Boulder County Purchasing
1325 Pearl Street
Boulder, CO 80302
purchasing@bouldercounty.org

REQUEST FOR PROPOSAL COVER PAGE

RFP Number:	**7425-23**
RFP Title:	**Willoughby Corner Building Materials Testing, Special Inspections and Environmental RFP**
RFP Questions Due:	February 22, 2023 – 2:00 p.m.
Submittal Due Date:	February 27, 2023 – 2:00 p.m.
Email Address:	purchasing@bouldercounty.org
Documents included in this package:	Proposal Instructions Terms and Conditions Specifications Insurance and W-9 Requirements Submittal Checklist Evaluation Criteria Sustainability Questionnaire Signature Page Sample Contract Schedules of Special Inspections

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PROPOSAL INSTRUCTIONS

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1. Purpose/Background

Boulder County Housing Authority (BCHA) is soliciting proposals for materials testing, special inspections, and environmental testing for the new construction Willoughby Corner project in Lafayette, CO. The project will consist of a total of 400 units of housing, two community buildings, a park, playground, public roads, alleys, sitework and infrastructure to be constructed throughout multiple phases (Phase 1A, 1B, 2, and 3). BCHA anticipates the construction of Willoughby Corner to begin Quarter 1 of 2023 and last approximately 12 months for Phase 1A and onto the end of 2026 for completion of Phase 3.

2. Written Inquiries

All inquiries regarding this RFP will be submitted via email to the Boulder County Purchasing Office at purchasing@bouldercounty.org on or before 2:00 p.m. Mountain Time on **February 22, 2023.** A response from the county to all inquiries will be posted and sent via email no later than **February 27, 2023.**

Do not contact any other county department or personnel with questions or for information regarding this solicitation.

3. Submittal Instructions

Submittals are due at the email box only, listed below, for time and date recording on or before **2:00 p.m. Mountain Time on March 6, 2023**. **Vendors must answer whether line-item pricing information submitted with a bid is confidential or closely held.**

Please note that email responses to this solicitation are limited to a maximum of 50MB capacity.

NO ZIP FILES OR LINKS TO EXTERNAL SITES WILL BE ACCEPTED. THIS INCLUDES GOOGLE DOCS AND SIMILAR SITES. ALL SUBMITTALS MUST BE RECEIVED AS AN ATTACHMENT (E.G. PDF, WORD, EXCEL).

Electronic Submittals must be received in the email box listed below. Submittals sent to any other box will NOT be forwarded or accepted. This email box is only accessed on the due date of your questions or proposals. Please use the Delivery Receipt option to verify receipt of your email. It is the sole responsibility of the proposer to ensure their documents are received before the deadline specified above. Boulder County does not accept responsibility under any circumstance for delayed or failed email or mailed submittals.

Email purchasing@bouldercounty.org**;** identified as **RFP # 7425-23** in the subject line.

All RFPs must be received, and time and date recorded by authorized county staff by the above due date and time. Sole responsibility rests with the proposer to see that their RFP response is received on time at the stated location(s). Any responses received after due date and time will be returned to the proposer.

The Board of County Commissioners reserves the right to reject any and all responses, to waive any informalities or irregularities therein, and to accept the proposal that, in the opinion of the Board, is in the best interest of the Board and of the County of Boulder, State of Colorado.

Contractors and their employees, subcontractors, and agents must comply with all federal, state, and local laws, regulations, ordinances, orders, and codes, as well as Boulder County policies, guidelines, and protocols.

Americans with Disabilities Act (ADA): Americans with Disabilities Act: If you need special services provided for under the Americans with Disabilities Act (ADA), please contact the Boulder County ADA Coordinator or Human Resources office at (303) 441-3525 as soon as possible to allow sufficient time for service delivery ahead of applicable due dates.

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TERMS AND CONDITIONS

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1. Proposers are expected to examine the drawing, specifications, schedule of delivery, and all instructions. Failure to do so will be at the proposer's risk.

2. Each proposer will furnish the information required in the Request for Proposals.

3. The Contract/Purchase Order will be awarded to that responsible proposer whose submittal, conforming to the Request for Proposals, will be most advantageous to the County of Boulder, price and other factors considered.

4. The County of Boulder reserves the right to reject any or all proposals and to waive informalities and minor irregularities in proposals received, and to accept any portion of or all items proposed if deemed in the best interest of the County of Boulder to do so.

5. No submittal will be withdrawn for a period of thirty (30) days subsequent to the opening of proposals without the consent of the County Purchasing Agent or delegated representative.

6. A signed purchase order or contract furnished to the successful proposer results in a binding contract without further action by either party.

7. Late or unsigned proposals will not be accepted or considered. It is the responsibility of proposers to ensure that the proposal arrives at the purchasing email address prior to the time indicated in the "Request for Proposals."

8. The proposed price will be exclusive of any Federal or State taxes from which the County of Boulder is exempt by law.

9. Any interpretation, correction or change of the RFP documents will be made by Addendum. Interpretations, corrections and changes of the RFP documents made in any other manner will not be binding, and proposer will not rely upon such interpretations, corrections and changes. The County's Representative will not be responsible for oral clarification.

10. Confidential/Proprietary Information: Bids submitted in response to this "Invitation to Bid" and any resulting contract are subject to the provisions of the Colorado Open Records Act, 24-72-201 et seq., C.R.S., as amended. Any restrictions on the use or inspection of material contained within the bid or resulting contract should be clearly stated in the bid and contract itself. Confidential/proprietary information should be readily identified, marked and/or separated from the rest of the bid. Co-mingling of confidential/proprietary and other information is NOT acceptable. Vendors must answer whether line-item pricing information submitted with a bid is confidential or closely held. Bids that do not identify confidential/proprietary information may be released in their entirety. Pricing totals contained in a bid are not considered confidential.

    The Boulder County Attorney's Office retains sole authority for determining whether the Colorado Open Records Act requires or permits Boulder County to disclose proposal or bid documents, or any information contained therein, pursuant to an open records request.

11. Boulder County promotes the purchase/leasing of energy efficient materials and products with low toxicity levels when availability, quality and budget constraints allow. Proposers are expected whenever possible to provide products that earn the ENERGY STAR and meet the ENERGY STAR specifications for energy efficiency with power management features enabled. Proposers are encouraged to offer products and equipment with post-consumer recycled-content materials. Products should be packaged and delivered with a minimum amount of recycled packaging that adequately protects the product but is not excessive.

12. Pursuant to Colorado law (House Bill 1292), in any bidding process for public works in which a bid is received from a non-resident bidder who is from a state that provides a percentage bidding preference, a comparable percentage disadvantage will be applied to the bid of that bidder. Bidders may obtain additional information from the Department of Personnel's website: http://www.colorado.gov/dpa/.

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SPECIFICATIONS

I. Scope of Work

Boulder County Housing Authority (BCHA) is soliciting proposals for materials testing, special inspections, and environmental testing as part of the construction of the Willoughby Corner affordable housing development in Lafayette, CO. The anticipated scope of services will include the following. Additional work related to special inspections may be necessary.

1. Phase 1A
    a. Senior Building. Please refer to Willoughby Corner Senior Building Sheet S-001 for full details on required inspections for the following:
        i. Soils and Foundations
        ii. Cast -in-place Concrete
        iii. Structural Steel
        iv. Wood Construction
        v. Wind Resistance Inspections
2. Phase 1B.
    a. Multi-Family 1. Please refer to Willoughby Corner MF-1 Sheet S-001 for full details on required inspections for the following:
        i. Soils and Foundations
        ii. Cast -in-place Concrete
        iii. Structural Steel
        iv. Wood Construction
        v. Wind Resistance Inspections
    b. Multi-Family 2. Please refer to Willoughby Corner MF-2 Sheet S-001 for full details on required inspections for the following:
        i. Soils and Foundations
        ii. Cast -in-place Concrete
        iii. Structural Steel
        iv. Wood Construction
        v. Wind Resistance Inspections
    c. Community Building 1. Please refer to Willoughby Corner CB-1 Sheet S-001 for full details on required inspections for the following:
        i. Soils and Foundations

ii. Cast -in-place Concrete
iii. Structural Steel
iv. Wood Construction
v. Wind Resistance Inspections

d. 9 Plex Flats. Please refer to Willoughby Corner Flats Sheet S-001 for full details on required inspections for the following:
i. Soils and Foundations
ii. Cast -in-place Concrete
iii. Structural Steel
iv. Wood Construction
v. Wind Resistance Inspections

3. Phase 2
   a. Rental Townhomes – BCHA will provide sheet to reference required special inspections when available.
   b. Community Building 2 - BCHA will provide sheet to reference required special inspections when available.
4. Phase 3
   a. For-Sale Homes - BCHA will provide sheet to reference required special inspections when available.
5. Radon testing for all 1A, 1B, 2, and 3 buildings.
   a. RFP applicants will propose quantities and placement and cost of short-term radon detectors for each building.
   b. Selected proposer will provide the placement, retrieval, laboratory analysis for the proposed number of short-term radon detectors.
   c. Radon testing will be performed in accordance with ANSI/AARST protocol for conducting radon and radon decay product measurements in multifamily buildings. (ANSI-AARST MAMF-2017), section 111.3.1., however the minimum number of apartments/units that will be tested are 100% of ground level units and 10% upper units which is in accordance with HUD guidelines. QA/QC samples (field blanks and duplicates) were also submitted in accordance with AARST guidelines.
6. Fire Sealants Inspections for all 1A, 1B, 2 and 3 buildings.

The project has an aggressive construction schedule with multiple buildings phases and construction of extensive public infrastructure. Responding firms must have the staff capacity and experience to meet the project schedule and scope in an efficient and responsive fashion.

II. Project Descriptions

Willoughby Corner is a multi-phase master-planned neighborhood of 400 proposed permanently affordable homes in a variety of building types, including duplexes, townhomes, apartments, and community amenity spaces on a 24-acre parcel located southwest of 120th Street and East Emma Street in Lafayette, CO. For more information on Willoughby Corner, see the project webpage: http://www.willoughbycorner.org/

Willoughby Corner Phases 1A, 1B, 2, and 3 Development Timeline

Final Plat	January 06, 2023
Phase 1A Building Permit	January 23, 2023
Phase 1A Financial Closing	February 1, 2023
Phase 1A Groundbreaking	February 15, 2023
Phase 1B Building Permits	April 20, 2023
Phase 1B Financial Closing	May 1, 2023
Phase 1B Groundbreaking	May 15, 2023
Phase 1A Construction Completion	March 2024 – August 2024
Phase 1A Initiation of Lease-up	April 2024
Phase 1B Construction Completion (subphases TBD)	July 2024
Phase 1B Initiation of Lease-up	August 2024
Phase 1A Permanent Conversion	January 2025
Phase 1B Permanent Conversion	April 2025
Phase 2 Building Permit	January 2025
Phase 2 Financial Closing	February 2025
Phase 2 Groundbreaking	February 2025
Phase 3 Building Permit	June 2024
Phase 3 Financial Closing	July 2024
Phase 3 Groundbreaking	July 2024
Phase 2 Construction Completion	February 2026
Phase 2 Initiation of Lease-Up	March 2026
Phase 3 Construction Completion	July 2025
Phase 3 Initiation of Sale	July 2025
Phase 2 Permanent Conversation	August 2026

III. Proposal Requirements

Include the following information in your proposal:

1. Name of company, firm, or organization
2. Type of organization (e.g., corporation, partnership, etc.)
3. Names and addressed of any Partners and Subcontractors (if applicable)
4. Contact information including key personnel, address, telephone, email, fax
5. Resumes of key personnel
6. Brief description of the company including number of years in business, number of staff, average annual closings, experience working with properties in Boulder, County, and any other relevant information.
7. Experience.
    a. Please provide a brief description of the firm including the firm's experience with Public Housing Authorities and providing construction materials testing services on similar projects.
    b. Please indicate the project manager who will be assigned to this project and include their relevant experience.
8. Fee Proposal.
    a. Please include a fee schedule based on firm's anticipated costs to complete the scope of work for all each Phase (1A,1B, 2 and 3) of Willoughby Corner. Please include an all-inclusive total cost and fee broken out by service and phases.

b. A listing of hourly fees for all members of the Firm's team, including any support personnel.

9. Information on the relevant experience of key personnel.
10. Submit three references for similar projects your company has completed withing the last three years and contact information.

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INSURANCE AND W-9 REQUIREMENTS

Insurance Requirements:

i. **Commercial General Liability**
This coverage should be provided on an Occurrence Form, ISO CG001 or equivalent, with Minimum limits of $1,000,000 Each Occurrence, $2,000,000 General Aggregate and $2,000,000 Products Completed Operations Aggregate.

ii. **Commercial Automobile Liability**
Bodily Injury and Property Damage for any owned, hired, and non-owned vehicles used in the performance of the Contract. Minimum limits $1,000,000 Each Accident.

iii. **Workers' Compensation and Employer's Liability**
Workers' Compensation must be maintained with the statutory limits. Employer's Liability is required for minimum limits of $100,000 Each Accident/$500,000 Disease-Policy Limit/$100,000 Disease-Each Employee.

iv. **Professional Liability (Errors and Omissions)**
Professional liability coverage with minimum limits of $1,000,000 Per Loss and $1,000,000 Aggregate. Professional Liability provisions indemnifying for loss and expense resulting from errors, omission, mistakes or malpractice is acceptable and may be written on a claims-made basis. The contractor warrants that any retroactive date under the policy shall precede the effective date of this Contract; and that either continuous coverage will be maintained or an extended discovery period will be exercised for a period of two (2) years beginning at the time work under this Contract is completed.

v. **Pollution Liability**
Coverage pay for those sums the Contractor becomes legally obligated to pay as damages because of Bodily Injury, Property Damage or environmental Damage arising out of a pollution incident caused by the Contractor's work including Completed Operations. Coverage shall include emergency response expenses, pollution liability during transportation (if applicable) and at Non-Owned Waste Disposal Site (if applicable). The Minimum limits required are $1,000,000 Per Occurrence/Loss and $1,000,000 Policy Aggregate. If the coverage is written on a claims-made basis, the Contractor warrants that any retroactive date applicable to coverage under the policy precedes the effective date of this Contract; and that continuous coverage will be maintained or an extended discovery period will be exercised for a period of three (3) years beginning from the time that work under this contract is completed. County shall be named as an additional insured for ongoing operations and completed operations.

b. Boulder County Housing Authority **and Boulder County** as Additional Insured: Boulder County Housing Authority and Boulder County shall be named as an additional insured for General Liability, Umbrella/Excess Liability, and Pollution Liability, as designated in this Contract. Additional insured shall be endorsed to the policy.

THE ADDITIONAL INSURED WORDING SHOULD BE AS FOLLOWS*: Housing Authority of the County of Boulder, Colorado, a public body, corporate and politic; County of Boulder, State of Colorado, a body corporate and politic; Willoughby Corner Seniors LLLP, a Colorado limited liability limited partnership, are named as Additional Insured.*

During Phase 1A, Boulder County Housing Authority, Willoughby Corner Seniors LLLP and Boulder County shall be named as an additional insured for General Liability, Umbrella/Excess Liability, and Pollution Liability, as designated in this Contract. Additional insured shall be endorsed to the policy. Contractor may be required to add additional parties as additional insured during Phase1B, Phase 2 and Phase3.

**Include those properties that are relevant to the contract. If it is possible that the contractor will do work at all sites, include all.*

In regards to General Liability, Umbrella/Excess Liability, and Pollution Liability: If any or all of these coverages are required above, additional insured status will be required prior to beginning any and all tasks or work.

W-9 REQUIREMENT

Provide a copy of your business's W-9 with your proposal.

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SUBMITTAL SECTION

The proposer's attention is especially called to the items listed below, which must be submitted in full as part of the PROPOSAL. Failure to submit any of the documents listed below as a part of your PROPOSAL, or failure to acknowledge any addendum in writing with your PROPOSAL, or submitting a proposal on any condition, limitation or provision not officially invited in this Request for Proposal (RFP) may be cause for rejection of the PROPOSAL.

THIS CHECKLIST MUST BE SUBMITTED AS PART OF YOUR PROPOSAL PACKAGE: Proposer will check each box indicating compliance:

INCLUDED	ITEM
	Complete proposal including the items outlined in Section III. Proposal Requirements
	State your compliance with the Terms and Conditions in the Sample Contract contained in this RFP. Specifically list any deviations and provide justification for each deviation.
	Submit three references for similar projects your company has completed within the last three years and contact information. Boulder County will review all contractor evaluation forms from previous County projects.
	Insurance Certificate
	W-9
	Sustainability Questionnaire
	Signature Page
	Addendum Acknowledgement(s) (If Applicable)

THIS QUESTION MUST BE ANSWERED AS PART OF YOUR BID PACKAGE: Proposer will answer Yes or No indicating compliance:

YES OR NO	ITEM
	Do you customarily keep line-item pricing information, such as the information being submitted with this proposal, confidential or closely-held?

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EVALUATION CRITERIA

MINIMUM MANDATORY QUALIFICATIONS

The selected firm must specialize in providing construction and building materials testing and inspections services and have met the following minimum qualifications:

- Active as a licensed testing and inspections company for at least three years.
- Possesses industry appropriate minimum insurance coverage.
- Demonstrates specific knowledge and experience with completing all construction and material testing and inspections required as specified on each building's drawing sheet S-001.
- Demonstrates capacity to complete work within specified timeline.

EVALUATION AND SELECTION

Complete proposals will be reviewed by a selection committee. The committee may request additional information from vendors or request interviews with one or more vendors. Final evaluation and selection may be based on, but not limited to, any or all of the following:

- Minimum mandatory qualifications noted above
- Total cost of providing this work and explanation of how fees are calculated for each building, phase and total project.
- Proposed timeline including estimate time to conduct required testing and inspections for each building and phase.
- Firm experience
- Reference checks
- Interview
- Other information presented in proposal
- Any other relevant and appropriate factors as determined by BCHA

A scoring matrix with the order and priority of criteria to be used by the county in its evaluation and selection process is shown below:

Description	**Points**
Complete Proposal	10
Total cost of proposed pricing	20
Proposed timeline	30
Experience with multi-family affordable housing	20
References	20
Total Possible	100

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SUSTAINABILITY QUESTIONNAIRE

Company Name: _____ Date: _____

This questionnaire is applicable to firms that provide services as well as those that provide goods. Please answer the questions to the best of your ability.

1. What sustainability certifications does your business have? Please check the items that apply:

- ☐ B-Corp
- ☐ Green Business Bureau
- ☐ Fair Trade USA
- ☐ Green C Certification
- ☐ None
- ☐ Other - describe any other certifications your company has related to sustainability.

  _____

  _____

2. Does your company have a sustainability vision/commitment/values statement or policy? Please check the items that apply:

- ☐ Our sustainability statement/policy describes our company's sustainability initiatives.
- ☐ We have formed an oversight committee to ensure the success of our sustainability policy.
- ☐ Our sustainability statement/policy describes how our company explores opportunities to work with communities, governments and non-governmental and professional organizations to help articulate, teach and advance the principles of sustainability.
- ☐ We are currently in the process of developing a sustainability statement/policy consistent with a commitment to promote environmental, economic, and social sustainability.
- ☐ None

☐ Other - Provide (or supply a link) your company's sustainability statement/policy.

_____

_____

_____

3. What policies are in place to monitor and manage your supply chain regarding sustainability issues? Please select all that apply:

☐ We apply sustainability criteria when making purchasing decisions.
☐ We partner with suppliers who share in our sustainability commitment and/or work with them to reduce the impact to the environment of our resource needs as well as improve worker conditions.
☐ We purchase "green" (i.e. recyclable, reusable, non-toxic, compostable, fair trade and made from 100% post-consumer recycled materials) supplies, products, and materials.
☐ We specify locally manufactured products in procuring goods.
☐ We specify products that use the Electronic Products Environmental Assessment Tool (EPEAT) standards in procuring goods.
☐ None.
☐ Other – describe other ways your company monitors and manages your supply chain concerning environmental issues.

_____

_____

_____

4. Does your company promote sustainable transportation in its operations? Please select all that apply:

☐ We own, rent, or lease electric fleet vehicles.
☐ We own, rent, or lease hybrid or natural gas fueled fleet vehicles.
☐ We encourage carpooling, public transportation, and using other alternative modes of transportation.
☐ We subsidize public transportation for employees.
☐ We have an established Green Transportation Plan
☐ We are developing a Green Transportation Plan
☐ We offer flexible hours, telecommuting, or a compressed work week.
☐ We utilize teleconference, video conference, WebEx or GoTo Meetings (or other similar conferencing services).
☐ None
☐ Other – describe other ways your company promotes sustainable transportation. If applicable, use this space to describe your company's Green Transportation Plan (whether existing or in development).

_____

_____

_____

5. What does your company do to minimize the environmental impacts associated with shipping? Please check the items that apply:

- ☐ We have established company policies and procedures that minimize the need for shipping in the first place
- ☐ We combine deliveries with customer visits.
- ☐ We consolidate deliveries.
- ☐ We use bike couriers for local delivery.
- ☐ We utilize electronic communications and electronic transfer of documents, such as e-mail, fax and Portable Document Format (PDF).
- ☐ We specify products that can be purchased locally within a 500-mile radius of the delivery location in procuring goods.
- ☐ We are currently evaluating what the company can do to minimize the environmental impacts associated with shipping (must describe below; no additional points awarded for providing this description).
- ☐ Our packaging/shipping materials are reusable.
- ☐ Our packaging/shipping materials are made from 100% post-consumer recycled materials.
- ☐ N/A
- ☐ Other – describe what your company does to minimize the environmental costs associated with shipping. If applicable, use this space to provide required description(s).

_____
_____
_____

6. Has your company ever been cited for non-compliance of any law, regulation, ordinance, code, rule, standard, or policy regarding an environmental or safety issue? Please check the item that applies:

- ☐ No, my company HAS NOT been cited for non-compliance regarding an environmental or safety issue.
- ☐ Yes, my company HAS been cited for non-compliance of an environmental or safety issue.
- ☐ N/A State the reason, date and outcome of the citation:

_____
_____
_____

7. What programs do you have, either in place or currently being planned, to promote resource efficiency? Examples include energy or waste audit programs. Please check the items that apply:

- ☐ We have an established zero waste program.
- ☐ We utilize a facilities energy management system.
- ☐ We have adopted a climate action plan.
- ☐ We have a water conservation program.

☐ We have formed a sustainability committee to identify sustainable solutions for our company.
☐ We are a member of various sustainability organizations.
☐ We are recognized by peers and environmental organizations for providing leadership in
Sustainability.
☐ None
☐ Other - what other programs do you have in place or planned for promoting resource.
Efficiency?

_____
_____
_____

8. If your business's proposal involves the provision of a product, does the manufacturer of the product, whether your business or an outside entity, have a sustainability policy statement? Please check the item that applies:

☐ No, the manufacturer of the product that I am proposing DOES NOT have a sustainability policy statement.
☐ Yes, the manufacturer of the product that I am proposing HAS a sustainability policy statement.
☐ Not applicable.

Provide Sustainability Policy Statement:

_____
_____
_____

9. If your business's proposal involves the provision of a product, has the manufacturer of the product, whether your business or an outside entity, ever been cited for non-compliance of any law, regulation, ordinance, code, rule, standard, or policy regarding an environmental or safety issue? Please check the item that applies:

☐ No, the manufacturer of the product that I am proposing HAS NOT been cited for noncompliance regarding an environmental or safety issue.
☐ Yes, the manufacturer of the product that I am proposing HAS been cited for noncompliance regarding an environmental or safety issue.
☐ Not applicable.

Provide reason, date and outcome of the citation:

_____
_____
_____

10. If your business's bid/proposal involves the provision of a product, has an environmental life-cycle analysis of the product that you are proposing been conducted by a certified testing

organization, such as Green Seal, Energy Star, and Cradle to Cradle? Please check the item that applies.

☐ No, an environmental life-cycle analysis of the product that I am bidding/proposing HAS NOT been conducted by a certified testing organization, such as Green Seal.

☐ Yes, an environmental life-cycle analysis of the product that I am bidding/proposing HAS been conducted by a certified testing organization, such as Green Seal.

☐ Not applicable.

Provide certification:

_____

_____

_____

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SIGNATURE PAGE

Contact Information	Response
Company Name including DBA	
List Type of Organization (Corporation, Partnership, etc.)	
Name, Title, and Email Address of Person Authorized to Contract with Boulder County	
Company Address	
Company Phone Number	
Company Website	

By signing below, I certify that:
I am authorized to bid on my company's behalf**.**
I am not currently an employee of Boulder County.
None of my employees or agents is currently an employee of Boulder County.
I am not related to any Boulder County employee or Elected Official.
(Sole Proprietorships Only) I am not a Public Employees' Retirement Association (PERA) retiree.

_____ _____

Signature of Person Authorized to Bid on Company's Behalf **Date**

Note: If you cannot certify the above statements, please explain in a statement of explanation**.**

BOULDER COUNTY SAMPLE CONTRACT

THIS CONTRACT ("Contract") is entered into by and between the Board of County Commissioners on behalf of the County of Boulder, State of Colorado, a body corporate and politic, for the benefit of the [Department] ("County") and [Supplier] ("Contractor"). County and Contractor are each a "Party," and collectively the "Parties."

In consideration of the mutual covenants contained in this Contract, the receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

1. Incorporation into Contract: The **Details Summary** is incorporated into this Contract. The **Contract Documents** are incorporated into this Contract by reference, except to the extent that the Proposal, if any is incorporated, contains any obligations placed upon County and not otherwise contained in this Contract.

2. Work to be Performed: Contractor will provide all labor and equipment and do all tasks necessary and incidental to performing the work as described in the **Details Summary** and **Contract Documents** (the "Work"). Contractor will perform the Work (a) in a good and workmanlike manner, (b) at its own cost and expense, (c) in accordance with recognized industry standards of care, skill and diligence for the type of work being performed, and (d) in strict accordance with the Contract.

3. Term of Contract: The **Contract Term** begins on the **Start Date** and expires on the **Expiration Date**, unless terminated sooner. All the Work must be performed during the **Contract Term**.

4. Payment for Work Performed: In consideration of the Work performed by Contractor, and subject to conditions contained in this Contract, County will pay an amount not to exceed the **Contract Amount** to Contractor in accordance with the **Contract Documents**.

5. Invoicing: Contractor will promptly provide a copy of its Form W-9 and invoice template to County upon request. Contractor must submit an invoice to the County by the fifteenth (15th) day of the month for completion of any Work performed in the prior calendar month. All invoices submitted require the following components: Contractor's name and address (submitted W-9 address must match remit address), detailed description of services, dates of services, itemization of labor and materials costs, "Bill to: Boulder County" language, payment remittance address, payer, name and address, date of invoice, unique invoice number, and total amount due. Contractor must send all completed invoices to the **Invoice Contact** in the **Details Summary**. County may require delivery of invoices by email. Failure to submit invoices in a timely manner and in accordance with the terms of this Contract may cause a delay in payment. County may recoup any damages incurred because of Contractor's failure to submit invoices pursuant to the terms of this paragraph. County's acceptance or payment of an invoice will not constitute acceptance of any Work performed under this Contract.

6. Extra Time to Complete the Work (Additional Time only): If Contractor cannot complete the Work by the **Expiration Date**, Contractor may request extra time to complete the Work. County, in its sole discretion, may grant Contractor additional time to complete the Work by sending a written notice of extension to Contractor. An extension of time to complete the Work does not entitle Contractor to additional compensation from County.

7. Extension of Contract Term (Additional Time and Work): Upon mutual agreement of the Parties, this Contract may be extended until the **Final End Date**. During any extended **Contract Term**, the terms of this Contract will remain in full force and effect, unless otherwise amended in writing by the Parties. Where the Contractor will provide additional services for additional compensation beyond the initial **Contract Amount**, the Parties must execute a written amendment before the then-current **Expiration Date**. If necessary, the written amendment will incorporate an updated Scope of Work and updated Fee Schedule as exhibits. Contractor must provide a current Certificate of Insurance to the County that complies with the **Insurance Requirements** of this Contract, if any, prior to any extended **Contract Term**.

8. Schedule of Work: County may designate the hours (on a daily or weekly basis) during which Contractor may perform the Work, strictly for the purposes of minimizing inconvenience to the County and interference with County operations. Contractor will otherwise set its own work schedule.

9. Indemnity: Contractor will be liable for any damages to persons or property caused by or arising out of the actions, obligations, or omissions of Contractor, its employees, agents, representatives or other persons acting under Contractor's direction or control in performing or failing to perform the Work under this Contract. Contractor will indemnify and hold harmless County, its elected officials and appointed department heads, and its employees, agents and representatives (the "indemnified parties"), from any and all liability, claims, demands, actions, damages, losses, judgments, costs or expenses, including attorneys' fees, which may be made or brought or which may result against any of the indemnified parties as a result or on account of the actions or omissions of Contractor, its employees, agents or representatives, or other persons acting under Contractor's direction or control. This indemnification obligation will extend to claims based on Contractor's unauthorized use or disclosure of confidential information and intellectual property infringement. County will not be obligated to indemnify or defend Contractor under any circumstances. Contractor's obligations under this provision shall survive expiration or termination of this Contract. Nothing contained in this Contract or the **Contract Documents** is intended to limit or restrict the indemnification rights or obligations of any Party under this provision, or damages available for breaches of the obligations herein.

10. Nondiscrimination: Contractor will comply with the Colorado Anti-Discrimination Act, C.R.S. § 24-34-401, et seq., as amended, and all applicable local, State and Federal laws concerning discrimination and unfair employment practices. County prohibits unlawful discrimination on the basis of race, color, religion, gender, gender identity, national origin, age 40 and over, disability, socio-economic status, sexual orientation, genetic information, or any other status protected by applicable Federal, State or local law. Contractor must require that its subcontractors, if any, similarly comply with all applicable laws concerning discrimination and unfair employment practices.

11. Information and Reports: Contractor will provide to authorized County, State, and Federal government representatives all information and reports that may be required for any purpose authorized by law. Contractor will permit access to such representatives to Contractor's facilities, books, records, accounts, and any other relevant sources of information. Where information required by a representative is in the exclusive possession of a person or entity other than Contractor, Contractor must so certify to the County and explain what efforts it has made to obtain the information.

12. **Independent Contractor: Contractor is an independent contractor for all purposes in performing the Work. None of Contractor, its agents, personnel or subcontractors are employees of the County for any purpose, including the Federal Insurance Contribution Act, the Social Security Act, the Federal Unemployment Tax Act, the provisions of the Internal Revenue Code, the Colorado Workers' Compensation Act, the Colorado Unemployment Insurance Act, and the Public Employees Retirement Association. Accordingly, County will not withhold or pay any income tax, payroll tax, or retirement contribution of any kind on behalf of Contractor or Contractor's employees. As an independent contractor, Contractor is responsible for employing and directing such personnel and agents as it requires to perform the Work. Contractor will exercise complete authority over its personnel and agents and will be fully responsible for their actions.**

13. Termination

a. Breach: Either Party's failure to perform any of its material obligations under this Contract, in whole or in part or in a timely or satisfactory manner, will be a breach. The institution of proceedings under any bankruptcy, insolvency, reorganization or similar law, by or against Contractor, or the appointment of a receiver or similar officer for Contractor or any of its property, which is not vacated or fully stayed within thirty (30) days after the institution of such proceeding, will also constitute a breach. In the event of a breach, the non-breaching Party may provide written notice of the breach to the other Party. If the breaching Party does not cure the breach, at its sole expense, as reasonably determined by the non-breaching Party in its sole discretion, within thirty (30) days after delivery of notice, the non-breaching Party may exercise any of its remedies provided under this Contract or at law, including immediate termination of this Contract.

b. Non-Appropriation: The other provisions of this Contract notwithstanding, County is prohibited by law from making commitments beyond the current fiscal year. Payment to Contractor beyond the current fiscal year is contingent on the appropriation and continuing availability of funding in any subsequent year. County has reason to

believe that sufficient funds will be available for the full **Contract Term**. Where, however, funds are not allocated for any fiscal period beyond the current fiscal year, County may terminate this Contract without penalty by providing seven (7) days' written notice to Contractor.

c. Convenience: In addition to any other right to terminate under this Section 13, County may terminate this Contract, in whole or in part, for any or no reason, upon seven (7) days' advance written notice to Contractor.

14. Contractor Obligations upon Termination or Expiration: By the **Expiration Date** or effective date of termination, if earlier, Contractor must (1) remove from County property all of its personnel, equipment, supplies, trash and any hazards created by Contractor, (2) protect any serviceable materials belonging to the County, and (3) take any other action necessary to leave a safe and healthful worksite. Any items remaining on County property after the Expiration Date or the effective date of termination, if earlier, will be deemed abandoned by Contractor.

15. Payable Costs in Event of Early Termination: If County terminates this Contract before the **Expiration Date**, Contractor's payments (and any damages associated with any lawsuit brought by Contractor) are limited to only (1) payment for Work satisfactorily executed and fully and finally completed, as determined by County in its sole discretion, prior to delivery of the notice to terminate, and (2) the reasonable and actual costs Contractor incurred in connection with performing the Work prior to delivery of the notice to terminate. Contractor explicitly waives all claims it may have against the County for any other compensation, such as anticipatory profits or any other consequential, special, incidental, punitive or indirect damages.

16. Remedies for Non-Performance: If Contractor fails to perform any of its obligations under this Contract, County may, at its sole discretion, exercise one or more of the following remedies (in addition to any other remedies provided by law or in this Contract), which shall survive expiration or termination of this Contract:

a. Suspend Performance: County may require that Contractor suspend performance of all or any portion of the Work pending necessary corrective action specified by the County and without entitling Contractor to an increase in compensation or extension of the performance schedule. Contractor must promptly stop performance and incurring costs upon delivery of a notice of suspension by the County.

b. Withhold Payment Pending Corrections: County may permit Contractor to correct any rejected Work at the County's discretion. Upon County's request, Contractor must correct rejected work at Contractor's sole expense within the time frame established by the County. Upon full and final completion of the corrections satisfactory to the County, County will remit payment to Contractor.

c. Deny Payment: County may deny payment for any Work that does not comply with the requirements of the Contract or that Contractor otherwise fails to provide or fully and finally complete, as determined by the County in its sole discretion. Upon County request, Contractor will promptly refund any amounts prepaid by the County with respect to such non-compliant Work.

d. Removal: Upon County 's request, Contractor will remove any of its employees or agents from performance of the Work, if County, in its sole discretion, deems any such person to be incompetent, careless, unsuitable, or otherwise unacceptable.

17. Binding Arbitration Prohibited: County does not agree to binding arbitration by any extra-judicial body or person.

18. Conflicts of Interest: Contractor may not engage in any business or personal activities or practices or maintain any relationships that conflict in any way with the full performance of Contractor's obligations.

19. Notices: All notices provided under this Contract must be in writing and sent by Certified U.S. Mail (Return Receipt Requested), electronic mail, or hand-delivery to the other Party's **Contact** at the address specified in the **Details Summary**. For certified mailings, notice periods will begin to run on the day after the postmarked date of mailing. For electronic mail or hand-delivery, notice periods will begin to run on the date of delivery.

20. Statutory Requirements: This Contract is subject to all statutory requirements that are or may become applicable to counties or political subdivisions of the State of Colorado generally, including but not limited to: C.R.S. §

38-26-107, which requires withholding funds where the County receives a claim for payment from a supplier or subcontractor of Contractor upon notice of final settlement (required for public works contracts that exceed $150,000); C.R.S. § 8-17-101 et seq.; C.R.S. § 18-8-301, et seq.; and C.R.S. § 18-8-401, et seq.

21. No Suspension or Debarment: Contractor certifies, and warrants for the Contract Term, that neither it nor its principals nor any of its subcontractors are debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this Contract by any Federal or State department or agency. Contractor shall comply, and shall require its subcontractors to comply, with subpart C of 2 C.F.R. § 180.

22. Entire Agreement/Binding Effect/Amendments: This Contract represents the complete agreement between the Parties and is fully binding upon them and their successors, heirs, and assigns, if any. This Contract terminates any prior agreements, whether written or oral in whole or in part, between the Parties relating to the Work. This Contract may be amended only by a written agreement signed by both Parties.

23. Assignment/Subcontractors: This Contract may not be assigned or subcontracted by Contractor without the prior written consent of the County. If Contractor subcontracts any of its obligations under this Contract, Contractor will remain liable to the County for those obligations and will also be responsible for subcontractor's performance under, and compliance with, this Contract.

24. Governing Law/Venue: The laws of the State of Colorado govern the construction, interpretation, performance, and enforcement of this Contract. Any claim relating to this Contract or breach thereof may only be brought exclusively in the Courts of the 20th Judicial District of the State of Colorado and the applicable Colorado Appellate Courts.

25. Breach: The failure of either Party to exercise any of its rights under this Contract will not be deemed to be a waiver of such rights or a waiver of any breach of the Contract. All remedies available to a Party in this Contract are cumulative and in addition to every other remedy provided by law.

26. Severability: If any provision of this Contract becomes inoperable for any reason but the fundamental terms and conditions continue to be legal and enforceable, then the remainder of the Contract will continue to be operative and binding on the Parties.

27. Third-Party Beneficiary: Enforcement of the terms and conditions and all rights and obligations of this Contract are reserved to the Parties. Any other person receiving services or benefits under this Contract is an incidental beneficiary only and has no rights under this Contract. Notwithstanding, where the beneficiary **Department** is led by an Elected Official, such Elected Official shall be considered a third-party beneficiary.

28. Colorado Open Records Act: County may disclose any records that are subject to public release under the Colorado Open Records Act, C.R.S. § 24-72-200.1, et seq.

29. Conflict of Provisions: If there is any conflict between the terms of the main body of this Contract and the terms of any of the **Contract Documents**, the terms of the main body of the Contract will control.

30. Governmental Immunity: Nothing in this Contract shall be construed in any way to be a waiver of the County's immunity protection under the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, et seq., as amended.

31. Representations and Warranties: Contractor represents and warrants the following:

a. Execution of this Contract and performance thereof is within Contractor's duly authorized powers;

b. The individual executing this Contract is authorized to do so by Contractor;

c. Contractor is authorized to do business in the State of Colorado and is properly licensed by all necessary governmental and public and quasi-public authorities having jurisdiction over the Work and the Contractor; and

d. Contractor and its subcontractors, if any, are financially solvent, able to pay all debts as they mature, and have sufficient working capital to complete the Work and perform all obligations under the Contract.

32. Legal Compliance: Contractor assumes full responsibility for obtaining and maintaining any permits and licenses required to perform the Work. Contractor is solely responsible for ensuring that its performance under this Contract and the Work itself will comply with all Federal, State, and local laws, regulations, ordinances and codes.

County approval of the Work or any aspect of Contractor's performance, such as plans, designs, or other Contractor-drafted documents, shall not be interpreted to mean that Contractor has satisfied its obligations under this Section.

33. Litigation Reporting: Contractor is not currently involved in any action before a court or other administrative decision-making body that could affect Contractor's ability to perform the Work. Contractor will promptly notify the County if Contractor is served with a pleading or other document in connection with any such action.

34. Tax Exemption: County is exempt from payment of Federal, State, and local government taxes. Contractor shall collect no tax from the County, and the County shall not be liable to pay any taxes imposed on Contractor. County shall provide its tax exemption status information to Contractor upon request.

