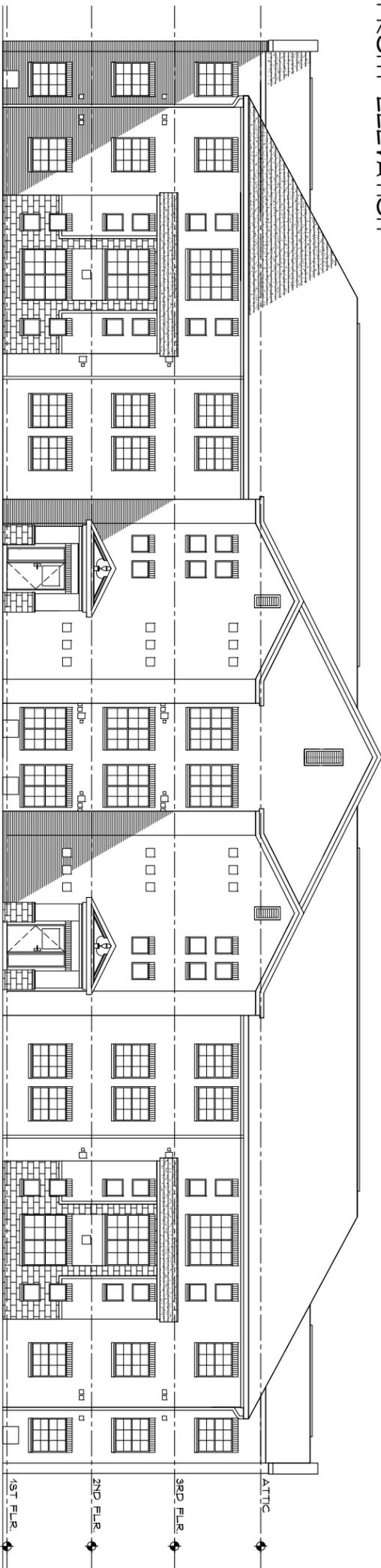
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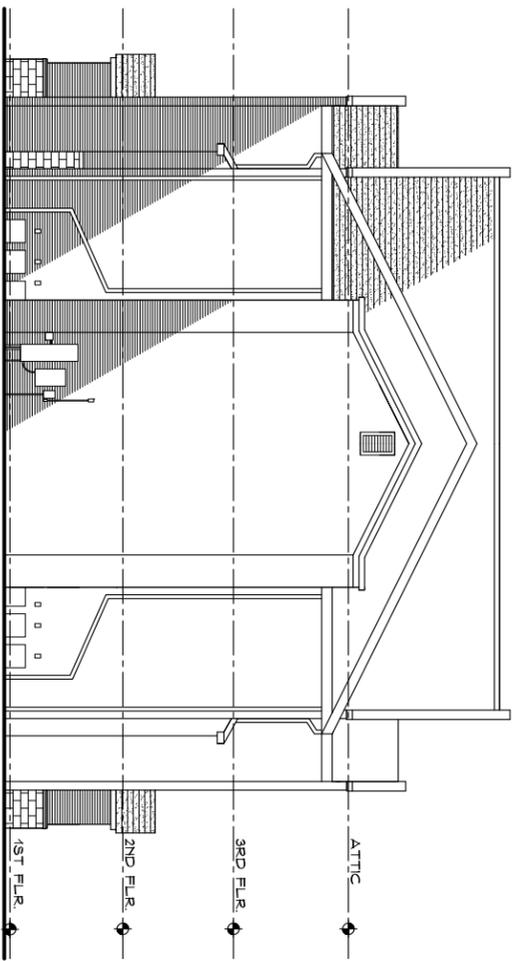
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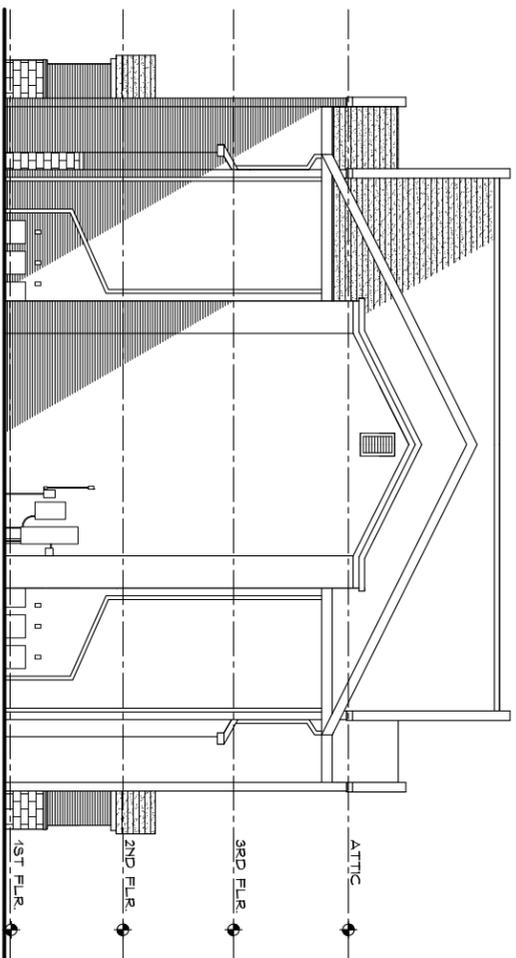
FRONT ELEVATION



REAR ELEVATION



LEFT SIDE ELEVATION

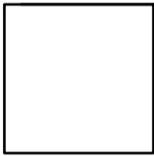


RIGHT SIDE ELEVATION

ELEVATIONS BUILDING TYPE 1-#15  
SCALE: 1/16" = 1'-0"

SUSETTE LAFLESCHE  
HILLTOP APARTMENTS  
STORRS, CONNECTICUT

Prof. No. 13-25  
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Appendix B

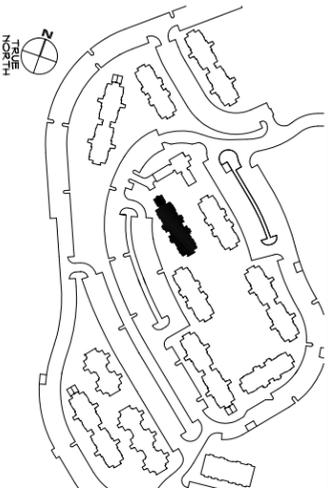
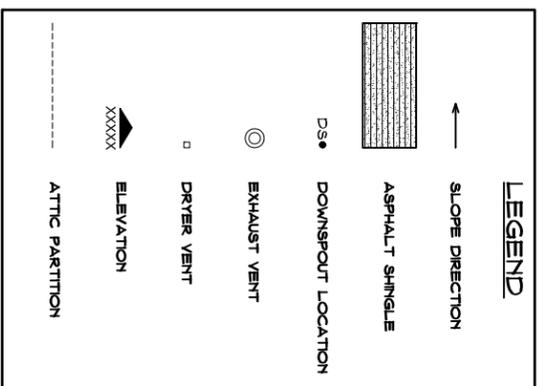
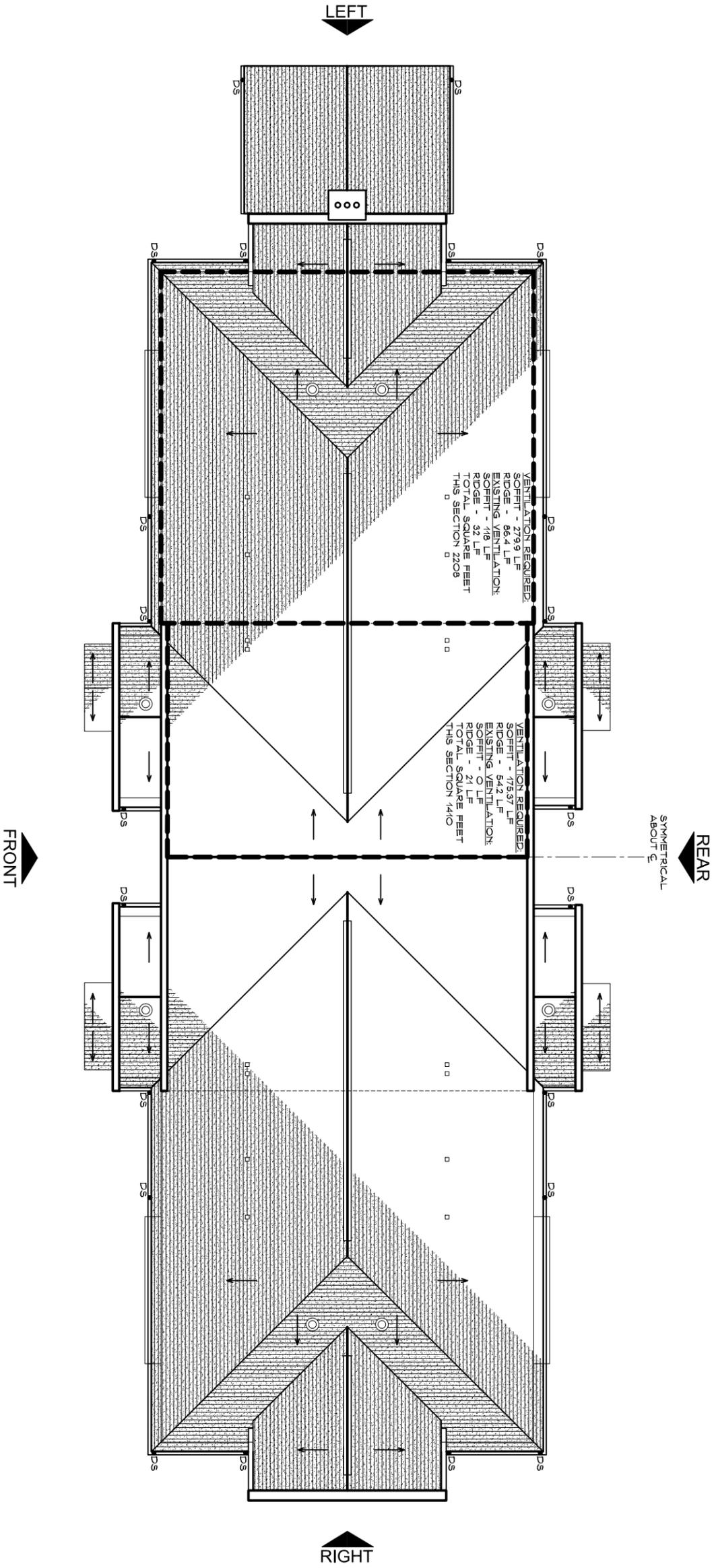
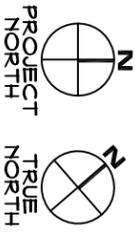


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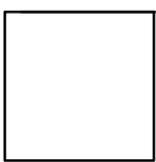
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date: x/xx/2013  
revisions:

MERRITT  
SCHEMATIC ROOF PLAN  
BUILDING TYPE 1-#18  
SCALE: 1/16" = 1'-0"



ALLISON PATTISON MERRITT  
HILLTOP APARTMENTS  
STORRS, CONNECTICUT

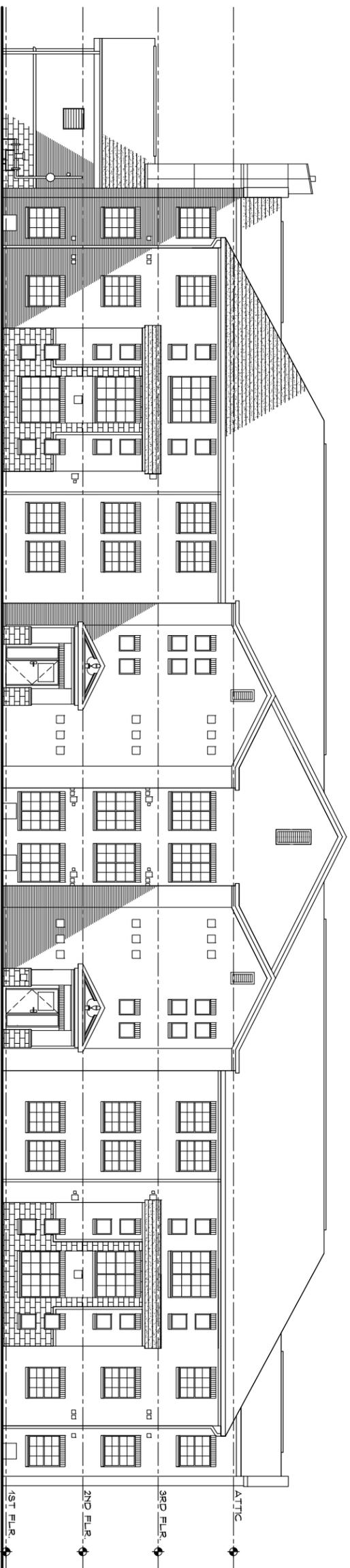
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Sheet No. 1  
**SK-4**  
Appendix B



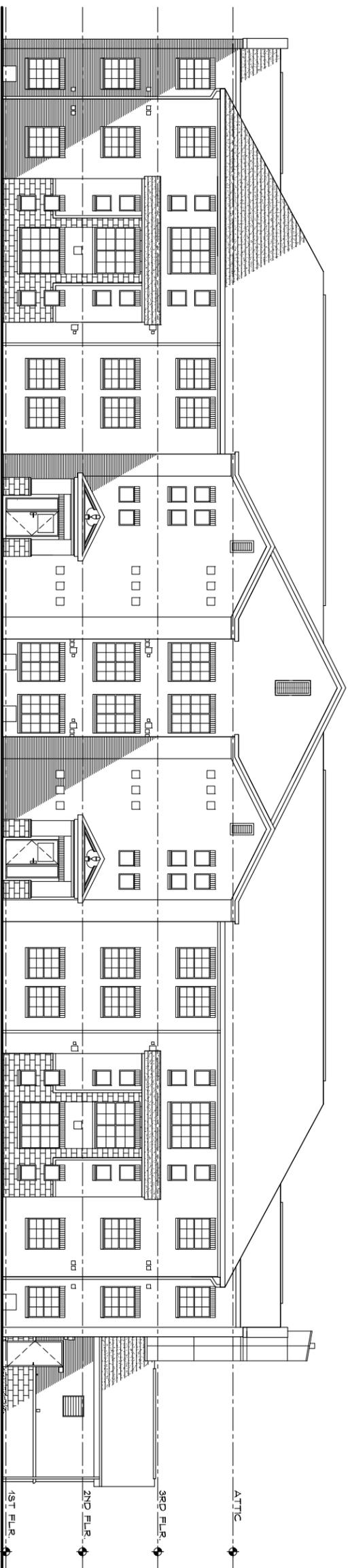
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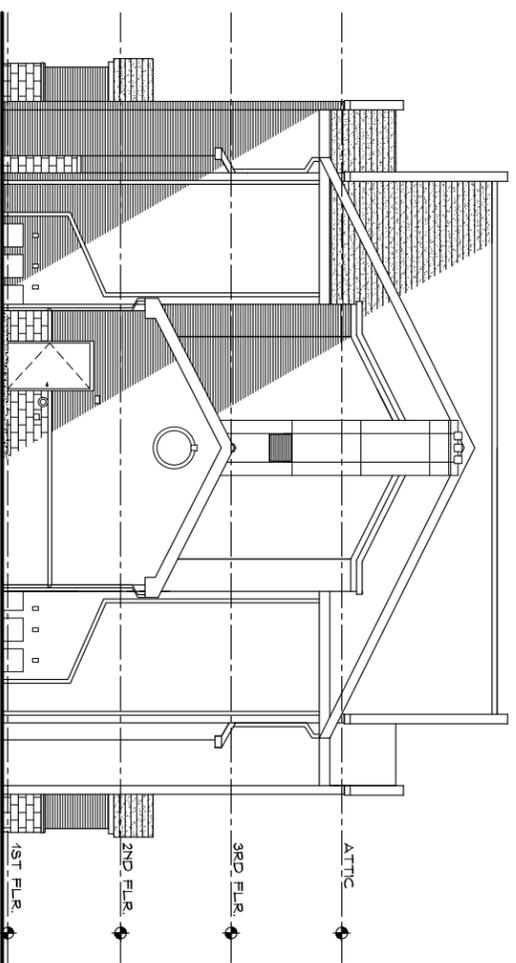
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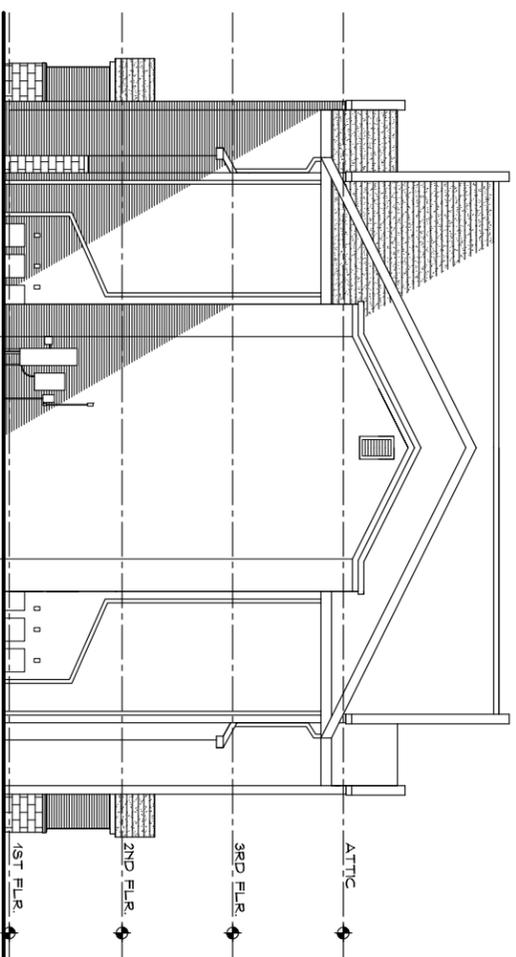
FRONT ELEVATION



REAR ELEVATION



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION

ELEVATIONS BUILDING TYPE 1-#18  
 SCALE: 1/16" = 1'-0"

drawn by: ABR  
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 checked by: MAB  
 date: 10/4/2013  
 revisions:

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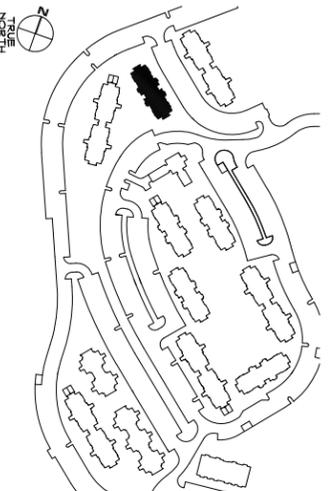
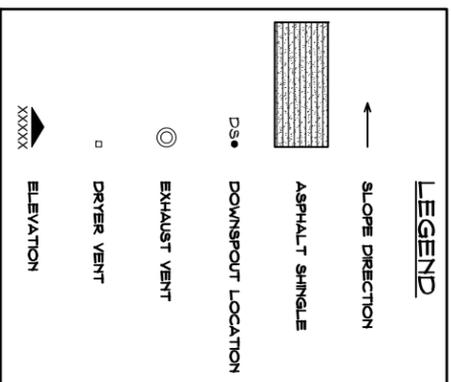
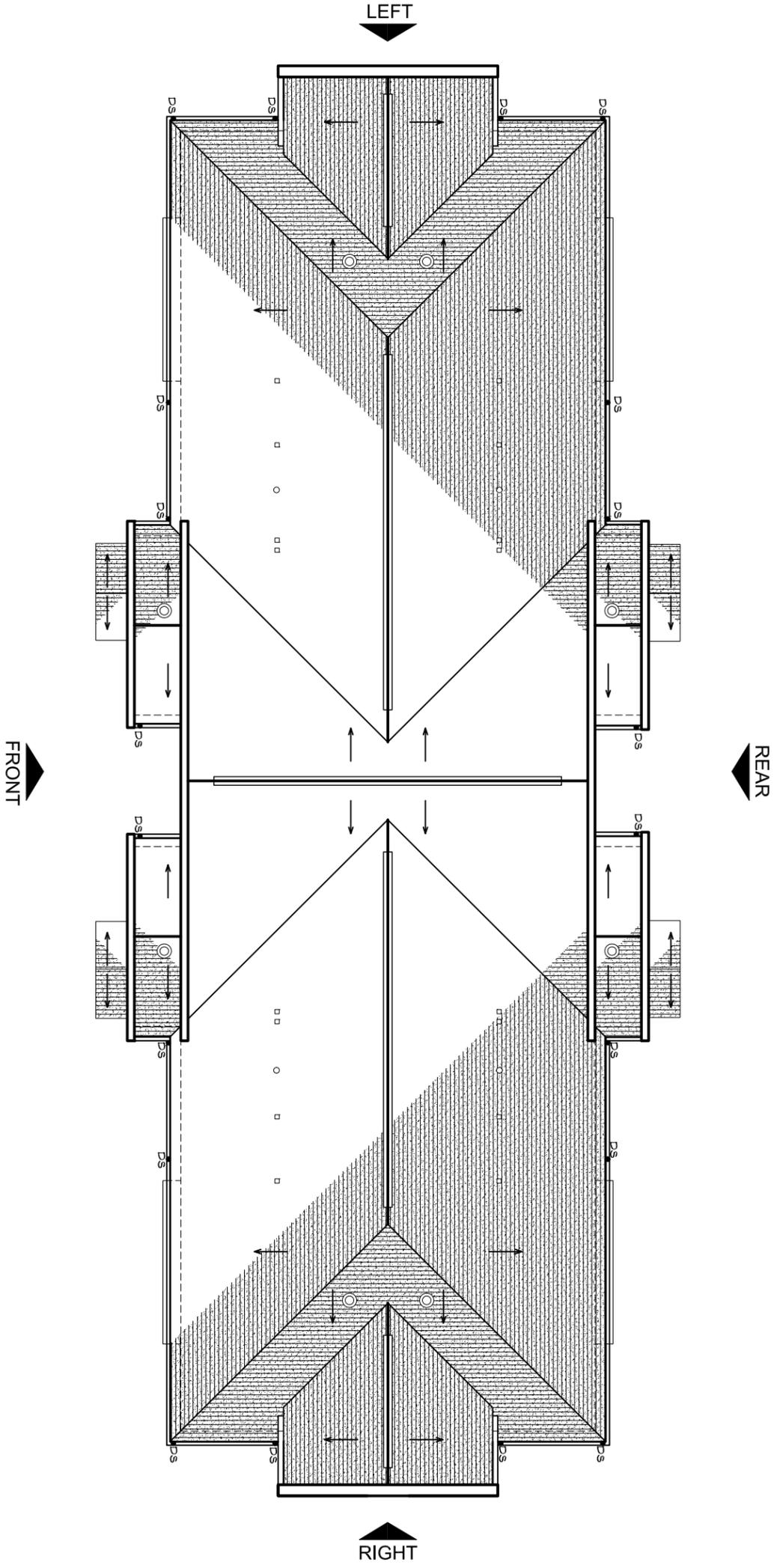
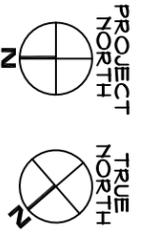
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ALLISON PATTISON MERRITT  
 HILLTOP APARTMENTS  
 STORRS, CONNECTICUT

Proj. No. 13-25  
 sheet no.:  
**SK-4A**  
 Appendix B

STOWE  
SCHEMATIC ROOF PLAN  
BUILDING TYPE 1-#11

SCALE: 1/16" = 1'-0"



HARRIET BEECHER STOWE  
HILLTOP APARTMENTS  
STORRS, CONNECTICUT

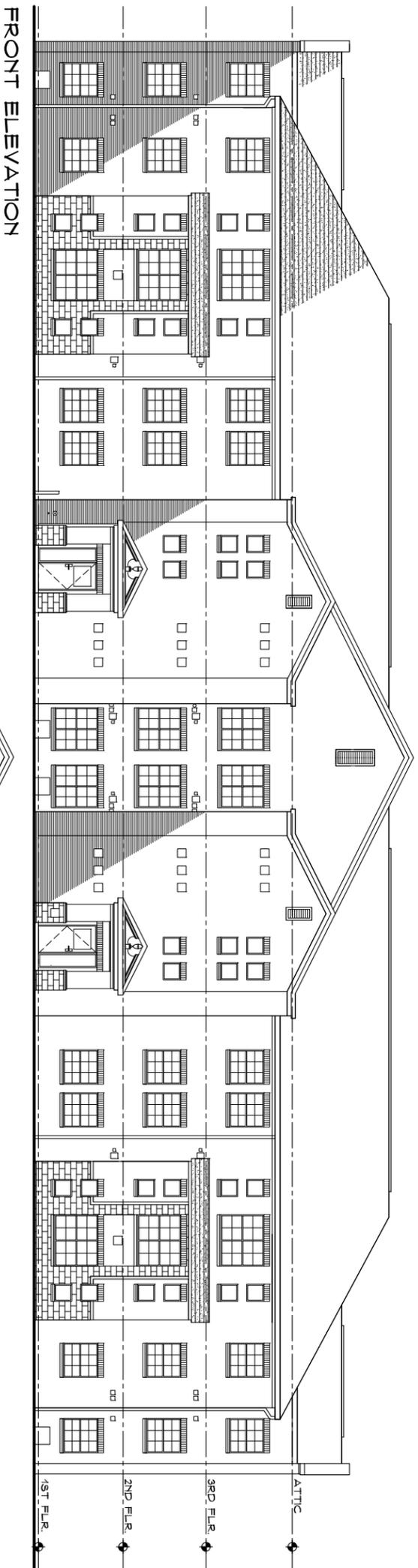
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Sheet No.  
**SK-5**  
Appendix B



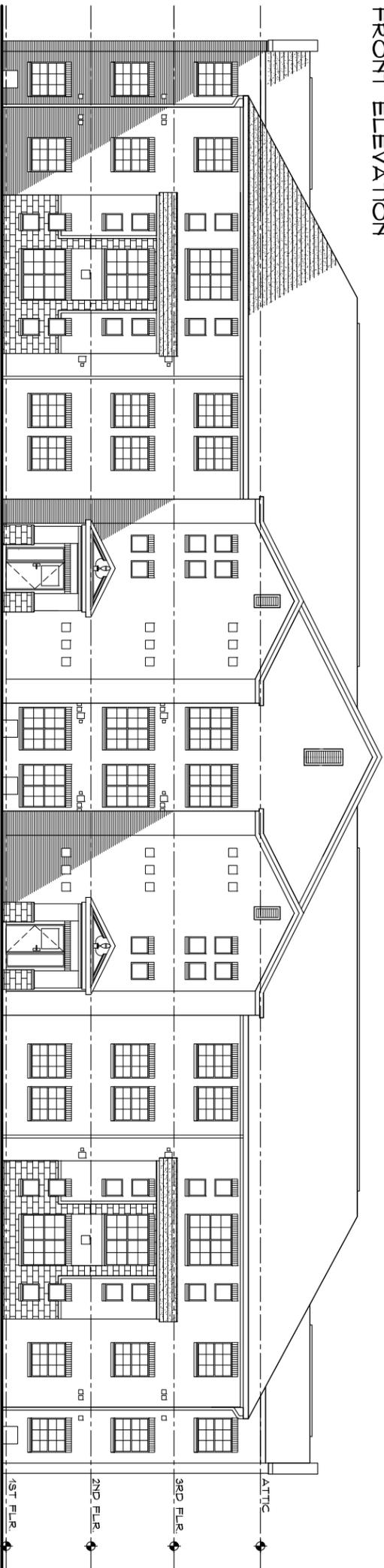
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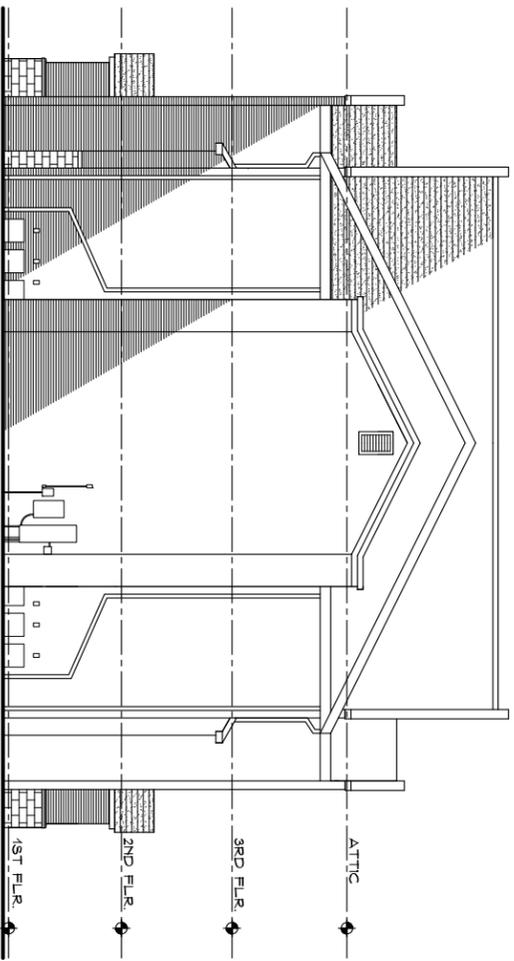
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revisions:



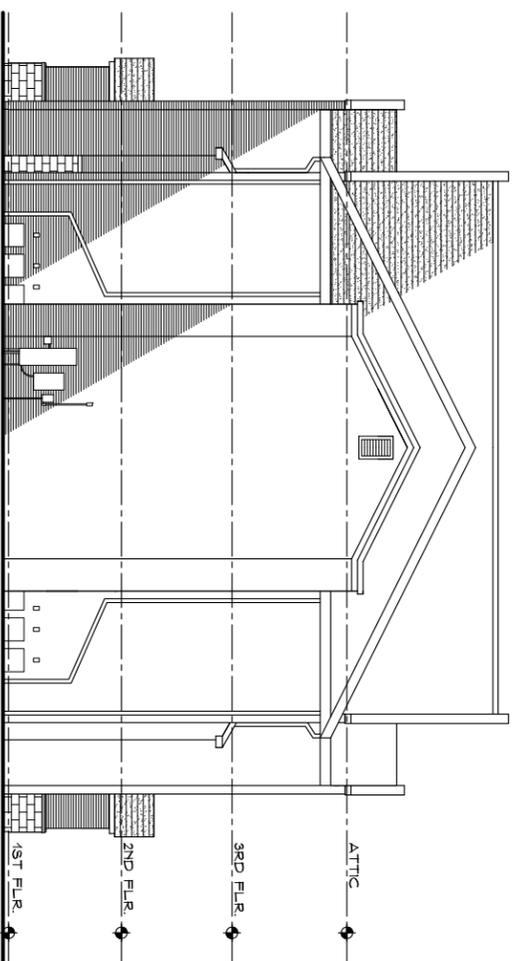
FRONT ELEVATION



REAR ELEVATION



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION

ELEVATIONS BUILDING TYPE 1-#11

SCALE: 1/16" = 1'-0"

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 scale: AS NOTED  
 checked by: MAS  
 date: 10/4/2013  
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HARRIETT BEECHER STOWE  
 HILLTOP APARTMENTS  
 STORRS, CONNECTICUT

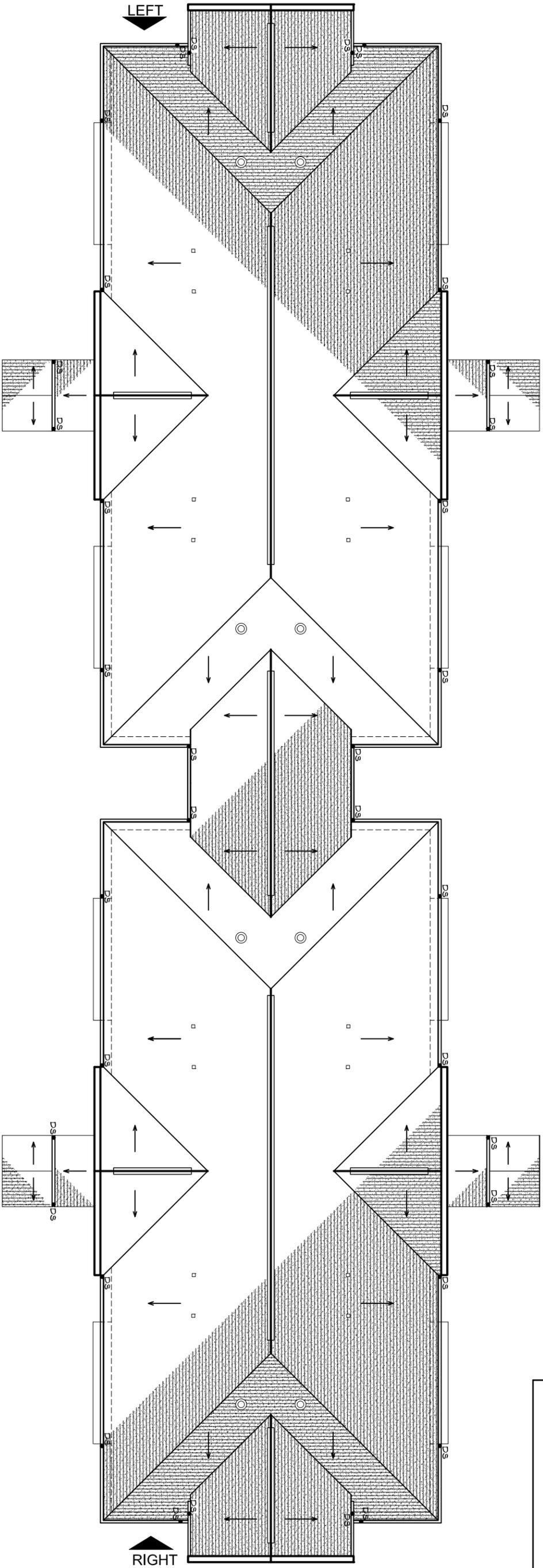
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 sheet no.:  
**SK-5A**  
 Appendix B

BEARD  
SCHEMATIC ROOF PLAN  
BUILDING TYPE II-#14

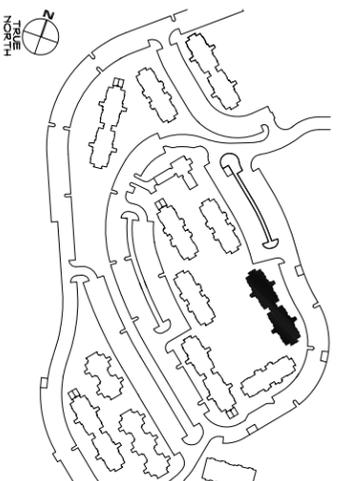
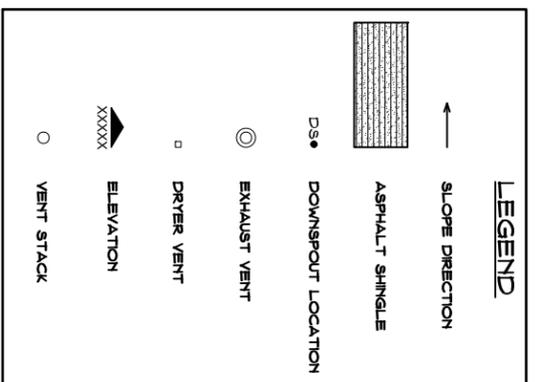
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FRONT



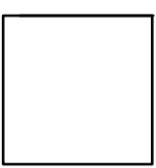
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MARY RITTER BEARD

HILLTOP APARTMENTS  
STORRS, CONNECTICUT

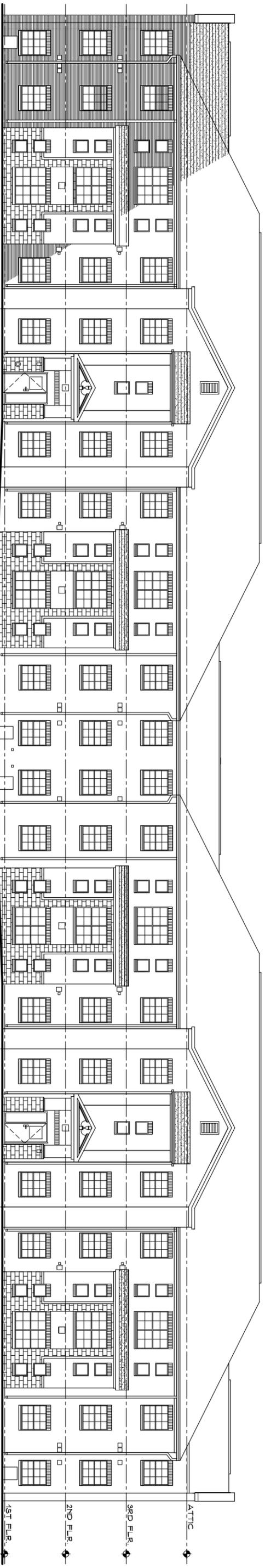
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Sheet No.  
**SK-6**  
Appendix B



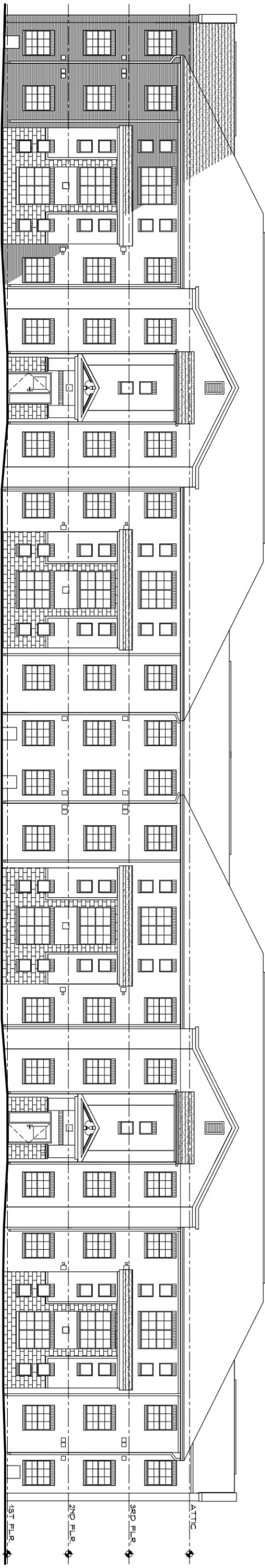
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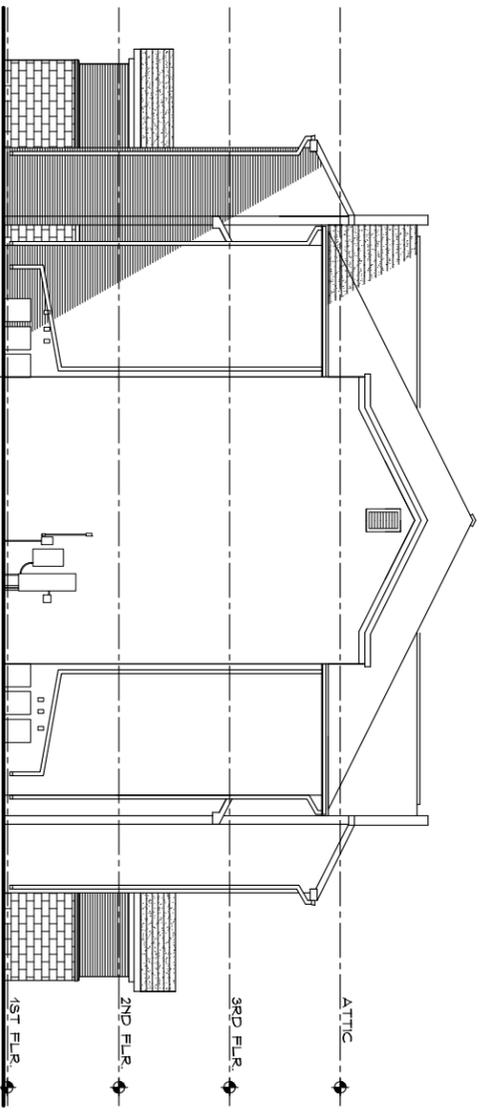
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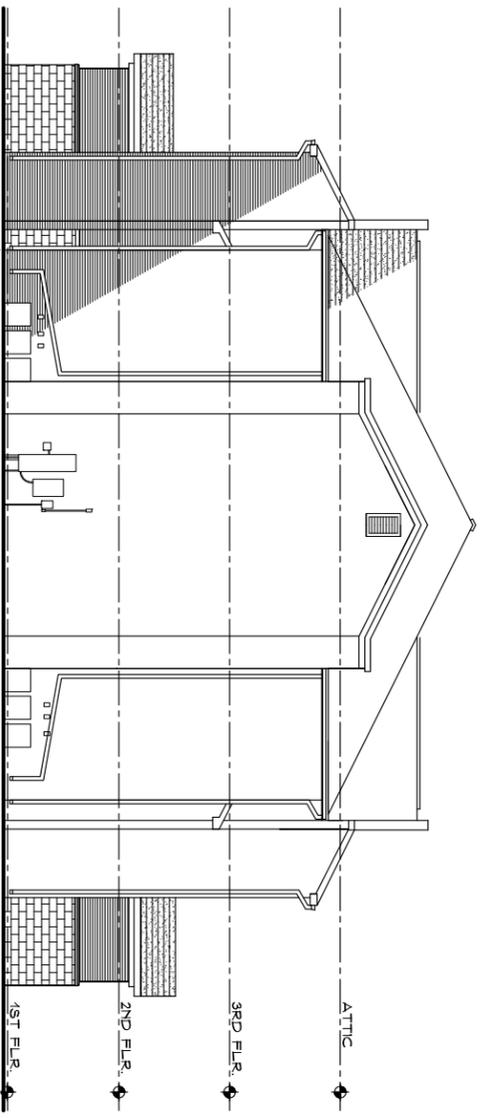
FRONT ELEVATION



REAR ELEVATION



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION

ATTIC  
3RD FLR.  
2ND FLR.  
1ST FLR.