35. Delegation of Authority: The Parties acknowledge that the Board of County Commissioners has delegated authority to the Department Head or Elected Official that leads the beneficiary **Department** and their designees to act on behalf of the County under the terms of this Contract, including but not limited to the authority to terminate this Contract.

36. Ownership of Work Product: All work product, property, data, documentation, information or materials conceived, discovered, developed or created by Contractor pursuant to this Contract ("Work Product") will be owned exclusively by the County. To the extent possible, any Work Product will be deemed to be a work made for hire. Contractor unconditionally and irrevocably transfers and assigns to the County all right, title and interest in and to any Work Product.

37. Publicity Releases: Contractor will not refer to this Contract or the County in commercial advertising without prior written consent of the County. This provision shall survive expiration or termination of this Contract.

38. Execution by Counterparts; Electronic Signatures: This Contract may be executed in multiple counterparts, each of which will be deemed an original, but all of which will constitute one agreement. The Parties approve the use of electronic signatures, governed by the Uniform Electronic Transactions Act, C.R.S. §§ 24 71.3 101 to 121. The Parties will not deny the legal effect or enforceability of this Contract solely because it is in electronic form or because an electronic record was used in its creation. The Parties will not object to the admissibility of this Contract in the form of electronic record, or paper copy of an electronic document, or paper copy of a document bearing an electronic signature, because it is not in its original form or is not an original.

39. Limitation on Public Statements and Lobbying Activity. During the term of this Contract, Contractor may receive from the County its confidential data, work product, or other privileged or confidential information that is protected by law. To maintain the fact and appearance of absolute objectivity, Contractor shall not, without the prior written consent of the County, which shall not be unreasonably withheld, do any of the following: (a) disclose information obtained because of this contractual relationship to any third party; (b) lobby any State or Federal agency on any pending matter while this Contract is effective; or (c) make any public statements or appear at any time to give testimony at any public meeting on the subject matters regarding which Contractor is or was retained by the County. County may set reasonable conditions on any disclosure authorized by the County under this provision. Notwithstanding, Contractor may make disclosures as required by law, and to law enforcement officials in connection with any criminal justice investigation.

40. Sustainability: County encourages Contractor to consider the procurement and use of environmentally preferable products and services while performing services under this Contract. "Environmentally preferable purchasing" means making purchasing choices for products and services that have a lesser or reduced adverse effect on human health and the environment when compared with competing products and services that serve the same purpose. Environmentally preferable purchasing is consistent with the County's commitment to protecting our air, water, soil, and climate for current and future generations. County encourages Contractor to incorporate the following actions into Contractor's performance of the Work: environmentally preferable supplies and services; conservation of water; efficient energy use; waste prevention; reuse and recycle construction and de-construction materials in a manner that maximizes reuse of materials; sustainable transportation choices, including consideration to business communication software such as Skype alternative to air travel and public transit or carpooling for in-person meetings; pollution prevention; low toxicity for public health & safety; and reduced emissions to address climate change.

41. Limitation of Liability: COUNTY SHALL NOT BE LIABLE TO CONTRACTOR FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, PUNITIVE, OR INDIRECT DAMAGES ARISING FROM OR RELATING TO THIS CONTRACT, REGARDLESS OF ANY NOTICE OF THE POSSIBILITY OF SUCH DAMAGES. COUNTY'S AGGREGATE LIABILITY, IF ANY, ARISING FROM OR RELATED TO THIS CONTRACT, WHETHER IN CONTRACT, OR IN TORT, OR OTHERWISE, IS LIMITED TO, AND SHALL NOT EXCEED, THE AMOUNTS PAID OR PAYABLE HEREUNDER BY COUNTY TO CONTRACTOR. ANY CONTRACTUAL LANGUAGE LIMITING CONTRACTOR'S LIABILITY SHALL BE VOID.

42. Legal Interpretation. Each Party recognizes that this Contract is legally binding and acknowledges that it has had the opportunity to consult with legal counsel of its choice about this Contract. The rule of construction providing that any ambiguities are resolved against the drafting Party will not apply in interpreting the terms of this Contract.

43. Insurance: Prior to commencing the Work, Contractor will provide a Certificate of Insurance to the County demonstrating adequate insurance coverage as required by this Section. All policies evidencing coverage required by the Contract will be issued by insurance companies satisfactory to the County. Contractor will forward Certificates of Insurance directly to the **County Department** and **Contact** listed in the **Details Summary**.

a. Boulder County as Additional Insured: Boulder County shall be named as an additional insured for General Liability, Umbrella/Excess Liability, and Pollution Liability, as designated in this Contract. Additional insured shall be endorsed to the policy.

THE ADDITIONAL INSURED WORDING SHOULD BE AS FOLLOWS*: County of Boulder, State of Colorado, a body corporate and politic, is named as Additional Insured*.

b. Notice of Cancellation: Each insurance policy required by this Contract shall provide the required coverage and shall not be suspended, voided or canceled except after thirty (30) days' prior written notice has been given to the County except when cancellation is for non-payment of premium, then ten (10) days' prior notice may be given. If any insurance company refuses to provide the required notice, Contractor or its insurance broker shall notify the County any cancellation, suspension, or nonrenewal of any insurance policy within seven (7) days of receipt of insurers' notification to that effect.

c. Insurance Obligations of County: County is not required to maintain or procure any insurance coverage beyond the coverage maintained by the County in its standard course of business. Any insurance obligations placed on the County in any of the **Contract Documents** shall be null and void.

d. Deductible: Any and all deductibles contained in any insurance policy shall be assumed by and at the sole risk of Contractor.

e. Primacy of Coverage: Coverage required of Contractor and its subcontractors, if any, shall be primary over any insurance or self-insurance program carried by the County.

f. Subrogation Waiver: All insurance policies in any way related to this Contract secured or maintained by Contractor as required herein shall include clauses stating that each carrier shall waive all rights of recovery, under subrogation or otherwise, against County, its organizations, officers, agents, employees, and volunteers.

g. Requirements: For the entire duration of this Contract including any extended or renewed terms, and longer as may be required by this Contract, Contractor shall procure and maintain at its own expense, and without cost to the County, the following kinds and minimum amounts of insurance to insure the liability risks that Contractor has assumed under this Contract:

i. **Commercial General Liability**
This coverage should be provided on an Occurrence Form, ISO CG001 or equivalent, with Minimum limits of $1,000,000 Each Occurrence, $2,000,000 General Aggregate and $2,000,000 Products Completed Operations Aggregate.

ii. **Commercial Automobile Liability**
Bodily Injury and Property Damage for any owned, hired, and non-owned vehicles used in the performance of the Contract. Minimum limits $1,000,000 Each Accident.

iii. **Workers' Compensation and Employer's Liability**
Workers' Compensation must be maintained with the statutory limits. Employer's Liability is required for minimum limits of $100,000 Each Accident/$500,000 Disease-Policy Limit/$100,000 Disease-Each Employee.

iv. **Professional Liability (Errors and Omissions)**
Professional liability coverage with minimum limits of $1,000,000 Per Loss and $1,000,000 Aggregate. Professional Liability provisions indemnifying for loss and expense resulting from errors, omission, mistakes or malpractice is acceptable and may be written on a claims-made basis. The contractor warrants that any retroactive date under the policy shall precede the effective date of this Contract; and that either continuous coverage will be maintained or an extended discovery period will be exercised for a period of two (2) years beginning at the time work under this Contract is completed.

v. **Pollution Liability**
Coverage pay for those sums the Contractor becomes legally obligated to pay as damages because of Bodily Injury, Property Damage or environmental Damage arising out of a pollution incident caused by the Contractor's work including Completed Operations. Coverage shall include emergency response expenses, pollution liability during transportation (if applicable) and at Non-Owned Waste Disposal Site (if applicable). The Minimum limits required are $1,000,000 Per Occurrence/Loss and $1,000,000 Policy Aggregate. If the coverage is written on a claims-made basis, the Contractor warrants that any retroactive date applicable to coverage under the policy precedes the effective date of this Contract; and that continuous coverage will be maintained or an extended discovery period will be exercised for a period of three (3) years beginning from the time that work under this contract is completed. County shall be named as an additional insured for ongoing operations and completed operations.

[Signature Page to Follow]

IN WITNESS WHEREOF, the Parties have executed and entered into this Contract as of the latter day and year indicated below.

SIGNED for and on behalf of Boulder County		**SIGNED for and on behalf of Contractor**
Signature:		Signature:
Name:		Name:
Title:		Title:
Date:		Date:
↓↓*For Board-signed documents only*↓↓		
Attest:	*Initials*	
Attestor Name:		
Attestor Title:		

SPECIAL INSPECTION GENERAL NOTES

1. A statement of special inspections for structural items has been prepared by HCDA Engineering, Inc. for submittal to the Building Official. This is submitted as a condition for permit issuance in accordance with the Structural Testing and Special Inspection requirements of the International Building Code, 2015 edition.
2. The Structural Engineer will perform periodic observations of construction. These observations shall not replace required inspections by the Building Official. These observations also do not serve as "Special Inspections" as required by section 1704 of the International Building Code.
3. Steel Fabricators shall be approved in accordance with IBC section 1704.2.5.1 of the International Building Code, 2015 Edition, or are required to have shop inspections of the fabricated items for the project by the special inspector hired by the Owner as required by section 1704.2.5.
4. Special Inspectors (not third party inspectors) shall be approved individually by the Building Official prior to the issuance of a permit. Please provide the list of specific special inspectors to determine if they have already been approved. Each Special Inspector not already approved by the Building Official must provide a resume and all supporting information related to their qualifications for the specific type of special inspections in accordance with IBC 1704.2.1.

Statement of Special Inspections

Project: Willoughby Corner

Location: N. 120th St, and E. Emma St., Lafayette, Colorado 80026

Owner: Boulder County Housing Authority

This Statement of Special Inspections is submitted as a condition for permit issuance in accordance with the Structural Testing and Special Inspection requirements of the Building Code. It includes a schedule of Special Inspection services applicable to this project. This Statement of Special Inspections encompasses the Structural components of the building.

The Special Inspection Coordinator, Special Inspector and Testing Agency shall be approved by the owner and qualified to perform the services indicated. The Special Inspection Coordinator shall keep records of all inspections and shall furnish interim inspection reports to the Building Official (if requested) and the Project Structural Engineer. Discovered discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Project Structural Engineer. The Special Inspection program does not relieve the Contractor of their responsibilities.

A Final Report of Special Inspections documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy.

Job site safety and means and methods of construction are solely the responsibility of the contractor.

Interim Report Frequency: Weekly or as warranted based on construction performed.

Soils and Foundations

C = Continuous P = Periodic

Item	Scope	Frequency C	Frequency P
1. Shallow Foundations	*Inspect materials below shallow foundations to verify they are adequate to achieve the design bearing capacity.*		X
2. Controlled Structural Fill	*Perform classification and testing of compacted fill material* *Inspect use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.* *Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.*	X	X X
3. Excavations	*Verify excavations are extended to proper depth and have reached proper material.*		X

Cast-in-Place Concrete

C = Continuous P = Periodic

Item	Scope	Frequency C	Frequency P
1. Mix Design	*Review concrete batch tickets and verify compliance with approved mix design. Verify that water added at the site does not exceed that allowed by the mix design.*		X
2. Reinforcement Installation	*Inspect size, spacing, cover, positioning and grade of reinforcing steel. Verify that reinforcing bars are free of form oil or other deleterious materials. Inspect bar laps and mechanical splices. Verify that bars are adequately tied and supported on chairs or bolsters.*		X
3. Welding of Reinforcing	*Visually inspect all reinforcing steel welds. Verify weldability of reinforcing steel. Inspect preheating of steel when required.* *Welds > 5/16"*	 X	X
4. Cast in Anchors	*Inspect size, positioning and embedment of anchor rods and embedded plates, inspect concrete placement and consolidation around anchors.*		X
5. Concrete Placement	*Inspect placement of concrete. Verify proper application techniques; concrete conveyance and depositing avoids segregation or contamination. Verify that concrete is properly consolidated.*	X	
6. Sampling and Testing	*Test concrete compressive strength (ASTM C13 & C39), slump (ASTM C143), air-content (ASTM C231 or C173) and temperature (ASTM C1064). Fabricate specimens for strength tests.*	X	
7. Curing and Protection	*Inspect curing, cold weather protection and hot weather protection procedures. Verify maintenance of specified curing temperature and techniques.*		X
8. Post-installed Anchors	*Inspect adhesive anchors installed horizontally or upwardly for anchor size, embedment, and installation technique.* *Inspect mechanical anchors for size and embedment.*	X	 X
9. Formwork	*Inspect formwork for shape, location and dimensions of the concrete member being formed.*		X

Structural Steel

C = Continuous P = Periodic

Item	Scope	Frequency C	Frequency P
1. Fabricator Certification / Quality Control Procedures ☐ Fabricator Exempt	*Review shop fabrication and quality control procedures.* *To be paid by Fabricator if plant not certified.*		X
2. Material Certification	*Review certified mill test reports and identification markings on wide-flange shapes, high-strength bolts, nuts and welding electrodes.*		X
3. Open Web Steel Joists	*Inspect installation, field welding and bridging of joists.*		X
4. Bolting	*Inspect installation and tightening of high-strength bolts. Verify that splines have separated from tension control bolts.*		X
5. Welding - Single pass fillet welds ≤ 5/16" Single pass fillet welds > 5/16" Multi pass fillet welds Partial & Complete pen welds	*Visually inspect welds. Verify size and length of fillet welds.* *Visually inspect all welds. Inspect pre-heat, post-heat and surface preparation between passes. Verify size and length of fillet welds. Ultrasonic testing of all full-penetration welds.*	 X	X
6. Shear Connectors	*Inspect size, number, positioning and welding of shear connectors. Inspect studs for full 360 degree flash. Ring test all shear connectors with a 3 lb hammer. Bend test all questionable studs to 15 degrees.*		X
7. Structural Details	*Inspect steel frame for compliance with structural drawings, including bracing, member configuration and connection details.*		X
8. Metal Deck	*Inspect welding and side-lap fastening of metal roof and floor deck.*		X
9. Quality Assurance	*In addition to items listed above, inspection of structural steel shall be in accordance with requirements indicated in Chapter N of the AISC 360.*		X

Wood Construction

C = Continuous P = Periodic

Item	Scope	Frequency C	Frequency P
1. Fabricator Certification / Quality Control Procedures ☐ Fabricator Exempt	*Inspect shop fabrication and quality control procedures for wood truss plant.*		X
2. Material Grading	*Verify compliance with construction documents and specifications.*		X
3. Connections	*Verify compliance with construction documents and specifications.*		X
4. Framing and Details	*Verify compliance with construction documents and specifications.*		X
5. Diaphragms and Shearwalls	*Inspect size, configuration, blocking and fastening of shearwalls and diaphragms. Verify panel grade and thickness.*		X
6. Prefabricated Wood Trusses	*Inspect the fabrication of wood trusses.*		X
7. Permanent Truss Bracing	*Verify compliance with construction documents and specifications.*		X

Wind Resistance Inspections

C = Continuous P = Periodic

Item	Scope	Frequency C	Frequency P
1. Structural Wood	*Inspect field gluing operations of elements of the main wind force-resisting system.* *Inspect nailing, bolting, anchoring and other fastening of elements of the main wind force-resisting system, including wood shear walls, wood diaphragms, drag struts, braces, and hold-downs. (Inspections of diaphragms where fastener spacing is more than 4'o.c. not required)*	X	 X
2. Cold-formed steel Light-Framed Construction	*Inspect welding operations of the main wind force-resisting systems.* *Inspect screw attachments, bolting, anchoring and other fastening of elements of the main wind force-resisting system, including shear walls, braces, diaphragms, collectors (drag struts) and hold-downs. Inspections not required where:* *a. Shear panels and diaphragm fastener spacing is more than 4" o.c. and structural panel provided on only one side of shear wall.* *b. Sheathing is gypsum board or fiberboard.*		X X
3. Wind Resistance Components	*Special inspection for fastening of the following systems and components:* *a. Roof covering, roof deck and roof framing connections.* *b. Exterior wall coverings and wall connections to roof and floor diaphragms and framing.*		X

GENERAL NOTES

1. Materials and workmanship shall be in accordance with the requirements of "The International Building Code", 2015 Edition.
2. Contractor shall check and verify all dimensions shown on structural drawings with those shown on architectural.
3. Contractor shall notify Architect of any discrepancies between architectural and structural drawings and receive written clarification of discrepancies before proceeding with construction.
4. Special inspections shall be performed in accordance with I.B.C. Section 1704 when such inspections are required by the Building Official. Contractor shall coordinate the work schedule with the special inspectors who are selected and paid by the Owner.
5. During construction, the contractor shall be responsible for temporary bracing and shoring to withstand all loads to which the structure may be subjected, including lateral loads, stockpiles of materials and equipment. Temporary bracing shall remain in place until all structural framing and diaphragms are in place with connections completed.
6. Where the Structural Drawings appear to conflict with OSHA requirements, the Structural Drawings represent final conditions only; the contractor shall add all erection framing, bolts, stabilizer plates, etc. as may be necessary to comply with OSHA.
7. Deferred submittals shall be designed by an engineer licensed by the State of Colorado. All submittals shall be reviewed and noted "No Exceptions Taken" by Engineer of Record prior to final submission to the Building Department.

FOUNDATION GENERAL NOTES

1. Recommendations for foundation type and design criteria, including bearing pressures, were provided by " _____ (Title of Geotechnical Report and Report Number)", dated _____ by _____ (Geotechnical Engineer), a separate consultant to the Owner.
2. Maximum bearing pressure used in footing design: _____ psf.
3. Minimum bearing pressure used in footing design (dead load only): _____ psf.
4. Reference geotechnical report for required soil conditions at footing bearing.
5. The geotechnical engineer shall perform open excavation inspection prior to placing foundations to ensure bearing capacity is satisfactory.
6. In case conditions found at the site vary from those indicated on the drawings, the Architect is to be notified so that adjustments to the foundation can be made to meet actual field conditions.
7. All footings shall be the exact size shown on the drawings; no larger, no smaller.
8. No footings or foundation wall shall be placed without adequate notification to allow Engineer to observe reinforcing if they deem necessary.
9. No concrete shall be placed in excavation containing water or on frozen ground.
10. 10a. Backfill shall be placed against both sides of walls simultaneously.
    10b. Backfill shall be placed against both sides of walls simultaneously. Walls having backfill on one side only shall not have backfill placed against them until the basement concrete slab and first floor concrete slab are in place.
    10c. Backfill shall be placed against both sides of walls simultaneously. Walls having backfill on one side only shall not have backfill placed until after both the first floor _____ (Type of Diaphragm) and the basement (lower level) slab are in place.

CONCRETE GENERAL NOTES

1. Material and workmanship shall be in accordance with the requirements of "Building Code Requirements for Structural Concrete" (ACI 318-14).
2. Concrete mixes shall conform to the following:

   Mix "A" - For Footings and Foundation Elements

Minimum 28 day compressive strength	4,500 psi
Maximum Aggregate Size	3/4 inch
Entrained Air Content	6% ± 1 1/2%
Slump	4" max.

   Fly ash may be substituted in specified amounts this mix.

   Mix "B" - For Slab-on-Grade (Interior)

Minimum 28 day compressive strength	4,000 psi
Maximum Aggregate Size	3/4 inch
Entrapped Air Content	3% max.
Water Reducing Admixture per manufacturer recommendations	
Slump	4" max.

   Fly ash may be substituted in specified amounts this mix. Minimum of 540lbs of cementitious material per cubic yard

Water / Cement ratio	0.42 max.

   Mix "C" - For Site Concrete

Minimum 28 day compressive strength	4,000 psi
Maximum Aggregate Size	3/4 inch
Entrained Air Content	6% ± 1 1/2%
Water Reducing Admixture per manufacturer recommendations	
Slump	4" max.
Water / Cement ratio	0.45 max.

3. All cement used in concrete shall be Type I/II.
4. All concrete shall have a minimum cementitious materials content of 470 lbs. per cubic yard unless otherwise specified.
5. Calcium Chloride shall not be added to concrete.
6. Reinforcing bars shall conform to ASTM A-615, Grade 60 or ASTM A-706.
7. Bar supports details and placing drawings shall be in accordance with the "Manual of Standard Practice for Detailing Reinforced Concrete Structures" (ACI 315, latest edition).
8. Fly ash may be added for up to 20% of cementitious materials by weight where indicated in the mix design.
9. Where welded reinforcement or deformed bar anchors are indicated on the drawings, steel specifications and welding shall conform to "Structural Welding Code - Reinforcing Steel". AWS D1.4 latest edition of The American Welding Society. Use ASTM A-706 where reinforcement is welded.
10. Provide bar supports and spacers to place all bars in proper location, and wire adequately at intersections to hold bars firmly in position while concrete is placed. Vertical dowels shall be supported in place prior to placing concrete.
11. Bar supports and spacers which rest on or against exposed surface shall be hot dipped galvanized or plastic coated.
12. Continuous bars shall lap and dowels shall project adequately to provide a Class B splice but not less than 12" unless shown otherwise on drawings. Do not splice near maximum stress locations.
13. See architectural, mechanical and electrical drawings for additional openings, depressions, curbs, floor finishes, inserts and other embedded items.
14. Welded wire fabric shall conform to ASTM A-185 and shall lap a minimum of one full mesh plus 2" at side and end laps and shall be securely wired together, unless otherwise shown.
15. Stagger lap splices of horizontal bars in concrete walls.
16. Reinforcing bar sizes shown are English designation. The bars may be furnished with the equivalent metric markings:

English	#3	#4	#5	#6	#7	#8	#9	#10	#11
Metric	#10	#13	#16	#19	#22	#25	#29	#32	#36

TYPICAL MINIMUM REINFORCING BAR LAP LENGTHS

- *fc in inches.*
- *Use for normal weight concrete fc = 4500 psi, unless noted otherwise.*

BAR SIZE	#3	#4	#5	#6	#7	#8	#9	#10	#11
TOP BARS	24	32	39	46	67	77	86	97	107
OTHER BARS	18	24	30	35	51	59	66	74	82

- *"Top Bars" are any horizontal reinforcing bars so placed that more than 12" of fresh concrete is cast in the member below the splice.*

MASONRY GENERAL NOTES

1. Grout shall be proportioned by volume and shall have sufficient water added to produce consistency for pouring without segregation.
   a. Fine grout shall be composed of one part portland cement, to which may be added not more than one-tenth part hydrated lime or lime putty, and two and one fourth to three parts sand.
   b. Coarse grout shall be composed of one part portland cement, to which may be added not more than one-tenth part hydrated lime or lime putty, and two to three parts sand, and not more than two parts gravel.
   c. Transit-Mixed Grout for masonry:
      Minimum 28-day compressive strength : 2000 psi
      Aggregate size: 3/8 inch maximum
      Slump: 7 inch minimum, 10 inch maximum

   Coarse grout may be used in grout spaces in brick masonry 2 inches or more in horizontal dimension, and in grout spaces in filled-cell construction 3 inches or more in both horizontal dimensions.
   1b. Grout shall be proportioned by volume and shall have sufficient water added to produce consistency for pouring without segregation. Grout shall be composed of one part Portland cement to which may be added not more than one-tenth part hydrated lime or lime putty, and two and one fourth to three parts sand.
2. Reinforcing steel shall conform to ASTM A-615, Grade 60 or ASTM A-706.
3. Reinforcing bars shall be lapped 50 bar diameters minimum at #6 bars or less and 60 bar diameters minimum at #7 bars when spliced. All vertical bar lengths to be 4'-8" plus required lap.
4. When a foundation dowel does not line up with the vertical core to be reinforced, it shall not be bent over, but shall be grouted into a core in direct vertical alignment, even though it is in an adjacent cell to the vertical wall reinforcing.
5. Vertical reinforcing bars shall be held in position at top and bottom. All debris and projecting mortar shall be cleaned out before pouring grout.
6. Vertical cells to be filled shall have vertical alignment to maintain a continuous unobstructed cell area not less than 2" x 3".
7. Cells containing reinforcing shall be solidly filled with grout in pours not to exceed 4'-8" and pours shall be stopped 1-1/2" below the top of a course to form a key at pour joints. Grout lifts may exceed 4'-8" if "high-lift" grouting requirements are followed.
8. Grout shall be consolidated by mechanical vibration during placing before loss of plasticity in a manner to fill grout space. Grout pours greater than 12 inches shall be reconsolidated by mechanical vibration to minimize voids due to water loss. Grout pours 12 inches or less in height shall be mechanically vibrated, or puddle.
9. Mortar for all exterior walls and bearing walls shall be Type S.
10. 10a. Specified Compressive Strength, fm, of concrete masonry shall be 1900 psi at the age of 28 days. (FOR IBC 2015)
    10b. Specified compressive strength, fm, of concrete masonry shall be 2000 psi at the age of 28 days. (FOR IBC 2018)
11. Brick masonry units minimum fm shall be 1900 psi.
12. Where other reinforcing is not required by the drawings, provide one #5 bar at all sides of, and adjacent to, every opening which exceeds 24" in either direction. Extend vertical bars full height of wall. Extend horizontal bars 24" beyond each side of opening. Where possible provide U-block immediately below and one course above the opening and grout the reinforcing in place. In double wythe or cavity walls place the reinforcing in the cavity and build solid with mortar.
13. Continue bond beams minimum 2'-0" around corners. Where bond beam steps, lap bond beam courses minimum 2'-0".
14. All concrete block below grade shall be grouted solid.
15. Continue bond beam reinforcing through masonry control joints.
16. See Architectural drawings and specifications for horizontal joint reinforcing and other masonry reinforcing not shown on structural drawings.

STRUCTURAL STEEL GENERAL NOTES

1. All steel shall conform to the "Standard Specification for Structural Steel" ASTM Designation A572, Grade 50, or ASTM A992, latest edition, except where noted otherwise. Angles, channels, and plates shall conform to ASTM A36. Round hollow structural steel sections shall conform to ASTM A500, Fy = 42 ksi. Square or rectangular hollow structural sections shall conform to ASTM A500, Grade B, Fy = 46 ksi. Pipe shall conform to ASTM A53, Grade B, Fy = 35 ksi. Threaded rod and anchor rods shall conform to ASTM F1554 Gr. 36
2. All detailing, fabrication and erection shall conform to AISC "Specification for Structural Steel Buildings", and the AISC "Code of Standard Practice for Steel Buildings and Bridges", latest edition, and "Load and Resistance Factor Design Specification for Structural Steel Buildings" when applicable.
3. This structure contains "non-self-supporting steel frames" per AISC definition. The contractor shall coordinate the installation of all necessary temporary bracing which shall remain in place until the lateral support system is constructed and connected to the framing.
4. Shop connections shall be welded or bolted with 3/4" diameter A325 "Tension Controlled" High Strength Bolts.
5. Field connections shall be made with 3/4" diameter ASTM A325 High Strength Bolts. Connections shall be bearing-type tightened to a "snug-tight" condition unless noted as "Tension Controlled". Connections utilizing "Tension Controlled" bolts shall be prelensioned but do not require faying surface preparation unless noted otherwise.
6. All welding shall be done by certified welding operators and shall conform to "AWS Structural Welding Code" (AWS D1.1), latest edition.
7. Welding sizes not otherwise shown shall be minimum continuous 1/4 inch fillet welds, or equal to the thickness of the thinner material minimum 1/16th inch, whichever is less.
8. All welding shall be done with AWS A5.1 or A5.5 E70 XX electrodes except for welding of ASTM A706 rebar, which shall be welded using E80 electrodes.
9. Areas within 2 inches of field welds shall not be painted until after welding. Field welds, bolt heads, nuts and other surfaces not shop painted and surfaces abraded during shipping and erection shall be field painted after erection.
10. All structural steel exposed to view shall conform to the provisions for "Architecturally Exposed Structural Steel" in the AISC Code of Standard Practice.

TIMBER GENERAL NOTES

1. All wood framing shall conform to the "National Design Specification for Wood Construction", latest edition, recommended by the "National Forest Products Association".
2. Sawn lumber framing members shall conform to the following species and grades: (Spruce-Pine-Fir #2 or better or Hem-Fir #2 or better).
3. All Plywood Web Joists shall be "TJI" as manufactured by Weyerhaeuser, or "BCI" as manufactured by Boise Cascade. See plan for required joist series.
4. Laminated Veneer Lumber (LVL) prefabricated structural wood beams and joists shall be "Microllam" as manufactured by Weyerhaeuser, or "Versa-Lam" as manufactured by Boise Cascade, Inc. Parallel Strand Lumber (PSL) prefabricated structural wood beams and columns shall be "Parallam" as manufactured by Weyerhaeuser.
5. Sheathing panels shall be identified with the appropriate trademark of the American Plywood Association, and shall meet the requirements of U.S. Product Standard PS1-07 or APA PRP-108, Performance Standards, latest edition.
6. All roof sheathing shall be 7/16" (optional: Spec Grade C-D) APA rated sheathing (Exposure 1). Minimum panel identification shall be 24/16. Roof sheathing nailing shall be 8d common nails at 6" on center maximum at all edges and boundaries, unless noted otherwise. Nailing along intermediate members shall be 12" on center maximum.
7. All floor sheathing shall be 23/32" tongue-and-groove APA rated (Exposure 1) with panel identification 48/24.
8. Wood floor nailing shall be 10d deformed shank nails at 6" on center maximum at all supported edges unless noted otherwise, nailing along intermediate members shall be at 12" on center maximum.
9. All sheathing for exterior walls and shear walls shall be 7/16" APA rated sheathing (Exposure 1). Nailing shall be as noted on the drawings. All panel edges shall be backed with 2" nominal framing.
10. Glue floor sheathing to joists per American Plywood Association's Glued Floor System recommendation.
11. Floor and roof sheathing shall be placed with 8'-0" dimension perpendicular to joist framing, stagger joints. Panels to be continuous over two or more spans. Panel end joints shall occur over framing. Allow 1/8 inch spacing at panel ends and 1/8 inch at panel edges unless otherwise recommended by the panel manufacturer.
12. Design of prefabricated wood trusses shall be in accordance with "National Design Standard For Metal Plate Connected Wood Truss Construction", ANSI/TPI-1, and shall be designed under the direct supervision of a Professional Engineer Registered in Colorado. Trusses shall be installed in strict accordance with the manufacturer's specifications.
13. The Contractor and Truss supplier shall comply with the requirements and recommendations of TPI HIB "Commentary and Recommendations for Handling Installing and Bracing Metal Plate Connected Wood Trusses" and TPI DSB "Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses".
14. All bolts shall be ASTM A-307.
15. All wood web joists shall be installed per manufacturer's recommendations, and as show on the drawings.
16. Install blocking panels between all wood web joists at all supports. Install per manufacturer's recommendations, and as shown on the drawings.
17. Double and triple built-up solid sawn wood members shall be spiked together with two 16d nails spaced at 12" o.c. on center except where noted otherwise on drawings.
18. Nails for wood sheathing shall be common nails.
19. Minimum nailing for all wood framing shall conform to Table No. 2304.10.1, International Building Code, 2015 Edition, unless noted otherwise.
20. Joists shown on plan are basis of design; if changed, notify engineer.
21. 16d nails shall be common or sinker (0.148" minimum diameter).

DESIGN LOADS:

Roof Loads

Dead Load (includes 9 psf allowance for future solar panels)	27 psf TOP CHORD 7 psf BOT. CHORD
Snow Load (Uniform)	30 psf
Pg (for drifting)	30 psf
Importance Factor	I_S = 1.0

Floor Loads

Dead Load	
interior	41 psf
deck	15 psf
Live Load	
Living spaces	40 psf
Public spaces	100 psf

Wind Loads - Exposure C, XXX mph (V_{ULT}) 3 second gust

Seismic Information

Importance Factor	I_E = 1.0
Building Occupancy Category	II
Mapped Spectral Accelerations	S_S = 0.208g S_1 = 0.058g
Site Class	D
Design Spectral Accelerations	S_{DS} = 0.222g S_{D1} = 0.093g
Seismic Design Category	B
Basic Seismic-Force-Resisting System consists of Wood shear walls	
Seismic Response Coefficients	C = 0.034
Response Modification Factors: R (ELEMENT)	= 6.5

Equivalent Lateral Force Procedure

WALL COMPONENT AND CLADDING WIND PRESSURES (LRFD)

EFFECTIVE AREA	INTERIOR PRESSURE	CORNER PRESSURE
sf	psf	psf
10 OR LESS	52.8	65.2
20	50.7	61.0
50	47.8	54.9
100	45.4	51.6
200	43.7	46.6
500 OR ABOVE	40.4	40.4

- *VALUES ABOVE INDICATE MINIMUM DESIGN WIND PRESSURES ONLY. COMPONENTS AND CLADDING DESIGN SHALL BE BASED ON MINIMUM DESIGN PRESSURES FROM ALL APPLICABLE CODE SECTIONS.*
- *PRESSURE VALUES PROVIDED IN TABLE ARE ULTIMATE.*

TRUSSES PENDING

Truss engineering must be submitted a minimum of one week prior to frame inspection and cannot be walked through. The truss package must include a signed and dated "Shop Drawing Review" stamped from the design professional of record that verifies conformance with the approved construction design documents. Unless previously shown on the approved structural framing plans, the truss layout must show all necessary truss connection hardware including hangers, uplift connections and truss bearing enhancers.

NOT FOR CONSTRUCTION

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WILLOUGHBY CORNER
SENIOR BUILDING
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Lafayette, Colorado 80026

issue / revision	date:
SCHEMATIC DESIGN	4/29/22
LIHTC DRAWINGS	JAN 2022
CONCEPT DESIGN	OCT 2021
DESIGN DEV.	JUL 2022

job #	168-09
drawn	DJH
chkd	SAH

GENERAL NOTES AND DETAILS

S-001

Willoughby Corner - 9-Plex Flats

INDEX TO DRAWINGS

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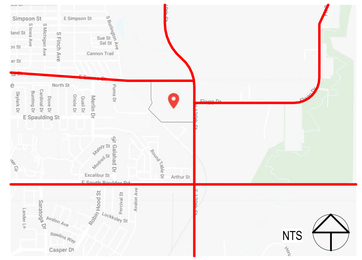
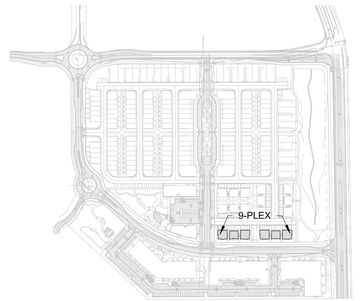
VICINITY MAP





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seal

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drawn MD

chkd Checker

description
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number
G-001

NOT FOR CONSTRUCTION

MATERIALS

- EARTH
- POROUS FILL
- ROCK
- CONCRETE
- BRICK
- CONCRETE BLOCK
- CEMENT, SAND, GROUT, PLASTER
- STONE
- STEEL
- FINISHED WOOD
- ROUGH WOOD
- SHIMS
- PLYWOOD
- GLASS
- ALUMINUM
- GYPSUM BOARD (GYP. BD.)
- BATT INSULATION
- RIGID INSULATION
- FIRESAFING
- CERAMIC TILE

SYMBOLS

- FD — FLOOR DRAIN
- 16.58 — NEW OR REQ'D. ELEVATION
- 5280 — EXISTING CONTOURS
- 5280 — NEW CONTOURS
- LEVEL/ELEV. INDICATOR
- 26 — KEYNOTE (DEMOLITION)
- A — WINDOW TYPE
- 5 / B — GRID LINE
- ROOM NAME / 100 — ROOM/SPACE NUMBER
- G — FRAME TYPE
- 100 / A — DOOR NUMBER
- 4 / A1.1 — DETAIL NUMBER, DETAIL, SHEET WHERE DRAWN
- 5 / A6.1 — BUILDING SECTIONS
- 5 / A6.2 — WALL SECTIONS
- 5 / A7.1 — ELEVATIONS
- ENLARGED PLAN OR ELEVATION
- 5 — PARTITION TYPES
- CENTERLINE, GRIDS
- PROPERTY, BOUNDARY LINES
- 1/A-100 — MATCH LINE

ARCHITECTURAL ABBREVIATIONS

AB	ANCHOR BOLTS
ABV	ABOVE
ACOUST	ACOUSTICAL
ACT	ACOUSTICAL CEILING TILE
AD	AREA DRAIN
ADD	ADDENDUM
ADJ	ADJUSTABLE/ADJACENT
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATIVE, ALTERNATE
ALUM/AL	ALUMINUM
AP	ACCESS PANEL
∠	ANGLE
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL/ARCHITECT
AUTO	AUTOMATIC
A.V.	AUDIO VIDEO
BD	BOARD
BLK	BLOCK
BLKG	BLOCKING
BLDG	BUILDING
BM	BEAM
B.M.	BENCH MARK
BOT	BOTTOM
BR	BACKER ROD
BRG	BEARING
CAB	CABINET
CB	CHALKBOARD
CEM	CEMENT
CEM PLAS	CEMENT PLASTER
CI	CAST IRON
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CL	CENTER LINE
CLO	CLOSET
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
COMP	COMPOSITE
CONC	CONCRETE
CONF	CONFERENCE
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
CORR	CORRIDOR
CPT	CARPET
CP	CENTER POINT
CR	CLASSROOM
CT	CERAMIC TILE
CTSK	COUNTERSINK
DBL	DOUBLE
DEMO	DEMOLITION
DEG	DEGREE
DET/DTL	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DR	DOOR
DO	DOOR OPENING
DN	DOWN
DS	DOWNSPOUT
DWG	DRAWING
E	EAST
EA	EACH
EC	ELECTRICAL CONTRACTOR
EDU	EDUCATION
EF	EXHAUST FAN
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC
ELEV	ELEVATION/ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSURE
ENG	ENGINEER/ENGINEERING
EP	ELECTRIC PANEL
EQ	EQUAL
ETC	ETCETERA
EW	ELECTRIC WATER COOLER
E	EACH WAY
EX, EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FD	FLOOR DRAIN
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FLOOR
FIN	FINISH
FLASH	FLASHING
FLR	FLOOR
FLUOR	FLUORESECENT
F.M.	FLOOR MAT
F.O.M.	FACE OF MASONRY
FR	FRAME
F.R.	FIRE RESISTANT
FS	FLOOR SINK
FT	FEET/FOOT
FTG	FOOTING
FURR	FURRING
F.V.	FIELD VERIFY
GALV	GALVANIZED
GI	GALVANIZED IRON/STEEL
GA	GUAGE/GAGE
GB/GYP BD	GYPSUM BOARD
GYP PLAS	GYSPUM PLASTER
HC	HANDICAPPED
HDWE	HARDWARE
HR	HOUR
HT	HEIGHT
HDR	HEADER
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HB	HOSE BIB
IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
INCL	INCLUSIVE
INST	INSTRUMENT
INSU	INSULATION
INT	INTERIOR
JAN	JANITOR
JT	JOINT
JST	JOIST
KO	KNOCK OUT
LAV	LAVATORY
LD BRG	LOAD BEARING
LMC	LIBRARY MEDIA CENTER
LOUV	LOUVER
LT	LIGHT
MANUF/MANF	MANUFACTOR
MAS	MASONRY
MAT'L	MATERIAL
MAX	MAXIMUM
MB	MARKER BOARD
MC	MECHANICAL CONTRACTOR
MECH	MECHANICAL
MIL / MM	MILLIMETER
MIN	MINIMU
-	MINU
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MT/MNT	MOUNT, MOUNTED
MTG	MOUNTING / MEETING
MTL/MET	METAL
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIA/OVERFLOW DRAIN
OF_OFD	OVER FLOW DRAIN
OPNG	OPENING
OPP	OPPOSITE
ORIG	ORIGINAL
PL	PLATE
P-LAM	PLASTIC LAMINATE
PLN	PLAN
+	PLUS
PLBG	PLUMBING
PNT	PAINTED
PR	PAIR
PLYWD	PLYWOOD
PL	PROPERTY LINE
POLYISO	POLYISOCYANURATE
PRIN	PRINCIPAL
PT	POINT
PRPT	PARAPET
PTN	PARTITION
PVC	POLYVINYLCLORIDE
QT	QUARRY TILE
R	REINFORCEMENT
RAD/R	RADIUS
RE:	REFER TO
RECPT	RECEPTACLE
REFIN	REFINISH
REFL	REFLECTED
REINF	REINFORCEMENT/REINFORCING
RELOC	RELOCATED
REQ'D	REQUIRED
REV	REVISED/REVISION
RTU	ROOF TOP UNIT
RF	ROOF, ROOFING
R&R	REMOVE AND REPLACE
RD	ROOF DRAIN
RDL	ROOF DRAIN LEADER
RM	ROOM
RO	ROUGH OPENING
R's	RISERS
SAG	SUSPENDED ACOUSTICAL GRID
SAT	SUSPENDED ACOUSTICAL TILE
SALV	SALVAGE
SCHED	SCHEDULES
SEP	SEPARATE
SHT	SHEET
SIM	SIMILAR
SPEC	SPECIFICATIONS/SPECIFIED
SQ	SQUARE
SQ FT/SF	SQUARE FOOT/SQUARE FEET
SQ IN	SQUARE INCH
SQ YD	SQUARE YARD
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUC	STRUCTURAL
ST	STRAIGHT
TELE	TELEPHONE
TB	TACK BOARD
THK	THICK
T&B	TOP AND BOTTOM
T&G	TONGUE & GROOVE
TLT / TOIL	TOILET
T.O.	TOP OF
T.O.M.	TOP OF MASONRY
TS	TUBE STEEL
T's	TREADS
TOW	TOP OF WALL
TRANSF	TRANSFORMER
TV	TELEVISION
TYP	TYPICAL
UN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VS	VENT STACK
VWC	VINYL WALL COVERING
W	WATER CLOSET
W	WASHER
WDW/WIND	WINDOW
W/	WIT
W/O	WITHOU
WD	WOOD
W	WIDE FLANGE
WK	WORK
@	AT

GENERAL NOTES

1. DO NOT SCALE DRAWINGS.

   PROSPECTIVE BIDDERS MUST EXAMINE THE CONTRACT DOCUMENTS (DRAWINGS AND SPECIFICATIONS) CAREFULLY AND, BEFORE BIDDING, MUST REQUEST CLARIFICATION FROM THE ARCHITECT IN WRITING AT LEAST 14 DAYS PRIOR TO THE TIME SET FOR OPENING THE BIDS, AN INTERPRETATION OR CORRECTION OF EVERY PATENT AMBIGUITY, INCONSISTENCY, OR ERROR THEREIN. SUCH INTERPRETATION OR CORRECTION, AS WELL AS ANY ADDITIONAL CONTRACT PROVISIONS THE ARCHITECT MAY DECIDE TO INCLUDE, WILL BE ISSUED IN WRITING BY THE ARCHITECT AS AN ADDENDUM TO THE CONTRACT, WHICH WILL BE MAILED OR DELIVERED TO EACH PERSON RECORDED AS HAVING RECEIVED A COPY OF THE CONTRACT DOCUMENTS FROM THE ARCHITECT, AND WHICH WILL ALSO BE POSTED AT THE PLACE WHERE THE CONTRACT DOCUMENTS ARE AVAILABLE FOR INSPECTION OF PROSPECTIVE BIDDERS. UPON SUCH MAILING OR DELIVERY AND POSTING, SUCH ADDENDUM SHALL BECOME A PART OF THE CONTRACT DOCUMENTS, AND BINDING ON ALL BIDDERS. WHERE CLARIFICATIONS ARE NOT MADE PRIOR TO BIDDING THE CONTRACTOR SHALL PROVIDE THE BETTER QUALITY OR GREATER QUANTITY OF WORK WITH NO COST TO THE OWNER.
2. DIMENSIONS SHOWN ARE TO FACE OF FOUNDATION WALL, FACE OF MASONRY, FACE OF STUD UNLESS OTHERWISE INDICATED. ALL DIMENSIONS MUST BE VERIFIED TO CONFORM TO EXISTING CONDITIONS.
3. ALL BLOCK IS 8" NOMINAL WIDE UNLESS OTHERWISE NOTED BY DIMENSION OR PARTITION TYPES. MASONRY AND STUD WALL DIMENSIONS ARE NOMINAL.
4. ALL ANGLES ARE 90 DEGREES OR 45 DEGREES UNLESS OTHERWISE NOTED.
5. SITE PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
6. ALL SPOT ELEVATIONS OUTSIDE OF THE BUILDING RELATE TO SURVEY DATUM AT THE BENCHMARK. ALL SPOT ELEVATIONS INSIDE THE BUILDING REFER TO REFERENCE ELEVATION.
7. NOTIFY ARCHITECT IMMEDIATELY SHOULD CONDITIONS BE FOUND CONTRADICTORY TO THESE DRAWINGS.
8. PROVIDE BULLNOSE C.M.U. WHERE INDICATED ON DRAWINGS AND/OR AT ALL 90 DEGREE OUTSIDE CORNERS WITHIN THE PROJECT.
9. ALL WORK TO BE BASED ON 2021 IBC AND LOCAL CODE REQUIREMENTS.
10. CONTRACTOR SHALL HAVE ONE STAMPED PERMIT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES.
11. WATER RESISTANT (GREEN) GYP. BD. SHALL BE USED IN ALL WET OR EXTERIOR AREAS
12. ALL REFERENCES TO SPECIFIC MANUFACTURERS ARE FOR REFERENCE ONLY AND CAN BE SUBSTITUTED BY AN APPROVED EQUAL. SUBMIT REQUESTS FOR SUBSTITUTIONS TO ARCHITECT.
13. G.C. TO PROVIDE A FULLY INSULATED BLDG. ENVELOPE.
14. THE CONTRACT DOCUMENTS INCLUDE THE PROJECT MANUAL AND SPECIFICATIONS AS ONE COMPLETE PACKAGE. IF THE CONTRACTOR CHOOSES TO SPLIT APART THE DRAWINGS OR SPECIFICATIONS DURING BIDDING TO PROCURE BIDS FROM SUBS HE SHALL BE RESPONSIBLE FOR COORDINATION WITH OTHER WORK SHOWN ON OTHER DRAWING SHEETS OR SPECIFICATION SECTIONS. IN NO WAY SHALL THIS RELIEVE THE SUB OR GENERAL CONTRACTOR FROM HIS RESPONSIBILITY TO PROVIDE ITEMS DESIGNATED ELSEWHERE."
15. IN ALL OCCURRENCES OF PLANER ALIGNMENTS (I.E. WALL TO SOFFIT, WALL TO MILLWORK, ETC.) UNLESS OTHERWISE SHOWN OR NOTED, PROVIDE A MINIMUM OF A 3" OFFSET. CLARIFY ANY AMBIGUITIES WITH ARCHITECT.

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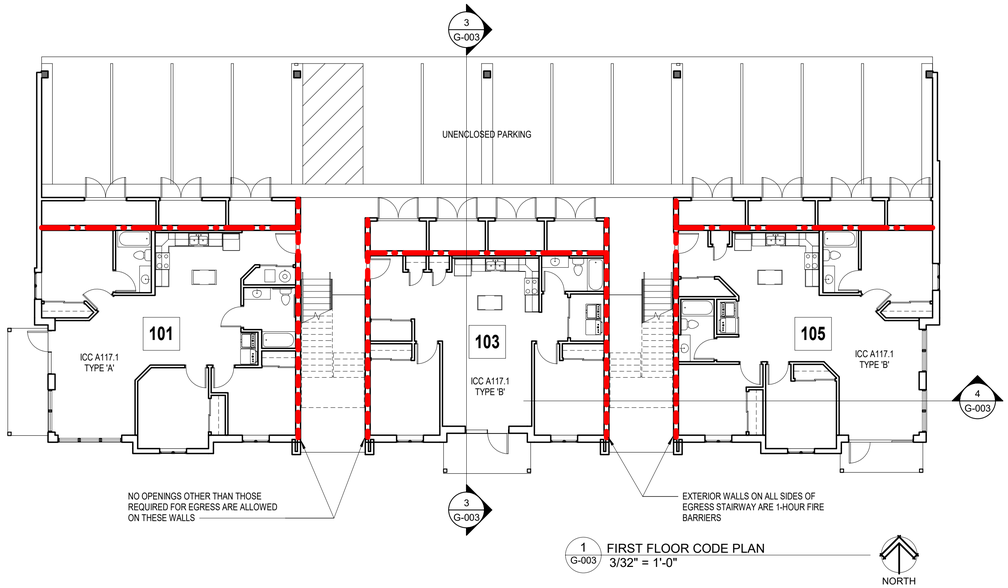
chkd Checker

NOT FOR CONSTRUCTION

description
GENERAL NOTES & LEGENDS

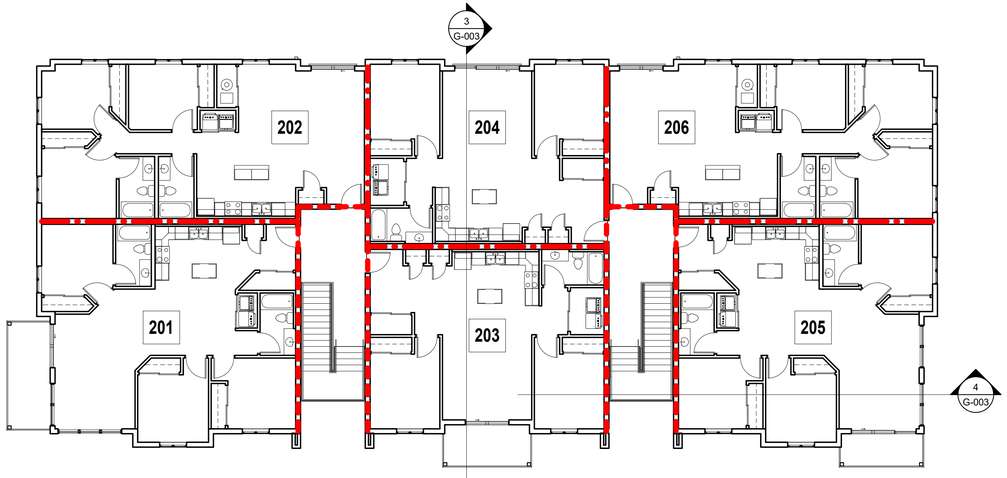
number
G-002

BUILDING CODE PLANS



1 G-003 FIRST FLOOR CODE PLAN
3/32" = 1'-0"

NORTH

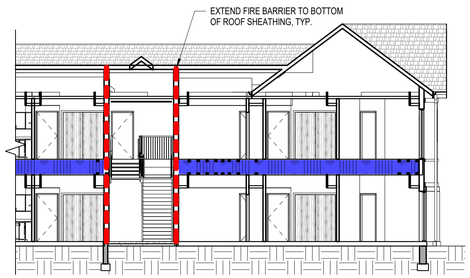


2 G-003 SECOND FLOOR CODE PLAN
3/32" = 1'-0"

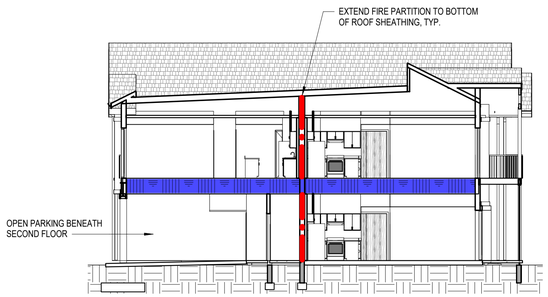
NORTH

CODE PLAN LEGEND

- 1-HOUR FIRE BARRIER
- 1-HOUR FIRE PARTITION
- 1-HOUR HORIZONTAL ASSEMBLY
- EGRESS PATH



4 G-003 CODE SECTION 2
3/32" = 1'-0"



3 G-003 CODE SECTION 1
3/32" = 1'-0"

BUILDING CODE INFORMATION

1. Project Information:

WILLOUGHBY CORNER
9-PLEX FLATS APARTMENTS, BUILDING ONE
ADDRESS TBD
Lafayette, CO 80026

2. Applicable Codes and Regulations:

2021 International Building Code (IBC)
2021 International Fire Code (IFC)
2021 International Energy Conservation Code (IECC)
2021 International Mechanical Code (IMC)
2021 International Fuel Gas Code (IFGC)
2021 International Plumbing Code (IPC)
2020 National Electrical Code (NEC)
2017 ICC/ANSI A117.1 Accessibility Standard

3. Design Information:

Snowload: 30 PSF uniform roof and ground load
Windspeed: 105 mph basic wind speed
Frost Depth: 36 inches

WORK IN PROGRESS

4. Use & Occupancy:

Residential Group R-2 (Apartments) per Section 310.3

Section 508.1 Mixed Use and Occupancy: no mixed use and occupancy present

5. Building Height and Area:

Table 504.3 and 504.4: Allowable Building Height:
Based on Construction Type V-B, S13R sprinklered building
Group R-2: 60 ft. height, 3 stories above grade plane

Section 506.2.3: Allowable Area of Single Occupancy, Multistory Buildings:
Based on Construction Type V-B, S13R sprinklered building, Table 506.2
Group R-2: 7,000 SF per floor, 21,000 SF total

Actual Building Area: XXXX SF first floor, XXXX SF second floor
Total Building Area: XXXX SF
Actual Building Height: 2 stories, 32 feet to the highest point of the roof

6. Construction Type and Fire Resistive Requirements:

Table 601 Construction Type = V-B (Non Fire-rated)
Table 602 Fire Ratings for Exterior Walls: Fire Separation Distance for all exterior walls of the building is greater than 10 ft. so fire rating is not required.

Section 420.2 & 708.3: Walls separating dwelling units shall be constructed as Fire Partitions in accordance with Section 708; Fire Partitions shall have a fire resistance rating of 1 hour.

Section 420.3 & 711.2.4.3: Floor assemblies separating dwelling units shall be constructed as Horizontal Assemblies in accordance with Section 711; Fire rating for horizontal assemblies separating dwelling units shall be 1-hour.

Table 705.2 Minimum Distance of Projection: Fire Separation Distance (FSD) is 10 ft.. Minimum distance from line used to determine FSD is: 24" + (8" x (10 - 3)) = 24" + 56" = 80". Porch and overhang projections shall not be closer than 80" to the line used to determine Fire Separation Distance.

7. Fire Protection Systems:

Section 903.2.8 & 903.3.1.2 - An automatic fire sprinkler system is required for Occupancy Group R-2. The sprinkler system shall be installed in accordance with NFPA 13R.

Fire sprinkler protection complying with NFPA 13R will be provided at covered porches.

Sections 907.2.9.1, Exception 3 - A fire alarm system is not required in buildings that do not have interior corridors serving dwelling units and are protected by an approved automatic sprinkler system, provided that dwelling units have a door opening directly to an exterior exit access. The fire sprinkler system will be monitored and fire riser room will contain required alarm panel and tamper/flow switches.

Section 907.2.11.2 - Single or multiple-station smoke alarms are required for Occupancy Group R-2, and will be installed in required locations within the building.

8. Means of Egress:

Section 1004.1 Occupant Load: Occupant Load is calculated based on 1 occupant per 200 gross SF (Table 1004.1.2):
First Floor = XXXX SF / 200 = XX Occupants
Second Floor = XXXX SF / 200 = XX Occupants
Total Occupant load = XX Occupants

Section 1005.1 Egress Width:
Stairwell width = (.3") x XX Occupants = 4.8" (minimum width = 36" per 1011.2, Exception 1)
Door width = (.2") x XX Occupants = 4.4" (minimum 36" provided)

Section 1006.2.1 Number of Exits:
Exception 1. In Group R-2 occupancies, one means of egress is permitted within and from individual dwelling units with a maximum occupant load of 20 where the dwelling unit is equipped throughout with an automatic sprinkler system in accordance with Seection 903.3.1.2 and the common path of egress travel does not exceed 125 feet.
Each dwelling unit has one means of egress. Actual maximum common path of egress travel is XXX ft (Egress Path #2)

Table 1017.2 Exit Access Travel Distance: Occupancy R = 250 ft. with a sprinkler system.
Longest actual exit access travel distance = XXX ft. (Egress Path #2)

Section 1019.1 Exit Access Stairways and Ramps:
Section 1019.3, Item 2: In Group R-2 occupancies, exit access stairways connecting four stories or less serving and contained within an individual dwelling unit, are not required to be enclosed with a shaft enclosure.

Section 1030.1 Emergency Escape and Rescue:
In Group R-2 occupancies, emergency escape and rescue openings are required in stories that have only one exit per Table 1006.3.2(1). EEROs are provided in each sleeping room in accordance with 1030.1.

9. Accessibility:

1107.6.2.2.1 Type A Units:
In Group R-2 occupancies containing more than 20 dwelling units or sleeping units, at least 2 percent but not less than one of the units shall be a Type A unit. All Group R-2 units on a site shall be considered to determine the total number of units and the required number of Type A units. Type A units shall be dispersed among the various classes of units.
Dwelling Unit 101 is the ICC A117.1 Type A unit.

1107.6.2.2.2 Type B Units:
Where there are four or more dwelling units or sleeping units intended to be occupied as a residence in a single structure, every dwelling unit and sleeping unit intended to be occupied as a residence shall be a Type B unit. Exceptions allowed per Section 1107.7.
Dwelling Units 103 & 105 are the ICC A117.1 Type B Units.

1106.2 Accessible Parking Spaces in Group R-2:
1. In Group R-2 occupancies that are required to have Accessible, Type A or Type B dwelling units or sleeping units, at least 2 percent, but not less than one, of each type of parking space provided shall be accessible.
Total # of parking spaces = 271
2% of 271 = 5.4, so 6 Accessible Spaces required.
xx Accessible Parking Spaces are provided.

10. Plumbing Fixture Requirements:

Table 2902.1: R-2 Residential Occupancy:
1 WC , 1 Lavatory, 1 Bathtub/Shower, 1 Kitchen sink required per dwelling unit. 1 clothes washer connection required per 20 dwelling units.
Each dwelling unit contains at least 1 WC, Lavatory, Bathtub/Shower, Kitchen sink, and clothes washer connection.

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issue / revision

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drawn Author
chkd Checker

description
BUILDING CODE ANALYSIS

number
G-003

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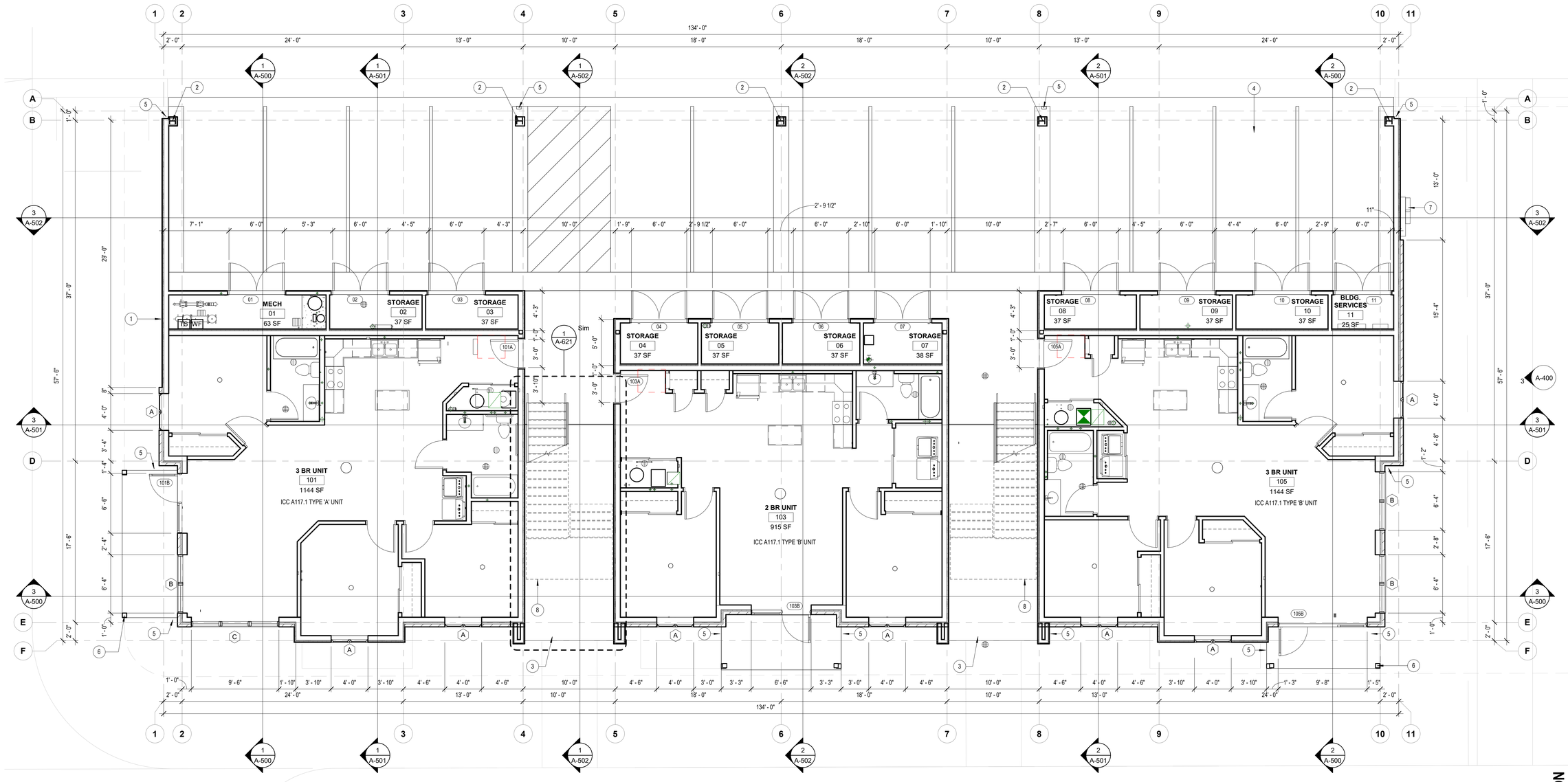

NOTES LEGEND 1ST FLOOR PLAN

1 FDC LOCATION
2 WRAP STEEL COLUMN WITH CEMENT BOARD PANELS ON METAL STUDS
3 4" CONCRETE SLAB AT STAIRWELL & PATIOS, SLOPE TO DRAIN
4 CONCRETE PARKING SLAB, RE: CIVIL FOR THICKNESS. SLOPE TO DRAIN
5 DOWNSPOUT
6 EXPOSED ENGINEERED WOOD COLUMN
7 BUILDING ELECTRICAL PANELS, RE: ELECT.
8 EDGE OF LANDING ABOVE

1 A-100 9-PLEX BUILDING - FIRST FLOOR PLAN
3/16" = 1'-0"

0 4' 8' 12' NORTH

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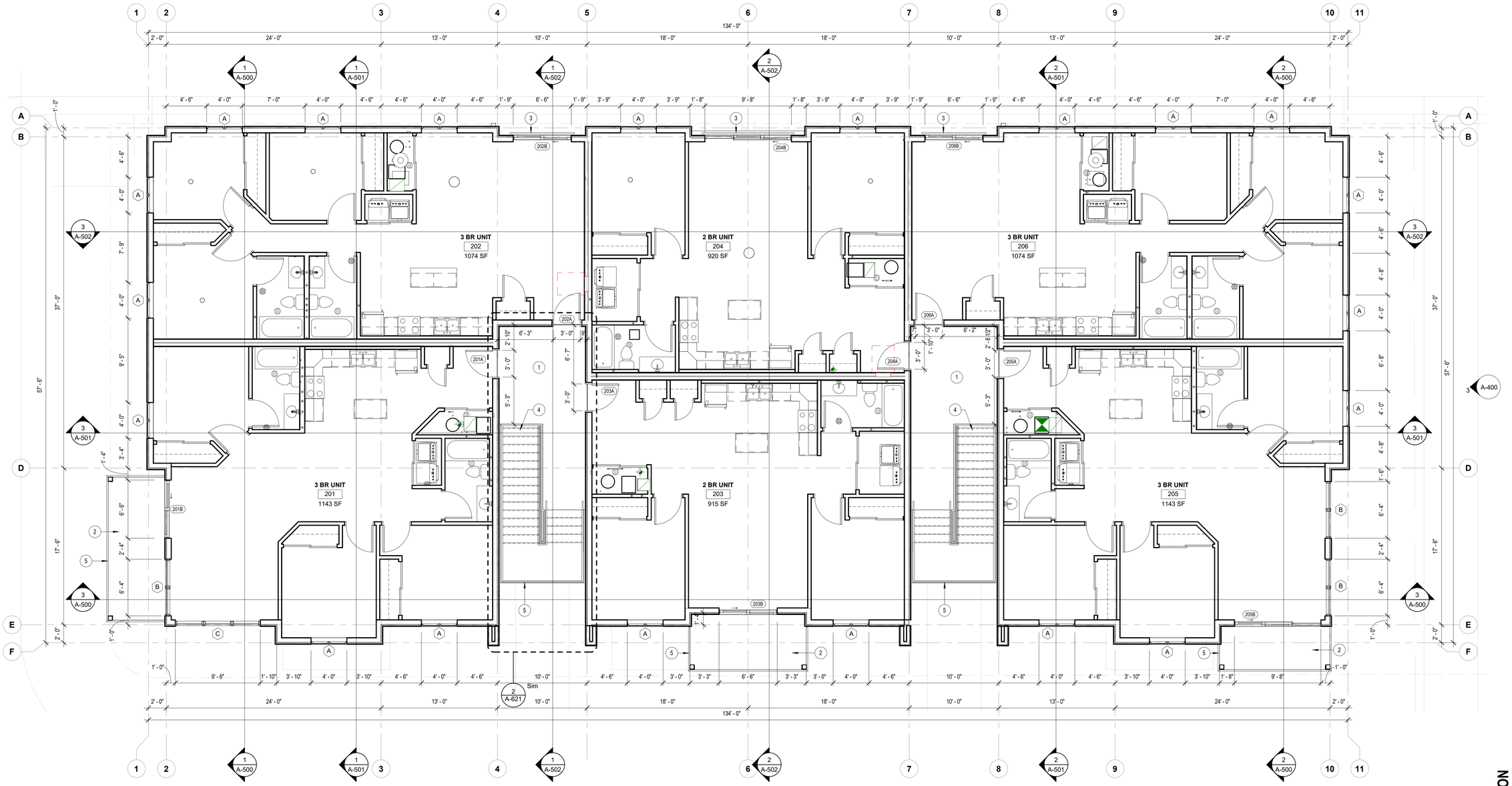
FIRST FLOOR PLAN

number
A-100



X NOTES LEGEND 2ND FLOOR PLAN

1. 4" CONCRETE SLAB ON WATERPROOF MEMBRANE OVER WOOD JOISTS
2. COMPOSITE DECKING ON TREATED WOOD JOISTS
3. METAL RAILING AT JULIETTE BALCONY
4. CONCRETE TREADS ON STEEL PAN STAIRS
5. METAL GUARDRAIL

1 / A-101 — 9-PLEX BUILDING - SECOND FLOOR PLAN
3/16" = 1'-0"

0 4' 8' 12' NORTH

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drawn Author
chkd Checker

description: SECOND FLOOR PLAN

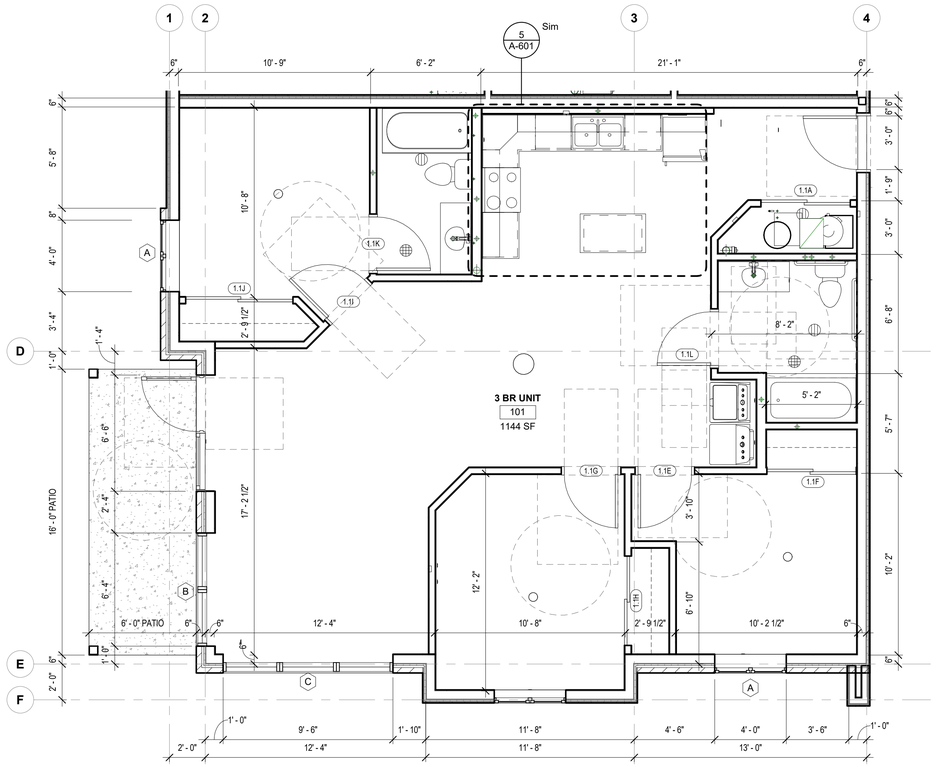
number: A-101

DOOR SCHEDULE 3 BED 1.1															
Door Number	Type	Door								Frame					Comments
		Width	Height	Thickness	Material	Finish	Under Cut	Fire Rating	Hardware	Type	Material	Finish	Jamb	Head	
1.1A	4	5' - 0"	7' - 0"	1 3/4"	WD	PT		-		3	WD	PT			SLIDING CLOSET DOOR
1.1E	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
1.1F	4	5' - 0"	7' - 0"	1 3/4"	WD	PT		-		3	WD	PT			SLIDING CLOSET DOOR
1.1G	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
1.1H	4	5' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
1.1I	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
1.1J	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		3	WD	PT			SLIDING CLOSET DOOR
1.1K	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
1.1L	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET

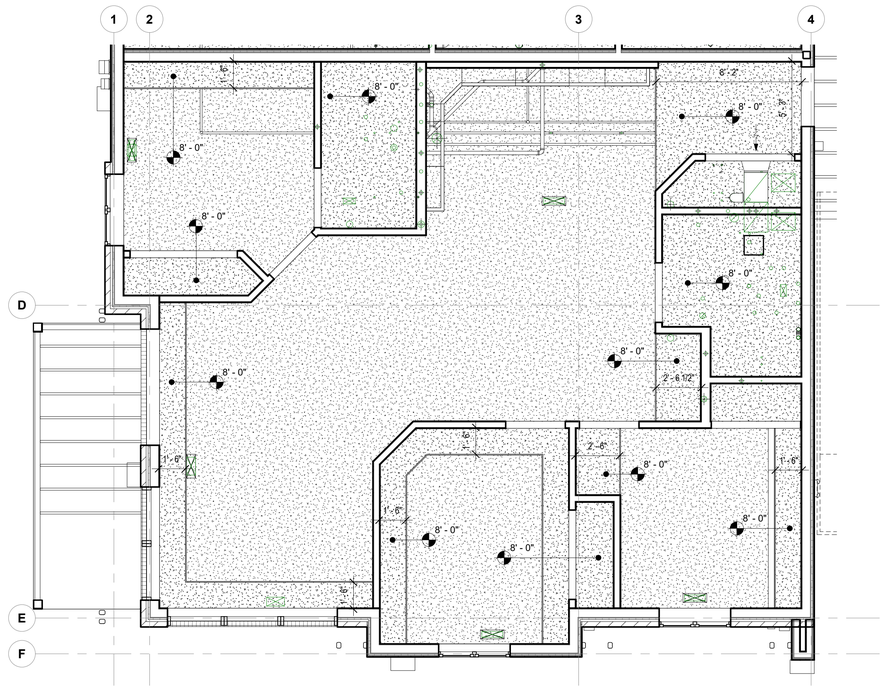
GENERAL TYPE A UNIT NOTES:
1. PROVIDE SHOWER SEAT AND GRAB BARS AT ACCESSIBLE BATHROOM PER ICC A117.1-2017 SECTION 608.2.1.3. AND 608.3.1. INSTALL BLOCKING IN WALLS AS REQUIRED FOR ATTACHMENT.

2. THE REQUIRED CLEARANCE AROUND THE WATER CLOSET IS ALLOWED TO OVERLAY THE VANITY PER ICC A117.1-2017 SECTION 1103.11.2.4 EXCEPTION.

2. A CLEAR FLOOR SPACE SHALL BE PROVIDED AT ALL APPLIANCES PER ICC A117.1-2017 SECTION 1103.12.5.2.



1 A-110 TYP. UNIT - 3 BEDROOM PLAN 1.1
1/4" = 1'-0"



2 A-110 3 BEDROOM REFLECTED CEILING PLAN 1.1
1/4" = 1'-0"

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TYP. UNIT - 3 BEDROOM PLAN 1.1

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description

A-110

number

DOOR SCHEDULE 2 BED 1.2															
Door Number	Type	Door								Frame					Comments
		Width	Height	Thickness	Material	Finish	Under Cut	Fire Rating	Hardware	Type	Material	Finish	Jamb	Head	
1.2A	3	2' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			STOREROOM LOCKSET
1.2B	3	2' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			STOREROOM LOCKSET
1.2C	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
1.2D	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
1.2E	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
1.2F	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
1.2G	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
1.2H	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
1.2I	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET

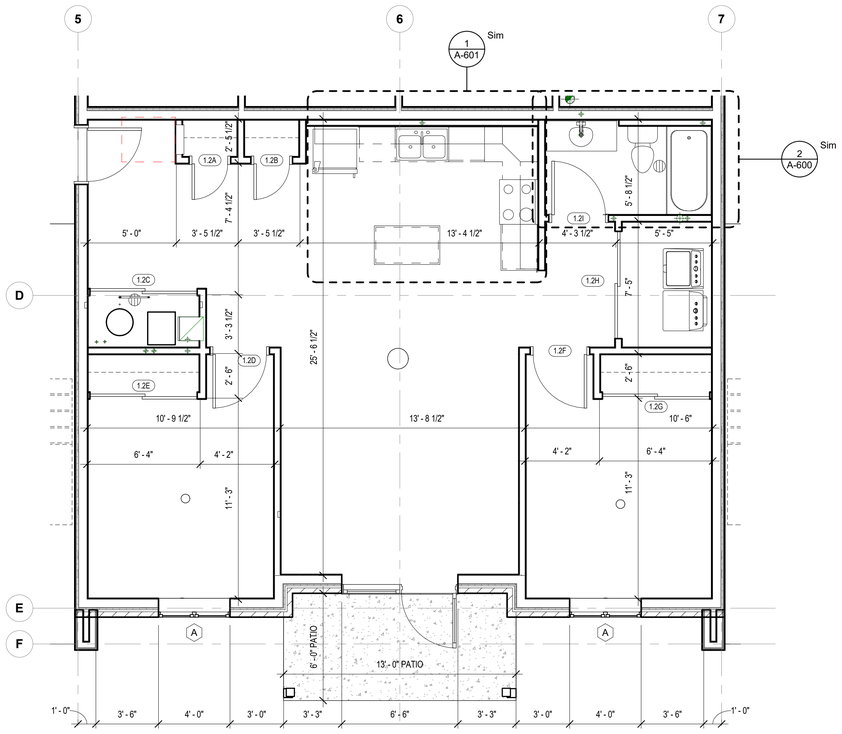
GENERAL TYPE B UNIT NOTES:

1. PROVIDE BLOCKING IN WALLS FOR FUTURE INSTALLATION OF GRAB BARS AT TOILETS AND SHOWERS, PER ICC A117.1-2017 SECTION 1004.11.1.

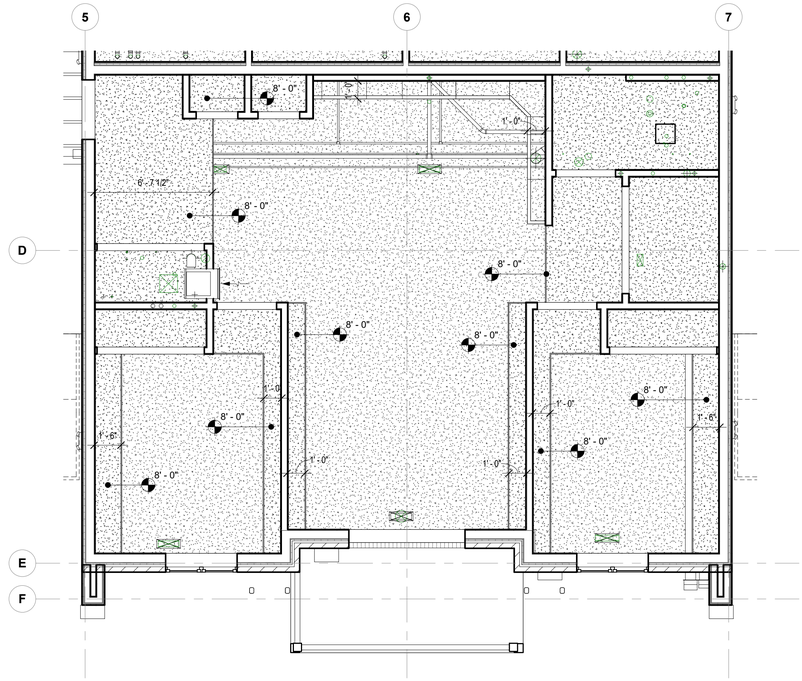
2. PROVIDE BLOCKING IN WALLS FOR FUTURE INSTALLATION OF SHOWER SEAT PER ICC A117.1-2017 SECTION 608.2.1.3, EXCEPTION 1.