ATTIC  
3RD FLR.  
2ND FLR.  
1ST FLR.

ATTIC  
3RD FLR.  
2ND FLR.  
1ST FLR.

MARY RITTER BEARD  
HILLTOP APARTMENTS  
STORRS, CONNECTICUT

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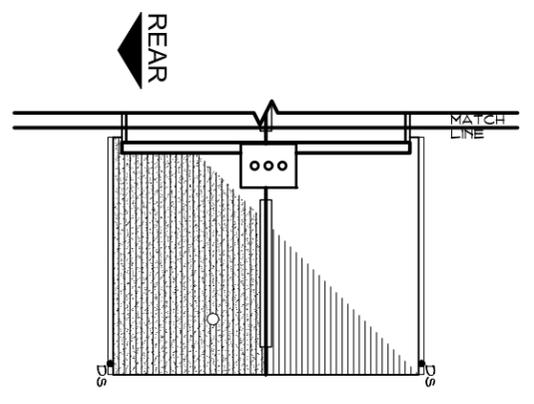
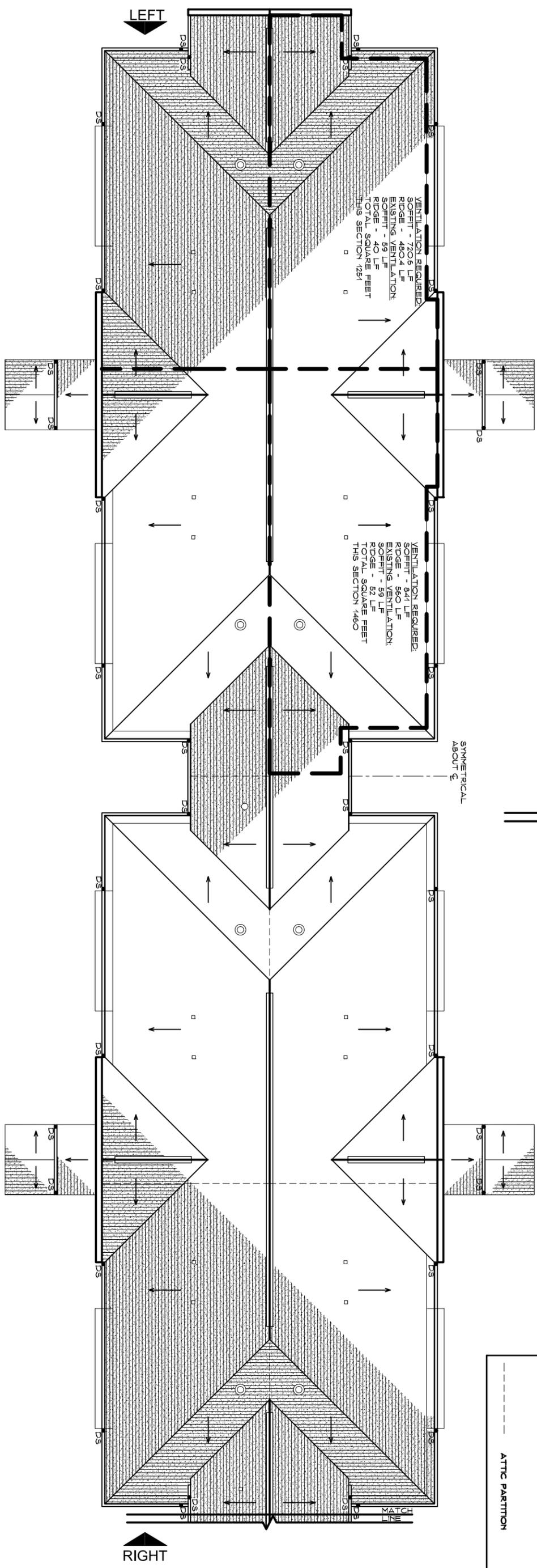
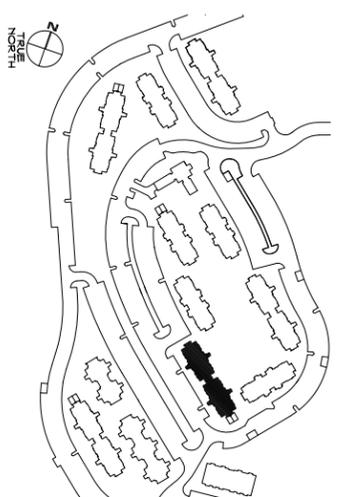
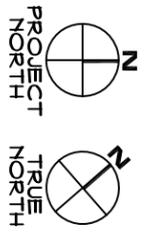
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date: 10/4/2013  
revisions:

ELEVATIONS BUILDING TYPE II-#14  
SCALE: 1/16" = 1'-0"

Prof. No. 13-25  
sheet no.:  
**SK-6A**  
Appendix B

CRANDALL  
SCHEMATIC ROOF PLAN  
BUILDING TYPE II- #16  
SCALE: 1/16" = 1'-0"



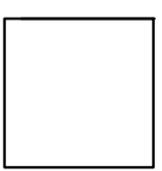
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→	SLOPE DIRECTION
▨	ASPHALT SHINGLE
DS●	DOWNSPOUT LOCATION
○	EXHAUST VENT
□	DRYER VENT
▶	ELEVATION
○	VENT STACK
- - -	ATTIC PARTITION

FRONT

RIGHT

PRUDENCE CRANDALL  
HILLTOP APARTMENTS  
STORRS, CONNECTICUT

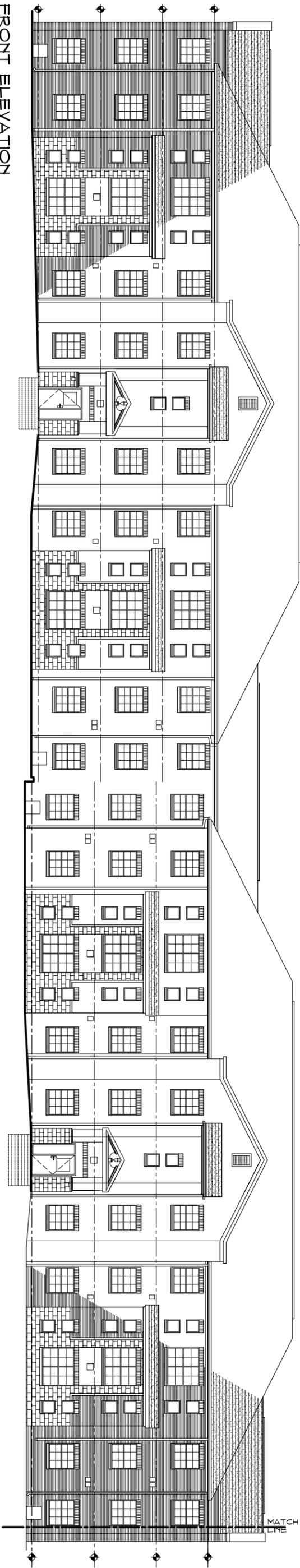
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Sheet No. **SK-7**  
Appendix B



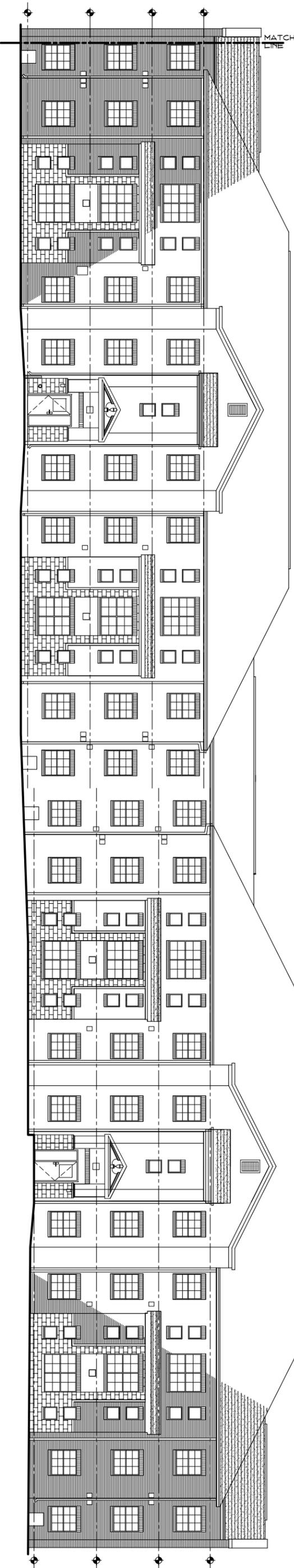
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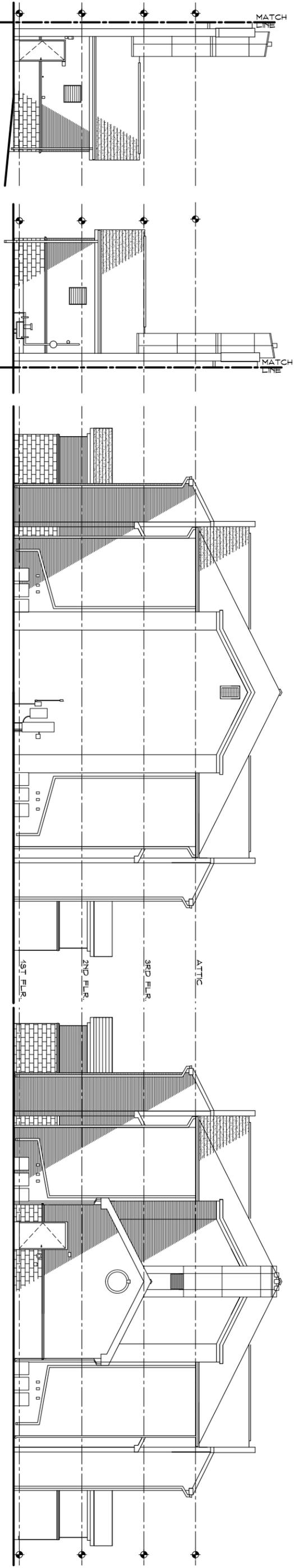
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revision:



FRONT ELEVATION



REAR ELEVATION



FRONT ELEVATION

REAR ELEVATION

LEFT SIDE

RIGHT ELEVATION

ELEVATIONS BUILDING TYPE 11-16

SCALE: 1/16" = 1'-0"

PRUDENCE CRANDALL  
HILLTOP APARTMENTS  
STORRS, CONNECTICUT

Proj. No. 13-25  
Sheet No. SK-7A  
Appendix B

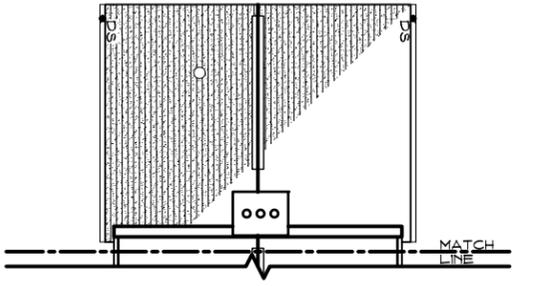
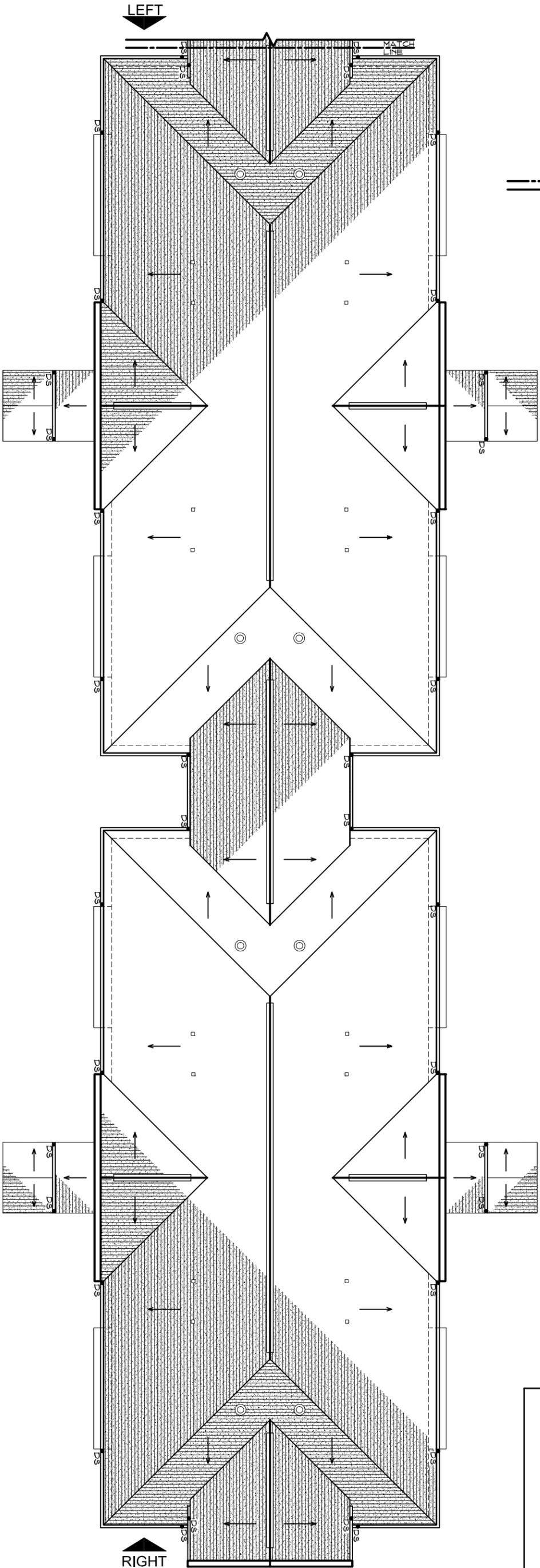
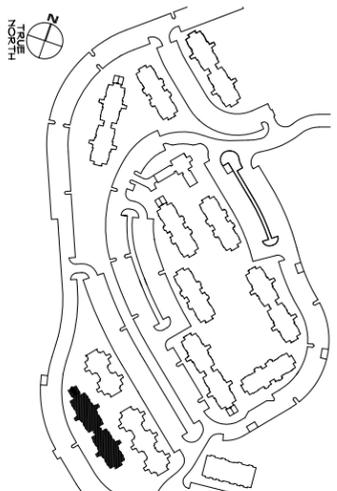
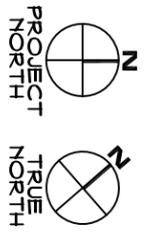


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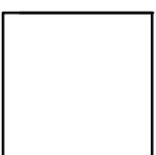
CRAWFORD  
SCHEMATIC ROOF PLAN  
BUILDING TYPE II- #21  
SCALE: 1/16" = 1'-0"



LEGEND	
↖	SLOPE DIRECTION
▨	ASPHALT SHINGLE
DS●	DOWNSPOUT LOCATION
⊙	EXHAUST VENT
□	DRYER VENT
▲XXXX	ELEVATION
○	VENT STACK

Prof. No. 13-25  
Sheet No.  
**SK-8**  
Appendix B

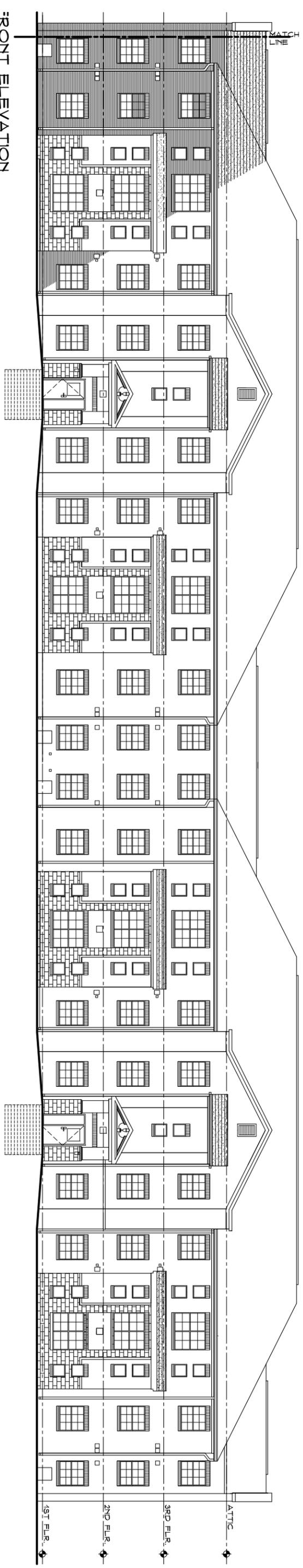
SARAH BUEK CRAWFORD  
HILLTOP APARTMENTS  
STORRS, CONNECTICUT



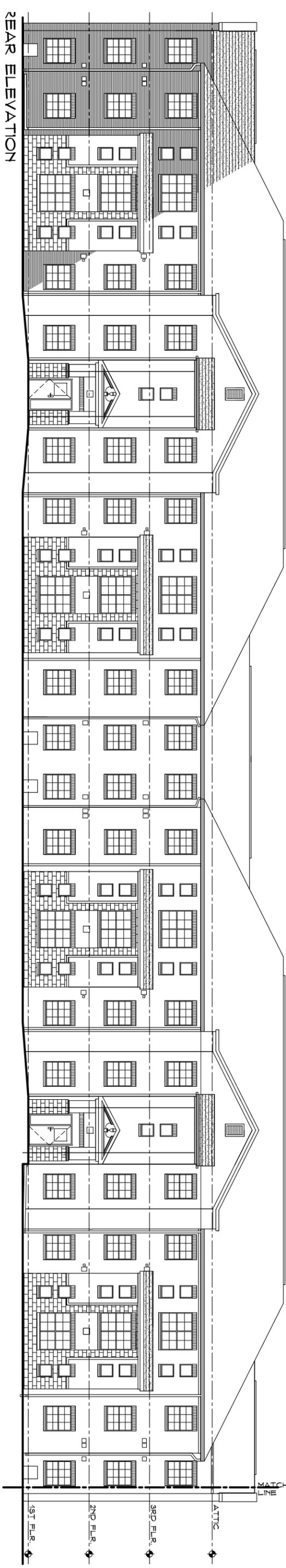
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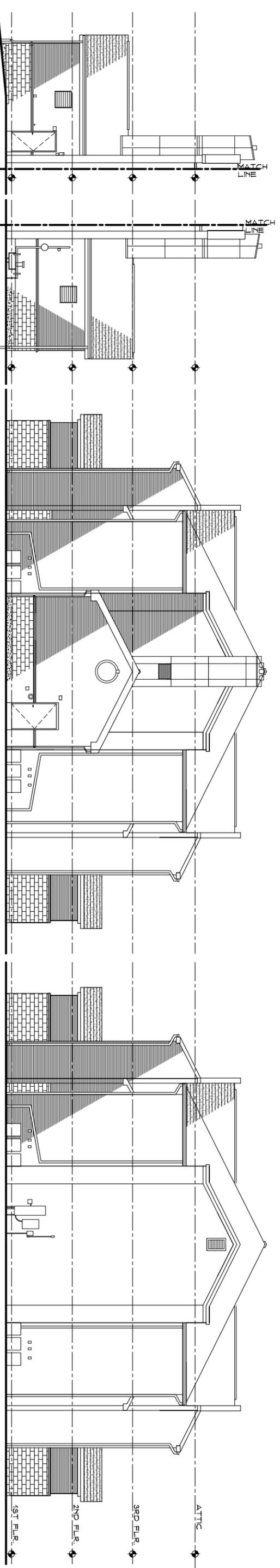
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checked by: MAS  
date: 10/4/2013  
revision:



FRONT ELEVATION



REAR ELEVATION



FRONT ELEVATION

REAR ELEVATION

LEFT SIDE ELEVATION

RIGHT SIDE ELEVATION

1ST FLR. 2ND FLR. 3RD FLR. ATTIC

ELEVATIONS BUILDING TYPE II-#21

SCALE: 1/16" = 1'-0"

SARAH B. CRAWFORD  
 HILLTOP APARTMENTS  
 STORRS, CONNECTICUT

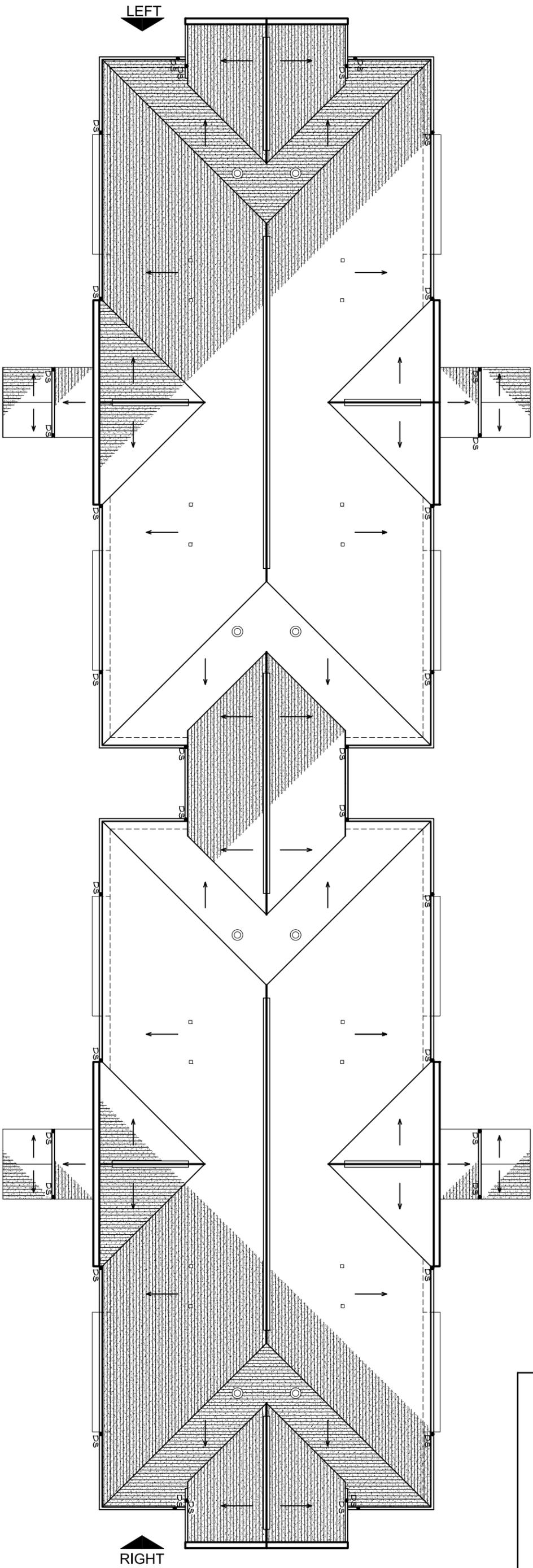
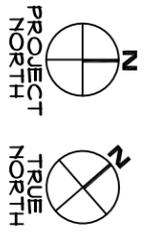
Prof. No. 13-25  
 Sheet No. SK-8A  
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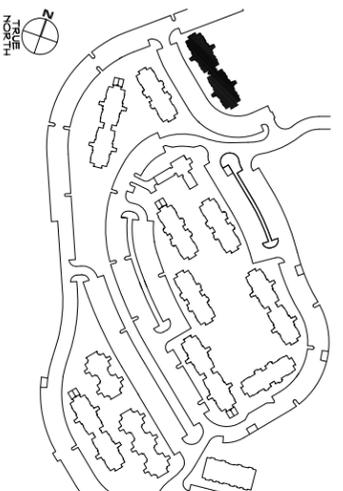
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 checked by: MAB  
 date: 10/4/2013  
 revisions:

GRASSO  
SCHEMATIC ROOF PLAN  
BUILDING TYPE II-#10  
SCALE: 1/16" = 1'-0"

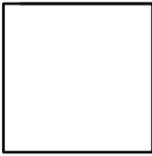


LEGEND	
←	SLOPE DIRECTION
▨	ASPHALT SHINGLE
DS●	DOWNSPOUT LOCATION
⊙	EXHAUST VENT
□	DRYER VENT
XXXXX	ELEVATION
○	VENT STACK



Proj. No. 13-25  
Sheet no.:  
**SK-9**  
Appendix B

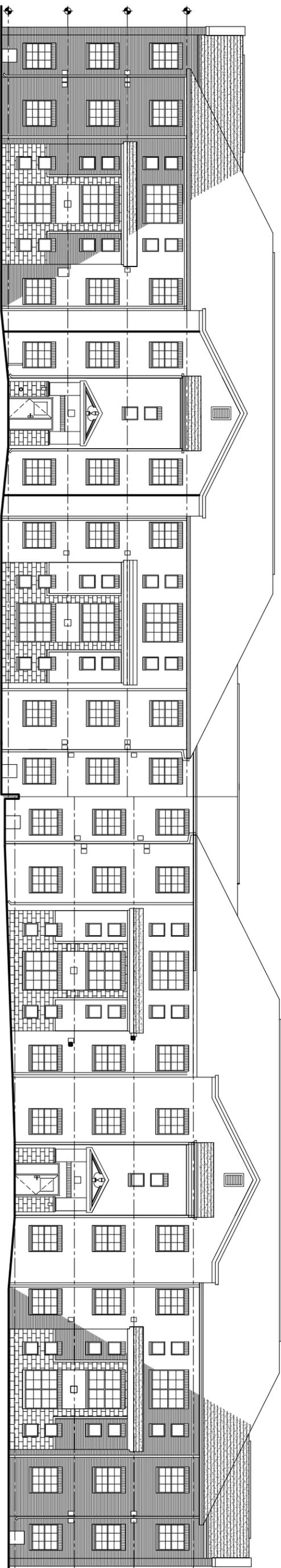
ELLA GRASSO  
HILLTOP APARTMENTS  
STORRS, CONNECTICUT



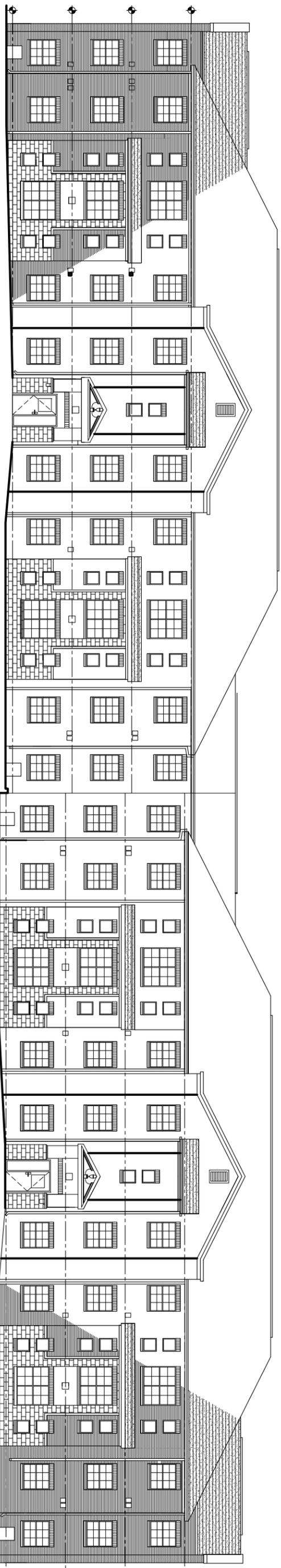
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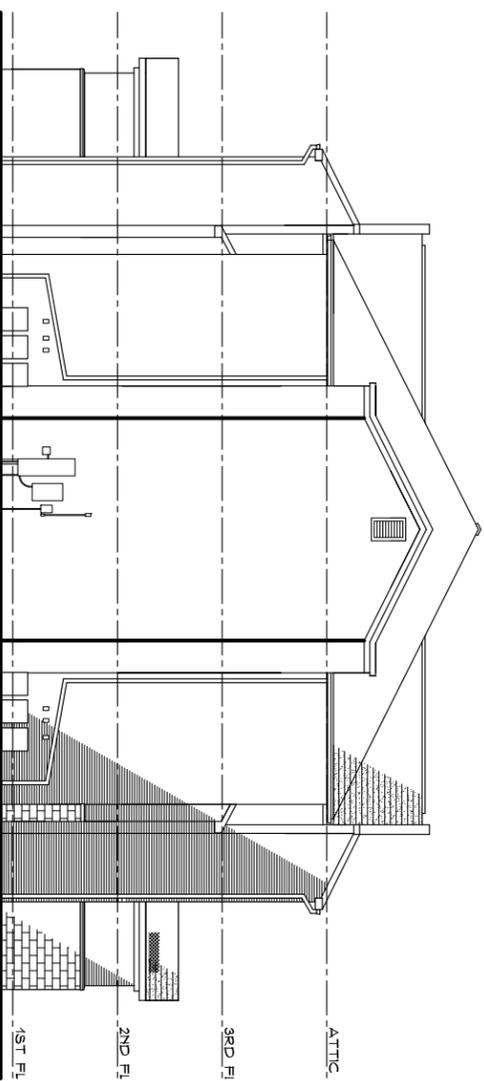
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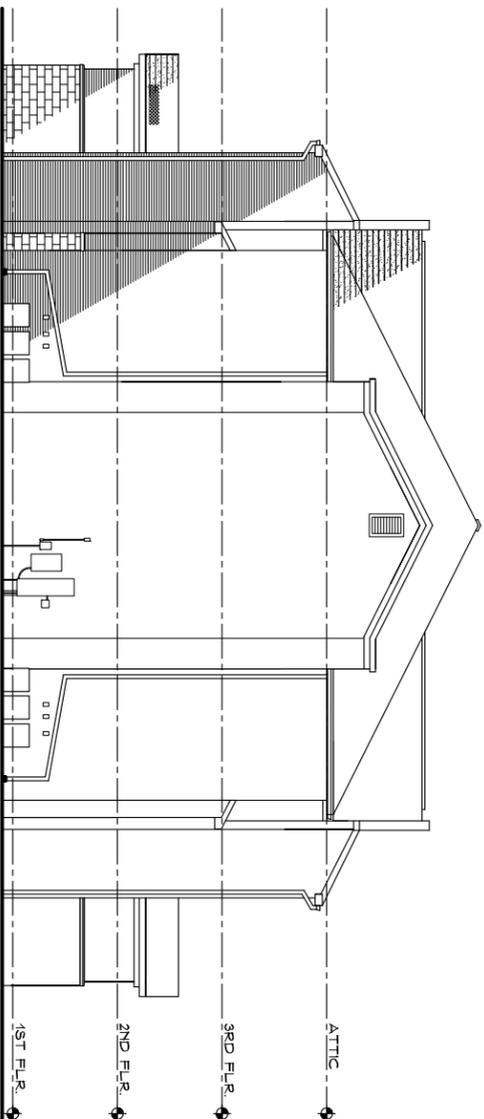
FRONT ELEVATION



REAR ELEVATION



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION

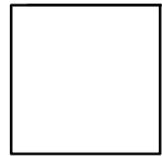
LEGEND	
	SHINGLE DAMAGE
	DOWNPOUT NOT CONNECTED
NC	

ELEVATIONS BUILDING TYPE II-#10

SCALE: 1/16" = 1'-0"

ELLA GRASSO  
HILLTOP APARTMENTS  
STORRS, CONNECTICUT

Prof. No. 13-25  
sheet no.  
**SK-9A**  
Appendix B

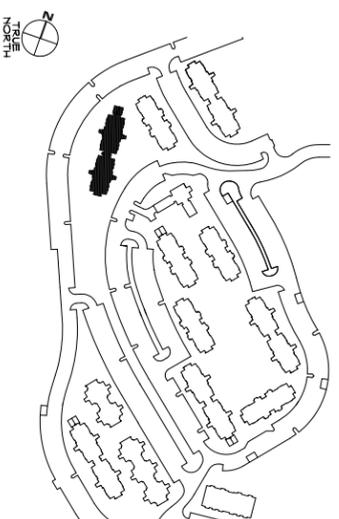
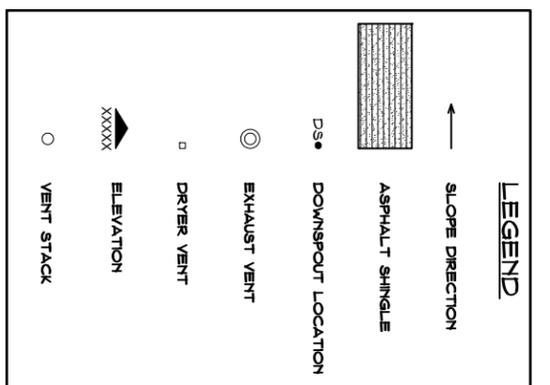
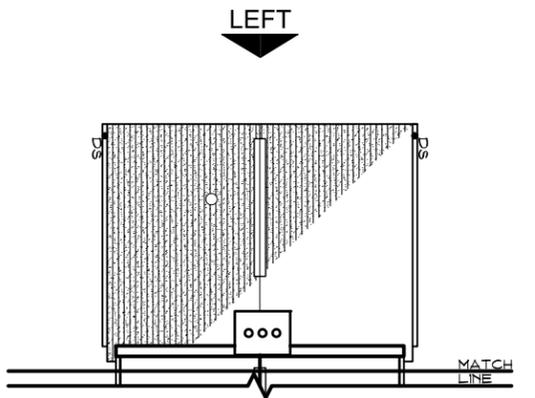
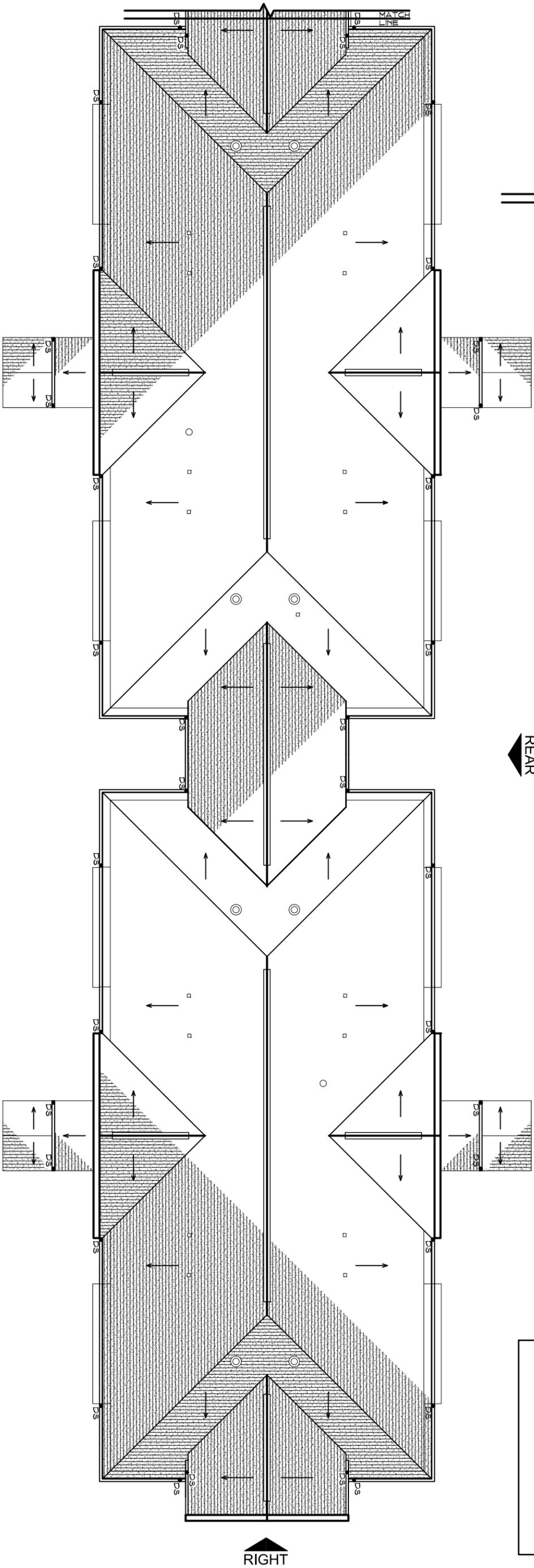
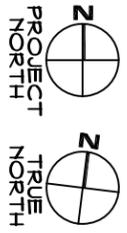


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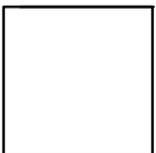
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scale: AS NOTED  
chk'd by: MAB  
date: 10/4/2013  
revision:

NOVELLO  
SCHEMATIC ROOF PLAN  
BUILDING TYPE II- #12  
SCALE: 1/16" = 1'-0"



Proj. No. 13-25  
Sheet No. SK-10  
Appendix B

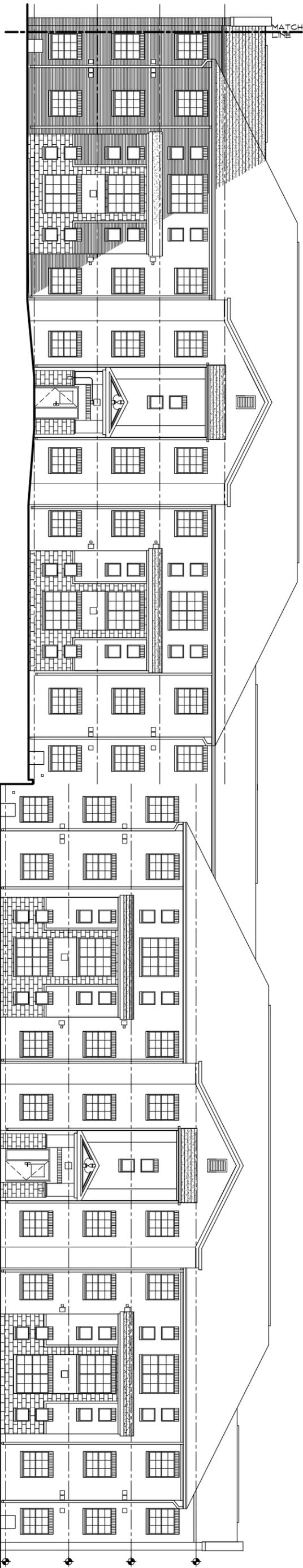
ANTONIA NOVELLO  
HILLTOP APARTMENTS  
STORRS, CONNECTICUT



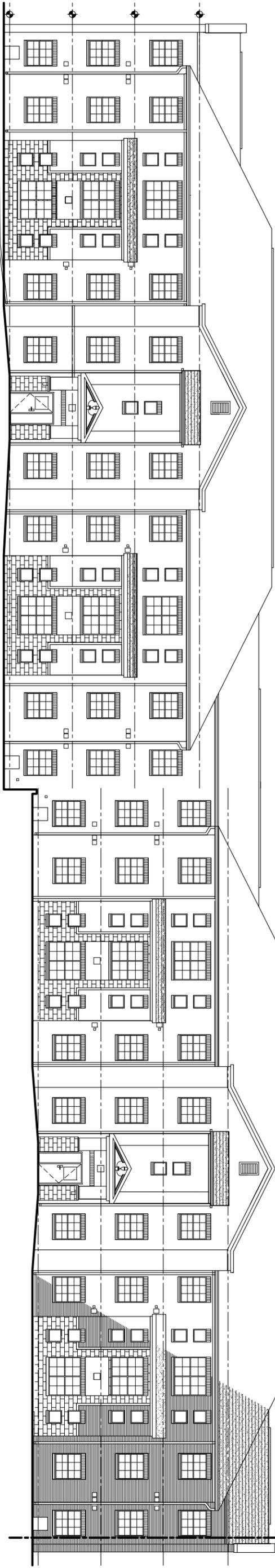
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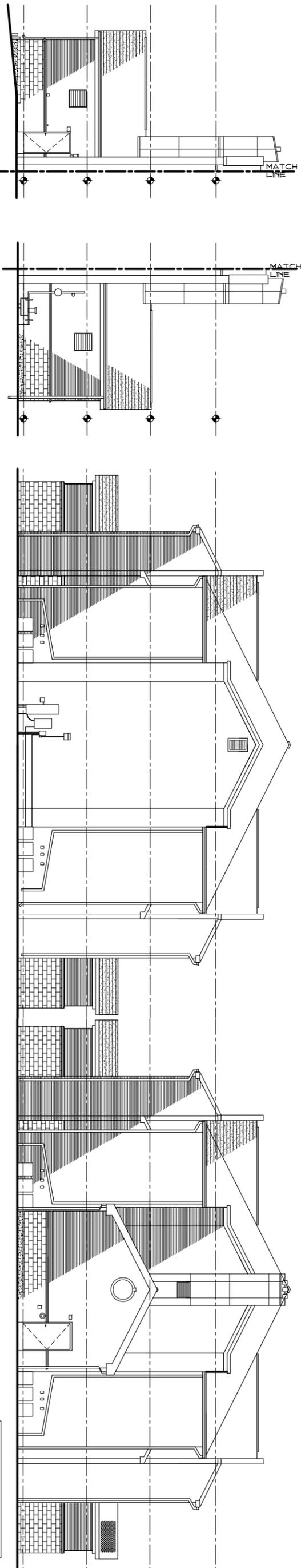
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scale: AS NOTED  
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date: 10/4/2013  
revision:



FRONT ELEVATION



REAR ELEVATION



SIDE ELEVATION

SIDE ELEVATION

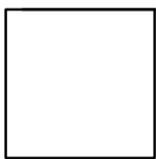
FRONT ELEVATION  
 REAR ELEVATION  
 SIDE ELEVATION  
**ELEVATIONS BUILDING TYPE 11-#12**

SCALE: 1/16" = 1'-0"

LEGEND	
	SINGLE DAVIAGE
	DOWNSPOUT NOT CONNECTED
NC	

ANTONIA NOVELLO  
 HILLTOP APARTMENTS  
 STORRS, CONNECTICUT

Prof. No. 13-25  
 Sheet No. SK-10A  
 Appendix A

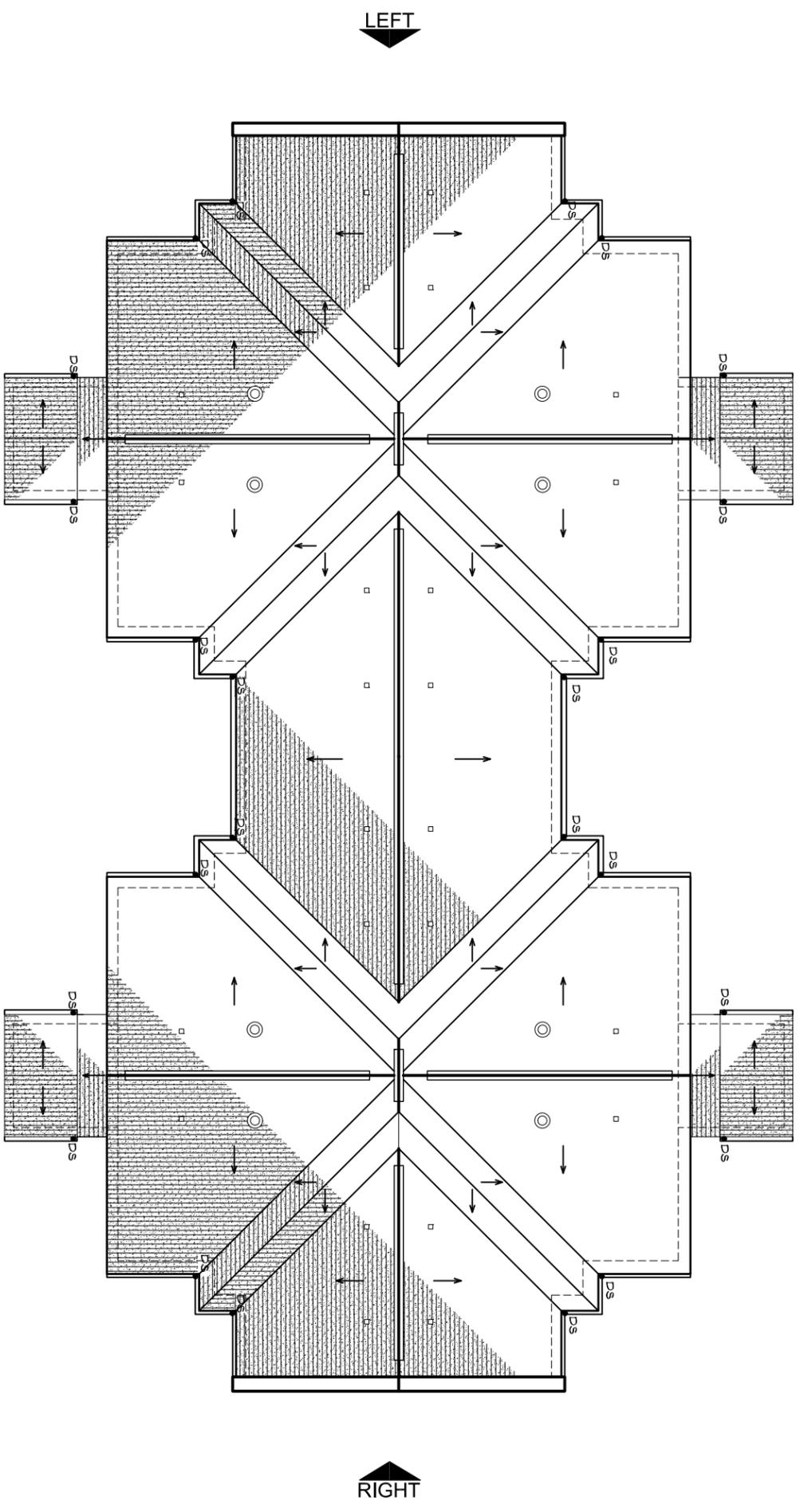
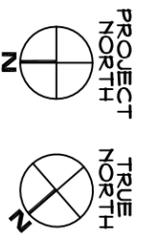


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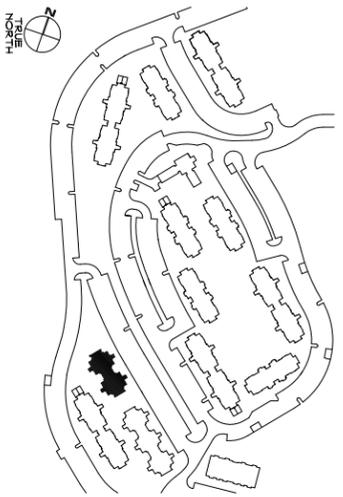
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 checked by: MAB  
 date: 10/4/2013  
 revisions:

WU  
SCHEMATIC ROOF PLAN  
BUILDING TYPE III-#19  
SCALE: 1/16" = 1'-0"



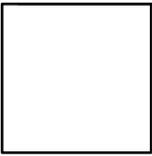
**LEGEND**

- SLOPE DIRECTION
- ▨ ASPHALT SHINGLE
- DS ● DOWNSPOUT LOCATION
- EXHAUST VENT
- DRYER VENT
- ▲ ELEVATION
- VENT STACK



CHHEN-SHIUNG WU  
HILLTOP APARTMENTS  
STORRS, CONNECTICUT

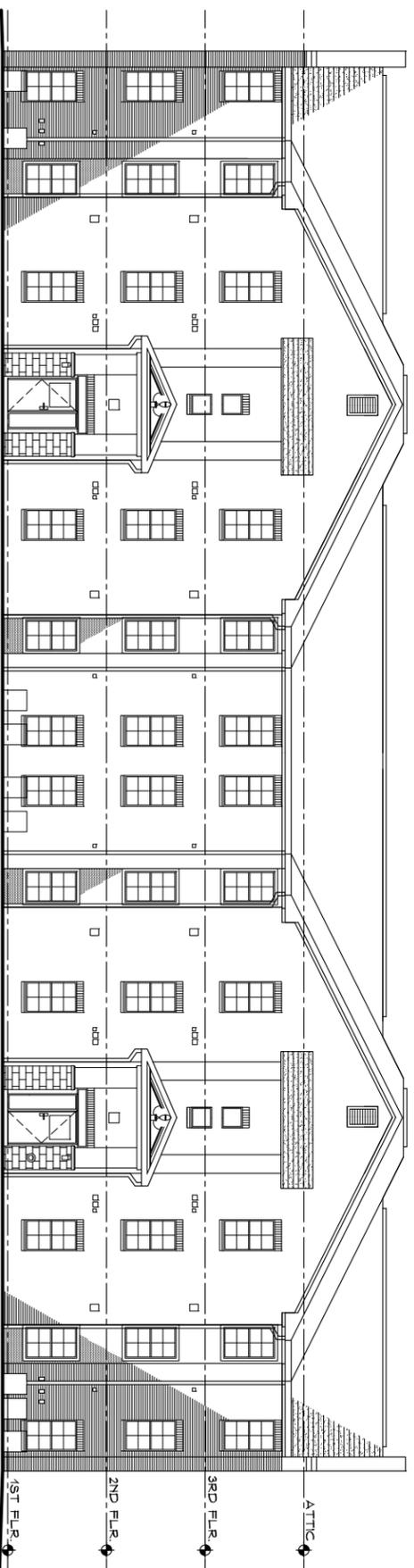
Prof. No. 13-25  
Sheet No. SK-11  
Appendix B



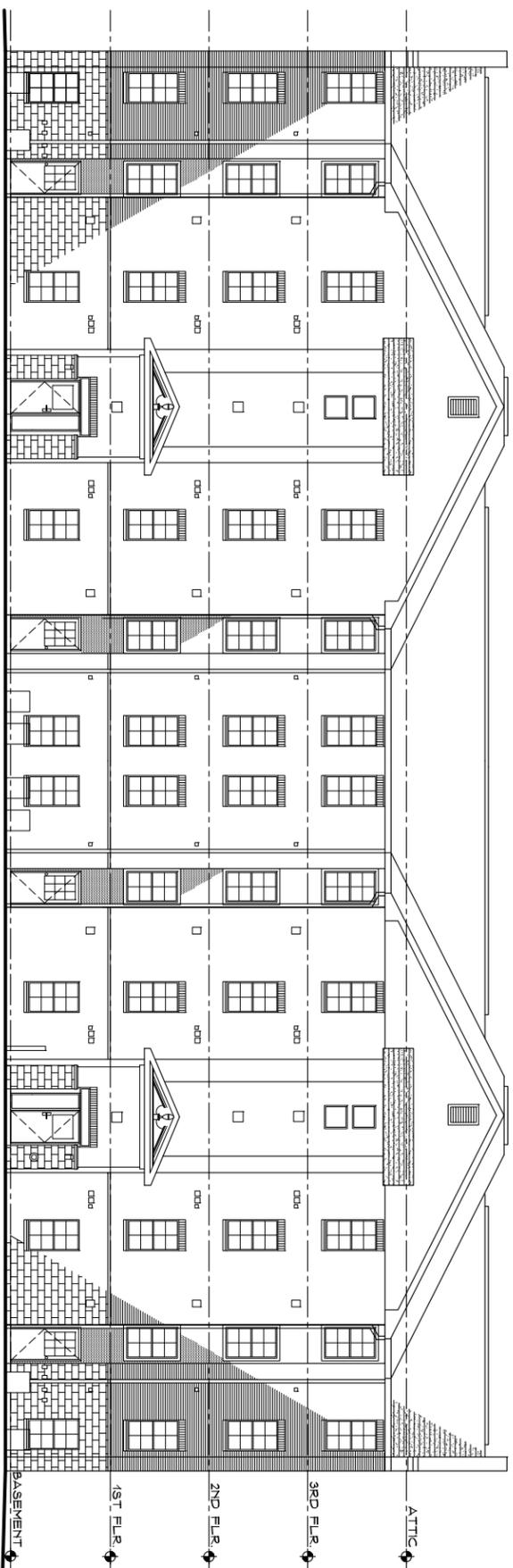
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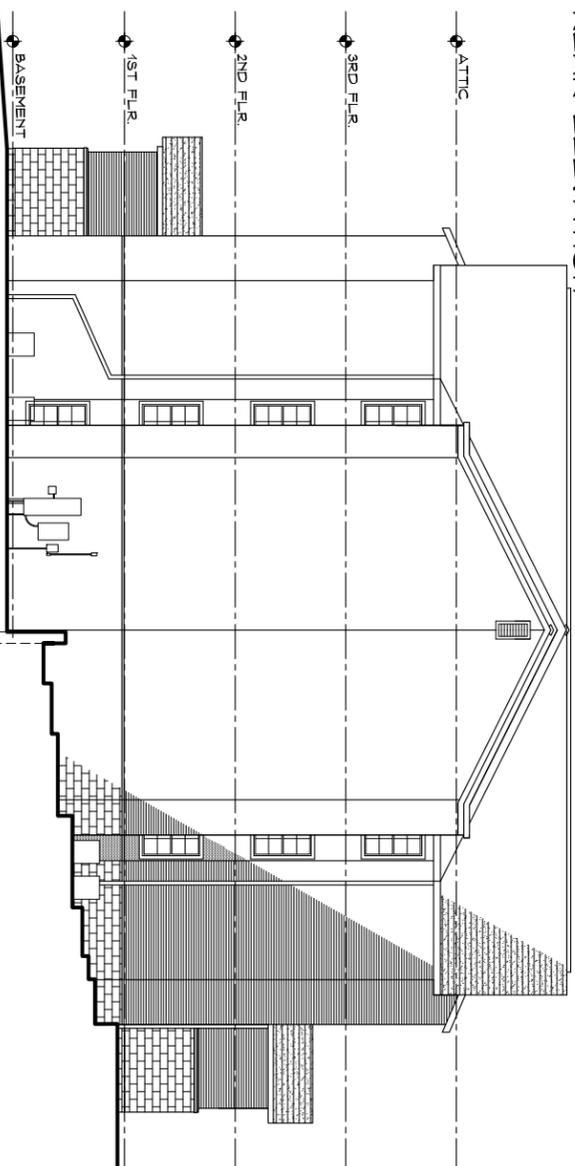
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date: 10/4/2013  
revisions:



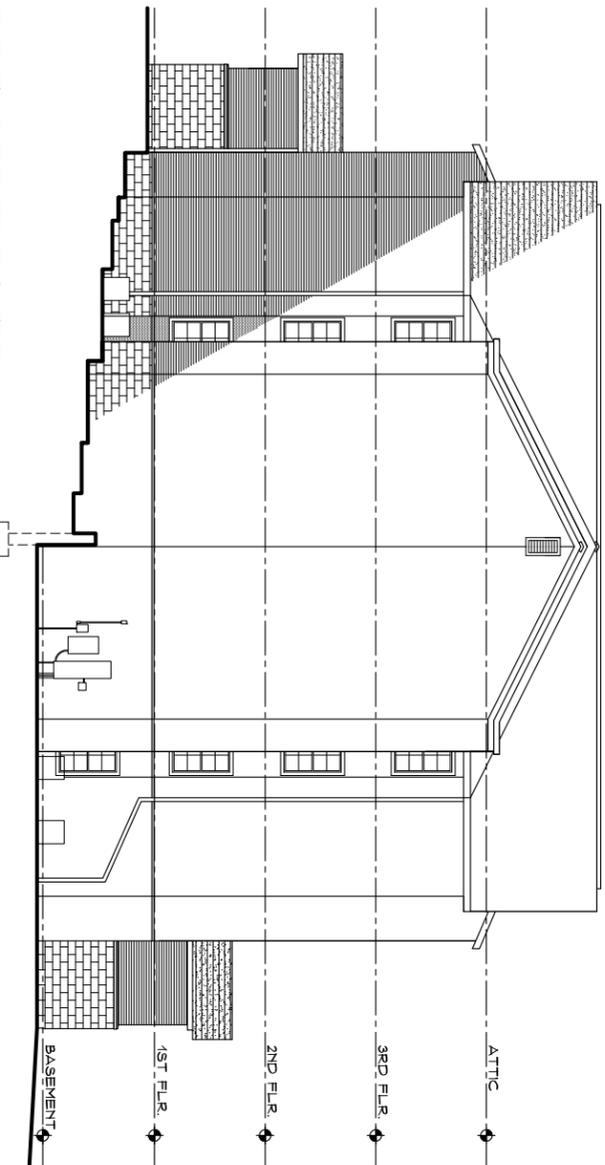
FRONT ELEVATION



REAR ELEVATION



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION

ELEVATIONS BUILDING TYPE III-#19  
 SCALE: 1/16" = 1'-0"

drawn by: ABR  
 scale: AS NOTED  
 checked by: MMS  
 date: 10/4/2013  
 revisions:

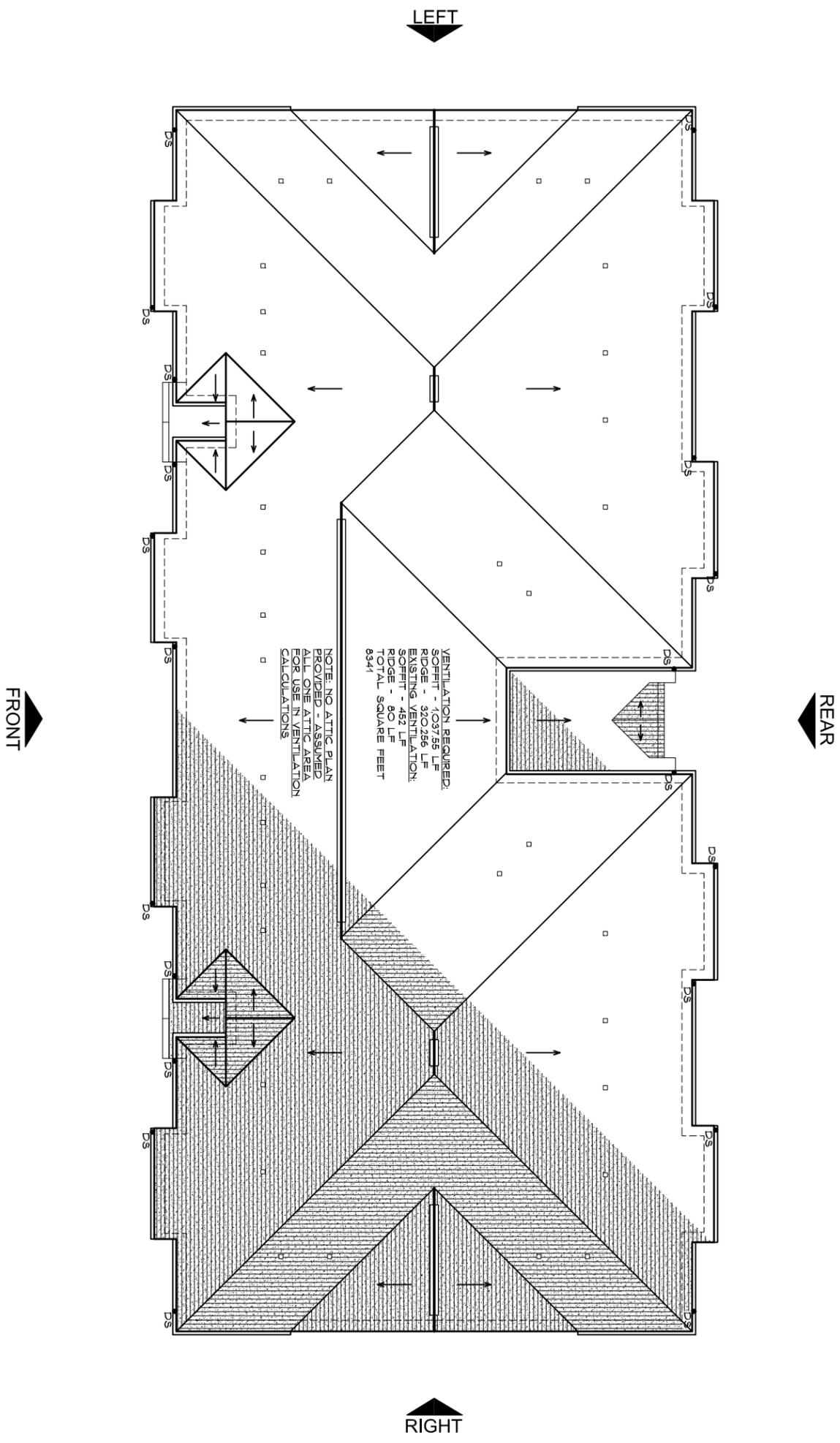
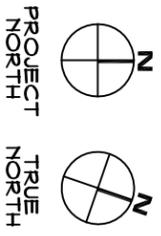
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CHIEN-SHUNG WU  
 HILLTOP APARTMENTS  
 STORRS, CONNECTICUT