3. RESTROOMS ARE TO COMPLY WITH ICC A117.1-2017 SECTION 1004.11.3.2 (OPTION B).

4. A CLEAR FLOOR SPACE SHALL BE PROVIDED AT ALL APPLIANCES PER ICC A117.1-2017 SECTION 1004.12.2.



1 A-111 TYP. UNIT - 2 BEDROOM PLAN 1.2
1/4" = 1'-0"



2 A-111 2 BEDROOM RFLECTED CEILING PLAN 1.2
1/4" = 1'-0"

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chkd Checker

description: TYP. UNIT - 2 BEDROOM PLAN 1.2

number: A-111

NOT FOR CONSTRUCTION

DOOR SCHEDULE 3 BED 1.3															
Door Number	Type	Door								Frame					Comments
		Width	Height	Thickness	Material	Finish	Under Cut	Fire Rating	Hardware	Type	Material	Finish	Jamb	Head	
1.3A	4	5' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
1.3B	3	2' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			STOREROOM LOCKSET
1.3C	4	5' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
1.3D	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			PRIVACY LOCKSET
1.3E	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
1.3F	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
1.3G	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
1.3H	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
1.3I	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
1.3J	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
1.3K	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET

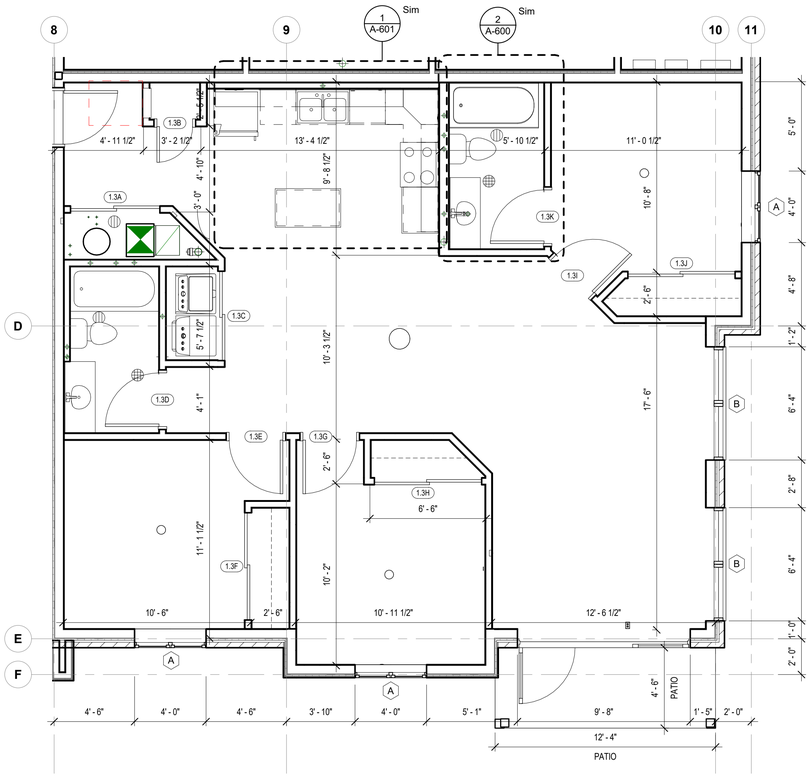
GENERAL TYPE B UNIT NOTES:

1. PROVIDE BLOCKING IN WALLS FOR FUTURE INSTALLATION OF GRAB BARS AT TOILETS AND SHOWERS, PER ICC A117.1-2017 SECTION 1004.11.1.

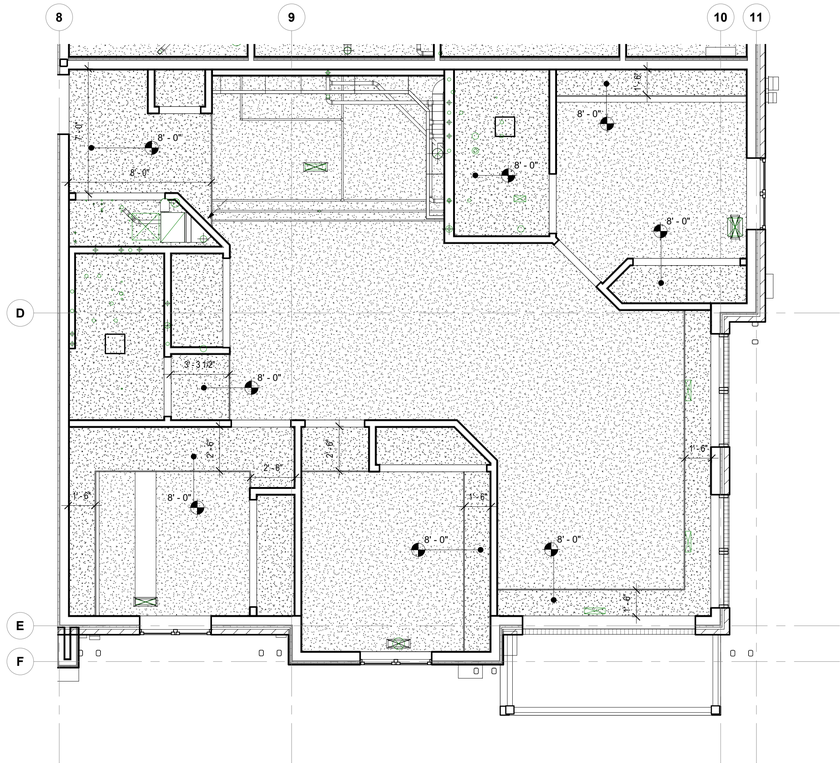
2. PROVIDE BLOCKING IN WALLS FOR FUTURE INSTALLATION OF SHOWER SEAT PER ICC A117.1-2017 SECTION 608.2.1.3, EXCEPTION 1.

3. RESTROOMS ARE TO COMPLY WITH ICC A117.1-2017 SECTION 1004.11.3.2 (OPTION B).

4. A CLEAR FLOOR SPACE SHALL BE PROVIDED AT ALL APPLIANCES PER ICC A117.1-2017 SECTION 1004.12.2.



1 A-112 TYP. UNIT - 3 BEDROOM PLAN 1.3
1/4" = 1'-0"



2 A-112 3 BEDROOM REFLECTED CEILING PLAN 1.3
1/4" = 1'-0"

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chkd Checker

TYP. UNIT - 3 BEDROOM PLAN 1.3

description

NOT FOR CONSTRUCTION

A-112

number

DOOR SCHEDULE 3 BED 2.1															
Door Number	Type	Door								Frame					Comments
		Width	Height	Thickness	Material	Finish	Under Cut	Fire Rating	Hardware	Type	Material	Finish	Jamb	Head	
2.1A	4	5' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
2.1B	3	2' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			STOREROOM LOCKSET
2.1C	4	5' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
2.1D	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
2.1E	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
2.1F	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
2.1G	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
2.1H	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
2.1I	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
2.1J	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
2.1K	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET

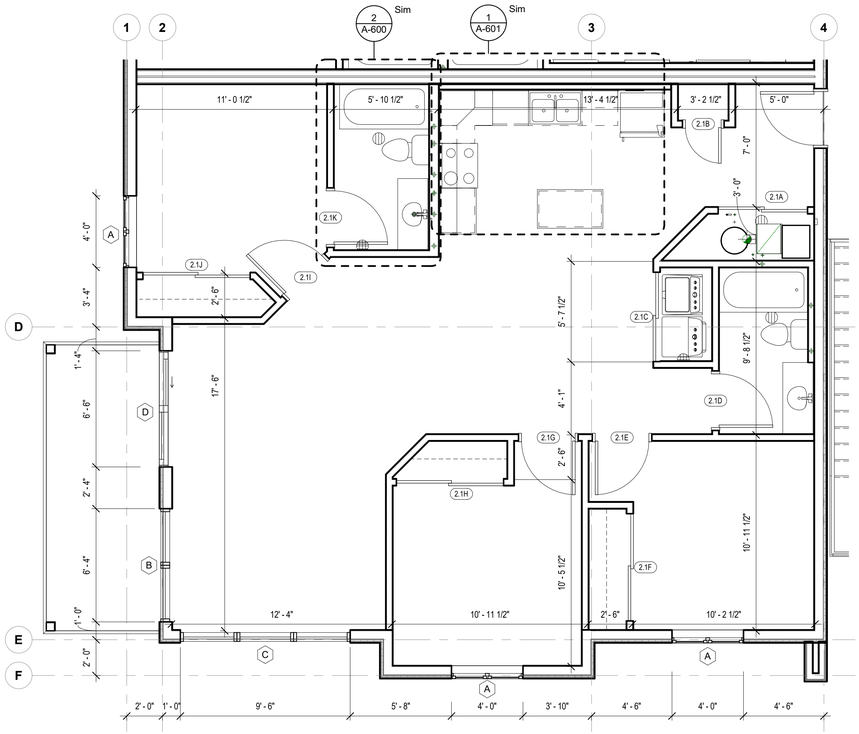
GENERAL TYPE B UNIT NOTES:

1. PROVIDE BLOCKING IN WALLS FOR FUTURE INSTALLATION OF GRAB BARS AT TOILETS AND SHOWERS, PER ICC A117.1-2017 SECTION 1004.11.1.

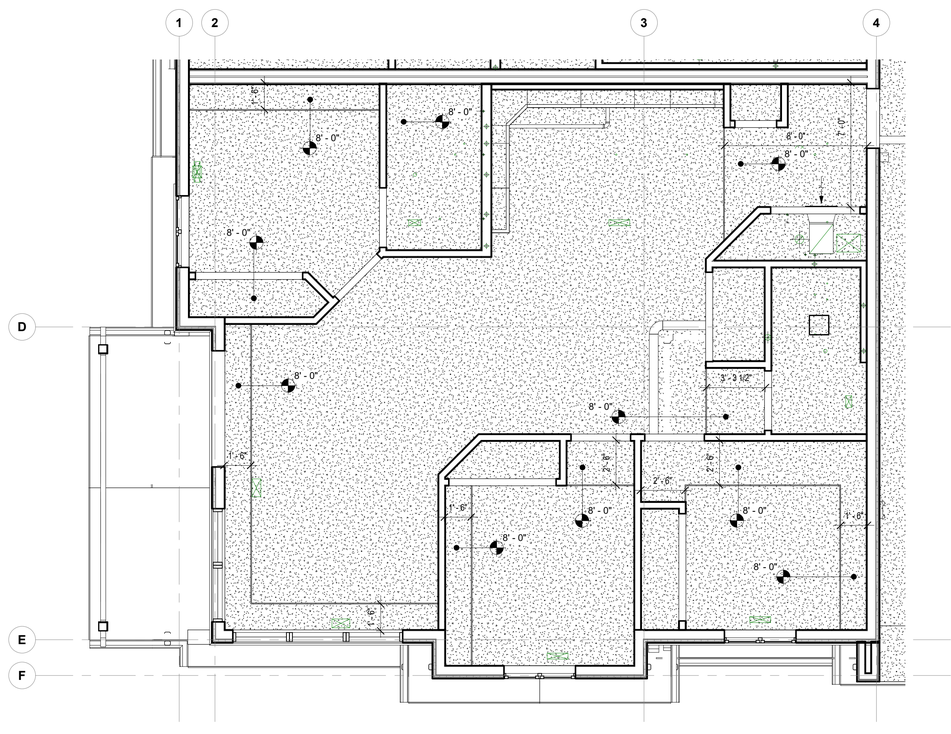
2. PROVIDE BLOCKING IN WALLS FOR FUTURE INSTALLATION OF SHOWER SEAT PER ICC A117.1-2017 SECTION 608.2.1.3, EXCEPTION 1.

3. RESTROOMS ARE TO COMPLY WITH ICC A117.1-2017 SECTION 1004.11.3.2 (OPTION B).

4. A CLEAR FLOOR SPACE SHALL BE PROVIDED AT ALL APPLIANCES PER ICC A117.1-2017 SECTION 1004.12.2.



1 A-113 3 BEDROOM PLAN 2.1
1/4" = 1'-0"



2 A-113 3 BEDROOM REFLECTED CEILING PLAN 2.1
1/4" = 1'-0"

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drawn Author

chkd Checker

TYP. UNIT - 3 BEDROOM PLAN 2.1

description

NOT FOR CONSTRUCTION

A-113

number

DOOR SCHEDULE 2 BED 2.2															
Door Number	Type	Door								Frame					Comments
		Width	Height	Thickness	Material	Finish	Under Cut	Fire Rating	Hardware	Type	Material	Finish	Jamb	Head	
2.2A	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
2.2B	3	2' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			STOREROOM LOCKSET
2.2C	3	2' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			STOREROOM LOCKSET
2.2D	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
2.2E	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
2.2F	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
2.2G	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
2.2H	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
2.2I	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET

GENERAL TYPE B UNIT NOTES:

1. PROVIDE BLOCKING IN WALLS FOR FUTURE INSTALLATION OF GRAB BARS AT TOILETS AND SHOWERS, PER ICC A117.1-2017 SECTION 1004.11.1.

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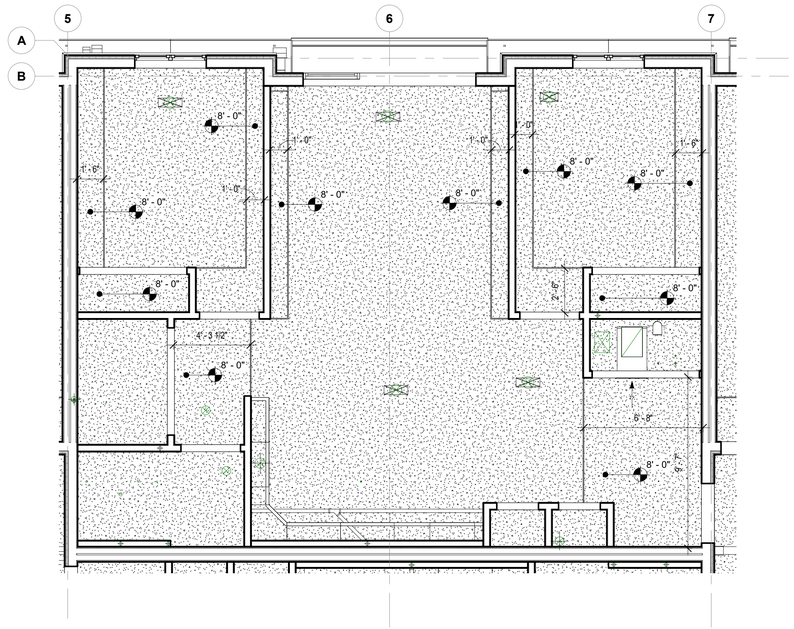
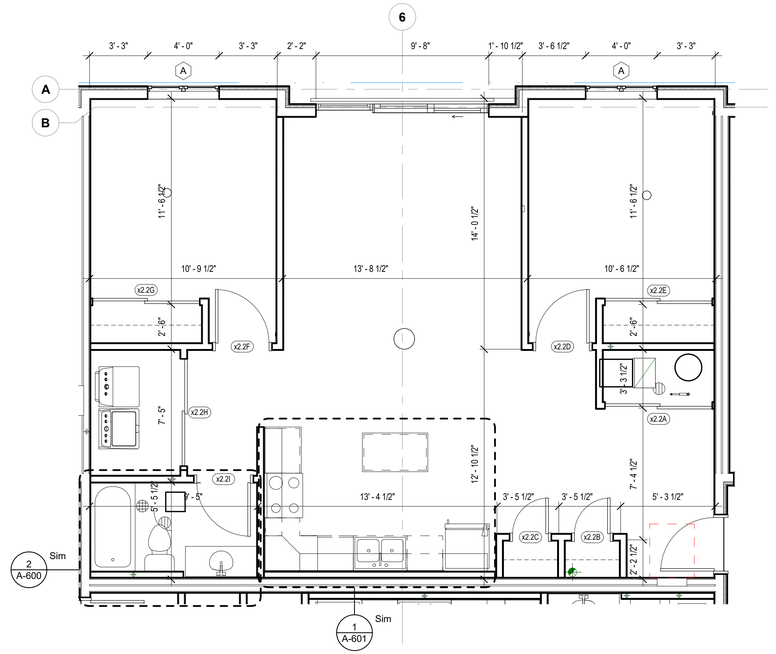
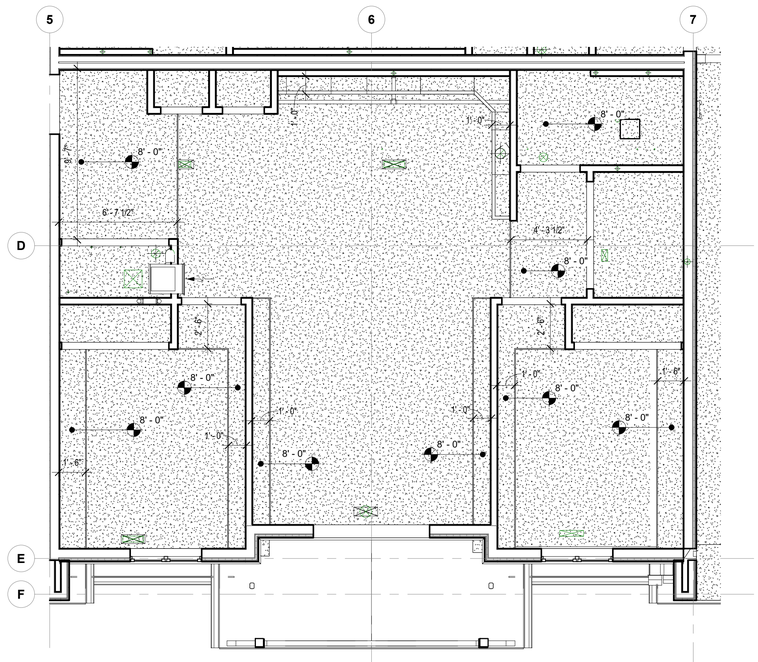


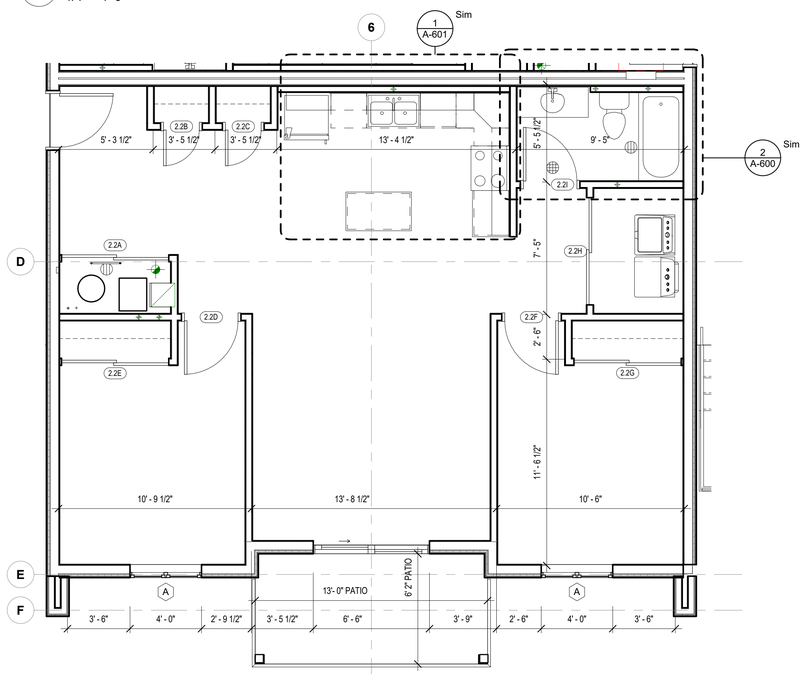
1 A-114 2 BEDROOM REFLECTED CEILING PLAN 2.2 (MIRRORED)
1/4" = 1'-0"



2 A-114 2 BEDROOM PLAN 2.2 (MIRRORED)
1/4" = 1'-0"



3 A-114 2 BEDROOM REFLECTED CEILING PLAN 2.2
1/4" = 1'-0"



4 A-114 2 BEDROOM PLAN 2.2
1/4" = 1'-0"

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Draft Elevations	April 2022
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issue / revision | job # | drawn | chkd

168-09
Author
Checker

description

TYP. UNIT - 2 BEDROOM PLAN 2.2

number

A-114

NOT FOR CONSTRUCTION

DOOR SCHEDULE 3 BED 2.3															
Door Number	Type	Door								Frame					Comments
		Width	Height	Thickness	Material	Finish	Under Cut	Fire Rating	Hardware	Type	Material	Finish	Jamb	Head	
2.3A	4	5' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
2.3B	3	2' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			STOREROOM LOCKSET
2.3C	4	5' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
2.3D	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
2.3E	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
2.3F	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
2.3G	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
2.3H	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
2.3I	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
2.3J	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
2.3K	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET

GENERAL TYPE B UNIT NOTES:

1. PROVIDE BLOCKING IN WALLS FOR FUTURE INSTALLATION OF GRAB BARS AT TOILETS AND SHOWERS, PER ICC A117.1-2017 SECTION 1004.11.1.

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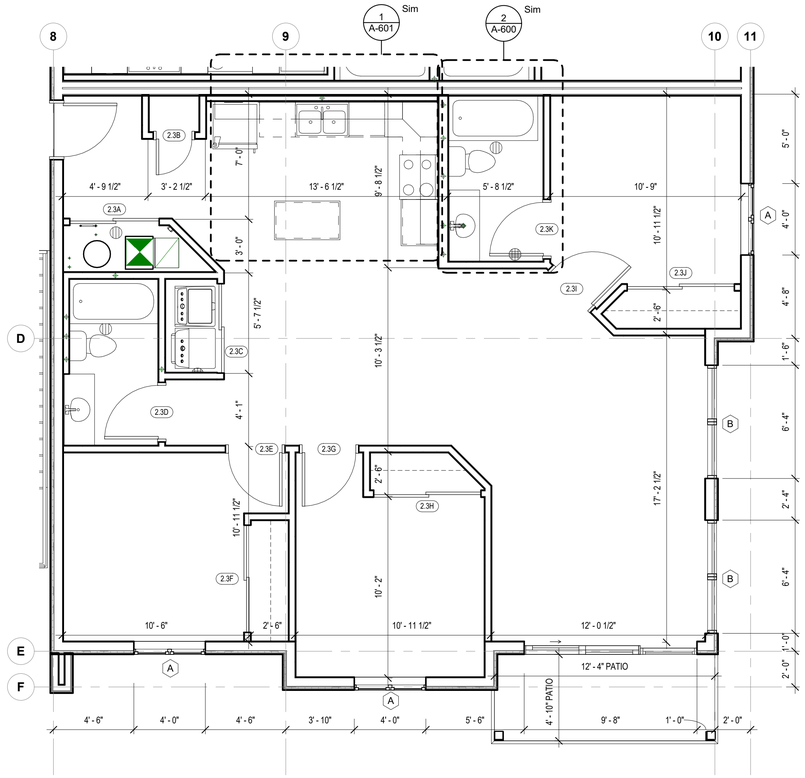
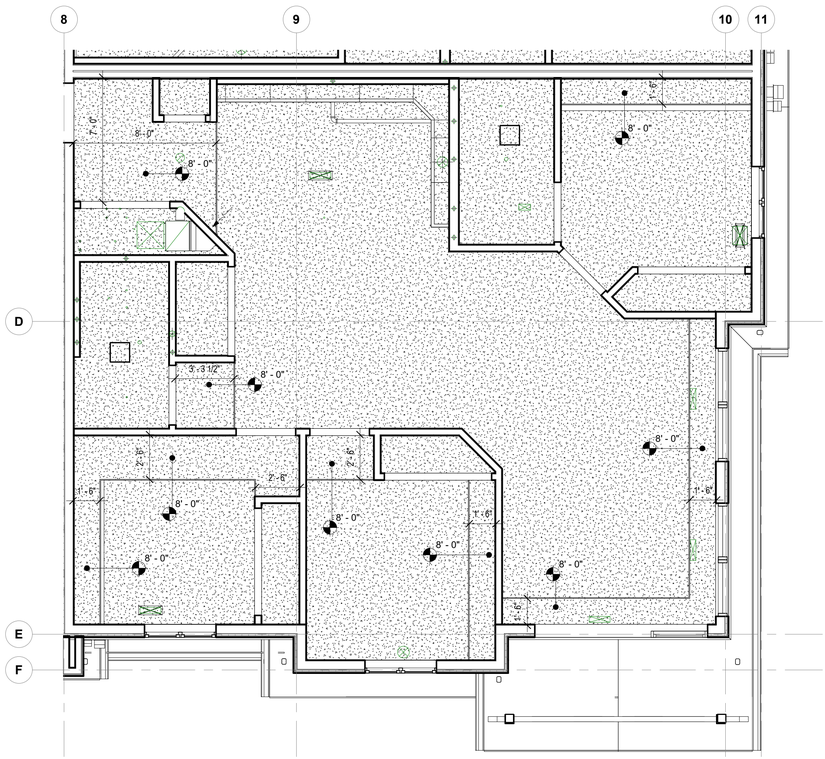


1 A-115 TYP. UNIT - 3 BEDROOM PLAN 2.3
1/4" = 1'-0"



2 A-115 3 BEDROOM REFLECTED CEILING PLAN 2.3
1/4" = 1'-0"

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chkd Checker

description
TYP. UNIT - 3 BEDROOM PLAN 2.3

number
A-115

NOT FOR CONSTRUCTION

DOOR SCHEDULE 3 BED 2.4															
Door Number	Type	Door								Frame					Comments
		Width	Height	Thickness	Material	Finish	Under Cut	Fire Rating	Hardware	Type	Material	Finish	Jamb	Head	
2.4A	3	2' - 6"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			STOREROOM LOCKSET
2.4B	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
2.4C	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
2.4D	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
2.4E	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
2.4F	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
2.4G	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
2.4H	3	3' - 0"	7' - 0"	1 3/4"	WD	PT		-		1	WD	PT			PRIVACY LOCKSET
2.4I	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
2.4J	4	5' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR
2.4K	4	6' - 0"	7' - 0"	1 3/4"	WD	PT		-		4	WD	PT			SLIDING CLOSET DOOR

GENERAL TYPE B UNIT NOTES:

1. PROVIDE BLOCKING IN WALLS FOR FUTURE INSTALLATION OF GRAB BARS AT TOILETS AND SHOWERS, PER ICC A117.1-2017 SECTION 1004.11.1.

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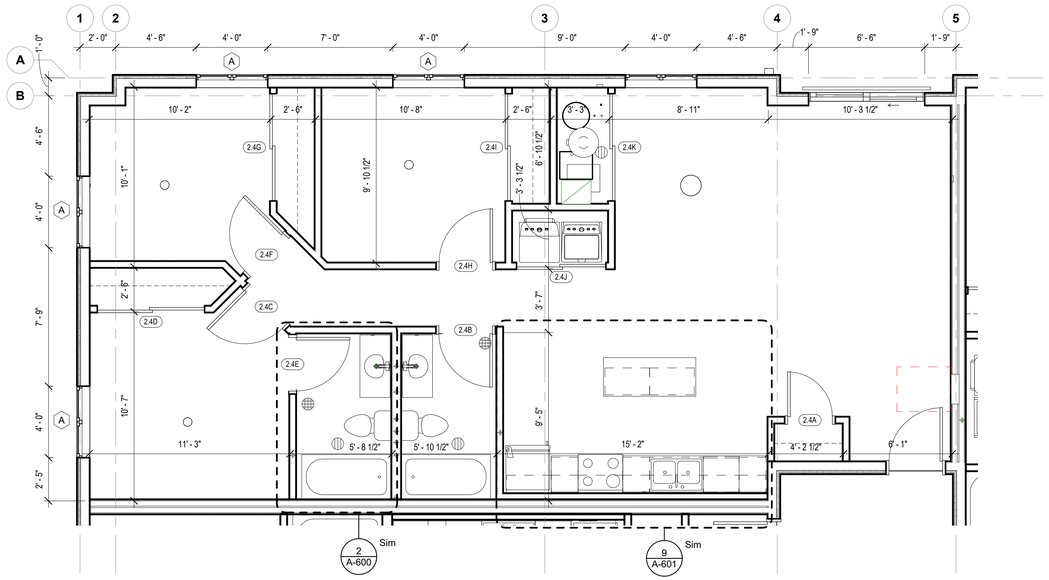
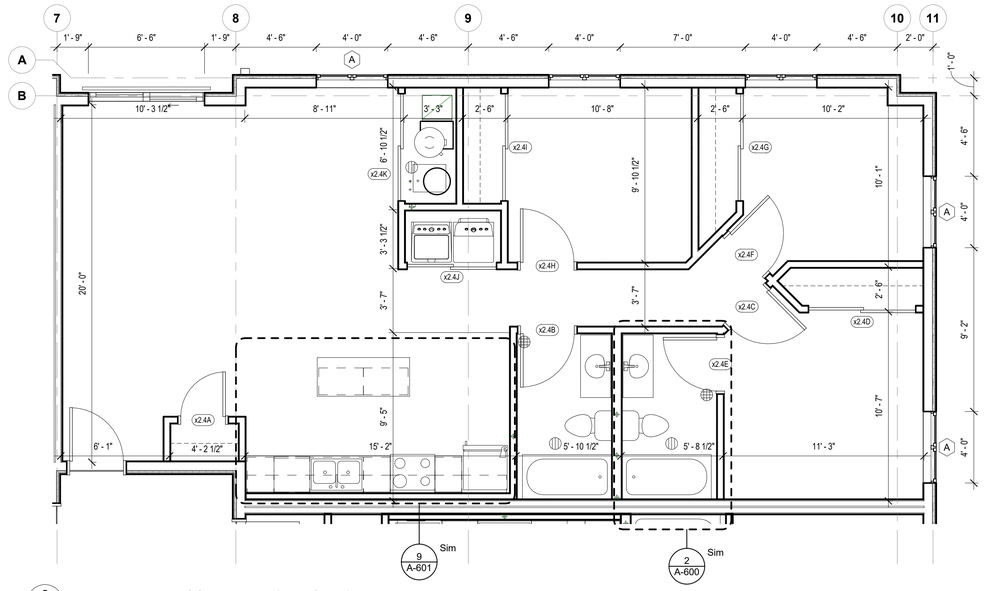
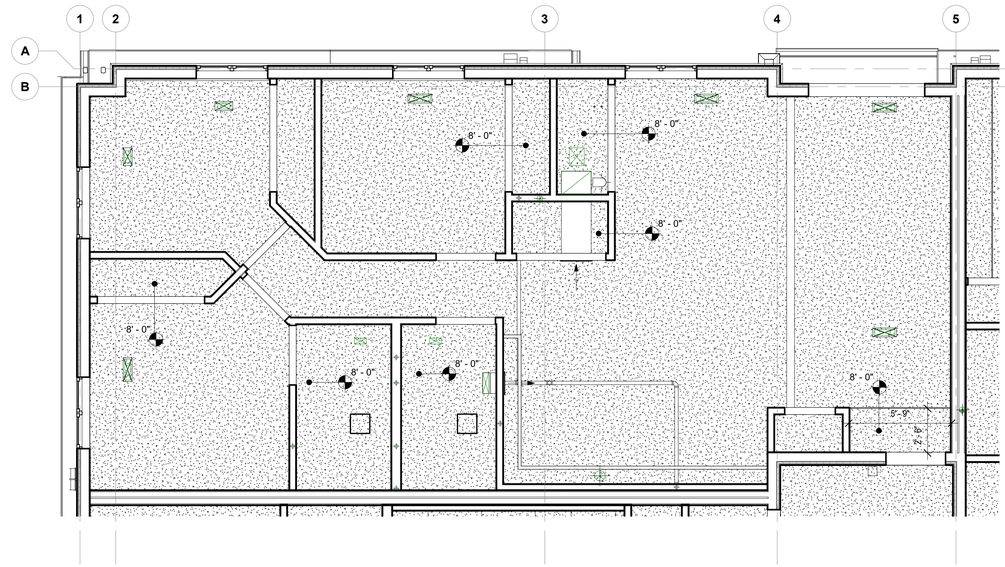


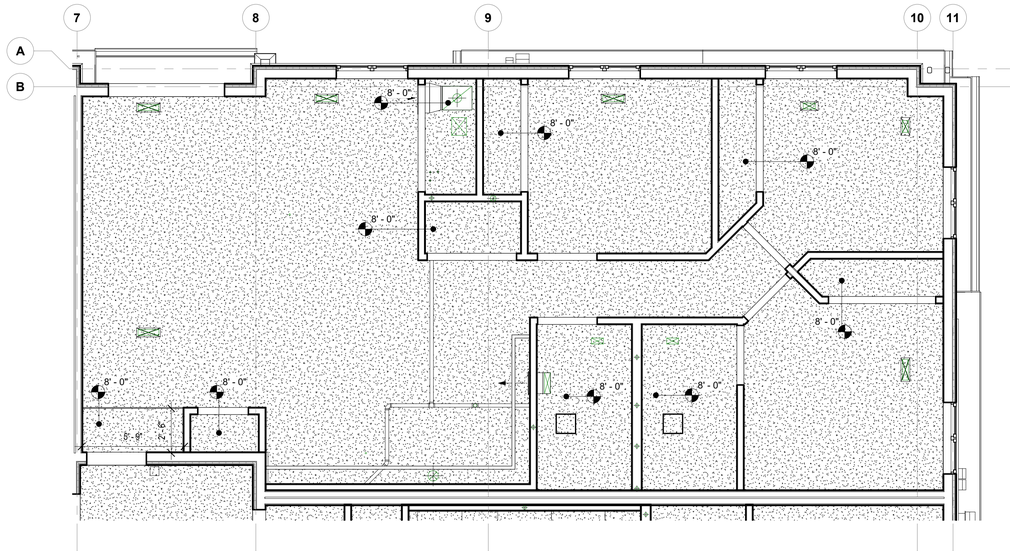
1 A-116 TYP. UNIT - 3 BEDROOM PLAN 2.4
1/4" = 1'-0"



2 A-116 TYP. UNIT - 3 BEDROOM PLAN 2.4 (MIRRORED)
1/4" = 1'-0"



3 A-116 TYP. UNIT - 3 BEDROOM PLAN 2.4
1/4" = 1'-0"



4 A-116 TYP. UNIT - 3 BEDROOM PLAN 2.4 (MIRRORED)
1/4" = 1'-0"

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chkd Checker

description
TYP. UNIT - 3 BEDROOM PLAN 2.4

number
A-116

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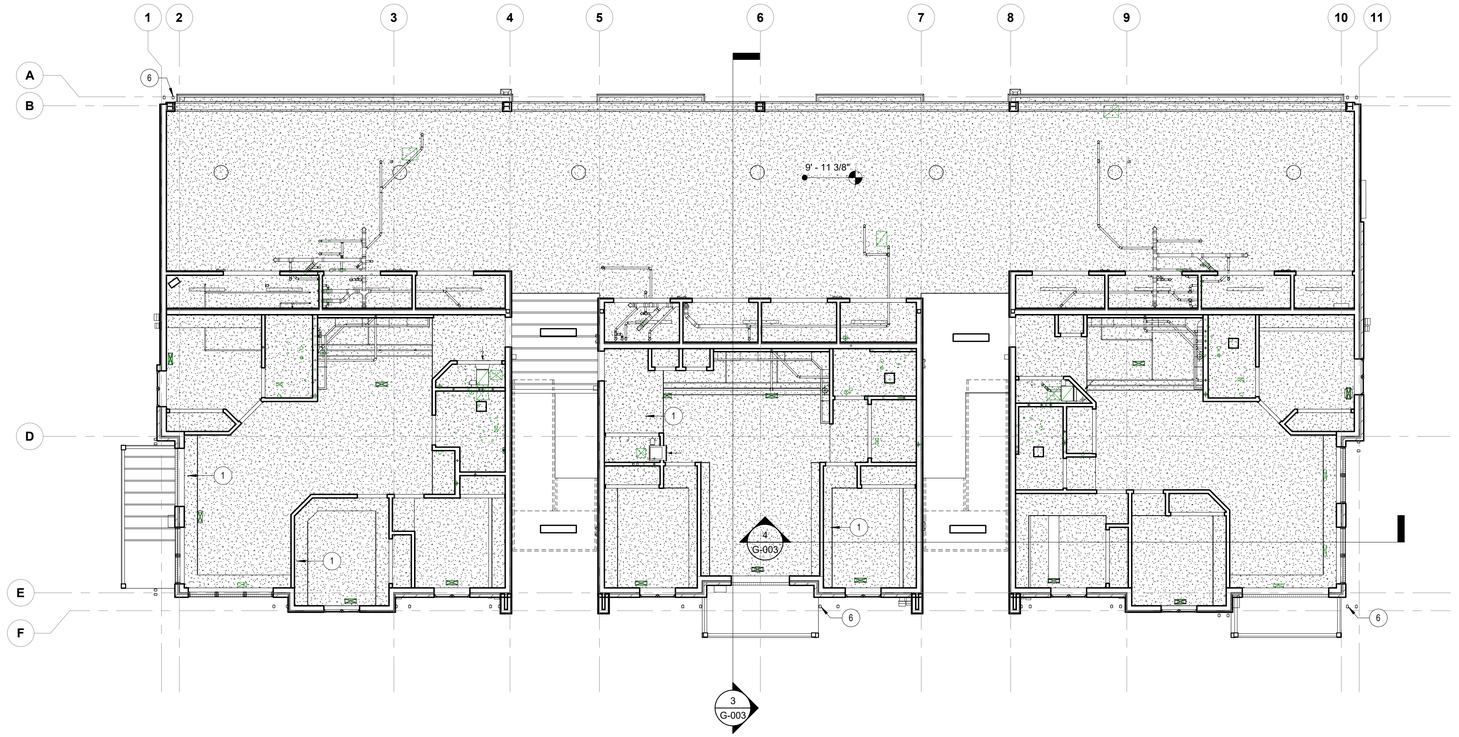

1 A-200 FIRST FLOOR REFLECTED CEILING PLAN
1/8" = 1'-0"

0 4' 8' 16'

NORTH

2 A-200 SECOND FLOOR REFLECTED CEILING PLAN
1/8" = 1'-0"

0 4' 8' 16'

NORTH

(X). NOTES LEGEND REFLECTED CEILING PLAN

1 FIBER CEMENT SOFFIT PANELS, TYP.
2 FIBER CEMENT PANELS AT SOFFIT & BULKHEAD
3 EXTERIOR-RATED GYPSUM BOARD CEILING IN STAIRWELLS
4 EXPOSED GLULAM WOOD TRUSS & BEAM
5 GUTTER, TYPICAL
6 DOWNSPOUT, TYPICAL

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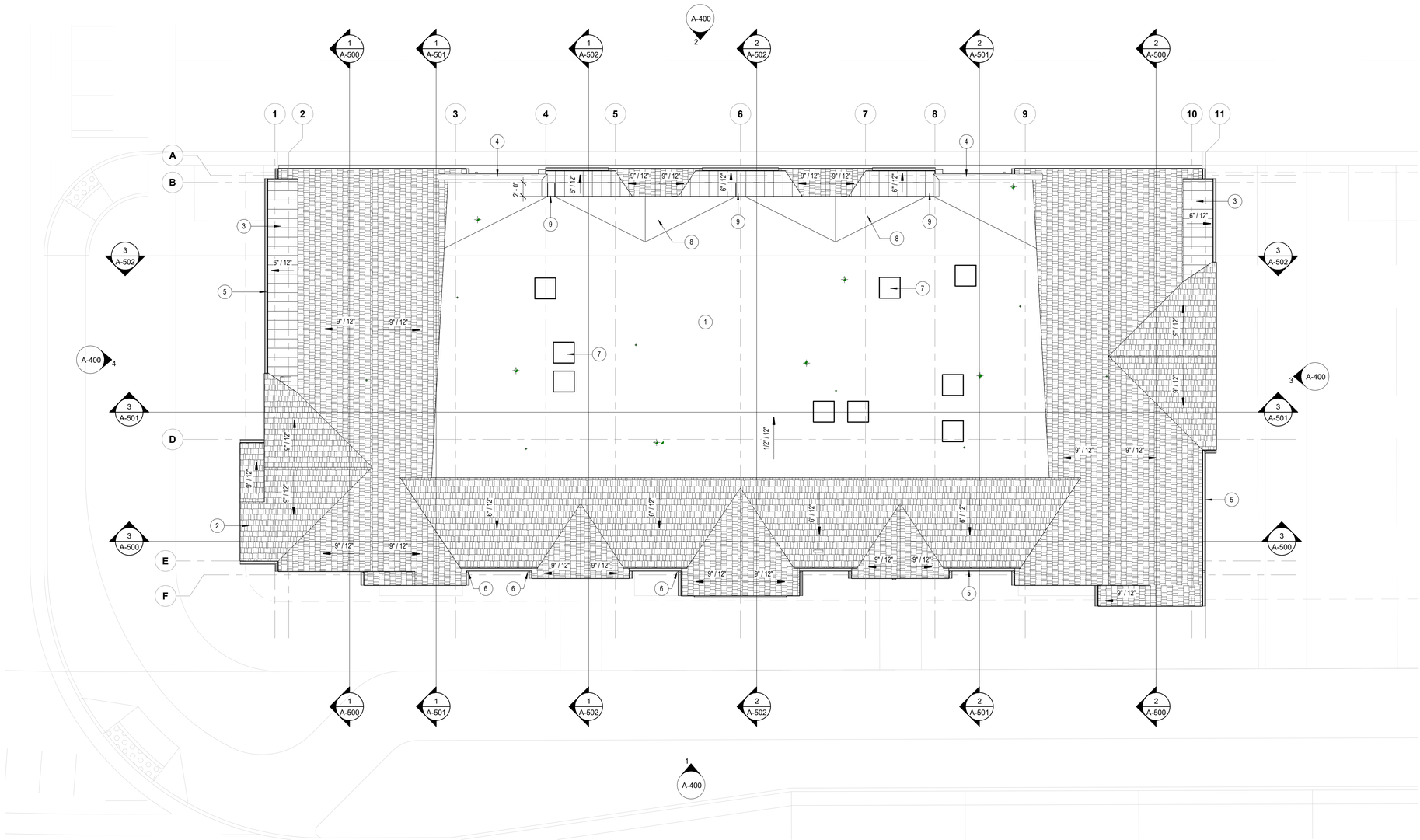
description

OVERALL REFLECTED CEILING PLANS

NOT FOR CONSTRUCTION

number A-200



NOTES LEGEND ROOF PLAN

(X) . NOTES LEGEND ROOF PLAN

1 TPO MEMBRANE ON GYPSUM PROTECTION BOARD
2 COMPOSITION ASPHALT SHINGLE ROOF, TYPICAL
3 STANDING SEAM ROOF, TYPICAL
4 METAL PARAPET CAP
5 GUTTER, TYPICAL
6 DOWNSPOUT, TYPICAL
7 MECHANICAL UNITS, TYPICAL
8 MEMBRANE ROOF CRICKET, TYP.
9 SCUPPER THROUGH SLOPED ROOF AREA

1 / A-300 9-PLEX BUILDING - ROOF PLAN
1/8" = 1'-0"

0 4' 8' 16' NORTH

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job # 168-09
drawn Author
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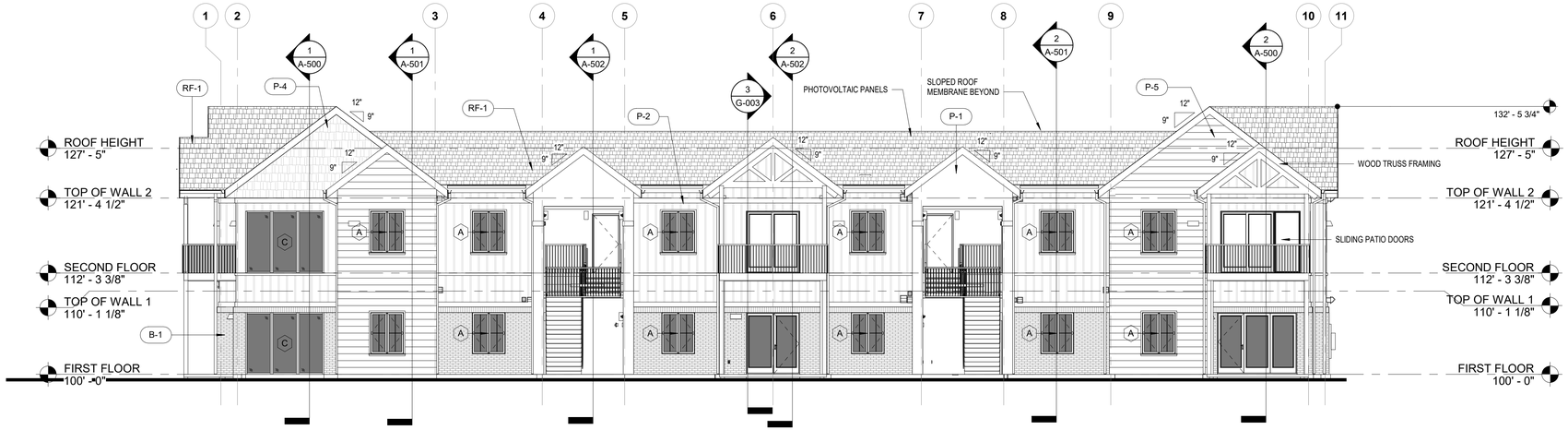
description
ROOF PLAN

NOT FOR CONSTRUCTION

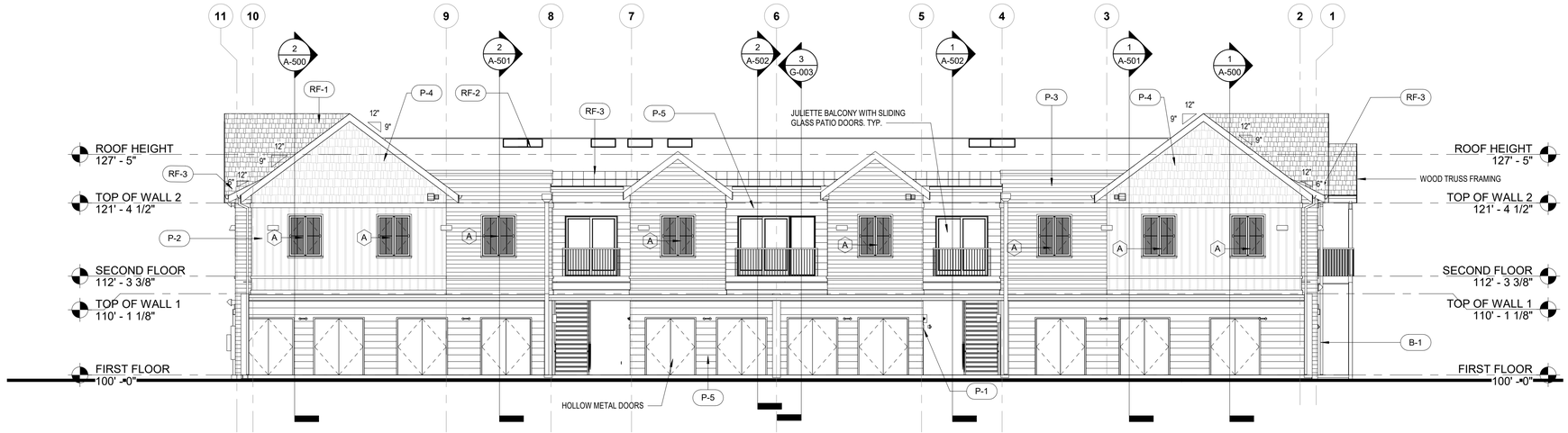
number
A-300

KEY	DESCRIPTION
B-1	BRICK VENEER, CHARCOAL COLORED
P-1	FIBER CEMENT PANEL BOARD SIDING, ACCENT COLOR
P-2	FIBER CEMENT BOARD & BATTEN SIDING
P-3	FIBER CEMENT 6" LAP SIDING
P-4	FIBER CEMENT SHINGLE WALL PANEL
P-5	FIBER CEMENT 10" LAP SIDING
RF-1	ASPHALT SHINGLE ROOF
RF-2	ROOF MEMBRANE
RF-3	STANDING SEAM ROOF



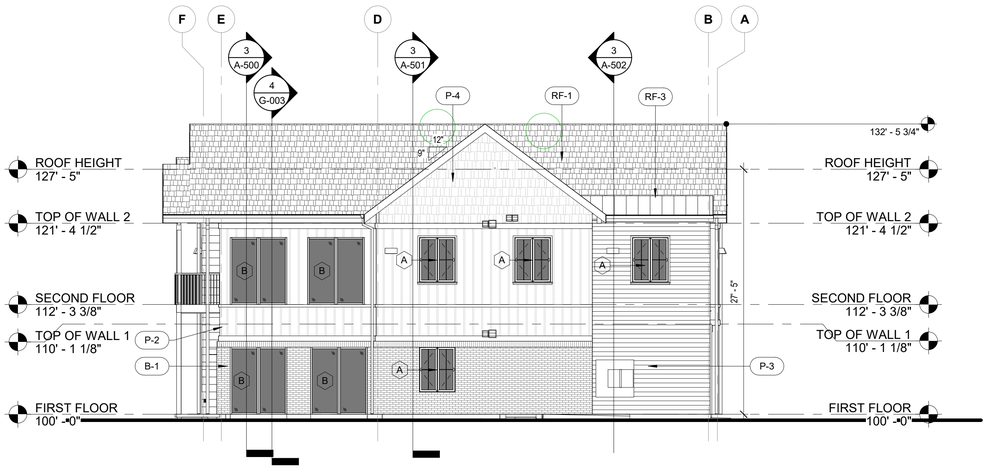
1 A-400 SOUTH ELEVATION
1/8" = 1'-0"

0 4' 8' 16'



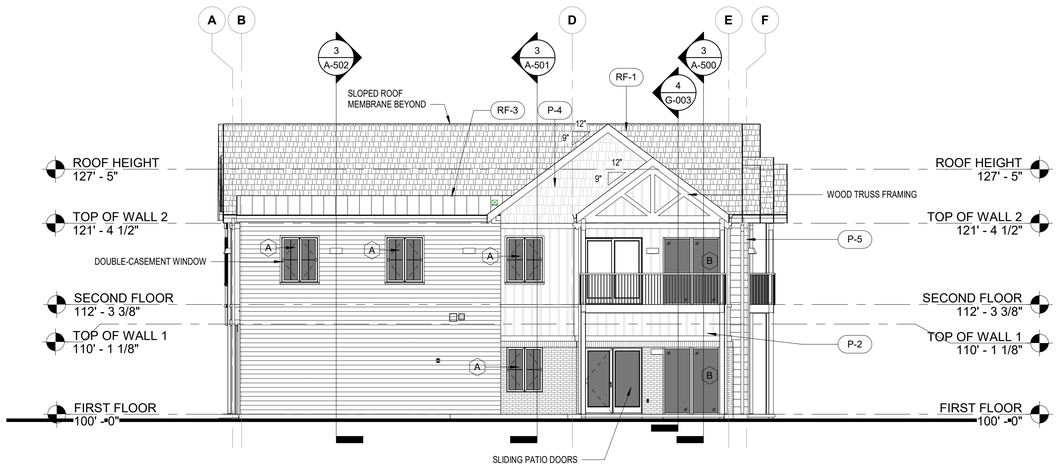
2 A-400 NORTH ELEVATION
1/8" = 1'-0"

0 4' 8' 16'



3 A-400 EAST ELEVATION
1/8" = 1'-0"

0 4' 8' 16'



4 A-400 WEST ELEVATION
1/8" = 1'-0"

0 4' 8' 16'

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project: WILLOUGHBY CORNER 9-PLEX FLATS
N. 120th St. and E. Emma St.
Lafayette, Colorado 80026

seal

issue / revision date:
Design Update 03/17/22
Draft Elevations April 2022
Schematic Design 06/10/2022
Design Development 09/09/2022

job # 168-09
drawn Author
chkd Checker

NOT FOR CONSTRUCTION

description: FLATS 1 BLDG ELEVATIONS

number: A-400

KEY	DESCRIPTION
B-1	BRICK VENEER, CHARCOAL COLORED
P-1	FIBER CEMENT PANEL BOARD SIDING, ACCENT COLOR
P-2	FIBER CEMENT BOARD & BATTEN SIDING
P-3	FIBER CEMENT 6" LAP SIDING
P-4	FIBER CEMENT SHINGLE WALL PANEL
P-5	FIBER CEMENT 10" LAP SIDING
RF-1	ASPHALT SHINGLE ROOF
RF-2	ROOF MEMBRANE
RF-3	STANDING SEAM ROOF

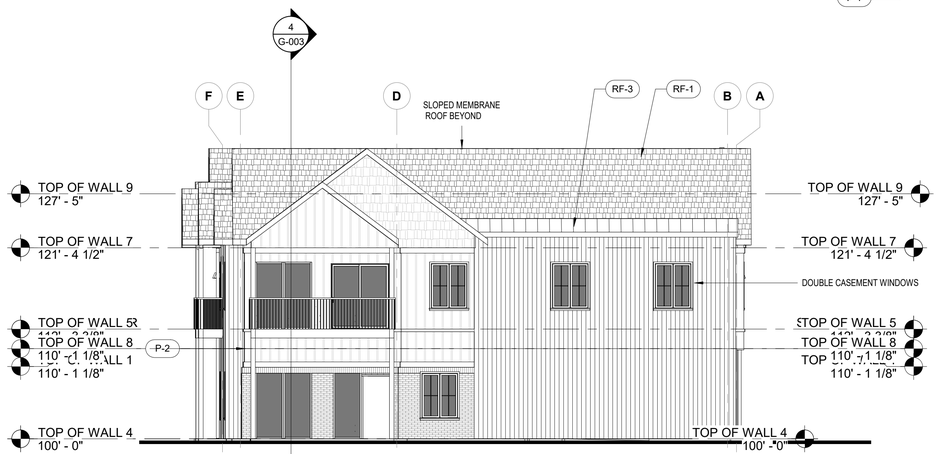
2 A-401 Building 2 South
1/8" = 1'-0"

0 4' 8' 16'

WORK IN PROGRESS

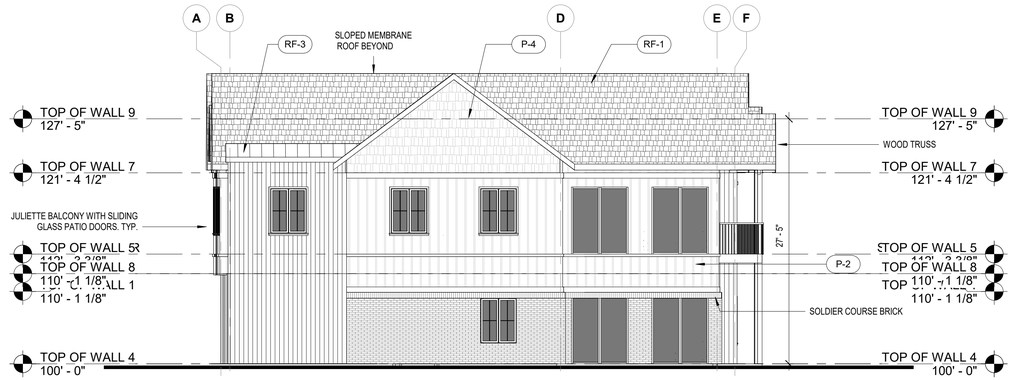
1 A-401 Building 2 North
1/8" = 1'-0"

0 4' 8' 16'



4 A-401 Building 2 East
1/8" = 1'-0"

0 4' 8' 16'



3 A-401 Building 2 West
1/8" = 1'-0"

0 4' 8' 16'

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FLATS 2 BLDG ELEVATIONS

description

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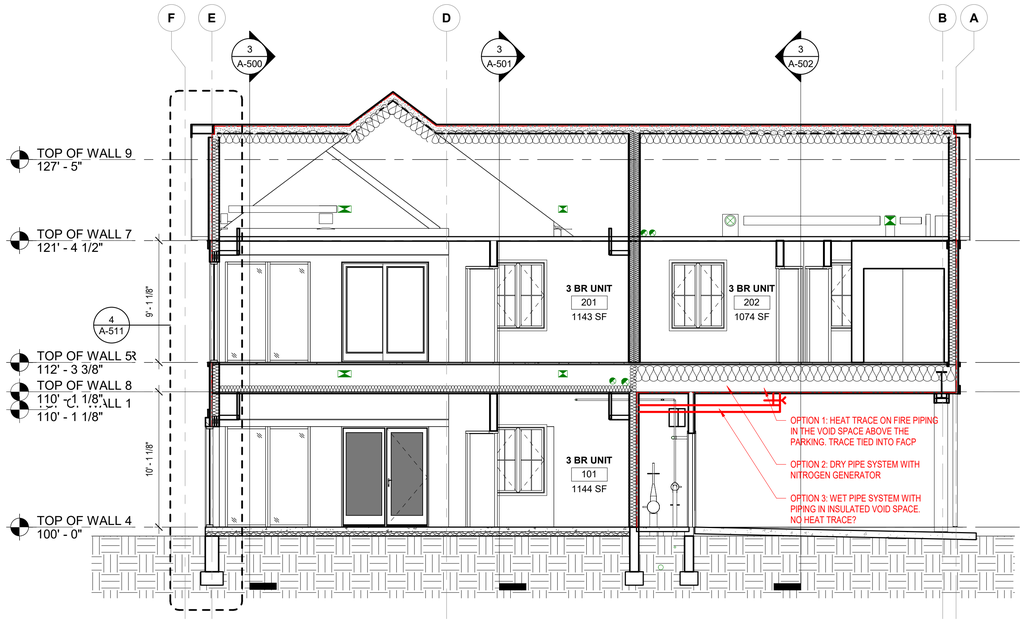
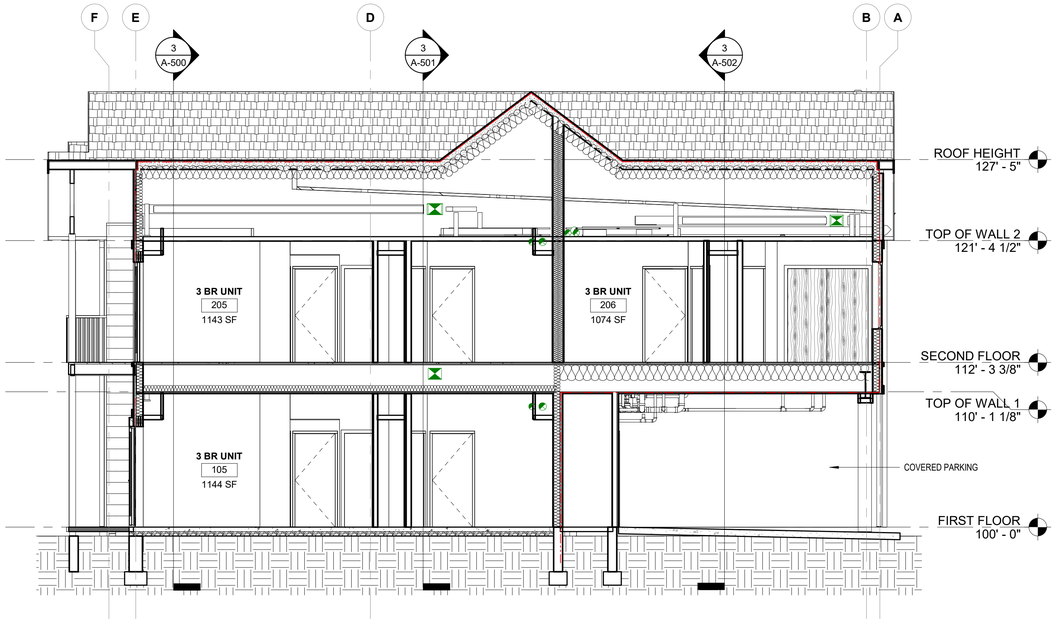
A-401

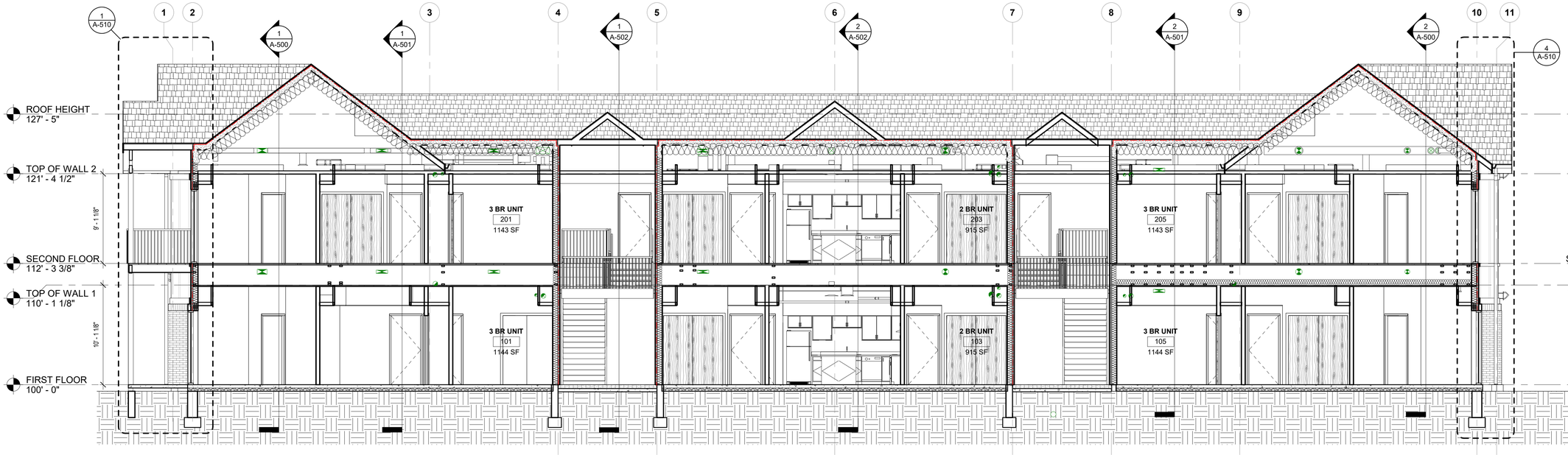
number



1 A-500 BUILDING SECTION N-S 1
3/16" = 1'-0"



2 A-500 BUILDING SECTION N-S 2
3/16" = 1'-0"



3 A-500 BUILDING SECTION E-W 1
3/16" = 1'-0"

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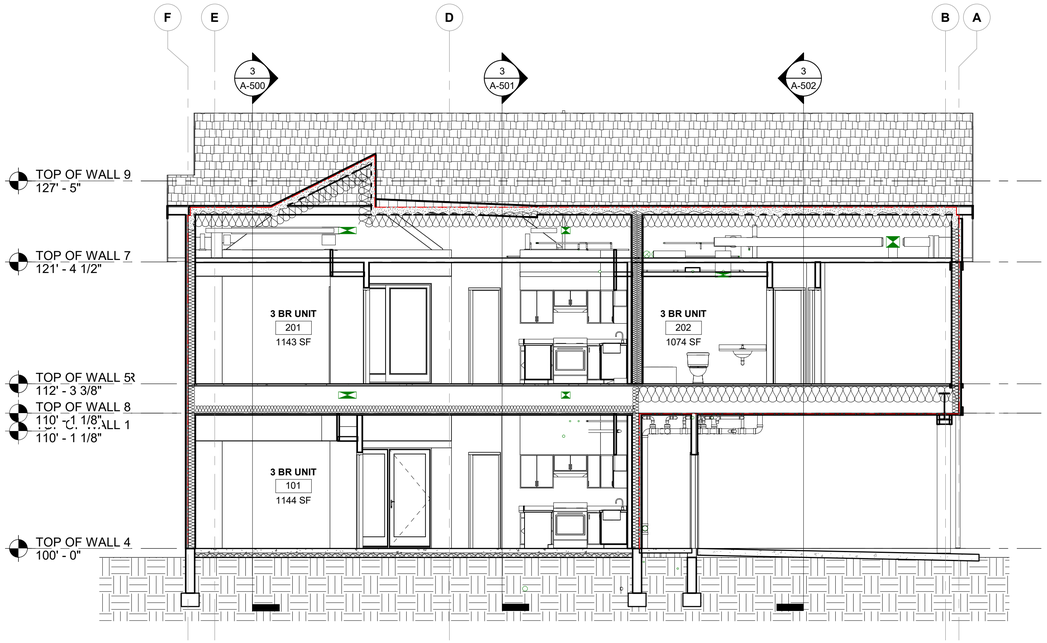
BUILDING SECTIONS

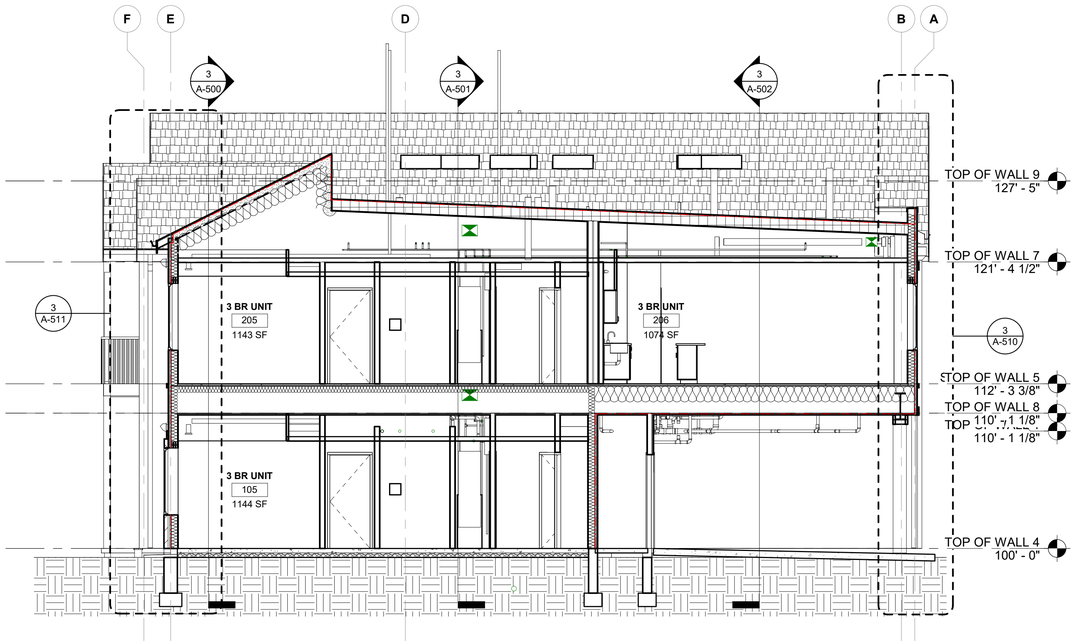
number

A-500

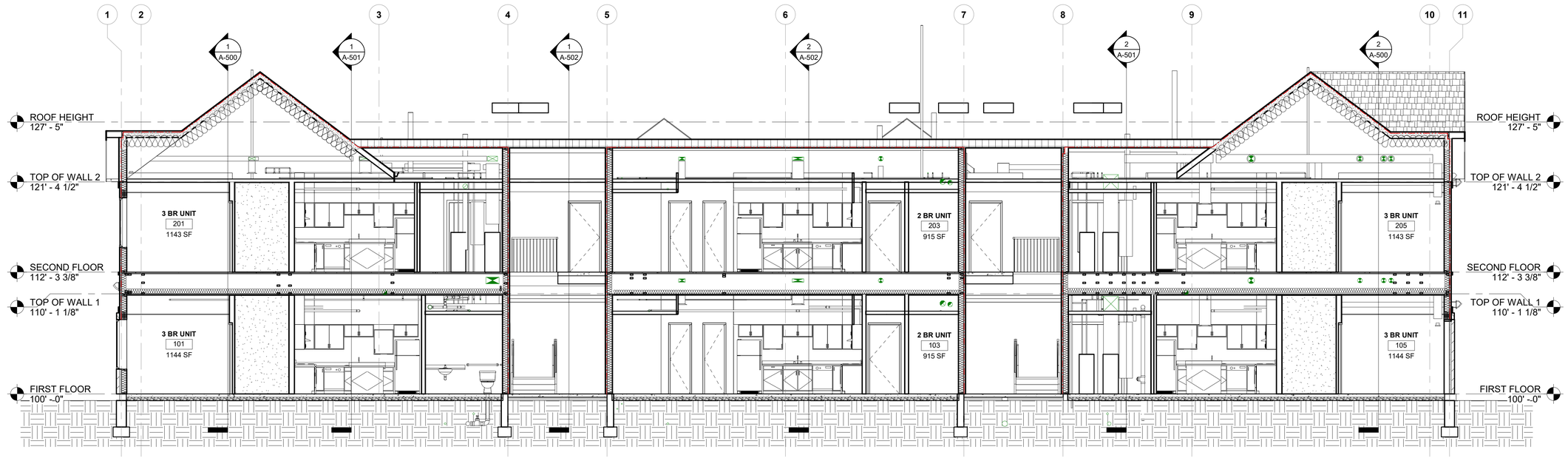
NOT FOR CONSTRUCTION



1 A-501 BUILDING SECTION N-S 3
3/16" = 1'-0"



2 A-501 BUILDING SECTION N-S 4
3/16" = 1'-0"



3 A-501 BUILDING SECTION E-W 2
3/16" = 1'-0"

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A-501

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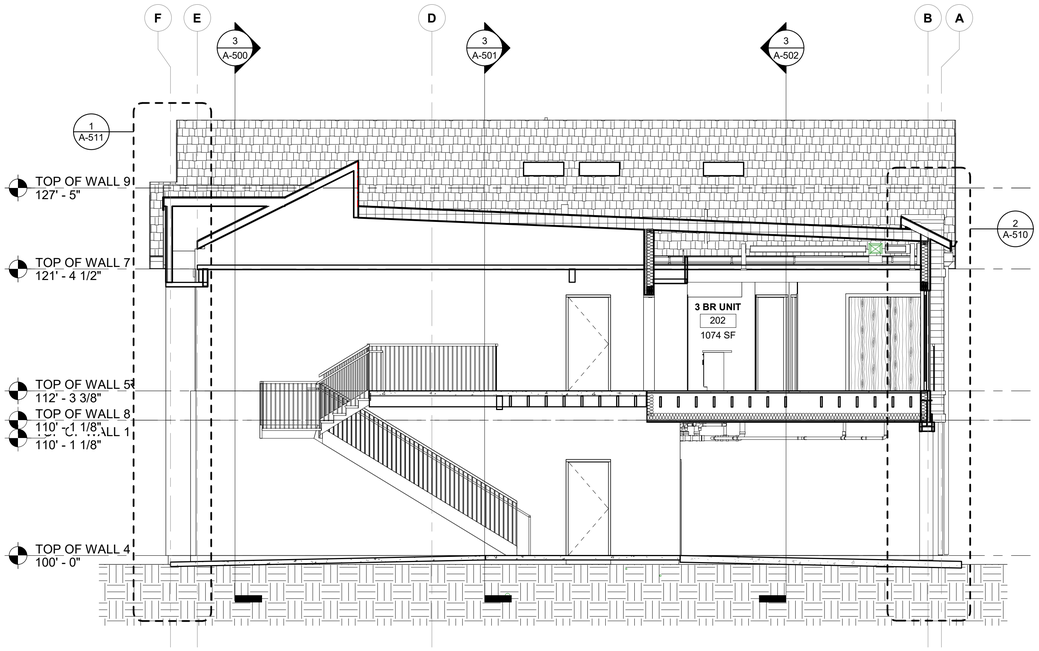
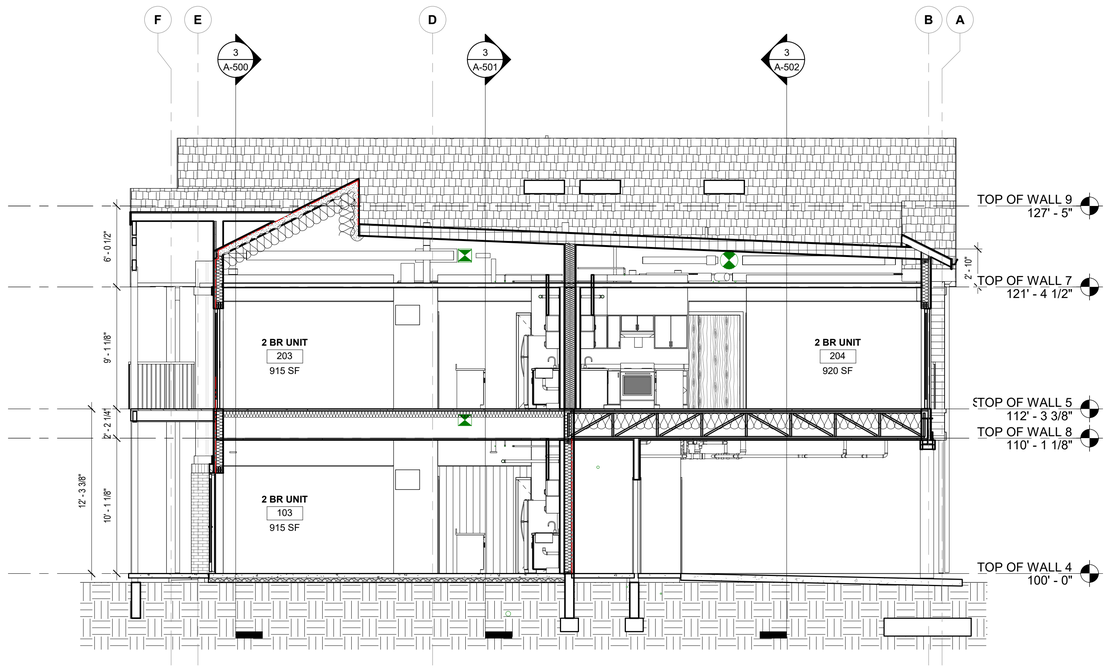
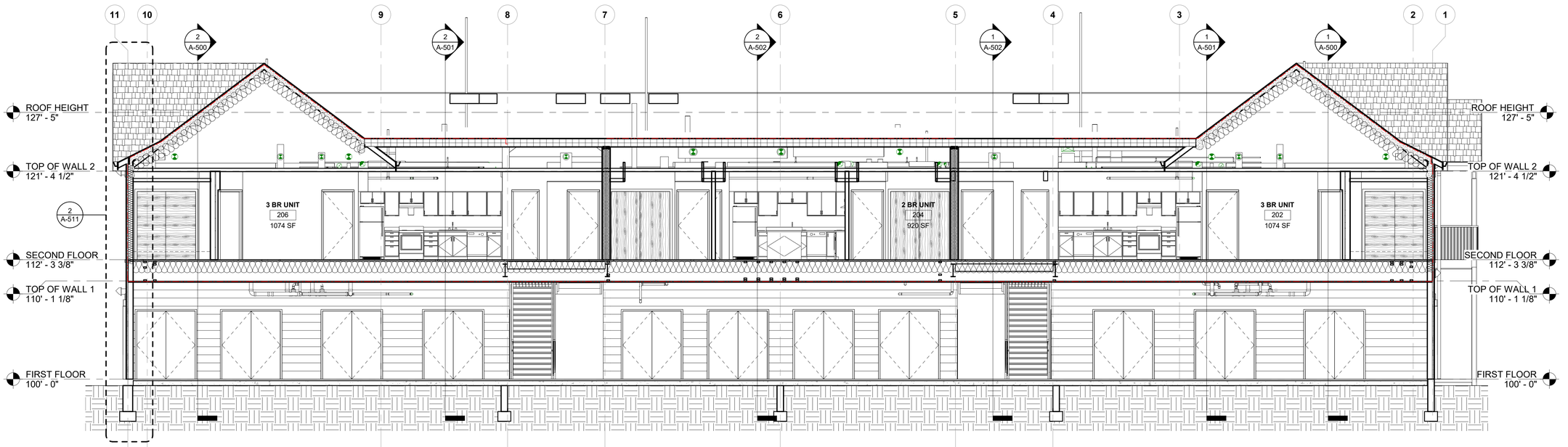


1 A-502 BUILDING SECTION N-S 5
3/16" = 1'-0"



2 A-502 BUILDING SECTION N-S 6
3/16" = 1'-0"



3 A-502 BUILDING SECTION E-W 3
3/16" = 1'-0"

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BUILDING SECTIONS

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A-502

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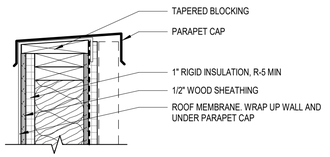
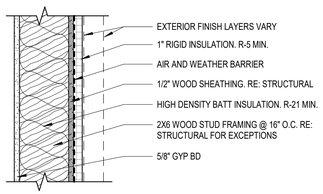
WALL SECTION LEGEND

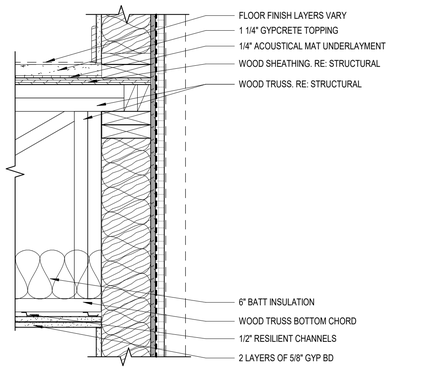
TYPICAL PARAPET (RE: ROOF DETAILS)