Prof. No. 13-25  
 sheet no.:  
**SK-11A**  
 Appendix B

**WOODHOUSE**  
**SCHEMATIC ROOF PLAN**  
**BUILDING TYPE IV-#22**  
 SCALE: 1/16" = 1'-0"

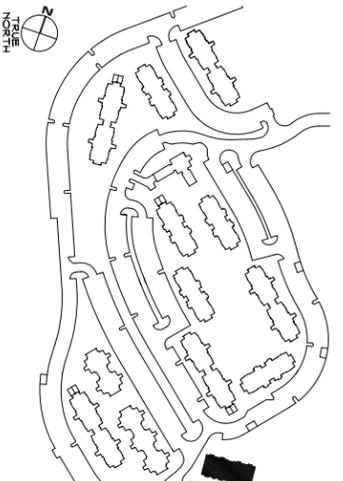


VENTILATION REQUIRED:  
 SOFFIT - 1,037.56 LF  
 RIDGE - 320.256 LF  
 EXISTING VENTILATION:  
 SOFFIT - 452 LF  
 RIDGE - 80 LF  
 TOTAL SQUARE FEET  
 6341

NOTE: NO ATTIC PLAN PROVIDED - ASSUMED ALL ONE ATTIC AREA FOR USE IN VENTILATION CALCULATIONS

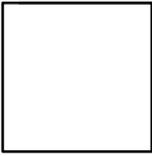
**LEGEND**

- ↑ SLOPE DIRECTION
- ▨ ASPHALT SHINGLE
- DS● DOWNSPOUT LOCATION
- ⊙ EXHAUST VENT
- DRYER VENT
- XXXXX ELEVATION
- VENT STACK



**CHASE GOING WOODHOUSE**  
**HILLTOP APARTMENTS**  
**STORRS, CONNECTICUT**

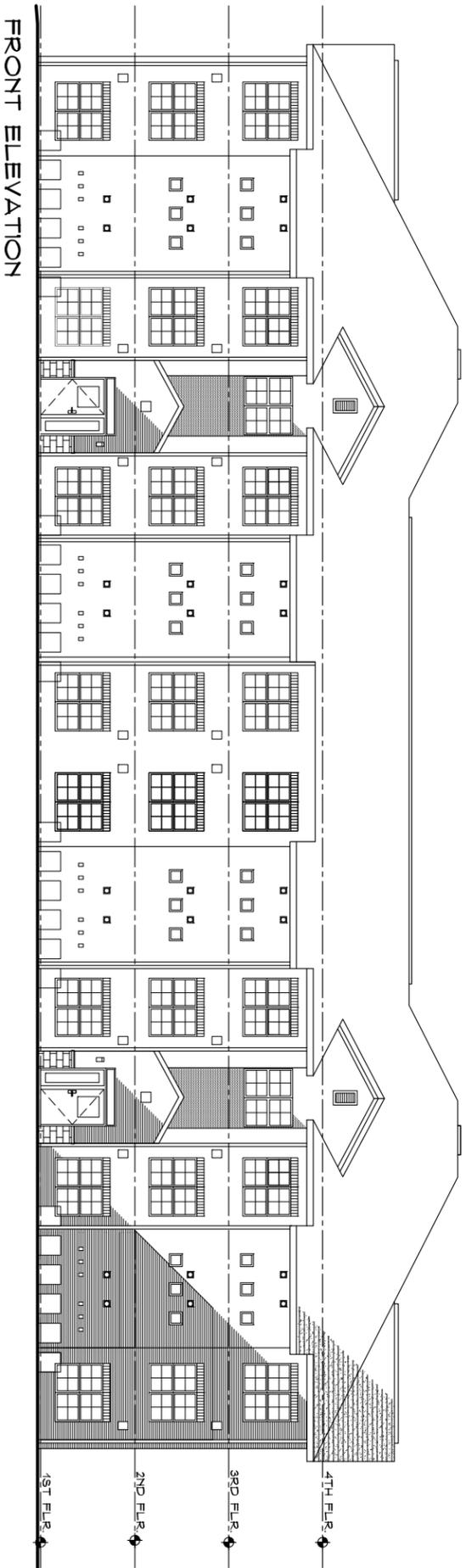
Prof. No. 13-25  
 sheet no.:  
**SK-12**  
 Appendix B



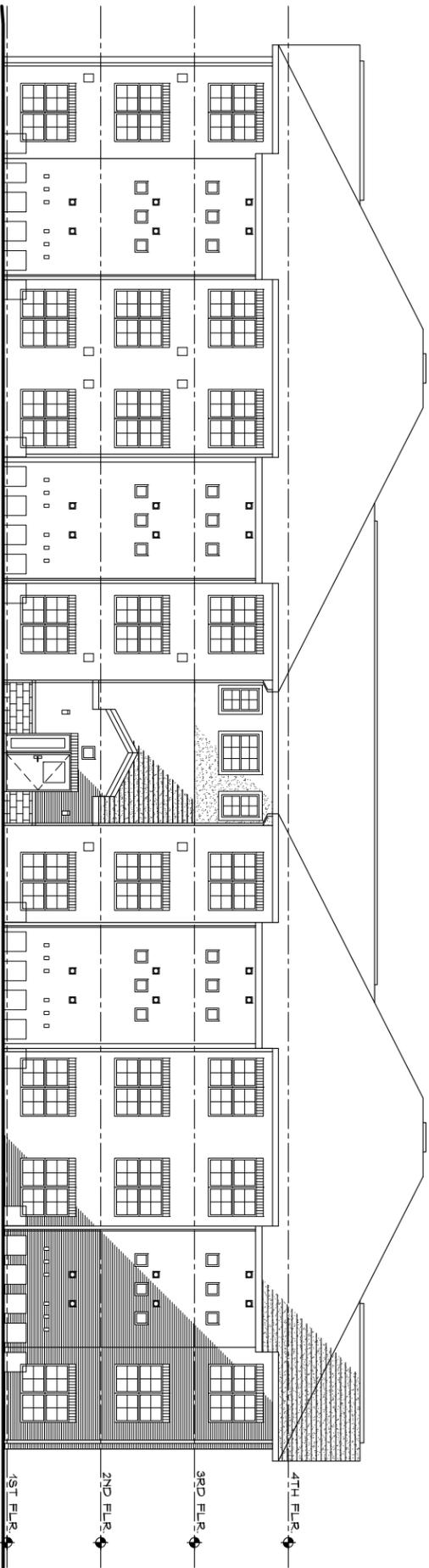
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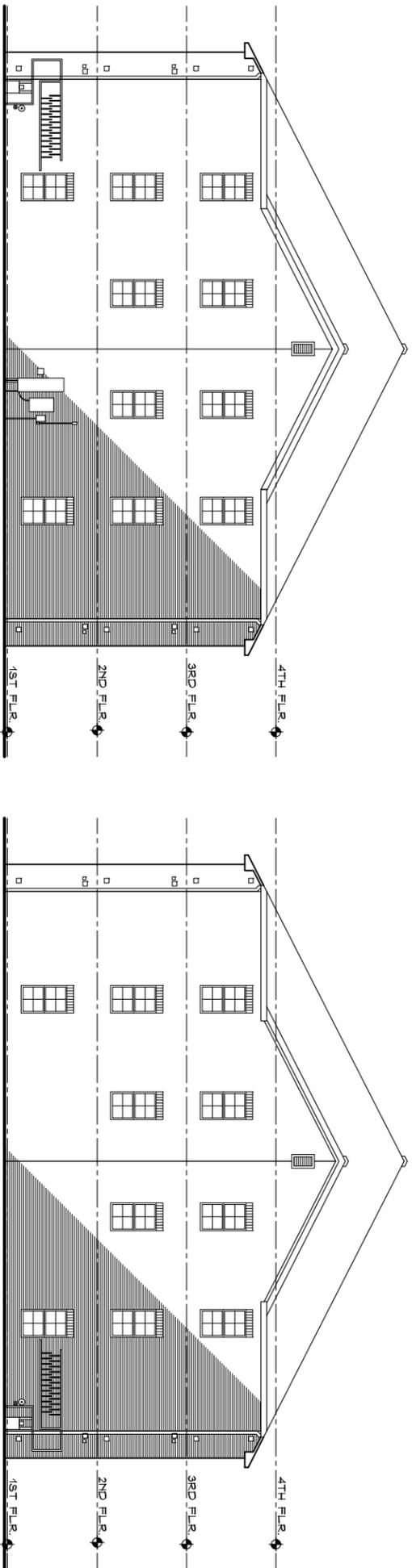
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 scale: AS NOTED  
 checked by: MAB  
 date: 10/4/2013  
 revisions:



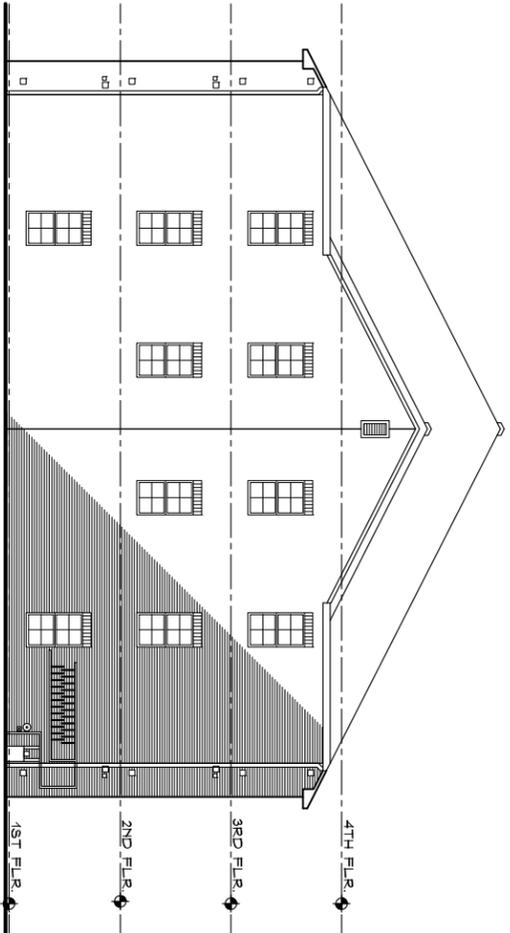
FRONT ELEVATION



REAR ELEVATION



LEFT SIDE ELEVATION

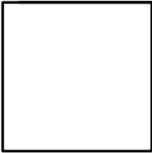


RIGHT SIDE ELEVATION

ELEVATIONS BUILDING TYPE IV-#22  
 SCALE: 1/16" = 1'-0"

CHASE GOING WOODHOUSE  
 HILLTOP APARTMENTS  
 STORRS, CONNECTICUT

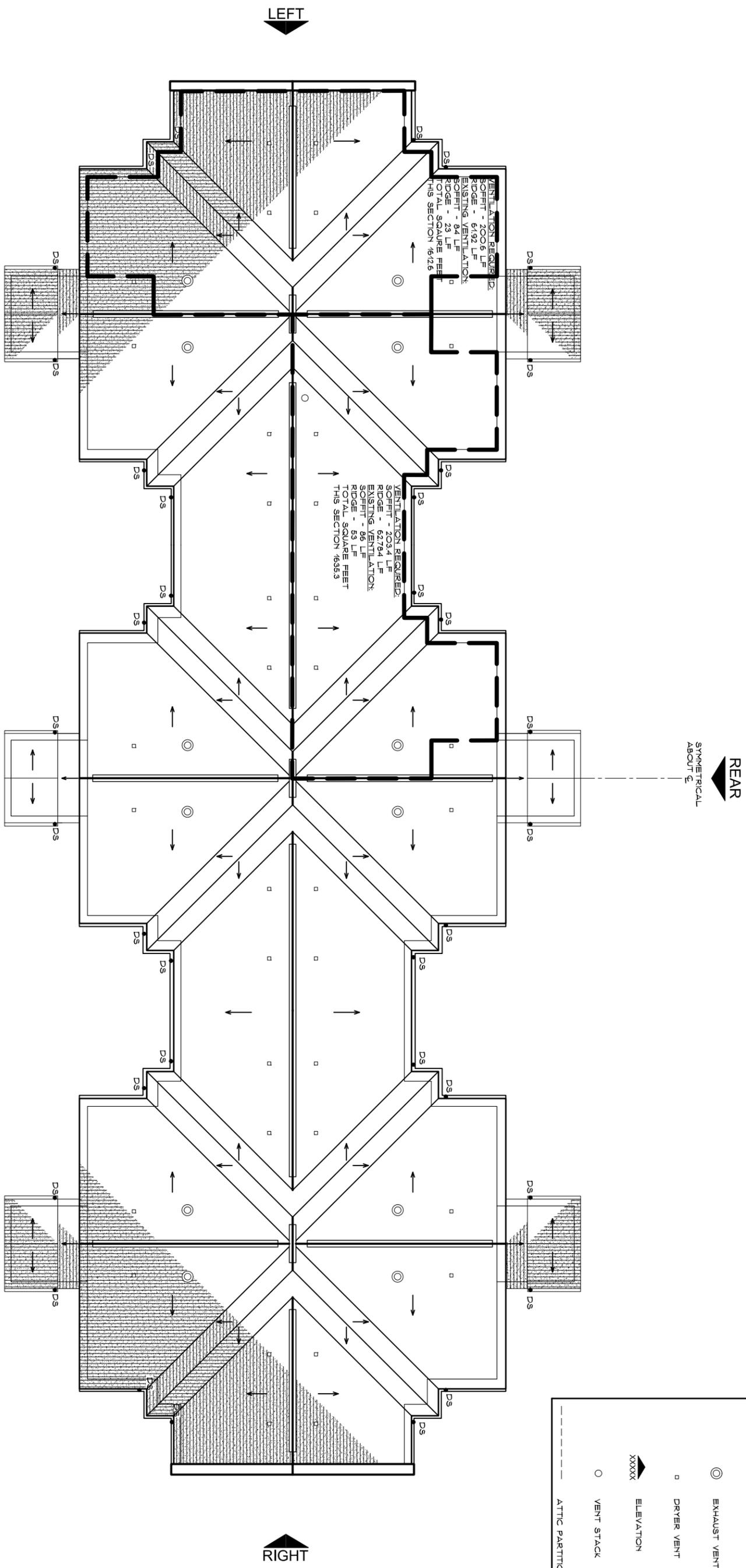
Prof. No. 13-25  
 Sheet No. SK-12A  
 Appendix B



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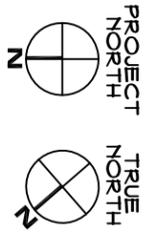
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 checked by: MAB  
 date: 10/4/2013  
 revisions:

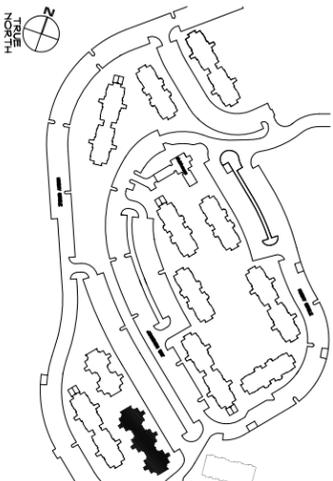


WHEELER  
SCHEMATIC ROOF PLAN  
BUILDING TYPE V-#20

SCALE: 1/16" = 1'-0"

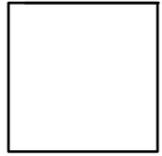


LEGEND	
→	SLOPE DIRECTION
▨	ASPHALT SHINGLE
DS●	DOWNSPOUT LOCATION
◎	EXHAUST VENT
□	DRYER VENT
XXXXX	ELEVATION
○	VENT STACK
---	ATTIC PARTITION



MAUDE KNAPP WHEELER  
HILLTOP APARTMENTS  
STORRS, CONNECTICUT

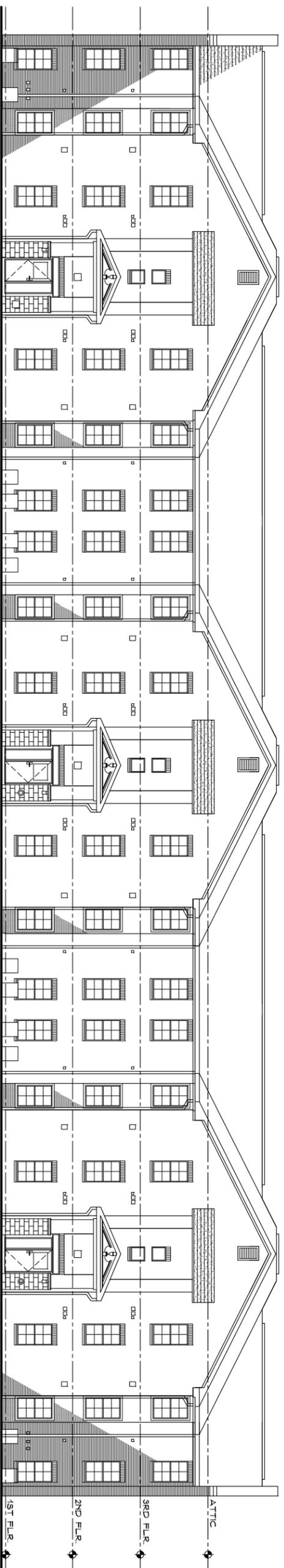
Proj No. 13-28  
Sheet No. SK-13  
Appendix B



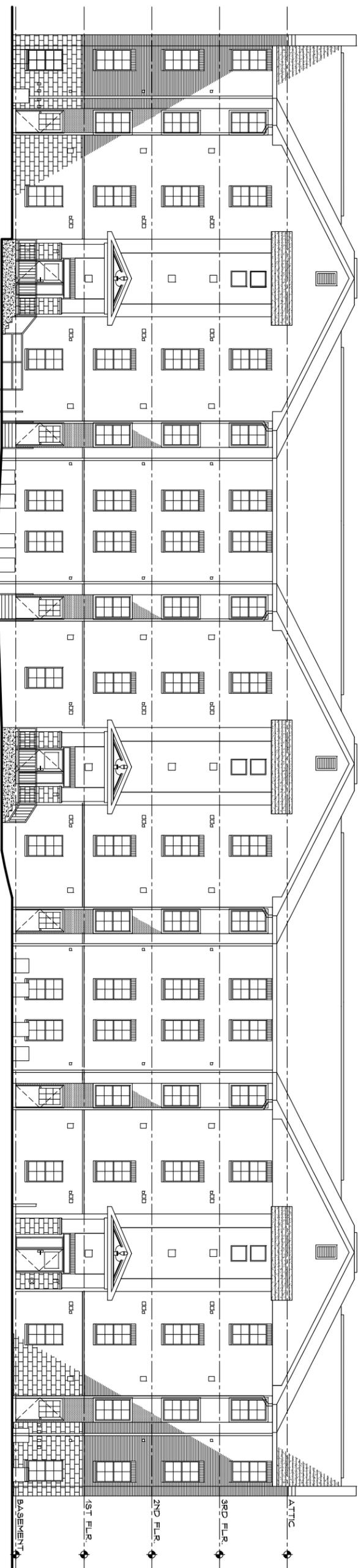
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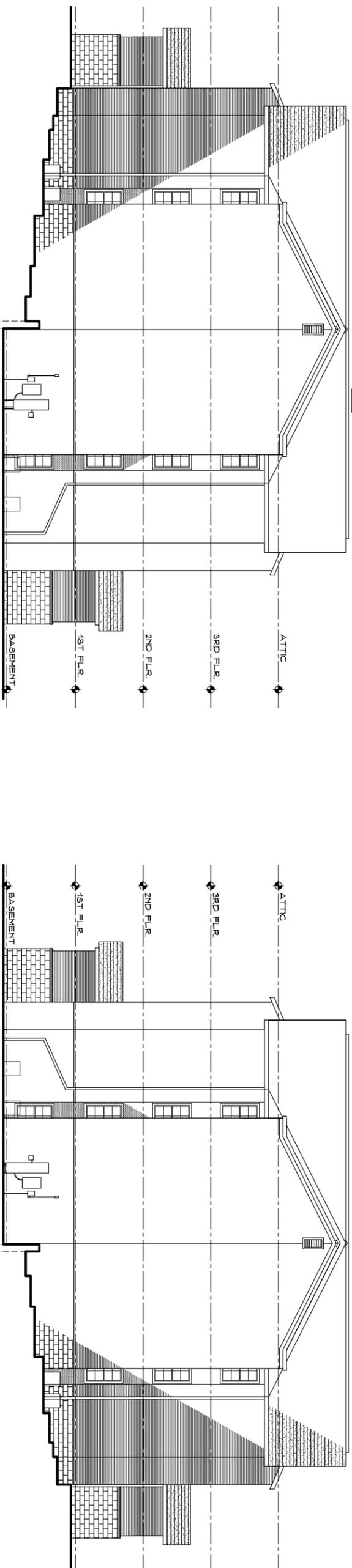
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chk'd by: MAB  
date: 10/4/2013  
revisions:



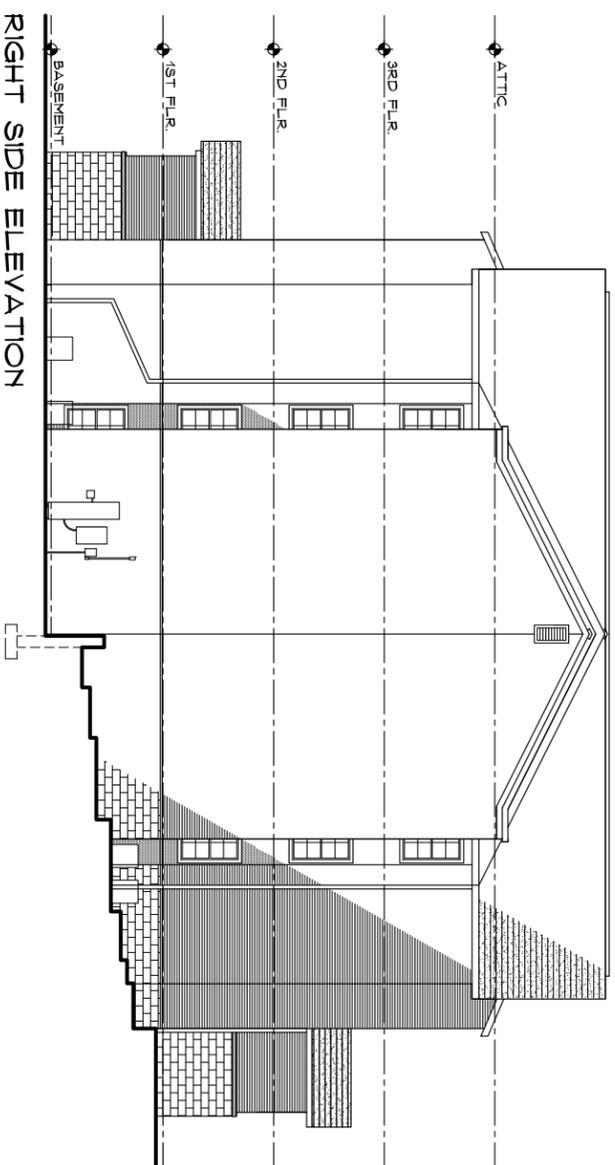
FRONT ELEVATION



REAR ELEVATION



LEFT SIDE ELEVATION

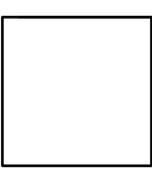


RIGHT SIDE ELEVATION

SCALE: 1/16" = 1'-0"

Appendix B  
**SK-12A**  
Proj. No. 13-25  
Sheet No.

MAUDE KNAPP WHEELER  
HILLTOP APARTMENTS  
STORRS, CONNECTICUT



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drawn by: ABR  
scale: AS NOTED  
checked by: MAB  
date: 10/4/2013  
revisions:

Martin A. Benassi AIA				COST ESTIMATE		Appendix C-1
Architect LLC				Building Type I		Proj. No. 13-25
General Architectural Review						201629
LICONN Hilltop Apartments Investigation				Date: October 4, 2013		Page 1 of 1
PRINCIPAL TRADE ITEM AND	UNIT	QTY	UNIT PRICE	ITEM PRICE	PRINCIPAL	
ITEM DESCRIPTION					ITEM COST	
<b>01 General Requirements</b>					\$55,700.00	
permits / bonding / insurance	u	1	\$6,000.00	\$6,000.00		
mobilization / demobilization	u	1	\$8,000.00	\$8,000.00		
trash and carting charges + ACM	ea	1	\$1,800.00	\$1,800.00		
contractor's own supervision	mo	1	\$5,000.00	\$5,000.00		
field office and in-house support	mo	1	\$2,800.00	\$2,800.00		
exterior site protection	u	1	\$1,800.00	\$1,800.00		
project sign	u	1	\$800.00	\$800.00		
lift rental	week	2	\$3,500.00	\$7,000.00		
crane rental	day	3	\$2,500.00	\$7,500.00		
scaffolding	u	1	\$15,000.00	\$15,000.00		
<b>02 Existing Conditions</b>					\$2,000.00	
miscellaneous site repairs	u	1	\$2,000.00	\$2,000.00		
<b>04 Masonry</b>					\$28,950.00	
UP brick masonry repair	sf	100	\$48.00	\$4,800.00		
UP brick repointing	sf	300	\$27.00	\$8,100.00		
masonry control/expansion joints	lf	90	\$45.00	\$4,050.00		
unit masonry maintenance/cleaning/restoration	u	1,000	\$12.00	\$12,000.00		
<b>06 Wood and Plastic</b>					\$36,240.00	
UP OSB decking	sf	320	\$16.00	\$5,120.00		
UP fascia board and trim replacement	lf	500	\$20.00	\$10,000.00		
UP misc. wood blocking - unknown	lf	500	\$12.00	\$6,000.00		
new plywood soffit	sf	1,008	\$15.00	\$15,120.00		
<b>07 Thermal and Moisture Protection</b>					\$203,685.85	
<b>Steep Pitch Area:</b>						
demo existing roofing	sf	9,701	\$1.50	\$14,551.50		
waterproofing membrane- ice and water	sf	3,500	\$3.60	\$12,600.00		
felt mat	sf	6,201	\$0.35	\$2,170.35		
new asphalt shingle roofing	sf	9,701	\$8.00	\$77,608.00		
asphalt roof cement	u	1	\$600.00	\$600.00		
<b>Sheet Metal:</b>						
lead coated copper downspouts / leaders	lf	600	\$24.00	\$14,400.00		
lead coated copper gutters and hardware	lf	310	\$24.00	\$7,440.00		
miscellaneous lead coated copper flashings	lf	800	\$15.00	\$12,000.00		
lead coated copper counter flashings	lf	75	\$24.00	\$1,800.00		
hot stack flashing	ea	8	\$65.00	\$520.00		
lead coated copper shingle flashing	lf	75	\$8.00	\$600.00		
1/4" sheet metal coping-parapet wall	lf	216	\$45.00	\$9,720.00		
lead coated copper drip edge	lf	310	\$8.00	\$2,480.00		
lead coated copper fascia	lf	216	\$30.00	\$6,480.00		
prefab vent stack flashing	ea	6	\$25.00	\$150.00		
ridge vents	lf	106	\$25.00	\$2,650.00		
lead coated copper valleys	lf	400	\$45.00	\$18,000.00		
dryer vent covers	lf	16	\$25.00	\$400.00		
new dormer vents	ea	8	\$1,500.00	\$12,000.00		
<b>Miscellaneous:</b>						
sealant and backer rod	u	1	\$1,500.00	\$1,500.00		
insulate attic vent and exhaust piping	lf	800	\$5.00	\$4,000.00		
soffit venting	lf	1,008	\$2.00	\$2,016.00		
<b>09 Finishes</b>					\$7,600.00	
painting	sf	2000	\$3.80	\$7,600.00		
EIFS repair	sf	0	\$3.00	\$0.00		
<b>26 Electrical</b>					\$1,000.00	
miscellaneous	u	1	\$1,000.00	\$1,000.00		
<b>SUB-TOTAL</b>					\$335,175.85	
city cost index (.062=Williammatic)					\$20,780.90	
<b>TOTAL:</b>					<b>\$355,956.75</b>	
Some of the dollar figures used were calculated based on information obtained from the 2012 Bldg. Construction Cost Data, published by Robert Snow Means Company, Inc. Kingston, Massachusetts. Additional figures were obtained from similar active projects with inflation and geographical percentages included and manufacturer's pricing.						
The final dollar amount shown is for guidance only and is a "ball park" figure.						
An assumption is made that all repair work will be performed under one contract and not spaced out over a period of time.						
An assumption is made that all work will be performed during normal business hours during the week.						
The sub-total amount DOES NOT include any Architectural / Engineering fees, or contingencies.						
Unit Abbreviations:						
sf	sq. feet	mo	month			
u	unit / each	day	day			
lf	lin. feet	ea	each			
UP	unit pric'g					

Martin A. Benassi AIA			COST ESTIMATE		Appendix C-2
Architect LLC			Building Type II		Proj. No. 13-25
General Architectural Review					201629
LICONN Hilltop Apartments Investigation			Date: October 4, 2013		Page 1 of 1
PRINCIPAL TRADE ITEM AND	UNIT	QTY	UNIT PRICE	ITEM PRICE	PRINCIPAL ITEM COST
ITEM DESCRIPTION					
<b>01 General Requirements</b>					<b>\$55,700.00</b>
permits / bonding / insurance	u	1	\$6,000.00	\$6,000.00	
mobilization / demobilization	u	1	\$8,000.00	\$8,000.00	
trash and carting charges + ACM	ea	1	\$1,800.00	\$1,800.00	
contractor's own supervision	mo	1	\$5,000.00	\$5,000.00	
field office and in-house support	mo	1	\$2,800.00	\$2,800.00	
exterior site protection	u	1	\$1,800.00	\$1,800.00	
project sign	u	1	\$800.00	\$800.00	
lift rental	week	2	\$3,500.00	\$7,000.00	
crane rental	day	3	\$2,500.00	\$7,500.00	
scaffolding	u	1	\$15,000.00	\$15,000.00	
<b>02 Existing Conditions</b>					<b>\$2,000.00</b>
miscellaneous site repairs	u	1	\$2,000.00	\$2,000.00	
<b>04 Masonry</b>					<b>\$28,950.00</b>
UP brick masonry repair	sf	100	\$48.00	\$4,800.00	
UP brick repointing	sf	300	\$27.00	\$8,100.00	
masonry control/expansion joints	lf	90	\$45.00	\$4,050.00	
unit masonry maintenance/cleaning/restoration	u	1,000	\$12.00	\$12,000.00	
<b>06 Wood and Plastic</b>					<b>\$36,240.00</b>
UP OSB decking	sf	320	\$16.00	\$5,120.00	
UP fascia board and trim replacement	lf	500	\$20.00	\$10,000.00	
UP misc. wood blocking - unknown	lf	500	\$12.00	\$6,000.00	
new plywood soffit	sf	1,008	\$15.00	\$15,120.00	
<b>07 Thermal and Moisture Protection</b>					<b>\$281,876.70</b>
<b>Steep Pitch Area:</b>					
demo existing roofing	sf	14,222	\$1.50	\$21,333.00	
waterproofing membrane- ice and water	sf	5,120	\$3.60	\$18,432.00	
felt mat	sf	9,102	\$0.35	\$3,185.70	
new asphalt shingle roofing	sf	14,222	\$8.00	\$113,776.00	
asphalt roof cement	u	1	\$600.00	\$600.00	
<b>Sheet Metal:</b>					
lead coated copper downspouts / leaders	lf	1,080	\$24.00	\$25,920.00	
lead coated copper gutters and hardware	lf	508	\$24.00	\$12,192.00	
miscellaneous lead coated copper flashings	lf	800	\$15.00	\$12,000.00	
lead coated copper counter flashings	lf	112	\$24.00	\$2,688.00	
hot stack flashing	ea	8	\$65.00	\$520.00	
lead coated copper shingle flashing	lf	40	\$8.00	\$320.00	
1/4" sheet metal coping-parapet wall	lf	178	\$45.00	\$8,010.00	
lead coated copper drip edge	lf	508	\$8.00	\$4,064.00	
lead coated copper fascia	lf	178	\$30.00	\$5,340.00	
prefab vent stack flashing	ea	6	\$25.00	\$150.00	
ridge vents	lf	164	\$25.00	\$4,100.00	
lead coated copper valleys	lf	674	\$45.00	\$30,330.00	
dryer vent covers	lf	16	\$25.00	\$400.00	
new dormer vents	ea	8	\$1,500.00	\$12,000.00	
<b>Miscellaneous:</b>					
sealant and backer rod	u	1	\$1,500.00	\$1,500.00	
insulate attic vent and exhaust piping	lf	800	\$5.00	\$4,000.00	
soffit venting	lf	508	\$2.00	\$1,016.00	
<b>09 Finishes</b>					<b>\$7,600.00</b>
painting	sf	2000	\$3.80	\$7,600.00	
EIFS repair	sf	0	\$3.00	\$0.00	
<b>26 Electrical</b>					<b>\$1,000.00</b>
miscellaneous	u	1	\$1,000.00	\$1,000.00	
<b>SUB-TOTAL</b>					<b>\$413,366.70</b>
city cost index (.062=Williammatic)					\$25,628.74
<b>TOTAL:</b>					<b>\$438,995.44</b>
Some of the dollar figures used were calculated based on information obtained from the 2012 Bldg. Construction Cost Data, published by Robert Snow Means Company, Inc. Kingston, Massachusetts. Additional figures were obtained from similar active projects with inflation and geographical percentages included and manufacturer's pricing.					
The final dollar amount shown is for guidance only and is a "ball park" figure.					
An assumption is made that all repair work will be performed under one contract and not spaced out over a period of time.					
An assumption is made that all work will be performed during normal business hours during the week.					
The sub-total amount DOES NOT include any Architectural / Engineering fees, or contingencies.					
Unit Abbreviations:					
sf	sq. feet	mo	month		
u	unit / each	day	day		
lf	lin. feet	ea	each		
UP	unit pric'g				

Martin A. Benassi AIA			COST ESTIMATE		Appendix C-3
Architect LLC			Building Type III		Proj. No. 13-25
General Architectural Review					201629
LICONN Hilltop Apartments Investigation			Date: October 4, 2013		Page 1 of 1
PRINCIPAL TRADE ITEM AND	UNIT	QTY	UNIT PRICE	ITEM PRICE	PRINCIPAL ITEM COST
ITEM DESCRIPTION					
<b>01 General Requirements</b>					<b>\$55,700.00</b>
permits / bonding / insurance	u	1	\$6,000.00	\$6,000.00	
mobilization / demobilization	u	1	\$8,000.00	\$8,000.00	
trash and carting charges + ACM	ea	1	\$1,800.00	\$1,800.00	
contractor's own supervision	mo	1	\$5,000.00	\$5,000.00	
field office and in-house support	mo	1	\$2,800.00	\$2,800.00	
exterior site protection	u	1	\$1,800.00	\$1,800.00	
project sign	u	1	\$800.00	\$800.00	
lift rental	week	2	\$3,500.00	\$7,000.00	
crane rental	day	3	\$2,500.00	\$7,500.00	
scaffolding	u	1	\$15,000.00	\$15,000.00	
<b>02 Existing Conditions</b>					<b>\$2,000.00</b>
miscellaneous site repairs	u	1	\$2,000.00	\$2,000.00	
<b>04 Masonry</b>					<b>\$28,950.00</b>
UP brick masonry repair	sf	100	\$48.00	\$4,800.00	
UP brick repointing	sf	300	\$27.00	\$8,100.00	
masonry control/expansion joints	lf	90	\$45.00	\$4,050.00	
unit masonry maintenance/cleaning/restoration	u	1,000	\$12.00	\$12,000.00	
<b>06 Wood and Plastic</b>					<b>\$36,240.00</b>
UP OSB decking	sf	320	\$16.00	\$5,120.00	
UP fascia board and trim replacement	lf	500	\$20.00	\$10,000.00	
UP misc. wood blocking - unknown	lf	500	\$12.00	\$6,000.00	
new plywood soffit	sf	1,008	\$15.00	\$15,120.00	
<b>07 Thermal and Moisture Protection</b>					<b>\$207,506.80</b>
<b>Steep Pitch Area:</b>					
demo existing roofing	sf	8,988	\$1.50	\$13,482.00	
waterproofing membrane- ice and water	sf	3,240	\$3.60	\$11,664.00	
felt mat	sf	5,748	\$0.35	\$2,011.80	
new asphalt shingle roofing	sf	8,988	\$8.00	\$71,904.00	
asphalt roof cement	u	1	\$600.00	\$600.00	
<b>Sheet Metal:</b>					
lead coated copper downspouts / leaders	lf	720	\$24.00	\$17,280.00	
lead coated copper gutters and hardware	lf	240	\$24.00	\$5,760.00	
miscellaneous lead coated copper flashings	lf	200	\$15.00	\$3,000.00	
lead coated copper counter flashings	lf	52	\$24.00	\$1,248.00	
hot stack flashing	ea	8	\$65.00	\$520.00	
lead coated copper shingle flashing	lf	52	\$8.00	\$416.00	
1/4" sheet metal coping-parapet wall	lf	72	\$45.00	\$3,240.00	
lead coated copper drip edge	lf	412	\$8.00	\$3,296.00	
lead coated copper fascia	lf	72	\$30.00	\$2,160.00	
prefab vent stack flashing	ea	6	\$25.00	\$150.00	
ridge vents	lf	211	\$25.00	\$5,275.00	
lead coated copper valleys	lf	776	\$45.00	\$34,920.00	
dryer vent covers	lf	24	\$25.00	\$600.00	
new dormer vents	ea	16	\$1,500.00	\$24,000.00	
<b>Miscellaneous:</b>					
sealant and backer rod	u	1	\$1,500.00	\$1,500.00	
insulate attic vent and exhaust piping	lf	800	\$5.00	\$4,000.00	
soffit venting	lf	240	\$2.00	\$480.00	
<b>09 Finishes</b>					<b>\$13,600.00</b>
painting	sf	2000	\$3.80	\$7,600.00	
EIFS repair	sf	2,000	\$3.00	\$6,000.00	
<b>26 Electrical</b>					<b>\$1,000.00</b>
miscellaneous	u	1	\$1,000.00	\$1,000.00	
<b>SUB-TOTAL</b>					<b>\$344,996.80</b>
city cost index (.062=Williammatic)					\$21,389.80
<b>TOTAL:</b>					<b>\$366,386.60</b>
Some of the dollar figures used were calculated based on information obtained from the 2012 Bldg. Construction Cost Data, published by Robert Snow Means Company, Inc. Kingston, Massachusetts. Additional figures were obtained from similar active projects with inflation and geographical percentages included and manufacturer's pricing.					
The final dollar amount shown is for guidance only and is a "ball park" figure.					
An assumption is made that all repair work will be performed under one contract and not spaced out over a period of time.					
An assumption is made that all work will be performed during normal business hours during the week.					
The sub-total amount DOES NOT include any Architectural / Engineering fees, or contingencies.					
Unit Abbreviations:					
sf	sq. feet	mo	month		
u	unit / each	day	day		
lf	lin. feet	ea	each		
UP	unit pric'g				