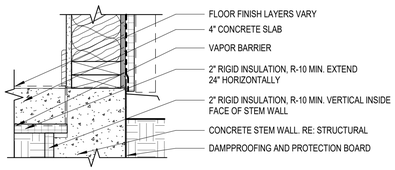
TYPICAL EXTERIOR WALL CONSTRUCTION

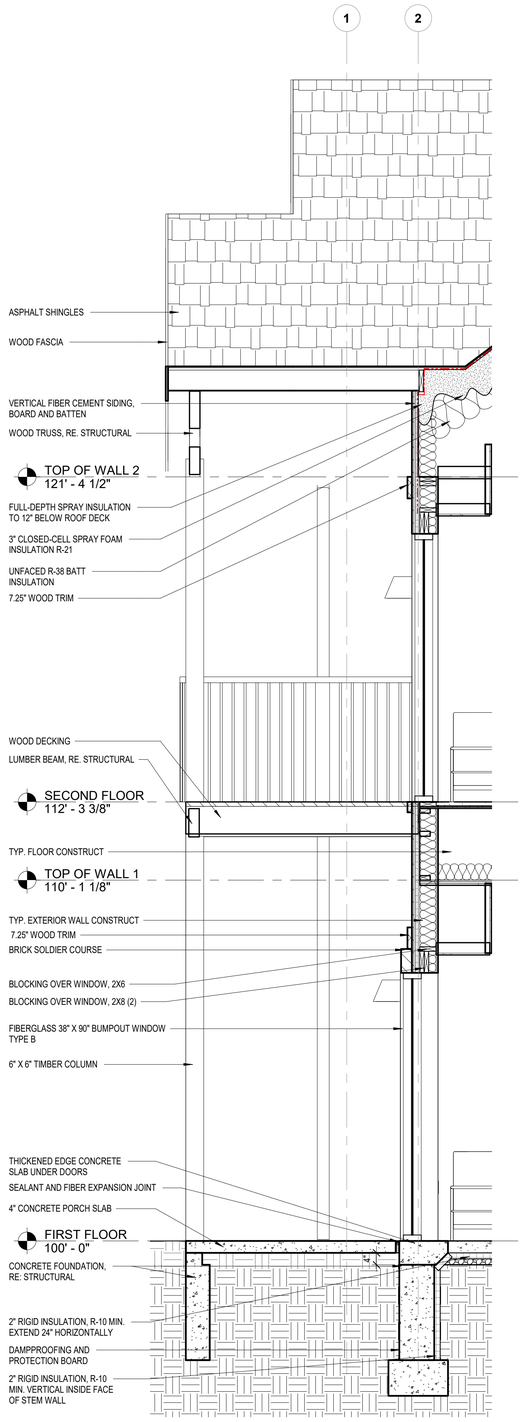


TYPICAL UNIT FLOOR CONSTRUCTION

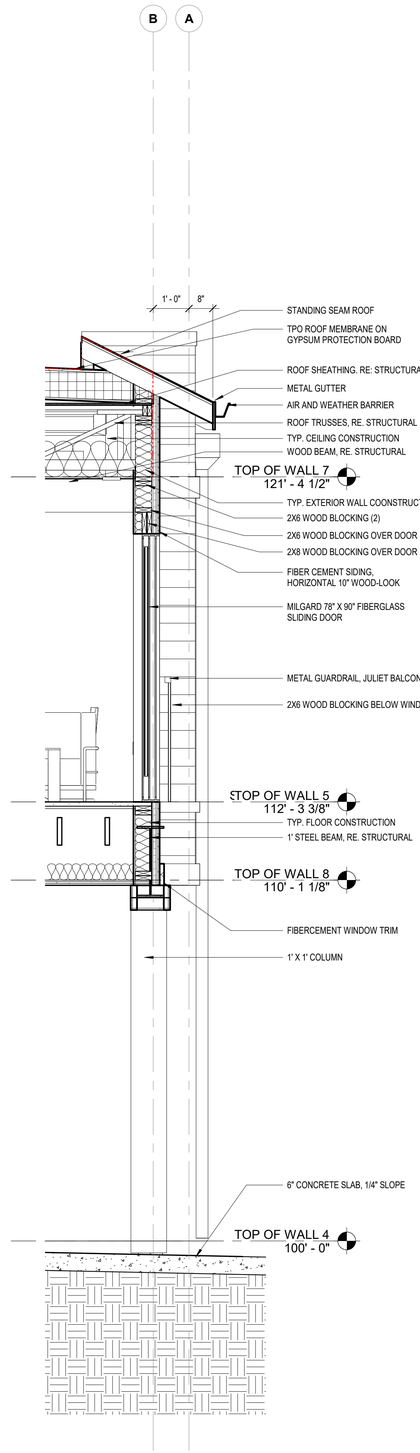


TYPICAL FOUNDATION (RE: FOUNDATION DETAILS)

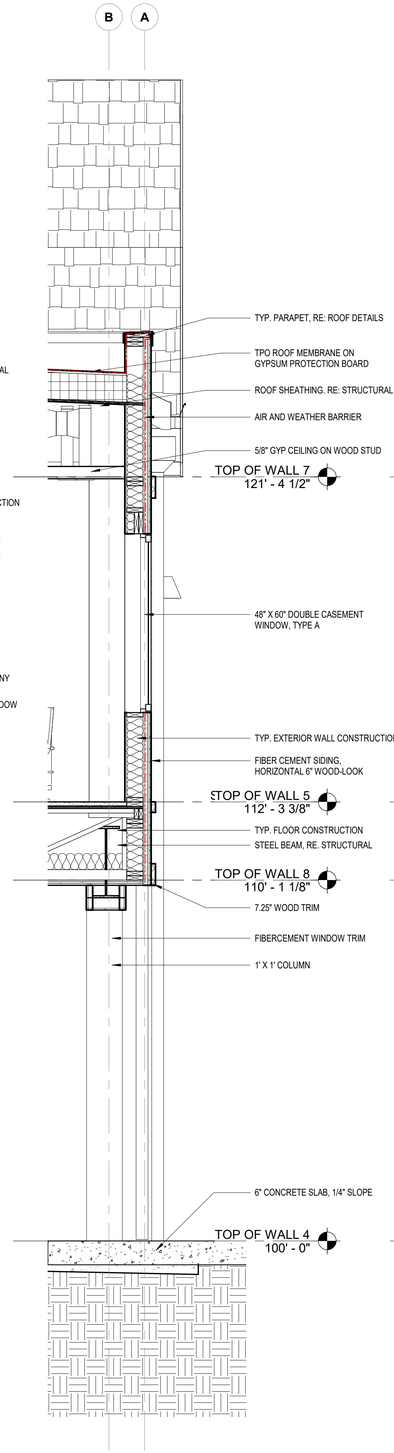




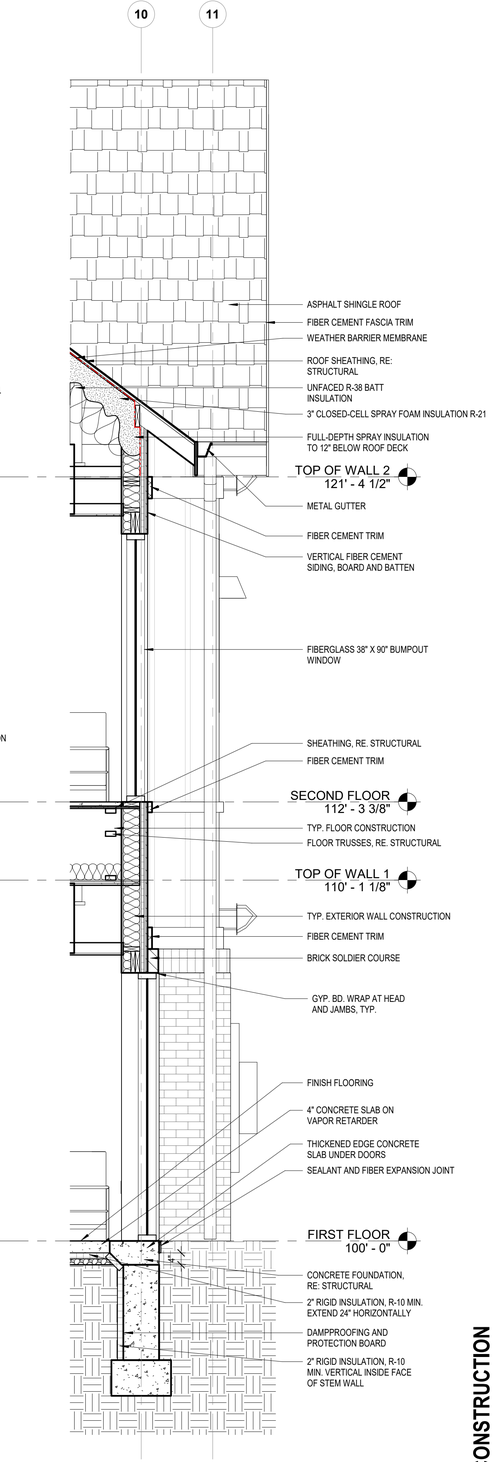
1 A-510 WALL SECTION AT BALCONY E-W
1/2" = 1'-0"



2 A-510 WALL SECTION AT JULIET BALCONY N-S
1/2" = 1'-0"



3 A-510 WALL SECTION AT NORTH PARAPET N-S
1/2" = 1'-0"



4 A-510 WALL SECTION AT CORNER UNIT E-W
1/2" = 1'-0"

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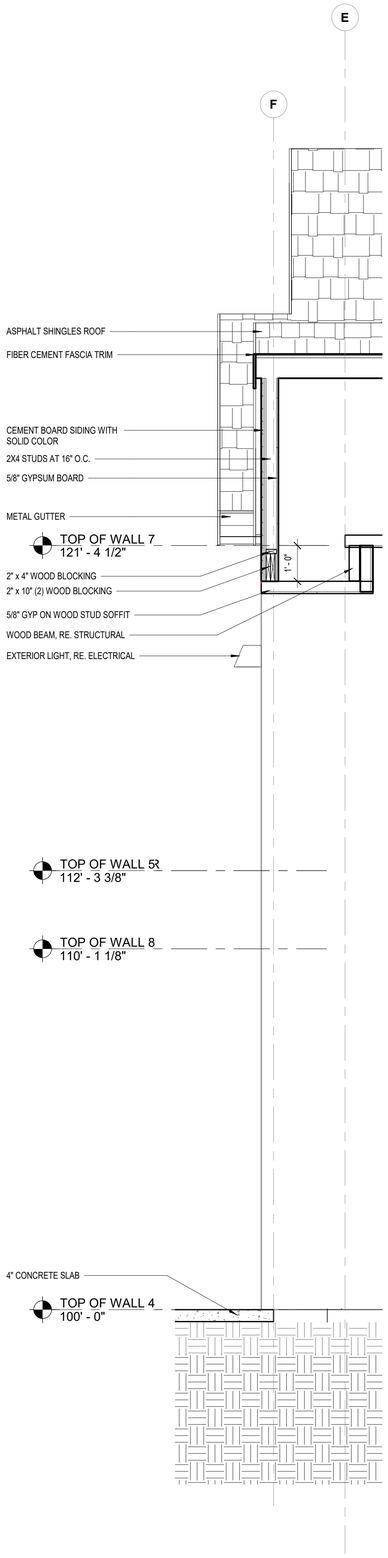
chkd Checker

WALL SECTIONS

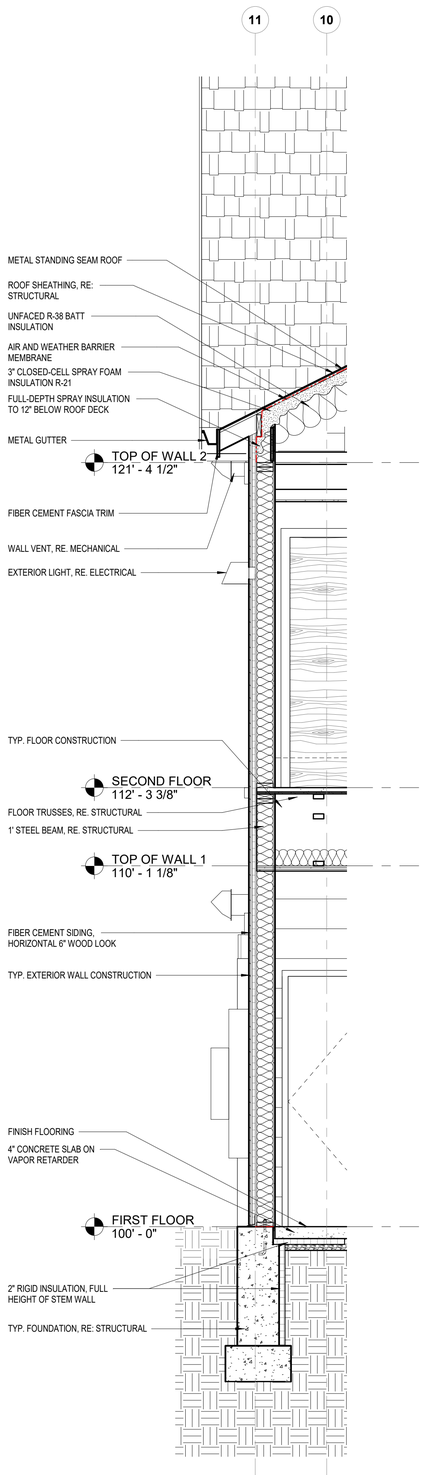
description

NOT FOR CONSTRUCTION

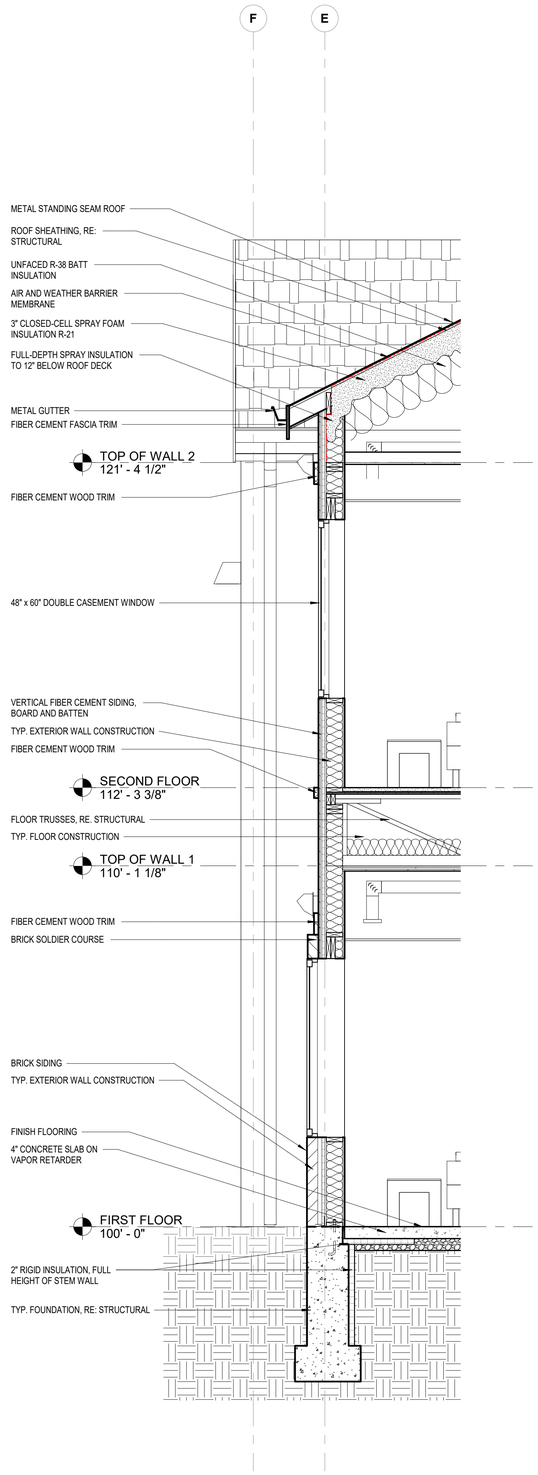
number A-510



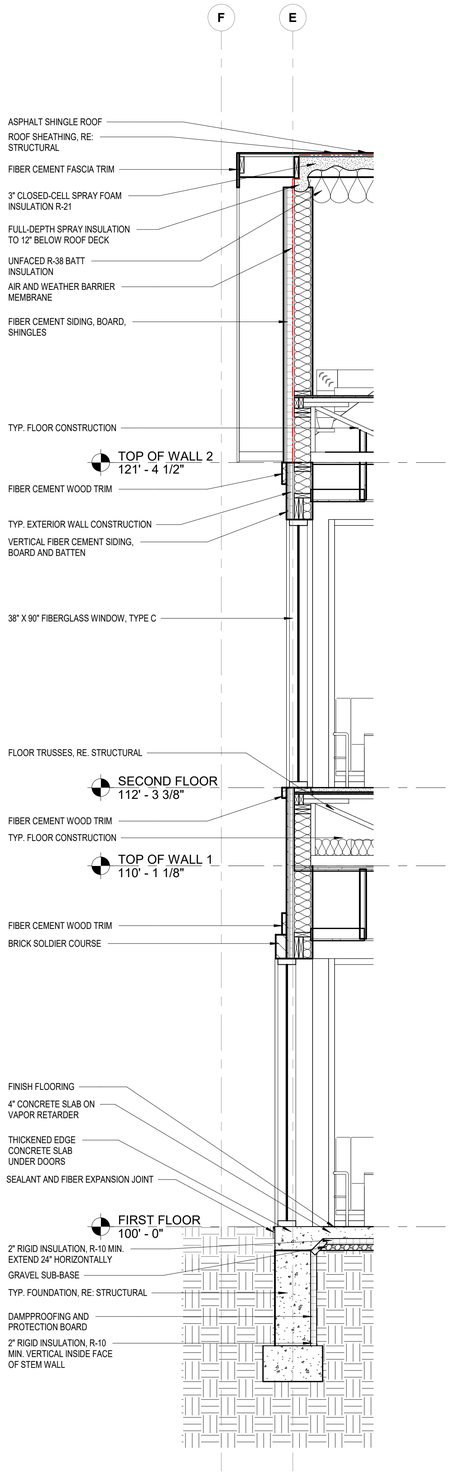
1 A-511 WALL SECTION AT STAIR ENTRANCE N-S
1/2" = 1'-0"



2 A-511 WALL SECTION AT STANDING SEAM ROOF E-W
1/2" = 1'-0"



3 A-511 WALL SECTION AT LOW EAVE N-S
1/2" = 1'-0"



4 A-511 WALL SECTION AT GABLE N-S
1/2" = 1'-0"

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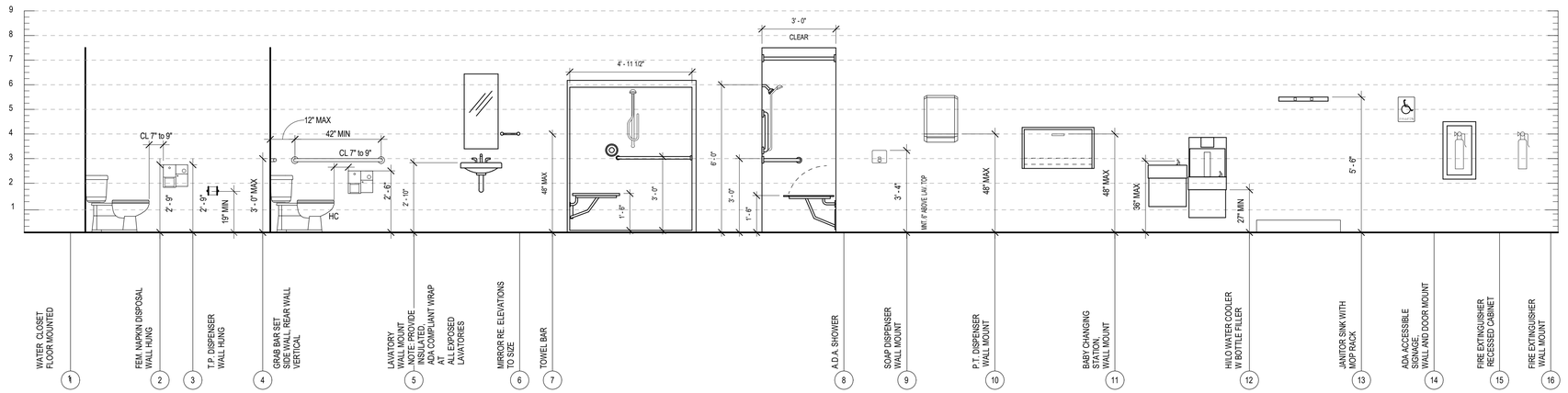
description

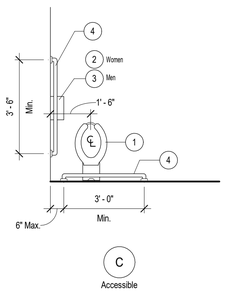
WALL SECTIONS

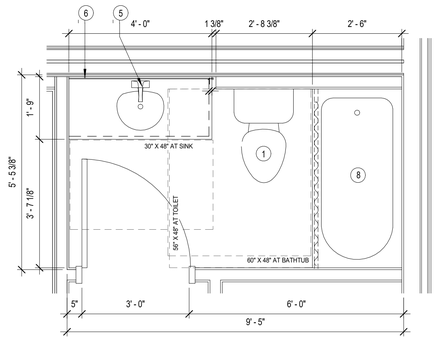
number

A-511

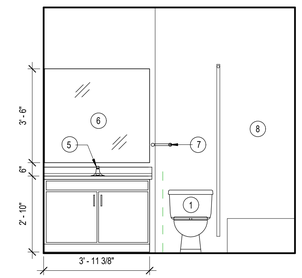


1 A-600 BATH ACCESSORY SCHEDULE
3/8" = 1'-0"

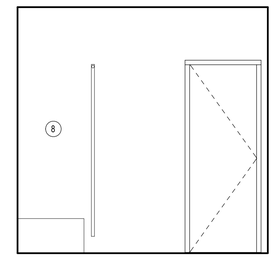




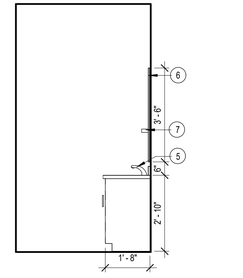
2 A-600 TYP. BATH 1 PLAN
1/2" = 1'-0"



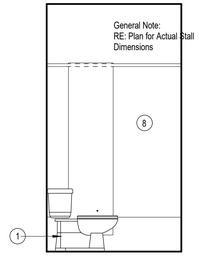
3 A-600 TYP. BATH 6-A
3/8" = 1'-0"



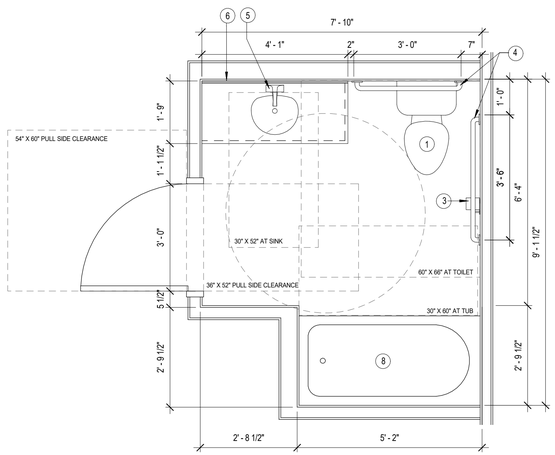
4 A-600 TYP. BATH 1-B
3/8" = 1'-0"



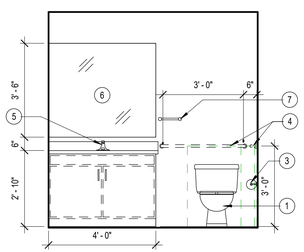
5 A-600 TYP. BATH 1-C
3/8" = 1'-0"



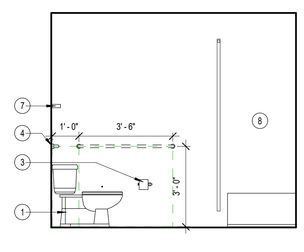
6 A-600 TYP. BATH 1-D
3/8" = 1'-0"



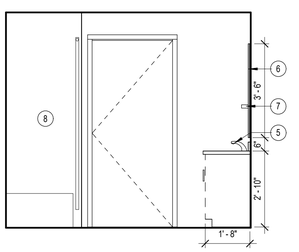
7 A-600 TYP. BATH 1 TYPE A PLAN
1/2" = 1'-0"



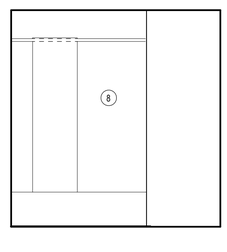
8 A-600 TYP. BATH 1-B TYPE A
3/8" = 1'-0"



9 A-600 TYP. BATH 1-A TYPE A
3/8" = 1'-0"



10 A-600 TYP. BATH 1-C TYPE A
3/8" = 1'-0"



11 A-600 TYP. BATH 1-D TYPE A
3/8" = 1'-0"

General Note:
RE: Plan for Actual Stall Dimensions

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ENLARGED BATH PLANS

description

A-600

number

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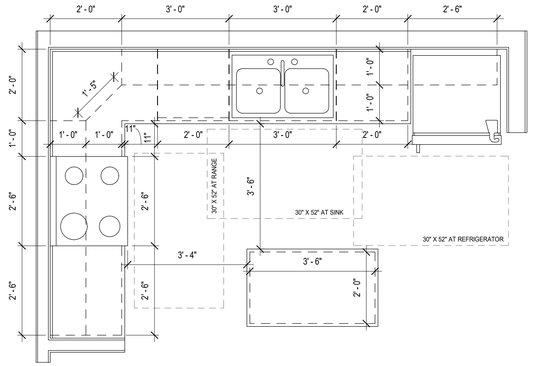
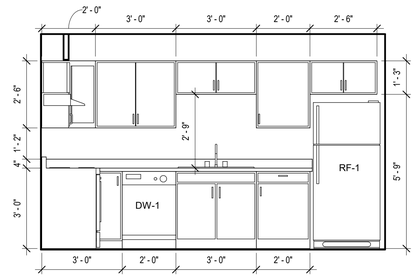
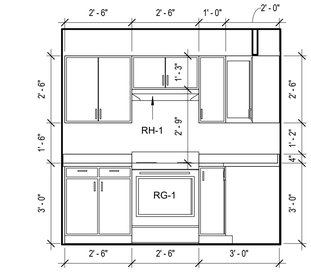


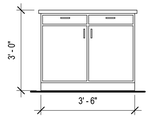
1 A-601 TYP. KITCHEN 1 PLAN
1/2" = 1'-0"



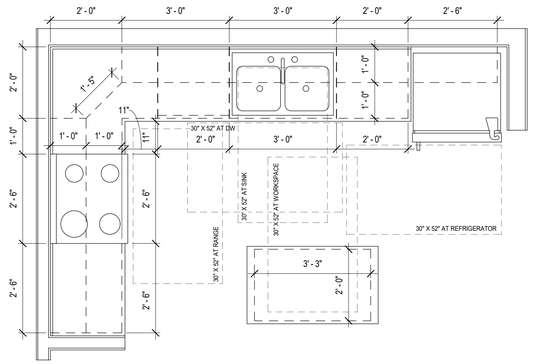
2 A-601 TYP. KTICHEN 1-A
3/8" = 1'-0"



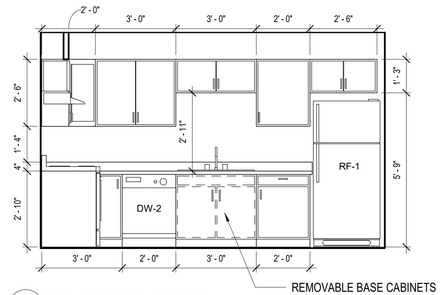
3 A-601 TYP. KITCHEN 1-B
3/8" = 1'-0"



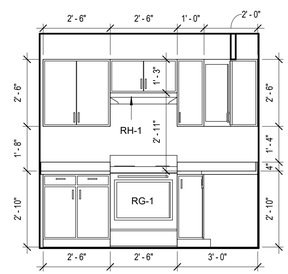
4 A-601 TYP. KITCHEN 1-C
3/8" = 1'-0"



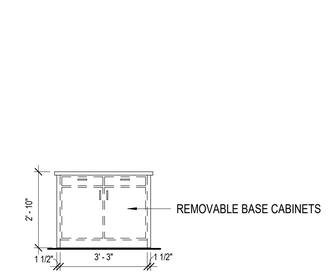
5 A-601 TYP. KITCHEN 1 PLAN TYPE A
1/2" = 1'-0"



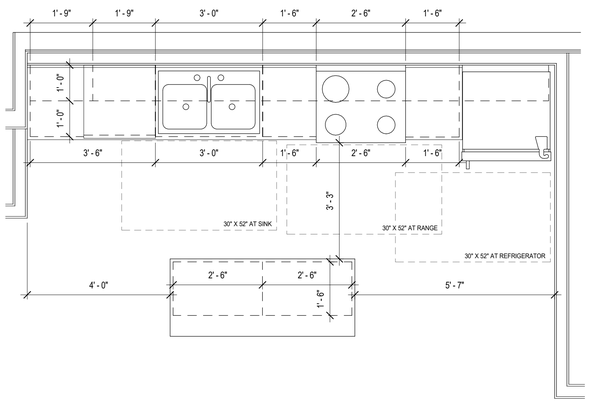
6 A-601 TYP. KITCHEN 1-A TYPE A
3/8" = 1'-0"



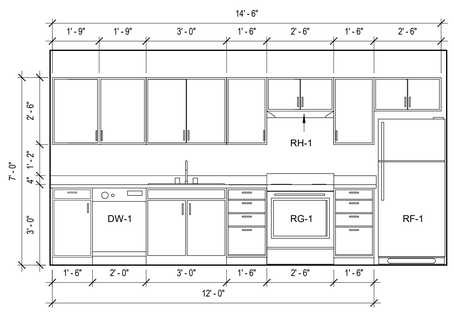
7 A-601 TYP. KITCHEN 1-B TYPE A
3/8" = 1'-0"



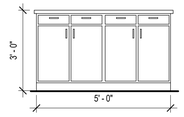
8 A-601 TYP. KITCHEN 1-C TYPE A
3/8" = 1'-0"



9 A-601 TYP. KITCHEN 2 PLAN
1/2" = 1'-0"



10 A-601 TYP. KTICHEN 2-A
3/8" = 1'-0"



11 A-601 TYP. KITCHEN 2-B
3/8" = 1'-0"

APPLIANCE SCHEDULE	
KEY	DESCRIPTION
DW-1	STAINLESS STEEL DISHWASHER, GE, #GDT630PYRFS
DW-2	ADA STAINLESS STEEL DISHWASHER, GE, #GDT226SSLSS
RF-1	19.2 CU. FT. STAINLESS STEEL TOP-FREEZER REFRIGERATOR, GE, #GTE19JSNRSS
RG-1	ADA 30" STAINLESS STEEL INDUCTION AND CONVECTION RANGE, GE, #PHS930YPFS
RH-1	ADA 30" STAINLESS STEEL UNDER-CABINET RANGEHOOD, GE, #JVX5305SJSS

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Lafayette, Colorado 80026

project

seal

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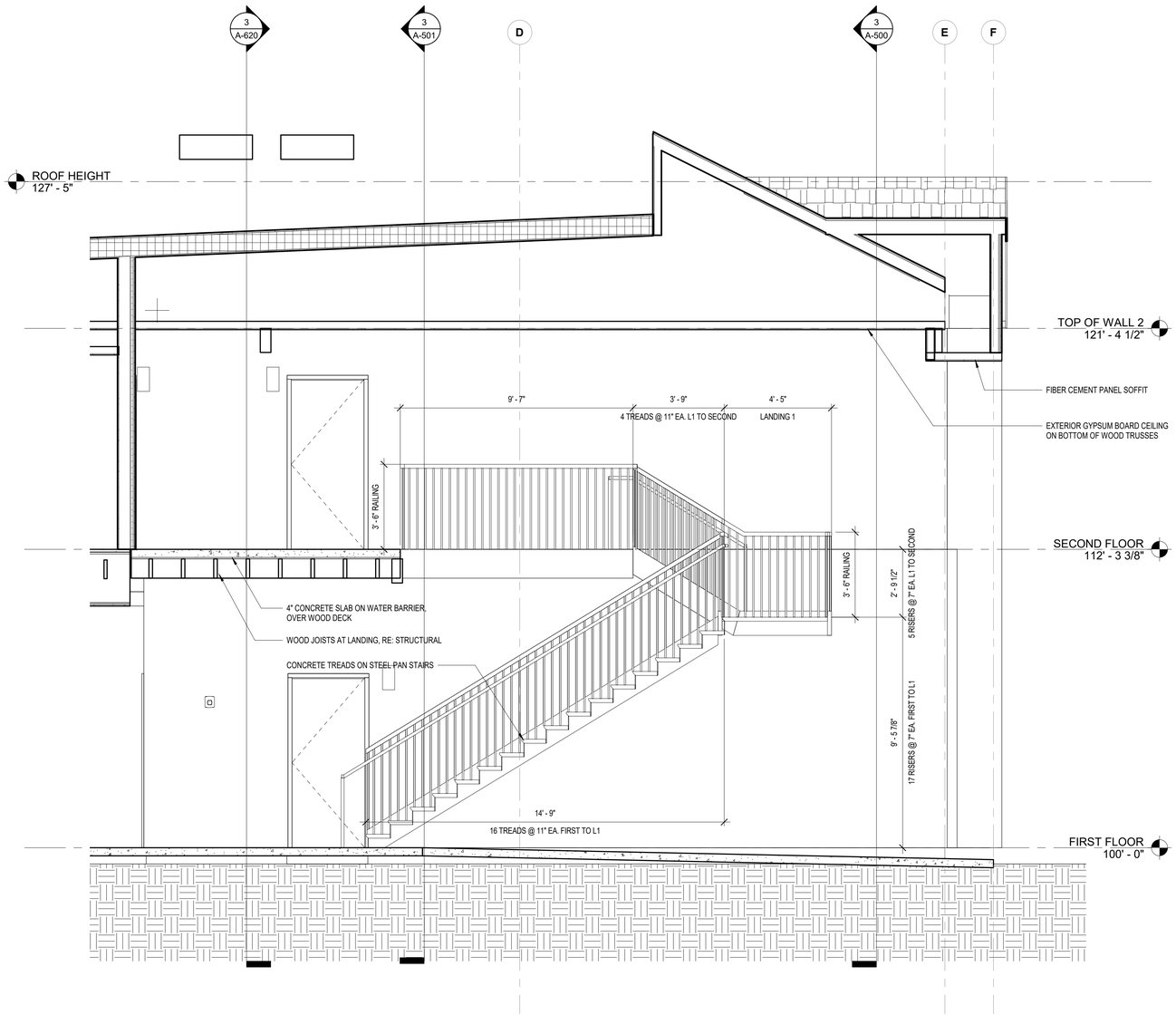
chkd Checker

description

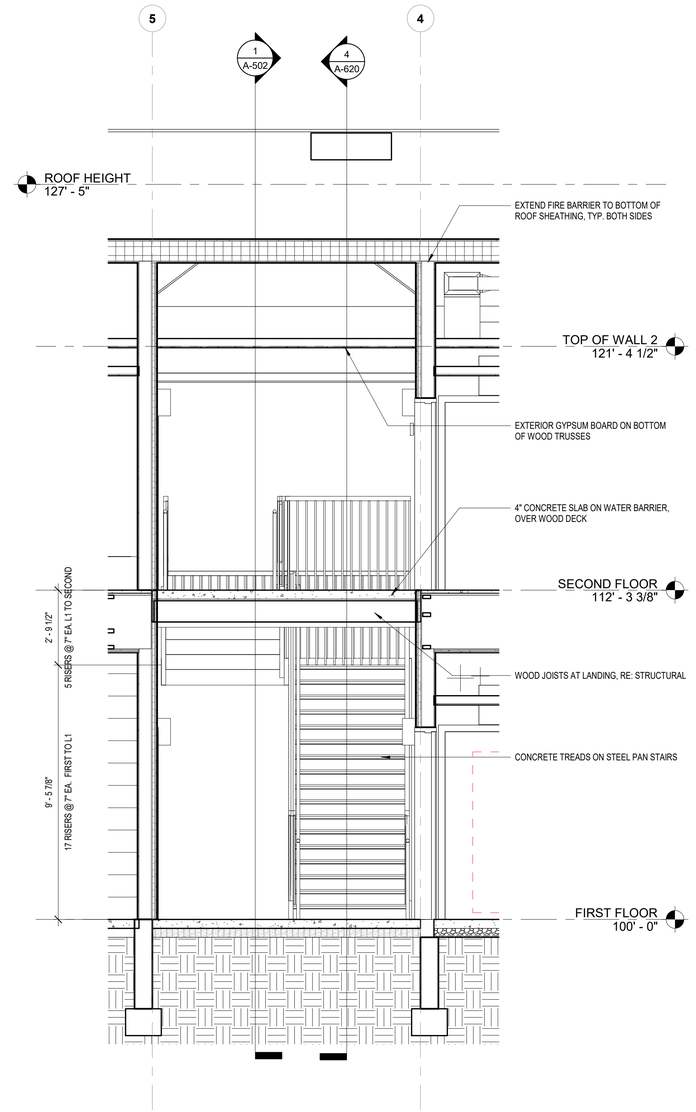
ENLARGED KITCHEN PLANS

number

A-601



4 A-620 STAIR SECTION - N/S
3/8" = 1'-0"



3 A-620 STAIR SECTION - E/W
3/8" = 1'-0"

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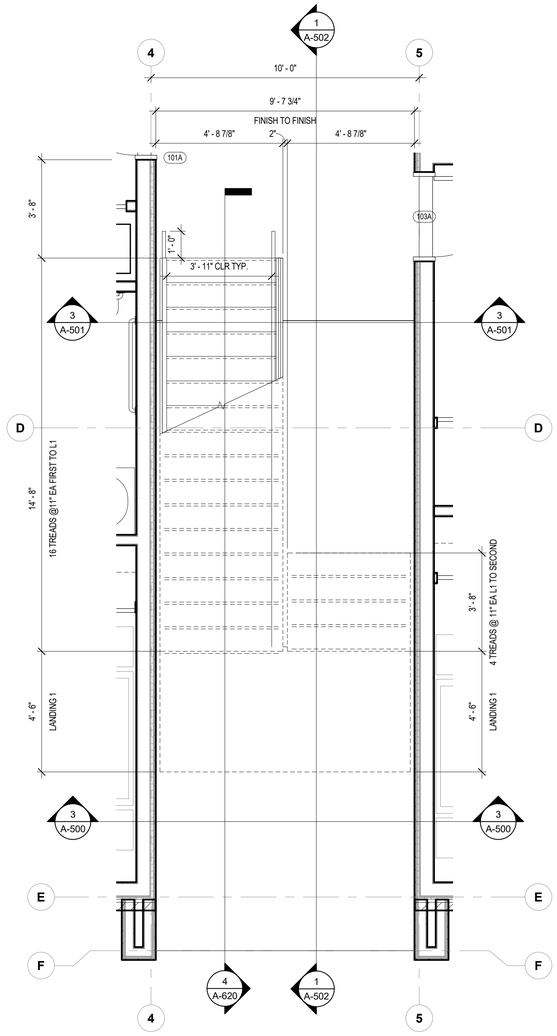
ENLARGED STAIR SECTIONS

description

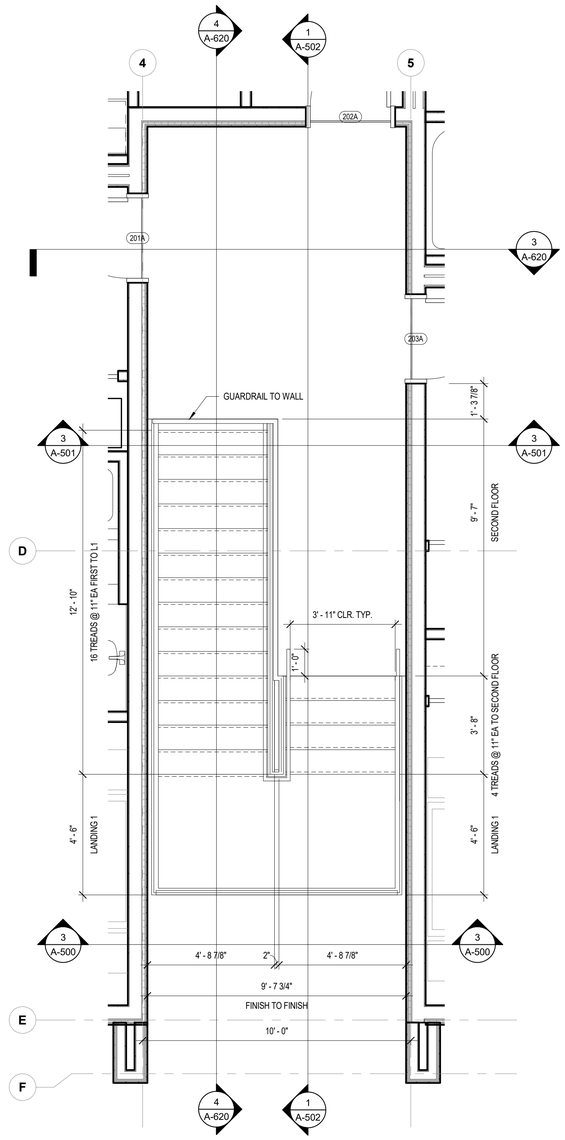
NOT FOR CONSTRUCTION

A-620

number



1 A-621 ENLARGED STAIR PLAN - FIRST FLOOR
3/8" = 1'-0"



2 A-621 ENLARGED STAIR PLAN - SECOND FLOOR
3/8" = 1'-0"

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description

ENLARGED
STAIR
PLANS

number

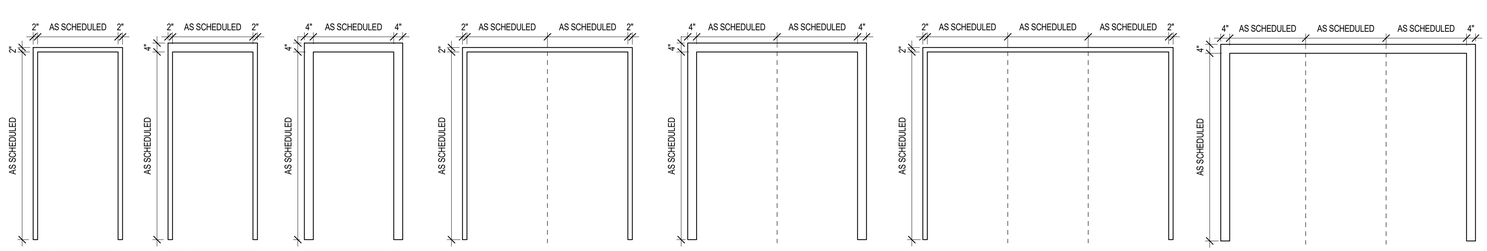
A-621

FIRST FLOOR DOOR SCHEDULE

Door Number	Type	Width	Door					Fire Rating	Hardware	Frame					Comments
			Height	Thickness	Material	Finish	Under Cut			Type	Material	Finish	Jamb	Head	
01	7	6' - 0"	7' - 0"	2"	HM	PT		-		4	HM	PT			STOREROOM LOCKSET
02	7	6' - 0"	7' - 0"	2"	HM	PT		-		4	HM	PT			STOREROOM LOCKSET
03	7	6' - 0"	7' - 0"	2"	HM	PT		-		4	HM	PT			STOREROOM LOCKSET
04	7	6' - 0"	7' - 0"	2"	HM	PT		-		4	HM	PT			STOREROOM LOCKSET
05	7	6' - 0"	7' - 0"	2"	HM	PT		-		4	HM	PT			STOREROOM LOCKSET
06	7	6' - 0"	7' - 0"	2"	HM	PT		-		4	HM	PT			STOREROOM LOCKSET
07	7	6' - 0"	7' - 0"	2"	HM	PT		-		4	HM	PT			STOREROOM LOCKSET
08	7	6' - 0"	7' - 0"	2"	HM	PT		-		4	HM	PT			STOREROOM LOCKSET
09	7	6' - 0"	7' - 0"	2"	HM	PT		-		4	HM	PT			STOREROOM LOCKSET
10	7	6' - 0"	7' - 0"	2"	HM	PT		-		4	HM	PT			STOREROOM LOCKSET
11	7	6' - 0"	7' - 0"	2"	HM	PT		-		4	HM	PT			STOREROOM LOCKSET
101A	1A	3' - 0"	7' - 0"	1 3/4"	HM	PT		1-Hr.		1A	HM	PT			APARTMENT ENTRANCE LOCKSET
101B	5	3' - 3"	7' - 6"	2"	FB/GL	-		-		1	FB/GL	-			ADA SILL,PATIO DOOR LOCKSET BY MANUFACTURER
103A	1A	3' - 0"	7' - 0"	1 3/4"	HM	PT		1-Hr.		1A	HM	PT			APARTMENT ENTRANCE LOCKSET
103B	5	3' - 3"	7' - 6"	2"	FB/GL	-		-		1	FB/GL	-			ADA SILL,PATIO DOOR LOCKSET BY MANUFACTURER
105A	1A	3' - 0"	7' - 0"	1 3/4"	HM	PT		1-Hr.		1A	HM	PT			APARTMENT ENTRANCE LOCKSET
105B	6	9' - 8"	7' - 6"	2"	FB/GL	-		-		1	FB/GL	-			ADA SILL,PATIO DOOR LOCKSET BY MANUFACTURER

SECOND FLOOR DOOR SCHEDULE

Door Number	Type	Width	Door					Fire Rating	Hardware	Frame					Comments
			Height	Thickness	Material	Finish	Under Cut			Type	Material	Finish	Jamb	Head	
201A	1A	3' - 0"	7' - 0"	1 3/4"	HM	PT		1-Hr.		1A	HM	PT			APARTMENT ENTRANCE LOCKSET
201B	7	6' - 6"	7' - 6"	2"	FB/GL	-		-		4	FB/GL	-			PATIO DOOR LOCKSET BY MANUFACTURER
202A	1A	3' - 0"	7' - 0"	1 3/4"	HM	PT		1-Hr.		1A	HM	PT			APARTMENT ENTRANCE LOCKSET
202B	7	6' - 6"	7' - 6"	2"	FB/GL	-		-		4	FB/GL	-			PATIO DOOR LOCKSET BY MANUFACTURER
203A	1A	3' - 0"	7' - 0"	1 3/4"	HM	PT		1-Hr.		1A	HM	PT			APARTMENT ENTRANCE LOCKSET
203B	7	6' - 6"	7' - 6"	2"	FB/GL	-		-		4	FB/GL	-			PATIO DOOR LOCKSET BY MANUFACTURER
204A	1A	3' - 0"	7' - 0"	1 3/4"	HM	PT		1-Hr.		1A	HM	PT			APARTMENT ENTRANCE LOCKSET
204B	8	6' - 6"	7' - 6"		FB/GL	-		-		6	FB/GL	-			PATIO DOOR LOCKSET BY MANUFACTURER
205A	1A	3' - 0"	7' - 0"	1 3/4"	HM	PT		1-Hr.		1A	HM	PT			APARTMENT ENTRANCE LOCKSET
205B	8	6' - 6"	7' - 6"		FB/GL	-		-		6	FB/GL	-			PATIO DOOR LOCKSET BY MANUFACTURER
206A	1A	3' - 0"	7' - 0"	1 3/4"	HM	PT		1-Hr.		1A	HM	PT			APARTMENT ENTRANCE LOCKSET
206B	7	6' - 6"	7' - 6"	2"	FB/GL	-		-		4	FB/GL	-			PATIO DOOR LOCKSET BY MANUFACTURER



FRAME TYPE 1
PAINTED HOLLOW METAL FRAME

FRAME TYPE 1A
ONE-HOUR RATED

FRAME TYPE 2
PAINTED HOLLOW METAL FRAME

FRAME TYPE 2A
ONE-HOUR RATED

FRAME TYPE 3
PAINTED HOLLOW METAL FRAME

FRAME TYPE 4
PAINTED HOLLOW METAL FRAME

FRAME TYPE 4A
ONE-HOUR RATED

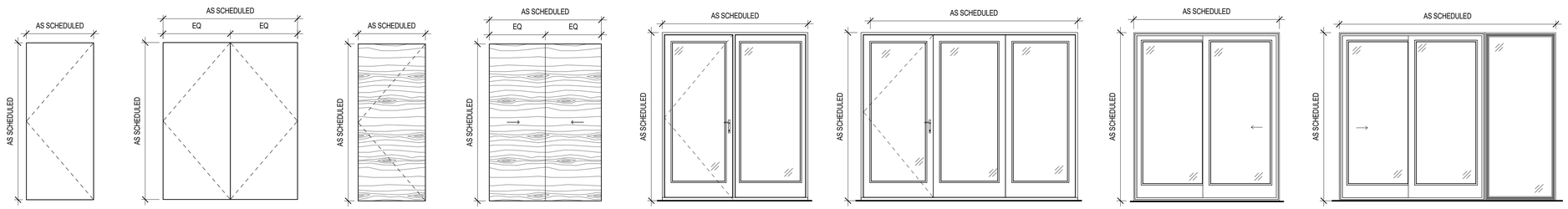
FRAME TYPE 5
PAINTED HOLLOW METAL FRAME

FRAME TYPE 5A
ONE-HOUR RATED

FRAME TYPE 6
PAINTED HOLLOW METAL FRAME

FRAME TYPE 7
PAINTED HOLLOW METAL FRAME

2 A-810 FRAME TYPES
3/8" = 1'-0"



DOOR TYPE 1
FLUSH HOLLOW METAL, INSULATED AT EXTERIOR

DOOR TYPE 1A
ONE-HOUR RATED

DOOR TYPE 2
FLUSH HOLLOW METAL PAIR, INSULATED AT EXTERIOR

DOOR TYPE 2A
RATING AS SCHEDULED

DOOR TYPE 3
FLUSH WOOD DOOR, GRADE AA PLAIN SLICED RED OAK VENEER, SOLID CORE

DOOR TYPE 3A
ONE-HOUR RATED

DOOR TYPE 4
PAINT GRADE PRIMED MDF, SOLID CORE BYPASS

DOOR TYPE 5
FIBERGLASS OUT-SWING DOOR WITH INSULATED GLASS

DOOR TYPE 6
FIBERGLASS OUT-SWING DOOR WITH INSULATED GLASS

DOOR TYPE 7
FIBERGLASS SLIDING DOOR WITH INSULATED GLASS

DOOR TYPE 8
FIBERGLASS SLIDING DOOR WITH INSULATED GLASS

1 A-810 DOOR TYPES
3/8" = 1'-0"

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chkd Checker

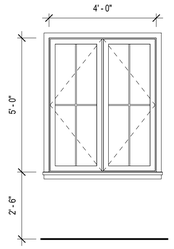
DOOR SCHEDULE

NOT FOR CONSTRUCTION

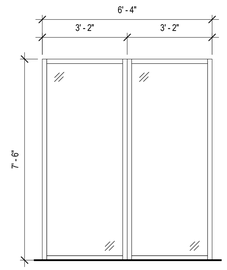
description

A-810

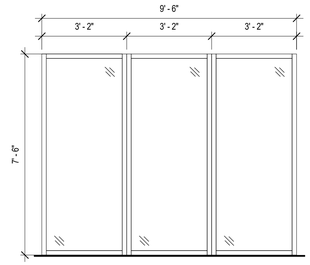
number



TYPE A
FIBERGLASS WINDOW
48X60 DOUBLE CASEMENT



TYPE B
FIBERGLASS WINDOW
56X88 BUMPOUT



TYPE C
FIBERGLASS WINDOW
94X88 BUMPOUT

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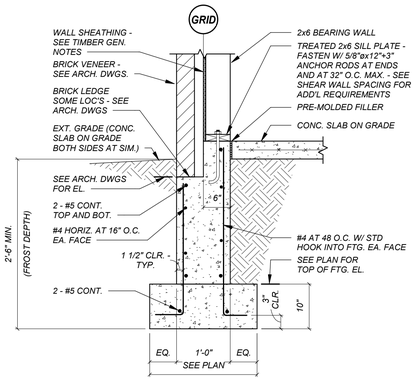
description

WINDOW
LEGEND

number

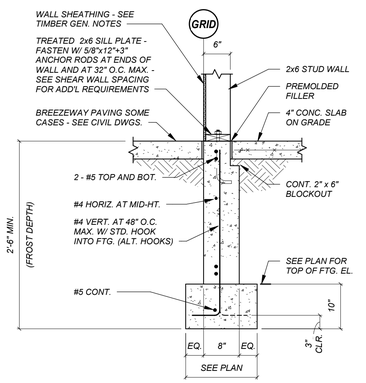
A-812

NOT FOR CONSTRUCTION



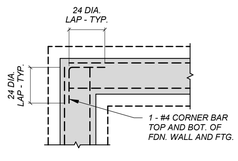
TYPICAL FOUNDATION WALL WITH BRICK LEDGE DETAIL — 1 / S-001

3/4"=1'-0"



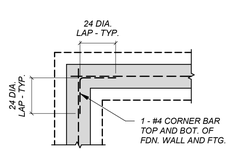
TYPICAL 8" FOUNDATION WALL DETAIL — 2 / S-001

3/4"=1'-0"



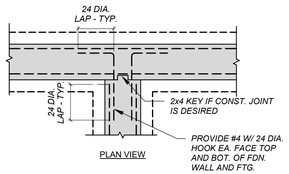
PLAN VIEW

TYPICAL CONCRETE FOUNDATION WALL CORNER DETAIL



PLAN VIEW

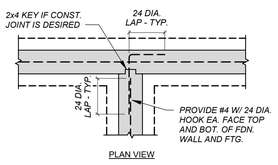
TYPICAL CONCRETE FOUNDATION WALL CORNER DETAIL



PLAN VIEW

TYPICAL CONCRETE FOUNDATION WALL INTERSECTION DETAIL — 3 / S-001

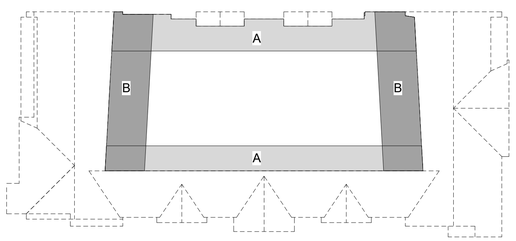
1/2"=1'-0"



PLAN VIEW

TYPICAL CONCRETE FOUNDATION WALL INTERSECTION DETAIL — 4 / S-001

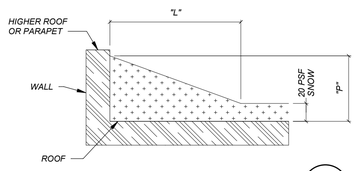
1/2"=1'-0"



NORTH

SNOW DRIFT PLAN

SNOW DRIFT LOAD SCHEDULE		
LOCATION	"P" (PSF)	"L"
A	61	7'-0"
B	80	11'-0"



SNOW DRIFT LOADS — 5 / S-001

- *TRUSS MANUFACTURER TO DESIGN TRUSSES TO SUPPORT DRIFTING LOADS GIVEN IN SCHEDULE.*
- *ALL TRUSSES SHALL ALSO BE CAPABLE OF SUPPORTING 30 PSF UNIFORM SNOW LOAD WITHOUT DRIFTING.*
- *LIMIT SNOW LOAD DEFLECTION TO L/360 WITH CEILING, L/240 WITHOUT CEILING, UNLESS NOTED OTHERWISE.*

GENERAL NOTES

1. Materials and workmanship shall be in accordance with the requirements of "The International Building Code", 2021 Edition.
2. Contractor shall check and verify all dimensions shown on structural drawings with those shown on architectural.
3. Contractor shall notify Architect of any discrepancies between architectural and structural drawings and receive written clarification of discrepancies before proceeding with construction.
4. Special inspections shall be performed in accordance with I.B.C. Section 1704 when such inspections are required by the Building Official. Contractor shall coordinate the work schedule with the special inspectors who are selected and paid by the Owner.
5. During construction, the contractor shall be responsible for temporary bracing and shoring to withstand all loads to which the structure may be subjected, including lateral loads, stockpiles of materials and equipment. Temporary bracing shall remain in place until all structural framing and diaphragms are in place with connections completed.
6. Where the Structural Drawings appear to conflict with OSHA requirements, the Structural Drawings represent final conditions only; the contractor shall add all erection framing, bolts, stabilizer plates, etc. as may be necessary to comply with OSHA.
7. Deferred submittals shall be designed by an engineer licensed by the State of Colorado. All submittals shall be reviewed and noted "No Exceptions Taken" by Engineer of Record prior to final submission to the Building Department.

FOUNDATION GENERAL NOTES

1. Recommendations for foundation type and design criteria, including bearing pressures, were provided by "_____(Title of Geotechnical Report and Report Number)", dated _____, by _____ (Geotechnical Engineer), a separate consultant to the Owner.
2. Maximum bearing pressure used in footing design: 2,000 psf.
3. Minimum bearing pressure used in footing design (dead load only): 700 psf.
4. Reference geotechnical report for required soil conditions at footing bearing
5. The geotechnical engineer shall perform open excavation inspection prior to placing foundations to ensure bearing capacity is satisfactory.
6. In case conditions found at the site vary from those indicated on the drawings, the Architect is to be notified so that adjustments to the foundation can be made to meet actual field conditions.
7. All footings shall be the exact size shown on the drawings; no larger, no smaller.
8. No footings or foundation wall shall be placed without adequate notification to allow Engineer to observe reinforcing if they deem necessary.
9. No concrete shall be placed in excavation containing water or on frozen ground.
10. Backfill shall be placed against both sides of walls simultaneously.

CONCRETE GENERAL NOTES

1. Material and workmanship shall be in accordance with the requirements of "Building Code Requirements for Structural Concrete" (ACI 318-14).
2. Concrete mixes shall conform to the following:

Mix "A" - For Footings and Foundation Elements

Minimum 28 day compressive strength	4,500 psi
Maximum Aggregate Size	3/4 inch
Entrained Air Content	6% ± 1 1/2%
Slump	4" max.

Fly ash may be substituted in specified amounts this mix.

Mix "B" - For Slab-on-Grade (Interior)

Minimum 28 day compressive strength	4,000 psi
Maximum Aggregate Size	3/4 inch
Entrapped Air Content	3% max.
Water Reducing Admixture per manufacturer recommendations	
Slump	4" max.

Fly ash may be substituted in specified amounts this mix.

Minimum of 540lbs of cementitious material per cubic yard	
Water / Cement ratio	0.42 max.

Mix "C" - For Site Concrete

Minimum 28 day compressive strength	4,000 psi
Maximum Aggregate Size	3/4 inch
Entrained Air Content	6% ± 1 1/2%
Water Reducing Admixture per manufacturer recommendations	
Slump	4" max.
Water / Cement ratio	0.45 max.

3. All cement used in concrete shall be Type I/II.
4. All concrete shall have a minimum cementitious materials content of 470 lbs. per cubic yard unless otherwise specified.
5. Calcium Chloride shall not be added to concrete.
6. Reinforcing bars shall conform to ASTM A-615, Grade 60 or ASTM A-706.
7. Bar bending details and placing drawings shall be in accordance with the "Manual of Standard Practice for Detailing Reinforced Concrete Structures" (ACI 315, latest edition).
8. Fly ash may be added for up to 20% of cementitious materials by weight where indicated in the mix design.
9. Where welded reinforcement or deformed bar anchors are indicated on the drawings, steel specifications and welding shall conform to "Structural Welding Code - Reinforcing Steel" , AWS D1.4 latest edition of The American Welding Society. Use ASTM A-706 where reinforcement is welded.
10. Provide bar supports and spacers to place all bars in proper location, and wire adequately at intersections to hold bars firmly in position while concrete is placed. Vertical dowels shall be supported in place prior to placing concrete.
11. Bar supports and spacers which rest on or against exposed surface shall be hot dipped galvanized or plastic coated.
12. Continuous bars shall lap and dowels shall project adequately to provide a Class B splice but not less than 12" unless shown otherwise on drawings. Do not splice near maximum stress locations.
13. See architectural, mechanical and electrical drawings for additional openings, depressions, curbs, floor finishes, inserts and other embedded items.
14. Welded wire fabric shall conform to ASTM A-185 and shall lap a minimum of one full mesh plus 2" at side and end laps and shall be securely wired together, unless otherwise shown.
15. Stagger lap splices of horizontal bars in concrete walls.
16. Reinforcing bar sizes shown are English designation. The bars may be furnished with the equivalent metric markings:

English	#3	#4	#5	#6	#7	#8	#9	#10	#11
Metric	#10	#13	#16	#19	#22	#25	#29	#32	#36

TYPICAL MINIMUM REINFORCING BAR LAP LENGTHS

- *In inches.*
- *Use for normal weight concrete f'c = 4500 psi, unless noted otherwise.*

BAR SIZE	#3	#4	#5	#6	#7	#8	#9	#10	#11
TOP BARS	24	32	39	46	67	77	86	97	107
OTHER BARS	18	24	30	35	51	59	66	74	82

- *"Top Bars" are any horizontal reinforcing bars so placed that more than 12" of fresh concrete is cast in the member below the splice.*

STRUCTURAL STEEL GENERAL NOTES

1. All steel shall conform to the "Standard Specification for Structural Steel" ASTM Designation A572, Grade 50, or ASTM A992, latest edition, except where noted otherwise. Angles, channels, and plates shall conform to ASTM A36. Round hollow structural steel sections shall conform to ASTM A500, Fy = 42 ksi. Square or rectangular hollow structural sections shall conform to ASTM A500, Grade B, Fy = 46 ksi. Pipe shall conform to ASTM A53, Grade B, Fy = 35 ksi. Threaded rod and anchor rods shall conform to ASTM F1554 Gr. 36
2. All detailing, fabrication and erection shall conform to AISC "Specification for Structural Steel Buildings", and the AISC "Code of Standard Practice for Steel Buildings and Bridges", latest edition, and "Load and Resistance Factor Design Specification for Structural Steel Buildings" when applicable.
3. This structure contains "non-self-supporting steel frames" per AISC definition. The contractor shall coordinate the installation of all necessary temporary bracing which shall remain in place until the lateral support system is constructed and connected to the framing.
4. Shop connections shall be welded or bolted with 3/4" diameter A325 "Tension Controlled" High Strength Bolts.
5. Field connections shall be made with 3/4" diameter ASTM A325 High Strength Bolts. Connections shall be bearing-type tightened to a "snug-tight" condition unless noted as "Tension Controlled". Connections utilizing "Tension Controlled" bolts shall be pretensioned but do not require faying surface preparation unless noted otherwise.
6. All welding shall be done by certified welding operators and shall conform to "AWS Structural Welding Code" (AWS D1.1), latest edition.
7. Welding sizes not otherwise shown shall be minimum continuous 1/4 inch fillet welds, or equal to the thickness of the thinner material minimum 1/16th inch, whichever is less.
8. All welding shall be done with AWS A5.1 or A5.5 E70 X8 electrodes except for welding of ASTM A706 rebar, which shall be welded using E80 electrodes.
9. Areas within 2 inches of field welds shall not be painted until after welding. Field welds, bolt heads, nuts and other surfaces not shop painted and surfaces abraded during shipping and erection shall be field painted after erection.
10. All structural steel exposed to view shall conform to the provisions for "Architecturally Exposed Structural Steel" in the AISC Code of Standard Practice.

TIMBER GENERAL NOTES

1. All wood framing shall conform to the "National Design Specification for Wood Construction", latest edition, recommended by the "National Forest Products Association".
2. Sawn lumber framing members shall conform to the following species and grades: (Spruce-Pine-Fir #2 or better or Hem-Fir #2 or better).
3. All Plywood Web Joists shall be "TJI" as manufactured by Weyerhaeuser, or "BCI" as manufactured by Boise Cascade. See plan for required joist series.
4. Laminated Veneer Lumber (LVL) prefabricated structural wood beams and joists shall be "Microllam" as manufactured by Weyerhaeuser, or "Versa-Lam" as manufactured by Boise Cascade, Inc. Parallel Strand Lumber (PSL) prefabricated structural wood beams and columns shall be "Parallam" as manufactured by Weyerhauser.
5. Sheathing panels shall be identified with the appropriate trademark of the American Plywood Association, and shall meet the requirements of U.S. Product Standard PS1-07 or APA PRP-108, Performance Standards, latest edition.
6. All roof sheathing shall be 7/16" (optional: Spec Grade C-D) APA rated sheathing (Exposure 1). Minimum panel identification shall be 24/16. Roof sheathing nailing shall be 8d common nails at 6" on center maximum at all edges and boundaries, unless noted otherwise. Nailing along intermediate members shall be 12" on center maximum.
7. All floor sheathing shall be 23/32" tongue-and-groove APA rated (Exposure 1) with panel identification 48/24.
8. Wood floor nailing shall be 10d deformed shank nails at 6" on center maximum at all supported edges unless noted otherwise, nailing along intermediate members shall be at 12" on center maximum.
9. All sheathing for exterior walls and shear walls shall be 7/16" APA rated sheathing (Exposure 1). Nailing shall be as noted on the drawings. All panel edges shall be backed with 2" nominal framing.
10. Glue floor sheathing to joists per American Plywood Association's Glued Floor System recommendation.
11. Floor and roof sheathing shall be placed with 8'-0" dimension perpendicular to joist framing, stagger joints. Panels to be continuous over two or more spans. Panel end joints shall occur over framing. Allow 1/8 inch spacing at panel ends and 1/8 inch at panel edges unless otherwise recommended by the panel manufacturer.
12. Design of prefabricated wood trusses shall be in accordance with "National Design Standard For Metal Plate Connected Wood Truss Construction", ANSI/TPI-1, and shall be under the direct supervision of a Professional Engineer Registered in Colorado. Trusses shall be installed in strict accordance with the manufacturer's specifications.
13. The Contractor and Truss supplier shall comply with the requirements and recommendations of TPI HIB "Commentary and Recommendations for Handling Installing and Bracing Metal Plate Connected Wood Trusses" and TPI DSB "Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses".
14. All bolts shall be ASTM A-307.
15. All wood web joists shall be installed per manufacturer's recommendations, and as show on the drawings.
16. Install blocking panels between all wood web joists at all supports. Install per manufacturer's recommendations, and as shown on the drawings.
17. Double and triple built-up solid sawn wood members shall be spiked together with two 16d nails spaced at 12" o.c. on center except where noted otherwise on drawings.
18. Nails for wood sheathing shall be common nails.
19. Minimum nailing for all wood framing shall conform to Table No. 2304.10.1, International Building Code, 2015 Edition, unless noted otherwise.
20. Joists shown on plan are basis of design; if changed, notify engineer.
21. 16d nails shall be common or sinker (0.148" minimum diameter).

TRUSSES PENDING

Truss engineering must be submitted a minimum of one week prior to frame inspection and cannot be walked through. The truss package must include a signed and dated "Shop Drawing Review" stamped from the design professional of record that verifies conformance with the approved construction design documents. Unless previously shown on the approved structural framing plans, the truss layout must show all necessary truss connection hardware including hangers, uplift connections, and truss bearing enhancers.

DESIGN LOADS:

Roof Loads	
Dead Load (includes 9 psf allowance for future solar panels)	27 psf TOP CHORD
	7 psf BOT. CHORD
Snow Load (Uniform)	30 psf
Pg (for drifting)	20 psf
Importance Factor	I_S =1.0
Floor Loads	
Dead Load	
interior	41 psf
deck	15 psf
breezeway	65 psf
Live Load	
Living spaces	40 psf
Second floor corridors	80 psf
Wind Loads - Exposure C, 135 mph (V_{ULT}) 3 second gust	
Seismic Information	
Importance Factor	I_E = 1.0
Building Occupancy Category	II
Mapped Spectral Accelerations	S_S = 0.208g
	S_1 = 0.058g
Site Class	D
Design Spectral Accelerations	S_{DS} = 0.222g
	S_{D1} = 0.093g
Seismic Design Category	B
Basic Seismic-Force-Resisting System consists of Wood shear walls	
Seismic Response Coefficients	C = 0.034
Response Modification Factors: R	= 6.5
Equivalent Lateral Force Procedure	

WALL COMPONENT AND CLADDING WIND PRESSURES (LRFD)		
EFFECTIVE AREA	INTERIOR PRESSURE	CORNER PRESSURE
sf	psf	psf
10 OR LESS	43.1	53.3
20	41.5	49.9
50	39.1	44.8
100	37.1	42.1
200	35.7	38.1
500 OR ABOVE	33.0	33.0

- *VALUES ABOVE INDICATE MINIMUM DESIGN WIND PRESSURES ONLY. COMPONENTS AND CLADDING DESIGN SHALL BE BASED ON MINIMUM DESIGN PRESSURES FROM ALL APPLICABLE CODE SECTIONS.*
- *PRESSURE VALUES PROVIDED IN TABLE ARE ULTIMATE.*

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chkd: SAH, CBA

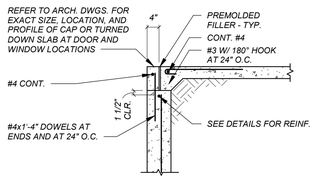
description

GENERAL NOTES AND DETAILS

S-001

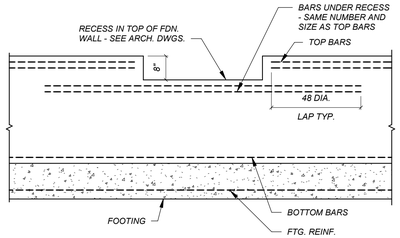
number

NOT FOR CONSTRUCTION

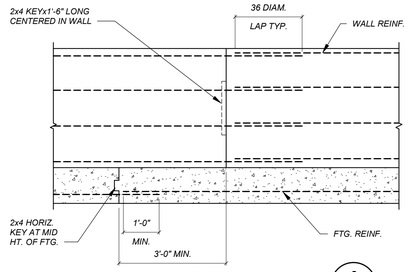


- FOR INFORMATION NOT SHOWN HERE REFER TO TYPICAL FOUNDATION WALL OR GRADE BEAM RECESS DETAIL AND APPLICABLE SECTIONS.

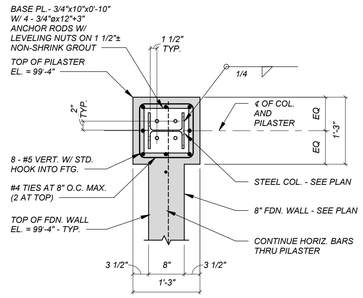
TYPICAL TOP OF WALL AT DOOR DETAIL (1 / S-002)
1/2"=1'-0"



TYPICAL FOUNDATION WALL RECESS DETAIL (2 / S-002)
1/2"=1'-0"

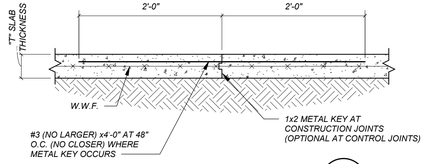


TYPICAL WALL AND FOOTING CONSTRUCTION JOINT DETAIL (3 / S-002)
1/2"=1'-0"



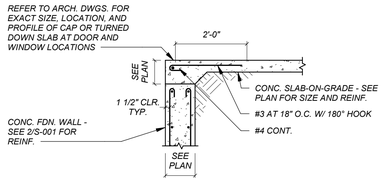
PLAN VIEW

4 / S-002 — 3/4"=1'-0"



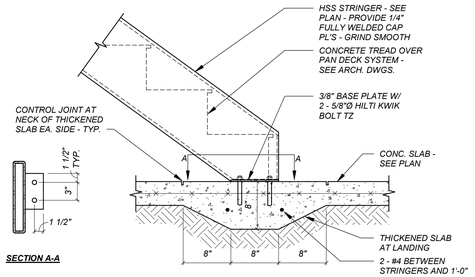
TYPICAL CONCRETE SLAB ON GRADE CONTROL JOINT AND CONSTRUCTION JOINT DETAIL (5 / S-002)
1"=1'-0"

- LOCATE CONTROL JOINTS ON COLUMN CENTERLINES WHERE POSSIBLE.
- MAXIMUM SPACING OF CONTROL JOINTS NOT TO EXCEED 15'-0" IN EITHER DIRECTION.
- AT CONTROL JOINTS "T"/4 DEEP SAW CUT JOINTS MAY BE USED IN LIEU OF KEY JOINTS. SEE SPECIFICATIONS FOR TIMING OF JOINT SAWING. CONTINUE W.W.F. THRU JOINT. CUT ALTERNATE WIRES CROSSING JOINT.
- AT CONTROL JOINTS, A ZIF-CAP PLASTIC JOINT FORMER MAY BE USED IN LIEU OF KEY JOINTS. CUT ALTERNATE WIRES CROSSING JOINT.
- CONTRACTOR TO REVIEW LOCATION OF PROPOSED CONTROL JOINT LOCATIONS WITH ARCHITECT PRIOR TO PLACING SLAB.



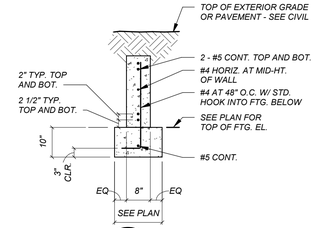
- FOR INFORMATION NOT SHOWN HERE REFER TO TYPICAL FOUNDATION WALL RECESS DETAIL 2/S-002.

TYPICAL TOP OF WALL AT STORAGE DOOR DETAIL (6 / S-002)
1/2"=1'-0"

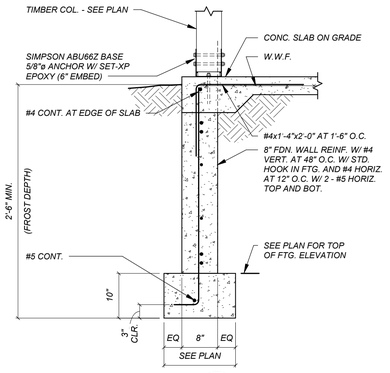


SECTION A-A

TYPICAL THICKENED SLAB UNDER STAIR STRINGER DETAIL (7 / S-002)
1"=1'-0"



8 / S-002 — 1/2"=1'-0"



9 / S-002 — 3/4"=1'-0"

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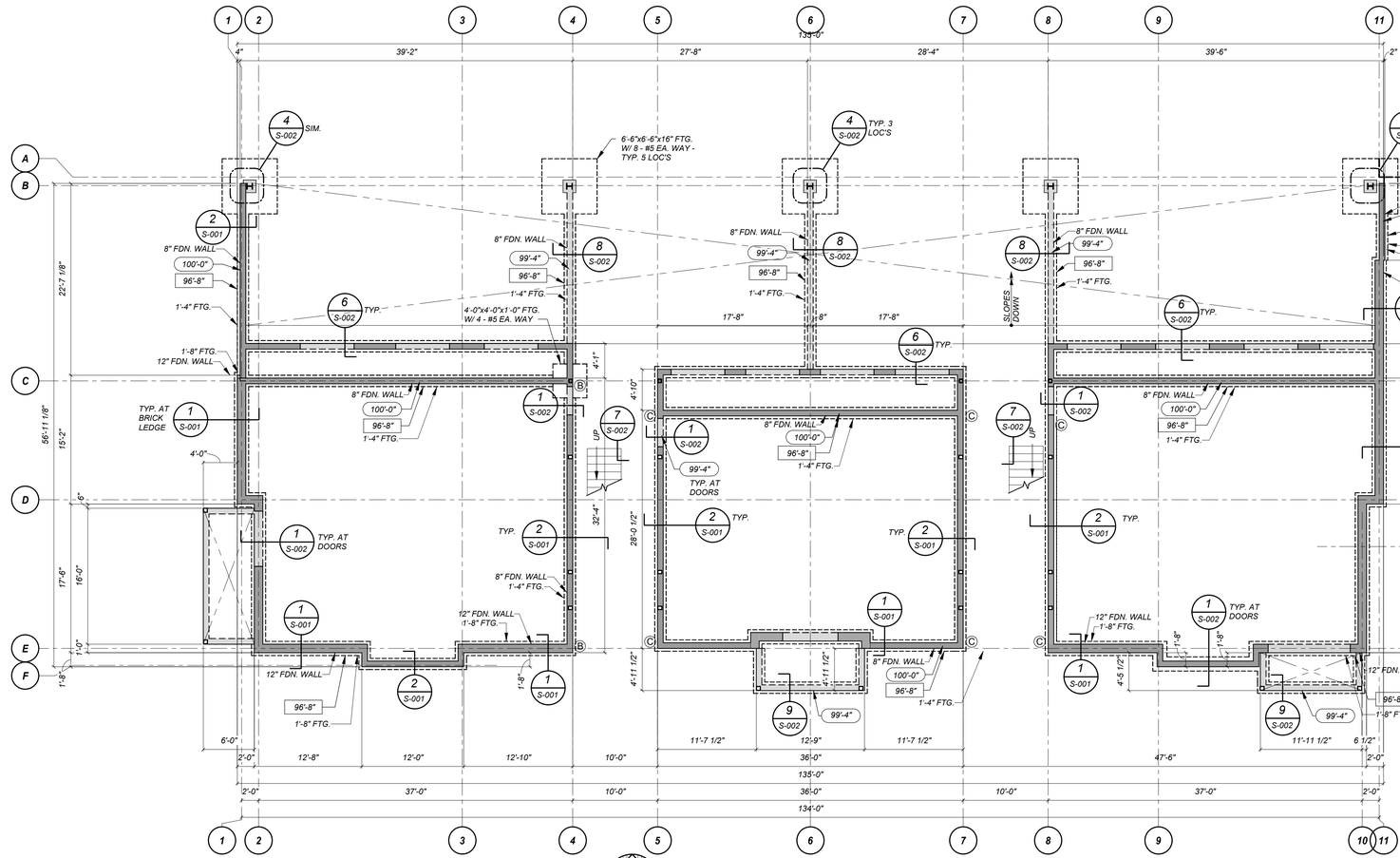
description

FOUNDATION DETAILS

number

S-002



NORTH

PLAN

FOUNDATION PLAN

1/8"=1'-0"

- INDICATES TOP OF WALL ELEVATION.
- INDICATES TOP OF FOOTING ELEVATION.
- ALL CONTINUOUS FOOTINGS SHALL BE CENTERED UNDER WALLS UNLESS NOTED OTHERWISE.
- FLOOR SLAB TO BE 4" THICK CONCRETE SLAB-ON-GRADE. REINFORCE WITH 6x6-W1.4xW1.4 W.W.F.
- TOP OF SLAB ELEVATION = 100'-0"
- SEE GEOTECHNICAL REPORT FOR PREPARATIONS REQUIRED AT SLAB-ON-GRADE.
- ALL PAD FOOTINGS SHALL BE CENTERED UNDER COLUMNS UNLESS NOTED OTHERWISE.SEE CIVIL DRAWINGS FOR ALL EXTERIOR CONCRETE RAMP AND STAIR LOCATIONS.
- ⓧ INDICATES HOLDOWN REQUIRED - SEE SCHEDULE ON 10/S-200.