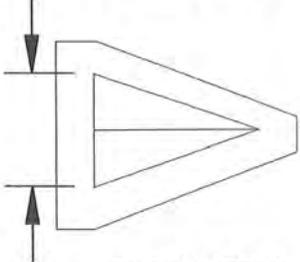
Martin A. Benassi AIA			COST ESTIMATE		Appendix C-4
Architect LLC			Building Type IV		Proj. No. 13-25
General Architectural Review					201629
LICONN Hilltop Apartments Investigation			Date: October 4, 2013		Page 1 of 1
PRINCIPAL TRADE ITEM AND	UNIT	QTY	UNIT PRICE	ITEM PRICE	PRINCIPAL ITEM COST
ITEM DESCRIPTION					
<b>01 General Requirements</b>					<b>\$55,700.00</b>
permits / bonding / insurance	u	1	\$6,000.00	\$6,000.00	
mobilization / demobilization	u	1	\$8,000.00	\$8,000.00	
trash and carting charges + ACM	ea	1	\$1,800.00	\$1,800.00	
contractor's own supervision	mo	1	\$5,000.00	\$5,000.00	
field office and in-house support	mo	1	\$2,800.00	\$2,800.00	
exterior site protection	u	1	\$1,800.00	\$1,800.00	
project sign	u	1	\$800.00	\$800.00	
lift rental	week	2	\$3,500.00	\$7,000.00	
crane rental	day	3	\$2,500.00	\$7,500.00	
scaffolding	u	1	\$15,000.00	\$15,000.00	
<b>02 Existing Conditions</b>					<b>\$2,000.00</b>
miscellaneous site repairs	u	1	\$2,000.00	\$2,000.00	
<b>04 Masonry</b>					<b>\$28,950.00</b>
UP brick masonry repair	sf	100	\$48.00	\$4,800.00	
UP brick repointing	sf	300	\$27.00	\$8,100.00	
masonry control/expansion joints	lf	90	\$45.00	\$4,050.00	
unit masonry maintenance/cleaning/restoration	u	1,000	\$12.00	\$12,000.00	
<b>06 Wood and Plastic</b>					<b>\$36,240.00</b>
UP OSB decking	sf	320	\$16.00	\$5,120.00	
UP fascia board and trim replacement	lf	500	\$20.00	\$10,000.00	
UP misc. wood blocking - unknown	lf	500	\$12.00	\$6,000.00	
new plywood soffit	sf	1,008	\$15.00	\$15,120.00	
<b>07 Thermal and Moisture Protection</b>					<b>\$195,283.35</b>
<b>Steep Pitch Area:</b>					
demo existing roofing	sf	10,231	\$1.50	\$15,346.50	
waterproofing membrane- ice and water	sf	3,680	\$3.60	\$13,248.00	
felt mat	sf	6,551	\$0.35	\$2,292.85	
new asphalt shingle roofing	sf	10,231	\$8.00	\$81,848.00	
asphalt roof cement	u	1	\$600.00	\$600.00	
<b>Sheet Metal:</b>					
lead coated copper downspouts / leaders	lf	660	\$24.00	\$15,840.00	
lead coated copper gutters and hardware	lf	440	\$24.00	\$10,560.00	
miscellaneous lead coated copper flashings	lf	200	\$15.00	\$3,000.00	
lead coated copper counter flashings	lf	0	\$24.00	\$0.00	
hot stack flashing	ea	0	\$65.00	\$0.00	
lead coated copper shingle flashing	lf	68	\$8.00	\$544.00	
tic sheet metal coping-parapet wall	lf	0	\$45.00	\$0.00	
lead coated copper drip edge	lf	500	\$8.00	\$4,000.00	
lead coated copper fascia	lf	0	\$30.00	\$0.00	
prefab vent stack flashing	ea	6	\$25.00	\$150.00	
ridge vents	lf	80	\$25.00	\$2,000.00	
lead coated copper valleys	lf	600	\$45.00	\$27,000.00	
dryer vent covers	lf	34	\$25.00	\$850.00	
new dormer vents	ea	8	\$1,500.00	\$12,000.00	
<b>Miscellaneous:</b>					
sealant and backer rod	u	1	\$1,500.00	\$1,500.00	
insulate attic vent and exhaust piping	lf	800	\$5.00	\$4,000.00	
soffit venting	lf	252	\$2.00	\$504.00	
<b>09 Finishes</b>					<b>\$12,880.00</b>
painting	sf	2000	\$3.80	\$7,600.00	
EIFS repair	sf	1,760	\$3.00	\$5,280.00	
<b>26 Electrical</b>					<b>\$1,000.00</b>
miscellaneous	u	1	\$1,000.00	\$1,000.00	
<b>SUB-TOTAL</b>					<b>\$332,053.35</b>
city cost index (.062=Williammatic)					\$20,587.31
<b>TOTAL:</b>					<b>\$352,640.66</b>
Some of the dollar figures used were calculated based on information obtained from the 2012 Bldg. Construction Cost Data, published by Robert Snow Means Company, Inc. Kingston, Massachusetts. Additional figures were obtained from similar active projects with inflation and geographical percentages included and manufacturer's pricing.					
The final dollar amount shown is for guidance only and is a "ball park" figure.					
An assumption is made that all repair work will be performed under one contract and not spaced out over a period of time.					
An assumption is made that all work will be performed during normal business hours during the week.					
The sub-total amount DOES NOT include any Architectural / Engineering fees, or contingencies.					
Unit Abbreviations:					
sf	sq. feet	mo	month		
u	unit / each	day	day		
lf	lin. feet	ea	each		
UP	unit pric'g				

Martin A. Benassi AIA			COST ESTIMATE		Appendix C-5
Architect LLC			Building Type V		Proj. No. 13-25
General Architectural Review					201629
LICONN Hilltop Apartments Investigation			Date: October 4, 2013		Page 1 of 1
PRINCIPAL TRADE ITEM AND	UNIT	QTY	UNIT PRICE	ITEM PRICE	PRINCIPAL ITEM COST
ITEM DESCRIPTION					
<b>01 General Requirements</b>					<b>\$55,700.00</b>
permits / bonding / insurance	u	1	\$6,000.00	\$6,000.00	
mobilization / demobilization	u	1	\$8,000.00	\$8,000.00	
trash and carting charges + ACM	ea	1	\$1,800.00	\$1,800.00	
contractor's own supervision	mo	1	\$5,000.00	\$5,000.00	
field office and in-house support	mo	1	\$2,800.00	\$2,800.00	
exterior site protection	u	1	\$1,800.00	\$1,800.00	
project sign	u	1	\$800.00	\$800.00	
lift rental	week	2	\$3,500.00	\$7,000.00	
crane rental	day	3	\$2,500.00	\$7,500.00	
scaffolding	u	1	\$15,000.00	\$15,000.00	
<b>02 Existing Conditions</b>					<b>\$2,000.00</b>
miscellaneous site repairs	u	1	\$2,000.00	\$2,000.00	
<b>04 Masonry</b>					<b>\$28,950.00</b>
UP brick masonry repair	sf	100	\$48.00	\$4,800.00	
UP brick repointing	sf	300	\$27.00	\$8,100.00	
masonry control/expansion joints	lf	90	\$45.00	\$4,050.00	
unit masonry maintenance/cleaning/restoration	u	1,000	\$12.00	\$12,000.00	
<b>06 Wood and Plastic</b>					<b>\$36,240.00</b>
UP OSB decking	sf	320	\$16.00	\$5,120.00	
UP fascia board and trim replacement	lf	500	\$20.00	\$10,000.00	
UP misc. wood blocking - unknown	lf	500	\$12.00	\$6,000.00	
new plywood soffit	sf	1,008	\$15.00	\$15,120.00	
<b>07 Thermal and Moisture Protection</b>					<b>\$281,550.05</b>
<b>Steep Pitch Area:</b>					
demo existing roofing	sf	13,568	\$1.50	\$20,352.00	
waterproofing membrane- ice and water	sf	4,885	\$3.60	\$17,586.00	
felt mat	sf	8,683	\$0.35	\$3,039.05	
new asphalt shingle roofing	sf	13,568	\$8.00	\$108,544.00	
asphalt roof cement	u	1	\$600.00	\$600.00	
<b>Sheet Metal:</b>					
lead coated copper downspouts / leaders	lf	1,080	\$24.00	\$25,920.00	
lead coated copper gutters and hardware	lf	312	\$24.00	\$7,488.00	
miscellaneous lead coated copper flashings	lf	200	\$15.00	\$3,000.00	
lead coated copper counter flashings	lf	84	\$24.00	\$2,016.00	
hot stack flashing	ea	12	\$65.00	\$780.00	
lead coated copper shingle flashing	lf	84	\$8.00	\$672.00	
1/4" sheet metal coping-parapet wall	lf	72	\$45.00	\$3,240.00	
lead coated copper drip edge	lf	576	\$8.00	\$4,608.00	
lead coated copper fascia	lf	72	\$30.00	\$2,160.00	
prefab vent stack flashing	ea	6	\$25.00	\$150.00	
ridge vents	lf	152	\$25.00	\$3,800.00	
lead coated copper valleys	lf	1,167	\$45.00	\$52,515.00	
dryer vent covers	lf	36	\$25.00	\$900.00	
new dormer vents	ea	12	\$1,500.00	\$18,000.00	
<b>Miscellaneous:</b>					
sealant and backer rod	u	1	\$1,500.00	\$1,500.00	
insulate attic vent and exhaust piping	lf	800	\$5.00	\$4,000.00	
soffit venting	lf	340	\$2.00	\$680.00	
<b>09 Finishes</b>					<b>\$16,240.00</b>
painting	sf	2000	\$3.80	\$7,600.00	
EIFS repair	sf	2,880	\$3.00	\$8,640.00	
<b>26 Electrical</b>					<b>\$1,000.00</b>
miscellaneous	u	1	\$1,000.00	\$1,000.00	
<b>SUB-TOTAL</b>					<b>\$421,680.05</b>
city cost index (.062=Williammatic)					\$26,144.16
<b>TOTAL:</b>					<b>\$447,824.21</b>
Some of the dollar figures used were calculated based on information obtained from the 2012 Bldg. Construction Cost Data, published by Robert Snow Means Company, Inc. Kingston, Massachusetts. Additional figures were obtained from similar active projects with inflation and geographical percentages included and manufacturer's pricing.					
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An assumption is made that all repair work will be performed under one contract and not spaced out over a period of time.					
An assumption is made that all work will be performed during normal business hours during the week.					
The sub-total amount DOES NOT include any Architectural / Engineering fees, or contingencies.					
Unit Abbreviations:					
sf	sq. feet	mo	month		
u	unit / each	day	day		
lf	lin. feet	ea	each		
UP	unit pric'g				

# RUTLAND GUTTER SUPPLY LLC

**rutlandguttersupply@yahoo.com Ph: 407-859-1119 Fax: 407-859-1123**

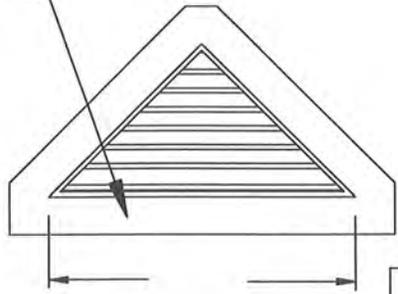
## DORMER ROOF VENT PYRAMID



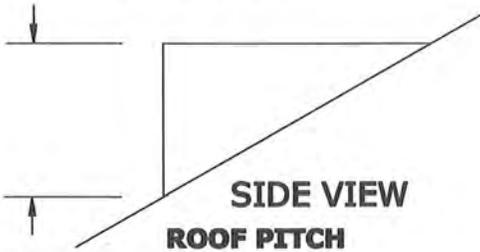
**PLAN VIEW**



**ISO VIEW**



**FRONT VIEW**

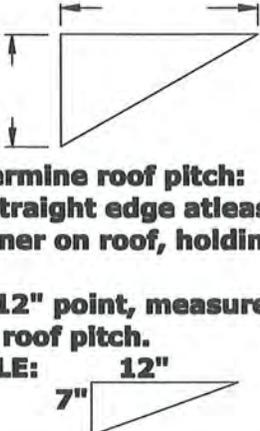


**SIDE VIEW  
ROOF PITCH**

**6" FLANGE TYPICAL**



**LOUVER SECTION VIEW**



**To determine roof pitch:  
Use a straight edge atleast 12" long,  
Put corner on roof, holding vertically level.  
At the 12" point, measure down. This  
is your roof pitch.  
EXAMPLE:           12"  
                              7"**

<p><b>PLEASE FILL IN ALL MISSING DIMENSIONS INCLUDING MATERIAL &amp; ROOF PITCH. THEN FAX BACK FOR A PRICE QUOTE.</b></p>	
<p><b>**Use 50sq. inch of free air per square foot of louver (HxW=square feet)**</b></p>	
<p><b>Company:</b></p>	<p><b>Item:</b></p>
<p><b>Date:</b></p>	<p><b>Material:</b></p>
<p><b>Signature:</b></p>	<p><b>Notes:</b></p>
<p><b>CUSTOM ORDERS CAN NOT BE RETURNED</b></p>	

To be considered where existing soffit/ridge venting is inadequate and additional venting of attic space is required.

Vent Applications
Vent Products
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Recent Projects

### Roof Ventilation Systems: Cor-A-Vent V-400E Ridge Ventilation System

- Our NEW V-400E - with enhanced snow screen
- V-400E - Certified 17 sq. inches NFVA per foot
- Exceeds all national building codes for ventilation
- Easy to handle 4' pieces - 12 pieces (48 l.f.) per carton
- 2 1/2" roofing nails & 4 end caps included with V-400E
- Can be applied on hip roofs
- More flexibility on steep pitch roofs - now works on 16/12 pitch
- Solid base provides a weather-tight seal under vent
- Cuts with a utility knife - no waste
- "Live" flexible hinge - makes it easy to match roof pitch
- Leaves a well defined ridge - "no hump or domed shaped" peak
- Won't crack or shatter in cold weather application
- No baffles to clog with leaves or pine needles
- Proven by 30+ years of "On the Roof Performance"
- Lifetime Warranty




#### Key Benefits

- 17 sq. in NFVA per lineal foot
- Enhanced Snow Screen™ design to prevent fine blowing snow from entering the vent
- Can be used with shingle and metal roofing applications
- Use on all slopes from 3/12 to 16/12
- 2 widths to choose from: 11" and 8 1/2"
- Made from heat resistant polypropylene
- Crush proof design
- Can be used with [Asphalt Shingle](#) and [Metal Roof](#) applications.

[General Installation Instructions](#)  
 For dimensions open the [End View 1 PDF](#) & [End View 2 PDF](#) files.  
 For dimensions if you have AutoCad open the [End View 1 DWG](#) & [End View 2 DWG](#) files.



You can also view our "[Balanced Ventilation How it works](#)" FAQ sheet.  
[V-400E Brochure](#) [click here](#).  
[Frequently asked questions \(FAQ\)](#) [click here](#).  
[Click here for our complete list of Technical Drawings](#).

#### Product Packaging and Shipping Information

Pcs per Unit	Accessory Items Included	Shipping Weight per Box
12 - 4 foot pcs	2 1/2" Nails & 4 End Caps	30 lbs

#### Figure your Ventilation Needs

Enter your Square footage of your building footprint below and click "Calculate" to find the amount of Lineal Feet of V-400E you need for your project.

Specify your vent ratio:  
 1/300 ratio     1/150 ratio

Building Footprint :  sq. feet.   



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#### Blog

Latest Blog Posts

**09.13.2013 - New Revolution packaging reduces waste**

Cardboard packaging reduced by 98%

**09.05.2013 - New V300-7 Packaging**

Seven-inch wide V300 now available in bundles

**07.29.2013 - Ipe Hardwood Siding and SV-5**

Mataverde incorporates Siding Vent into its rain screen system

You can email orders to us now:  
[orders@cor-a-vent.com](mailto:orders@cor-a-vent.com)

### Revolution used for Joplin, MO project

Cor-A-Vent recently donated Revolution Rolled Ridge Vent to the Tulsa, OK Habitat for Humanity to be used in their re-build project in Joplin, MO to help re-build that community in the wake of the devastating May 22 tornado. You can read about the Ten for Joplin project here:  
<http://www.tenforjoplin.org/>

(Habitat-Tulsa press release) JOPLIN, Mo. – Sept. 8, 2011 – The Tulsa and Joplin Area Habitat for Humanity teams, surrounding businesses and the City of Joplin are partnering on one of the most aggressive rebuilding efforts since last May's devastating EF-5 tornado. The **Ten for Joplin** project team plans to build 10 homes during a 16-day period for low-income families in Joplin by Thanksgiving.

Community leaders announced the project at a news conference on the site of one of the new homes. The build is scheduled between Oct. 29 and Nov. 13 and will be take place in a neighborhood of Joplin that was in the affected area.

As the citizens of Joplin move into the rebuilding phase of their recovery, the need to help those who lost their homes has become evident. Of the nearly

<http://www.cor-a-vent.com/v400.cfm>
10/6/2013

To be considered when replacing existing ridge vent.



Material used to replace a portion of the original field fabricated ridge vent on Harriet Beecher Stowe roof.

p r o d u c t   h i g h l i g h t s



## Wall and Roof Sheathing Weyerhaeuser Structurwood®



### Engineered Reliable

Structurwood is engineered to get the most from natural wood. Each panel is precisely engineered for its particular end use and is 100% uniform, reducing waste. This efficient use of our precious natural resources is consistent with Weyerhaeuser's philosophy of responsible environmental stewardship.

### The Structurwood Advantage

Whatever the use – walls or roofs – Structurwood gives you, the builder, the advantage – the edge over competitors. Using Structurwood results in faster installations, better product performance, and a stronger reputation that will keep people coming to you.

#### **A Solid Choice**

Weyerhaeuser's superior engineering protects against buckling, cupping, warping and sagging. That translates into less labor time, fewer callbacks and more satisfied customers.

#### **Easy Installation**

Each Structurwood panel is engineered to be the same as the next – free of core voids, knotholes and delamination. Consistent specifications and thickness assures that roofs lie flat and walls stand straight, making installation easier and builders more productive.

#### **Confident and Consistent**

Structurwood simply out-performs our competitors. Our panels are readily available and delivered on time, every time. Installation efficiency, product performance and a quality reputation determine a builder's success. Structurwood can help you succeed.

### The Difference

How does Structurwood stack up to the alternative? Superior, here's why –

*Structurwood vs. Veneered competitors*  
engineered flat – stays flat  
no delamination  
no warping, buckling or core voids  
faster installation at a better value

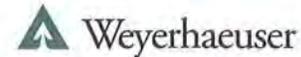
*Structurwood vs. OSB competitors*  
more consistent performance  
superior reliability  
available throughout North America  
commitment to on-time delivery  
nail lines available for installation ease

### Availability

Panels are available from Weyerhaeuser Customer Service Centers. Minimum quantities may be required for some orders. For more information call the Structurwood Information Line at 800.523.0824.



## Wall and Roof Sheathing Weyerhaeuser Structurwood®



### Application and Handling

- ▲ Ship Structurwood under tarp. Store under roof or tarp in a dry location.
- ▲ Install with textured surface up on roofs to ensure maximum safety.
- ▲ Do not exceed the span limitations printed on each panel as part of the grading stamp.
- ▲ Use appropriate fasteners at the recommended schedule and gap panels  $\frac{1}{8}$ " on the ends and edges of each panel.
- ▲ All edges are sealed for moisture and weather resistance. If any become swollen, they can be touch-sanded without structural loss. Unlike plywood, Structurwood doesn't suffer from warping, glue failures or delamination.
- ▲ Like any wood product, wood-based panels are at risk of fungal decay or rot if exposed to repeated wetting or high-moisture environments. Wood-based panels that are exposed to repeated wetting or high-moisture environments may deteriorate, lose strength, or support mold growth. For these reasons, transportation, storage, construction, installation and design must provide protection from such conditions. Examples of protection include:
  - transport under tarp;
  - storage under roof with minimum moisture exposure; and
  - wall and roof systems that protect from moisture and allow for drying.
- ▲ For complete installation instructions contact your Weyerhaeuser representative. Call 800.523.0824 or email [structurwood@weyerhaeuser.com](mailto:structurwood@weyerhaeuser.com)

### For Roof Applications

- ▲ Check building code requirements for installation of panel edge clips. Edge clip requirements depend on the relationship of the panel Span Rating to the actual distance between roof framing.

- ▲ Cover sheathing with a shingle underlayment felt as soon as possible to minimize roof sheathing exposure to weather. If using asphalt or fiberglass shingles, postpone shingle installation as long as possible. This will provide time for the roof sheathing to adjust to humidity and moisture conditions.
- ▲ For best appearance, use heavier weight shingles, or laminated or textured shingles. This will mask surface imperfections and reduce the risk of shingle ridging.

### For Wall Applications

- ▲ Structurwood sheathing panels easily meet building code wall sheathing requirements for bending and racking strength without let-in bracing.
- ▲ Sheathing panels may be used vertically or horizontally as wall sheathing over studs at 24 inches on center. When installing horizontally, block horizontal joints in panels that are used for bracing (check local code for requirements).

### Product Specifications

*Structurwood sheathing is manufactured in accordance with Voluntary Product Standard PS-2 which is recognized by:*

The current and legacy codes promulgated by International Code Council and its members (IBC, IRC, BOCA, UBC, SBCCI, CABO); The National Fire Protection Association's NFPA 5000 U.S. Dept. of Housing & Urban Development (HUD/FHA).

In Canada, Structurwood sheathing also meets comparable requirements (CSA O325) recognized by the National Building Code of Canada and accepted by the Canada Mortgage and Housing Corporation (CMHC).

Structurwood sheathing carries the trademark of an approved independent third party inspection agency verifying ongoing compliance with the provisions of the product standard and our internal quality system requirements.