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FOUNDATION PLAN

number
S-101

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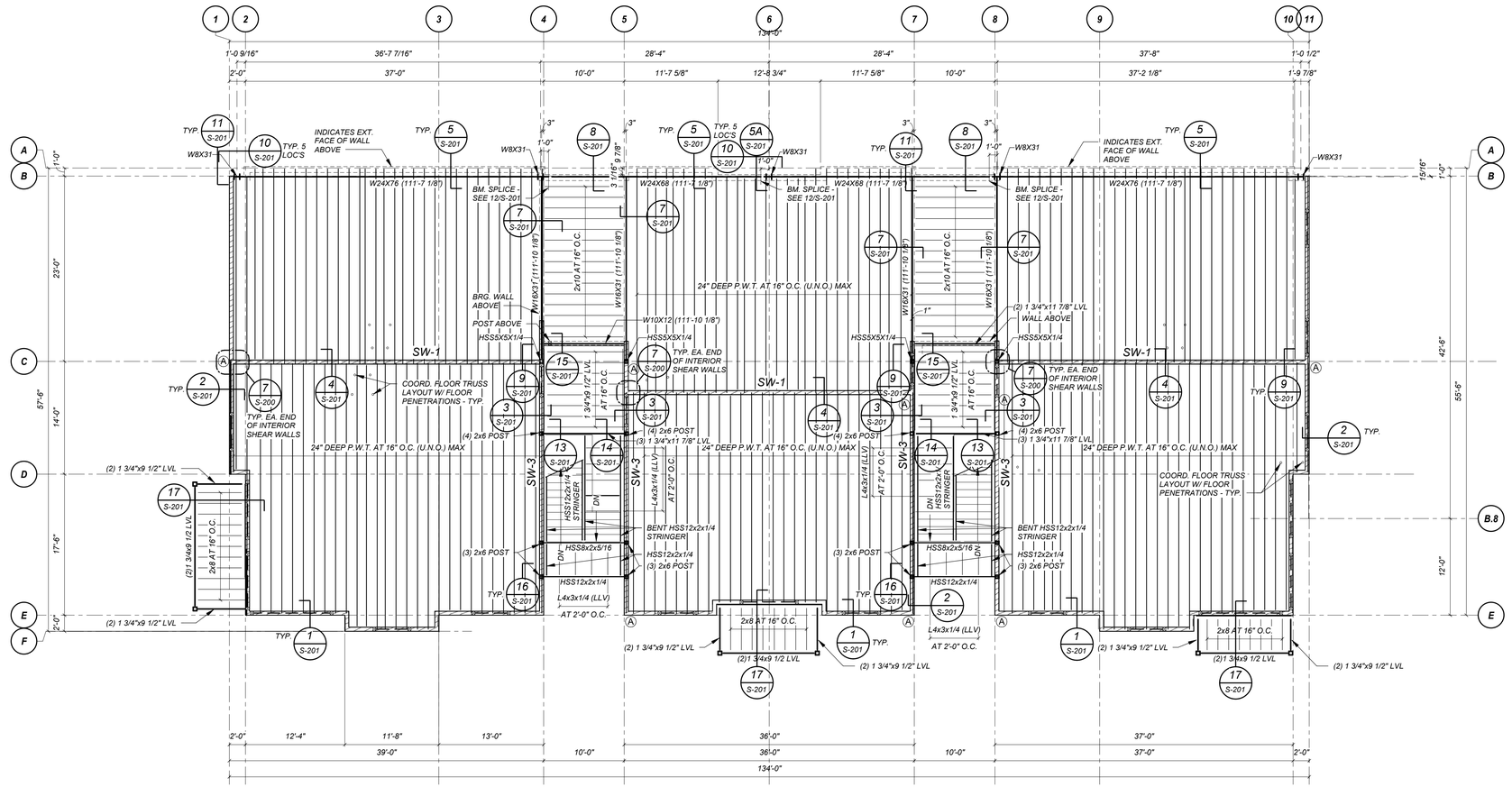

NORTH

PLAN

SECOND FLOOR FRAMING PLAN

1/8"=1'-0"

- ALL WALL STUDS SHALL BE 2x6 - HEM-FIR NO.2 AT 16" O.C. MAXIMUM - TYPICAL UNLESS NOTED OTHERWISE.
- FLOOR TO BE 1 1/4" CONCRETE TOPPING ON 1/4" ACOUSTICAL MAT ON 3/4" THICK FLOOR SHEATHING. TOP OF FLOOR ELEVATION = 112'-3 3/8". TOP OF SHEATHING ELEVATION = 112'-1 7/8".
- (X) INDICATES HOLDOWN REQUIRED - SEE SCHEDULE ON 10/S-200 AND 11/S-200.
- EXTERIOR WALLS SHALL BE SW-1 UNLESS NOTED OTHERWISE - SEE SHEAR WALL SCHEDULE ON 10/S-200.

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Project Number

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chkd

SAH, CBA

SECOND LEVEL FRAMING PLAN

description

S-102

number

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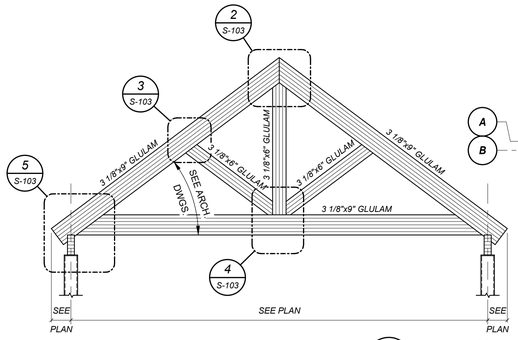
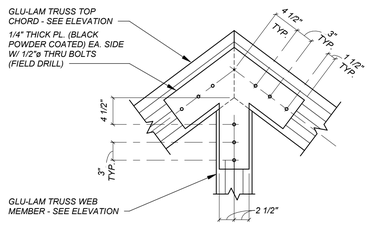
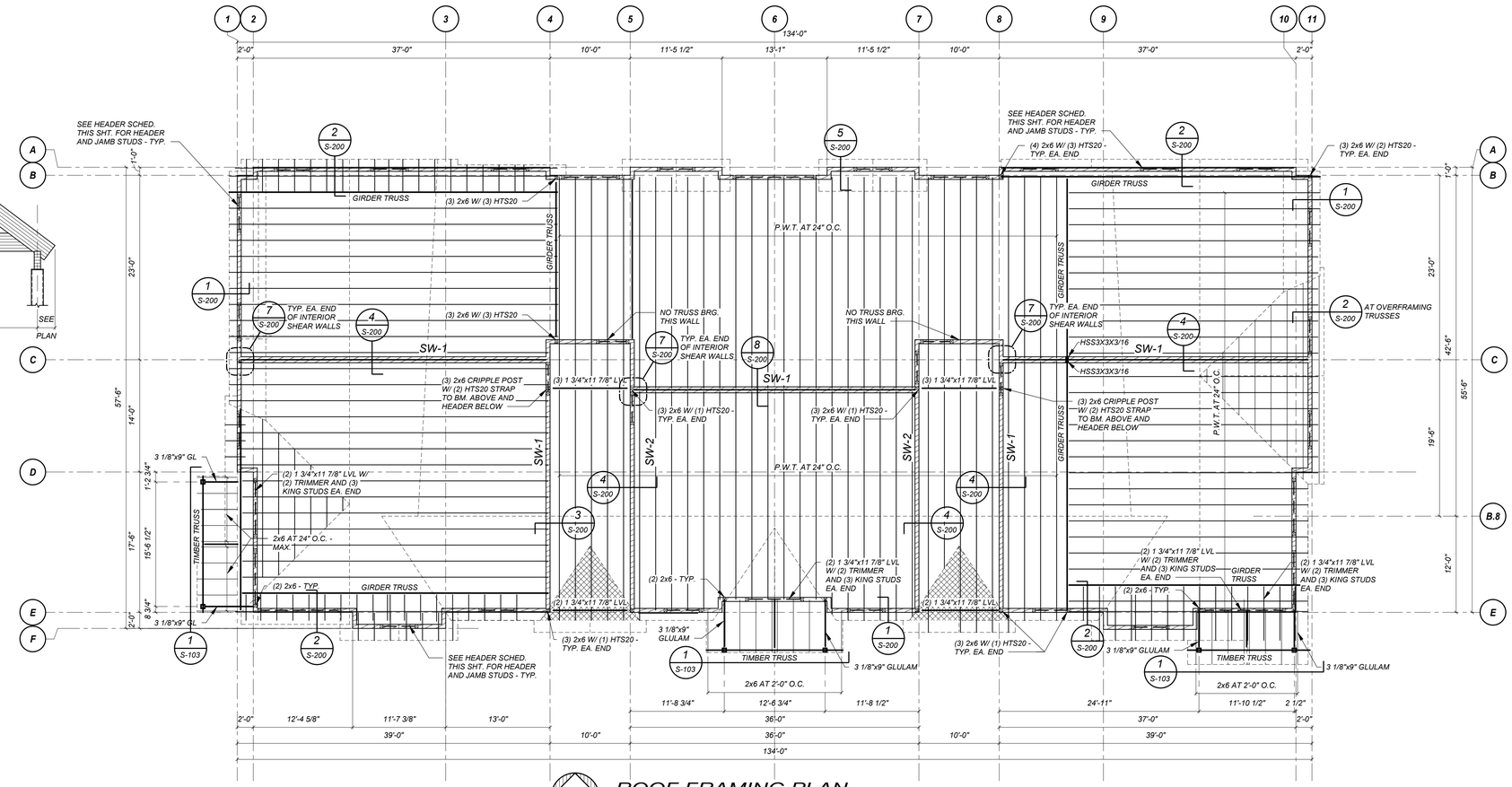


SCHEMATIC GLULAM TRUSS ELEVATION — 1 / S-103



2 / S-103 — 1"=1'-0"



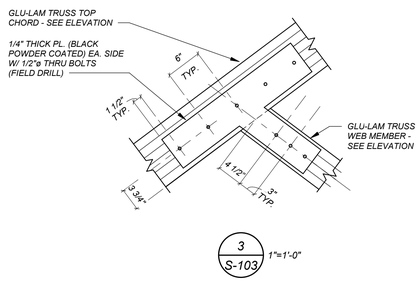
NORTH

PLAN

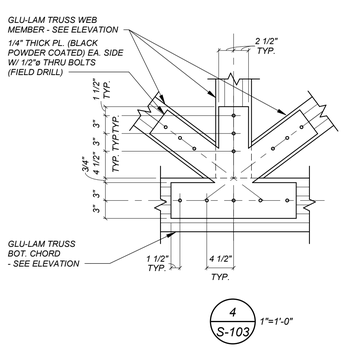
ROOF FRAMING PLAN

1/8"=1'-0"

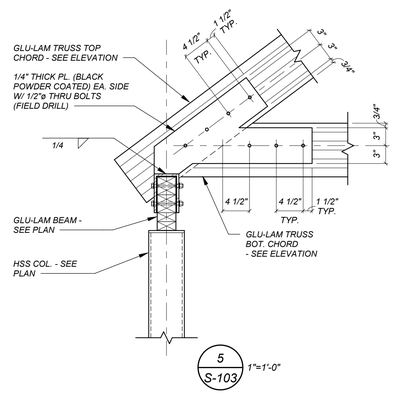
- ALL WALL STUDS SHALL BE 2x6 - HEM-FIR NO.2 AT 16" O.C. MAXIMUM - TYPICAL UNLESS NOTED OTHERWISE.
- TRUSS BEARING ELEVATION = 121'-4 1/2".
- EXTERIOR WALLS SHALL BE SW-1 UNLESS NOTED OTHERWISE - SEE SHEAR WALL SCHEDULE ON 10/S-200.
- P.W.T. INDICATES PREMANUFACTURED WOOD TRUSSES.



3 / S-103 — 1"=1'-0"



4 / S-103 — 1"=1'-0"



5 / S-103 — 1"=1'-0"

HEADER SCHEDULE

OPENING WIDTH	HEADER		TRIMMER STUDS	KING STUDS
	COMPOSITION	LOCATION	QUANTITY	QUANTITY
≤ 7'-0"	2 - 1 3/4"x9 1/2" LVL	BELOW ROOF	2 - 2x6	2 - 2x6
	2 - 1 3/4"x9 1/2" LVL	BELOW SECOND	3 - 2x6	2 - 2x6
≤ 4'-0"	2 - 2x10	BELOW ROOF	2 - 2x6	1 - 2x6
	2 - 2x10	BELOW SECOND	3 - 2x6	1 - 2x6

- HEADER, TRIMMER STUD, AND KING STUD SIZES ARE TYPICAL UNLESS NOTED OTHERWISE.
- ALL WINDOW AND DOOR FRAMING SHALL BE HEM-FIR #2 OR BETTER, UNLESS NOTED OTHERWISE.

TRUSSES PENDING

Truss engineering must be submitted a minimum of one week prior to frame inspection and cannot be walked through. The truss package must include a signed and dated "Shop Drawing Review" stamped from the design professional of record that verifies conformance with the approved construction design documents. Unless previously shown on the approved structural framing plans, the truss layout must show all necessary truss connection hardware including hangers, uplift connections, and truss bearing enhancers.

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ROOF FRAMING PLAN

description

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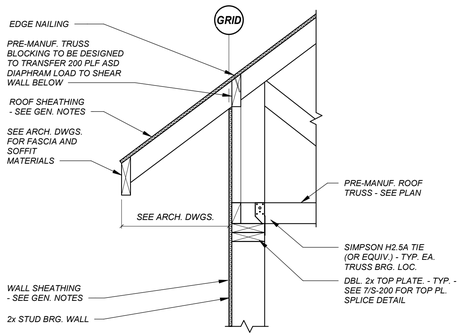
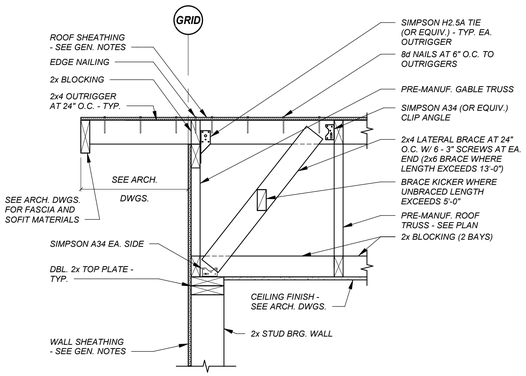
S-103

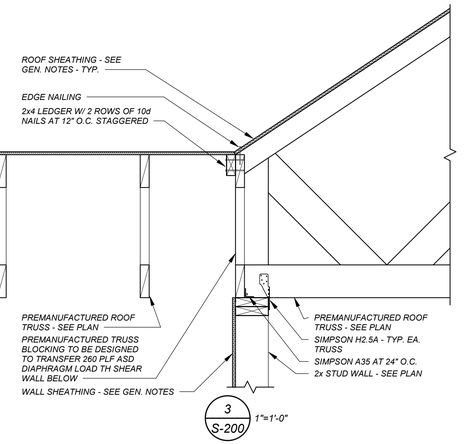
number



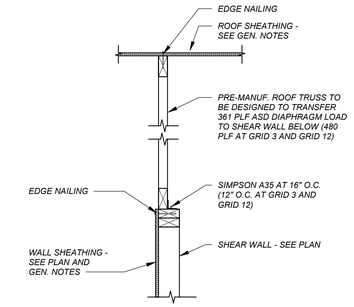
TYPICAL ROOF EAVE DETAIL — 1 / S-200
1"=1'-0"



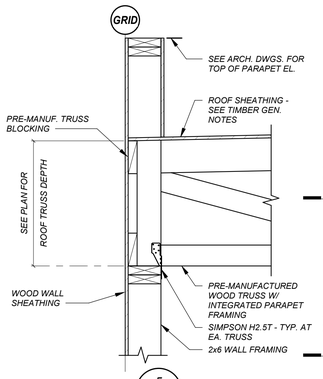
TYPICAL ROOF OVERHANG DETAIL — 2 / S-200
1"=1'-0"



3 / S-200 — 1"=1'-0"



4 / S-200 — 3/4"=1'-0"



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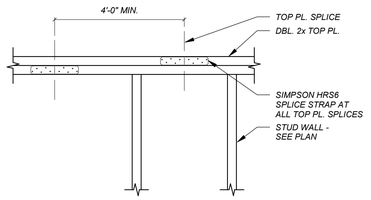
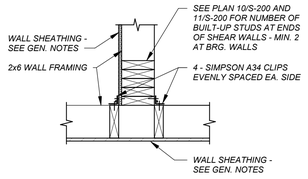
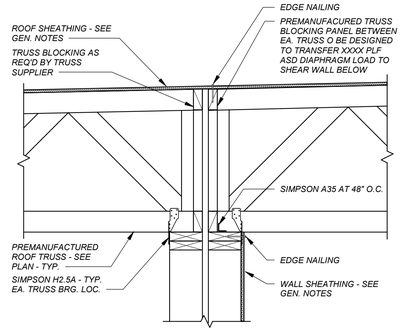


TYPICAL TOP PLATE SPLICE DETAIL — 6 / S-200
1"=1'-0"



PLAN VIEW

TYPICAL INTERIOR SHEAR WALL CONNECTION DETAIL — 7 / S-200
1"=1'-0"



8 / S-200 — 1"=1'-0"

SHEAR WALL SCHEDULE

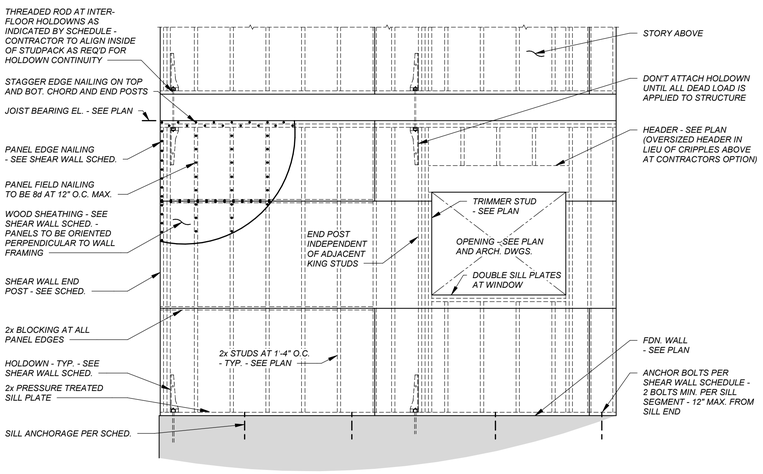
MARK	SHEATHING	PANEL EDGE NAILING	BOT. PL. ATTACHMENT TO WOOD BELOW	SILL ANCHORAGE
SW-1	7/16"	8d AT 6" O.C.	(2) 16d AT 10" O.C.	5/8"ø AT 48" O.C.
SW-2	7/16"	8d AT 4" O.C.	(2) 16d AT 6" O.C.	5/8"ø AT 32" O.C. (3/4"ø AT 48" O.C.)
SW-3	7/16"	8d AT 3" O.C.	(2) 16d AT 4" O.C. OR (2) 5" SDS SCREWS AT 9" O.C.	5/8"ø AT 24" O.C. (3/4"ø AT 32" O.C.)
SW-4[1]	7/16" EA. FACE	8d AT 6" O.C.	(2) 5" SDS SCREWS AT 9" O.C.	5/8"ø AT 24" O.C. (3/4"ø AT 32" O.C.)
SW-5[1]	7/16" EA. FACE	8d AT 4" O.C.	(2) 5" SDS SCREWS AT 6" O.C.	5/8"ø AT 16" O.C. (3/4"ø AT 24" O.C.)

1. WHERE PANELS ARE APPLIED ON BOTH FACES OF A SHEAR WALL AND NAILING IS LESS THAN 6" ON CENTER, PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS. ALTERNATIVELY, THE WIDTH OF THE NAILED FACE OF FRAMING MEMBERS SHALL BE 3" NOMINAL OR GREATER AT ADJOINING PANEL EDGES AND NAILS AT ALL PANEL EDGES SHALL BE STAGGERED.

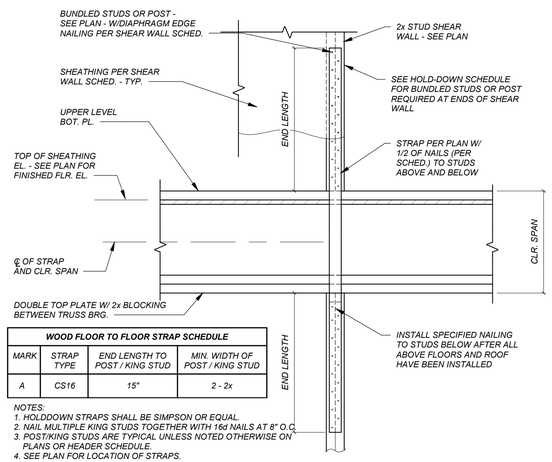
SHEAR WALL HOLDOWN SCHEDULE

MARK	HOLDOWN	THREADED ROD DIAMETER	ANCHOR	BOLTS TO POST/KING STUDS	MIN. WIDTH OF POST/KING STUD
B	HD5B	5/8"ø	SSTB24 or (SB5/8x24)	2 - 3/4"ø	2 - 2x
C	HD7B	7/8"ø	SSTB28 or (SB7/8x24)	3 - 3/4"ø	3 - 2x

• PROVIDE ADDITIONAL 2 - #4 VERTICAL DOWELS INTO FOOTING AT HD7B AND HD12 HOLDOWNS.



TYPICAL SHEAR WALL FRAMING ELEVATION — 10 / S-200
3/8"=1'-0"



WOOD FLOOR TO FLOOR STRAP SCHEDULE

MARK	STRAP TYPE	END LENGTH TO POST / KING STUD	MIN. WIDTH OF POST / KING STUD
A	CS16	15"	2 - 2x

NOTES:
1. HOLDDOWN STRAPS SHALL BE SIMPSON OR EQUAL.
2. NAIL MULTIPLE KING STUDS TOGETHER WITH 16d NAILS AT 8" O.C.
3. POST/KING STUDS ARE TYPICAL UNLESS NOTED OTHERWISE ON PLANS OR HEADER SCHEDULE.
4. SEE PLAN FOR LOCATION OF STRAPS.

TYPICAL HOLD-DOWN OR STRAP CONNECTION AT FLOOR FRAMING — 11 / S-200
1"=1'-0"

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Lafayette, Colorado 80026

seal

issue / revision	date:
Design Update	03/17/22
Draft Elevations	April 2022

issue / revision

job # Project Number
drawn DJH
chkd SAH, CBA

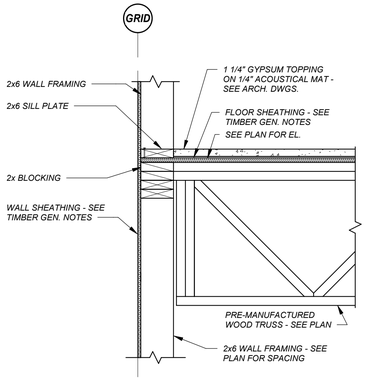
FRAMING DETAILS

description

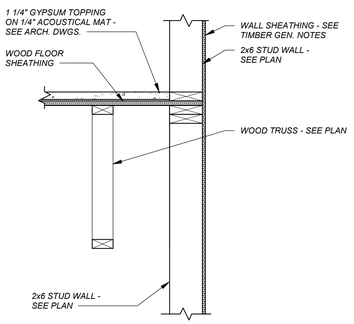
S-200

number

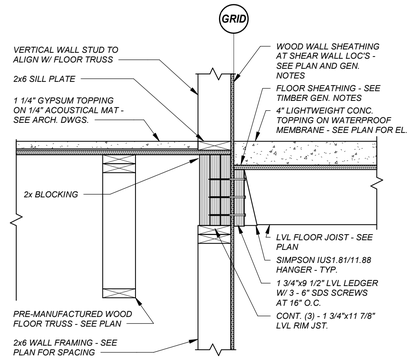
NOT FOR CONSTRUCTION



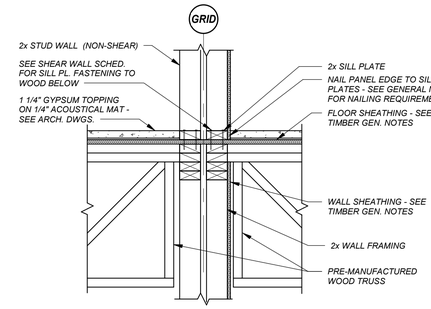
1 S-201 1"=1'-0"



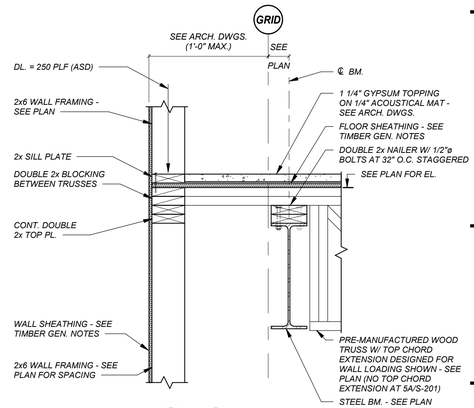
2 S-201 1"=1'-0"



3 S-201 3A S-201 1"=1'-0"

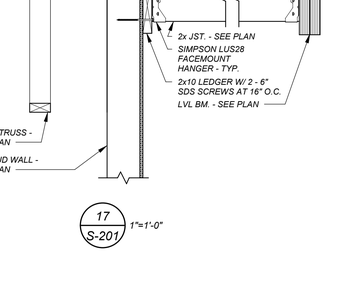


4 S-201 1"=1'-0"

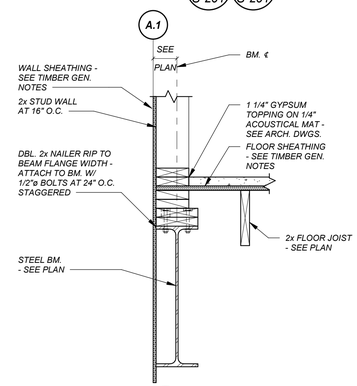


5 S-201 5A S-201 1"=1'-0"

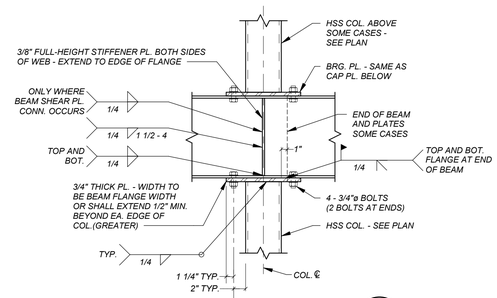
NOT USED



7 S-201 1"=1'-0"

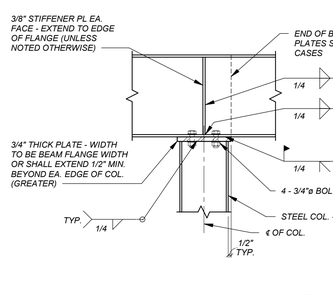


8 S-201 1"=1'-0"

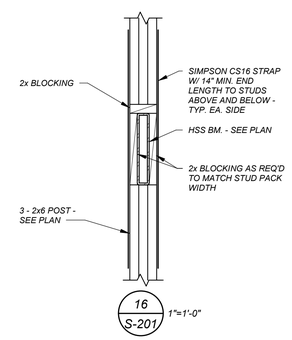


TYPICAL COLUMN TO BEAM DETAIL 9 S-201
1"=1'-0"

- STEEL ERECTION SHOP DRAWINGS SHALL INFORM THE ERECTOR THAT WHEN THE UPPER COLUMN HAS ONLY 2 BOLTS, FIELD WELDING MAY BE REQUIRED AT OUTSIDE END OF BEARING PLATE FOR ERECTION STABILITY.
- BOLTS TO BE TENSION CONTROL BOLTS AT ALL ROOF APPLICATIONS.
- FULL-HEIGHT STIFFENER PLATE TO BE EXTENDED FOR BOLTED BEAM CONNECTION WHERE REQUIRED. SEE 11S-201 FOR BOLT QUANTITY.

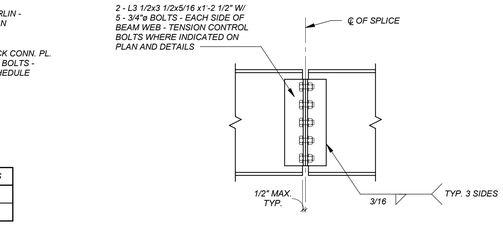


TYPICAL BEAM TO COLUMN DETAIL 10 S-201
1"=1'-0"



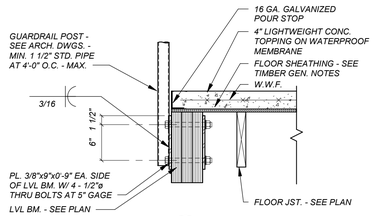
16 S-201 1"=1'-0"

17 S-201 1"=1'-0"

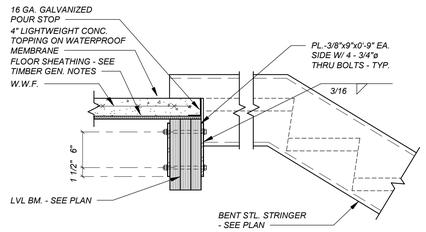


TYPICAL SHEAR SPLICE DETAIL 12 S-201
1"=1'-0"

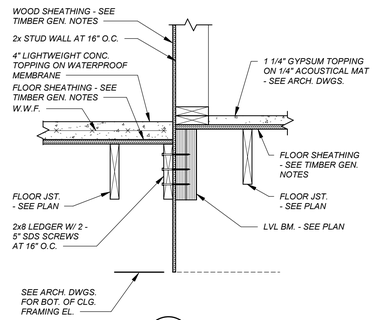
- THIS DETAIL TO BE USED AT ALL ROOF BEAM SPLICES UNLESS NOTED OTHERWISE.



13 S-201 1"=1'-0"



14 S-201 1"=1'-0"



15 S-201 1"=1'-0"

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issue / revision date:
Design Update 03/17/22
Draft Elevations April 2022

issue / revision

job #
Project Number

drawn
DJH

chkd
SAH, CBA

description
FRAMING DETAILS

NOT FOR CONSTRUCTION

number
S-201

SYMBOLS LEGEND AND ABBREVIATIONS

NOTE: NOT ALL SYMBOLS ARE USED IN CONSTRUCTION DOCUMENTS

—FL—	FIRE LINE	EC	ELECTRICAL CONTRACTOR
○	UPRIGHT SPRINKLER HEAD	FPC	FIRE PROTECTION CONTRACTOR
⊗	SEMI-RECESSED SPRINKLER HEAD	MC	MECHANICAL CONTRACTOR
⊗	CONCEALED SPRINKLER HEAD	PC	PLUMBING CONTRACTOR
●	PENDANT SPRINKLER HEAD		BACKFLOW PREVENTER
◀	SIDEWALL SPRINKLER HEAD		CHECK VALVE
	ORDINARY HAZARD GROUP 1 OCCUPANCY		GATE VALVE
	ORDINARY HAZARD GROUP 2 OCCUPANCY	T&D	TEST AND DRAIN ASSEMBLY
#	KEYNOTE	TS	TAMPER SWITCH
## / #	DETAIL OR SECTION MARK DETAIL # SHEET #	FS	FLOW SWITCH
			FIRE DEPARTMENT CONNECTION (FDC)
			POINT OF NEW CONNECTION
			POINT OF TERMINATION/CAP

FLOW TEST INFORMATION

STATIC PSI	RESIDUAL PSI	FLOW GPM	DATE	LOCATION	FLOW TEST PERFORMED BY
84	77	2,914 (AT 20 PSIG)	03/19/2020	FLAGG DR. & 120th ST.	ACTION FIRE HYDRANT SERVICE, LLC.

THE FLOW TEST INFORMATION LISTED ABOVE IS INTENDED AS A REFERENCE FOR THE FIRE PROTECTION CONTRACTOR. THE FIRE PROTECTION CONTRACTOR SHALL PERFORM A HYDRAULIC FLOW TEST NEAR THE PROJECT SITE TO VERIFY ACTUAL FLOW CONDITIONS ON WHICH TO BASE THE FIRE PROTECTION DESIGN.

GENERAL NOTES

A. THE FIRE PROTECTION CONTRACTOR SHOULD USE NFPA-13 (CURRENT EDITION), "PLANS AND CALCULATIONS" AS A GUIDELINE WHEN PREPARING SUBMITTALS FOR REVIEW. DISREGARD ONLY THOSE ITEMS NOT APPLICABLE TO THE INDIVIDUAL BUILDING SYSTEM. FIRE PROTECTION MATERIALS, EQUIPMENT, AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA-13 FOR THE INSTALLATION OF AUTOMATIC SPRINKLER SYSTEMS, AND NFPA-13R FOR INSTALLATION OF SPRINKLER SYSTEMS IN LOW-RISE RESIDENTIAL OCCUPANCIES.

B. THE FIRE PROTECTION CONTRACTOR SHALL COMPLY WITH THE INTERNATIONAL BUILDING CODE (LATEST ADOPTED EDITION). INSTALLATION SHALL MEET THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.

C. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS AND ROOM FINISH SCHEDULE WHICH INDICATE CEILING HEIGHTS. COORDINATE WITH ARCHITECT'S REFLECTED CEILING PLAN FOR PROPOSED LOCATION OF SPRINKLER HEADS IN AREAS WITH CEILINGS. LOCATE HEADS IN AREAS WITHOUT CEILINGS AS REQUIRED BY IFC, NFPA, AND AUTHORITY HAVING JURISDICTION REQUIREMENTS FOR THE APPROPRIATE HAZARD CLASSIFICATION.

D. THIS FACILITY SHALL BE A TOTALLY SPRINKLERED BUILDING. FIRE SUPPRESSION SYSTEM SHALL BE WET PIPE TYPE SYSTEM WITH COMPLETE SPRINKLER PROTECTION UNLESS NOTED OTHERWISE. SYSTEM TO BE DESIGNED AS REQUIRED BY IFC, NFPA, AND AUTHORITY HAVING JURISDICTION REQUIREMENTS FOR THE APPROPRIATE HAZARD CLASSIFICATION.

E. FOR COMMON AREAS, SPRINKLER HEAD LAYOUTS INDICATED ARE BASED ON OCCUPANCY HAZARD CLASSIFICATIONS OUTLINED IN NFPA-13 STANDARDS. GENERALLY, PUBLIC / OFFICE AREAS ARE BASED ON "LIGHT HAZARD", AND STORAGE / MECHANICAL AREAS ARE BASED ON "ORDINARY HAZARD". EXTENDED COVERAGE DISTRIBUTION IS NOT INDICATED, BUT MAY BE UTILIZED WHERE SPACE MEETS REQUIREMENTS SET FORTH IN NFPA-13.

F. IT IS THE CONTRACTOR'S RESPONSIBILITY TO HYDRAULICALLY CALCULATE SPRINKLER REQUIREMENTS PER THE APPROPRIATE HAZARD OCCUPANCY AND PROVIDE ACTUAL NUMBER OF HEADS, REQUIRED SPACING, AND PIPE ROUTING AS REQUIRED FOR CLEARANCE WITH STRUCTURAL CONDITIONS AND OTHER TRADES TO PROVIDE A COMPLETE AND OPERABLE SYSTEM IN ACCORDANCE WITH IFC, NFPA, AND AUTHORITY HAVING JURISDICTION REQUIREMENTS.

G. FIRE PROTECTION CONTRACTOR SHOULD OBTAIN FLOW TEST DATA INDICATING THE WATER FLOW AND PRESSURE AVAILABLE TO THE FACILITY OR MAKE ARRANGEMENTS TO HAVE A FLOW TEST PERFORMED. FIRE PROTECTION CONTRACTOR TO INCLUDE IN THEIR BID ALL COSTS ASSOCIATED WITH FLOW TEST. SUBMIT HYDRAULIC CALCULATIONS AND PLANS RELATED TO (1) REMOTE AREA AT THE HIGHEST LEVEL OF DISTRIBUTION AND (1) ADDITIONAL AREA AT THE AREA HAVING THE HIGHEST AVERAGE DEMAND PER SQUARE FOOT.

H. PIPING IS SHOWN IN SCHEMATIC FORM TO INDICATE APPROXIMATE ARRANGEMENT OF EQUIPMENT AND PIPING. SPRINKLER CONTRACTOR SHALL DESIGN THE SYSTEM AND ROUTE PIPING AS REQUIRED FOR CONFORMANCE WITH ACTUAL BUILDING CONDITIONS AND NFPA REQUIREMENTS. COORDINATE SPRINKLER WORK WITH ALL OTHER TRADES TO AVOID CONFLICT.

I. REFER TO SPECIFICATION SECTIONS IN DIVISION 21 FOR ADDITIONAL INFORMATION PERTAINING TO THE FIRE PROTECTION SYSTEM.

J. SUPPORT ALL NEW PIPING AND EQUIPMENT FROM STRUCTURE ABOVE AS REQUIRED. CONTRACTOR SHALL PROVIDE ALL SUPPLEMENTAL STEEL TO SPAN BETWEEN PRIMARY BUILDING STRUCTURAL MEMBERS. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETE DESIGN OF SUPPLEMENTAL STEEL AND SUPPORTS INCLUDING REACTION LOADS AT PRIMARY BUILDING STRUCTURAL MEMBERS.

K. PROVIDE SPRINKLER HEADS IN CONCEALED LOCATIONS PER NFPA REQUIREMENTS.

L. DURING CONSTRUCTION PROCEDURES, THE ENTIRE WORK AREA SHALL BE CLEAN OF ALL DUST, DIRT, AND OTHER DEBRIS BEFORE APPLICATION OF ANY NEW MATERIALS.

M. THESE DRAWINGS INDICATE THE GENERAL EXTENT OF THE WORK AND ARE NOT INTENDED TO SHOW OR DESCRIBE ALL WORK REQUIRED FOR THE FULL PERFORMANCE AND COMPLETION OF CONTRACT DOCUMENTS.

N. PROVIDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, ETC. REQUIRED FOR COMPLETE AND FUNCTIONAL SYSTEM AS SPECIFIED AND INDICATED ON THE DRAWINGS.

O. INCLUDE IN BID ALL LICENSE, PERMIT, INSPECTION, AND OTHER FEES REQUIRED BY UTILITY COMPANIES OR AUTHORITIES HAVING JURISDICTION REQUIRED FOR COMPLETION OF WORK SO NO ADDITIONAL EXPENSES ARE INTRODUCED TO OWNER.

P. PROMPTLY INFORM THE ENGINEER, IN WRITING, OF ANY DEVIATIONS IN THE CONTRACT DOCUMENTS FROM REQUIREMENTS OF LOCAL UTILITIES, MUNICIPALITIES, STATE, OR FEDERAL LAWS AND REGULATIONS. PERFORM WORK IN ACCORDANCE WITH SUCH REQUIREMENTS AT NO ADDITIONAL COST TO THE OWNER.

Q. FIRE PROTECTION CONTRACTOR SHALL SUBMIT ONE COMPLETE SET OF AUTOMATIC SPRINKLER SYSTEM DRAWINGS, HYDRAULIC CALCULATIONS, CURRENT WATER FLOW TEST, AND THE EQUIPMENT DATA BROCHURES PREPARED BY OR UNDER THE SUPERVISION OF, AND SEALED BY, A PROFESSIONAL ENGINEER. THE SUBMITTAL SHALL BE SENT TO ALL AUTHORITIES HAVING JURISDICTION FOR REVIEW AND APPROVAL. SYSTEM SHALL ALSO BE IN COMPLIANCE WITH ALL REQUIRED PLUMBING CODES.

R. ALL EXPENSES CARRIED BY THE A/E IN TROUBLESHOOTING SYSTEM(S) PROBLEMS CAUSED BY INADEQUATE WORKMANSHIP, LACK OF TECHNICAL EXPERTISE, OR OTHER FORMS OF POOR PERFORMANCE ON THE PART OF A CONTRACTOR SHALL BE BORN BY THAT CONTRACTOR.

S. PROVIDE FIRE STOP / SEALANT AT ALL PIPE PENETRATIONS THROUGHOUT FIRE RATED WALLS. REVIEW ARCHITECTURAL PLANS PRIOR TO BIDDING AND INDICATE FIRE-RATED PENETRATION LOCATIONS ON SPRINKLER LAYOUT SUBMITTAL.

T. ELECTRONIC FLOW AND TAMPER SWITCHES ARE TO BE PURCHASED AND INSTALLED BY SPRINKLER CONTRACTOR AND WIRED BY ELECTRICAL CONTRACTOR.

U. WATER SERVICE AND DOUBLE CHECK DETECTOR ASSEMBLY (PER CITY OF LAFAYETTE) BACKFLOW PREVENTER TO BE PROVIDED, INSTALLED, AND TESTED BY PLUMBING CONTRACTOR. SPRINKLER CONTRACTOR IS TO INCORPORATE ASSOCIATED PRESSURE DROP OF SELECTED BACKFLOW PREVENTER DEVICE IN HYDRAULIC CALCULATIONS.

V. FIRE PROTECTION CONTRACTOR SHALL FURNISH AND INSTALL ARMOVER SUPPORTS FOR ALL END OF LINE BRANCH LINES PER NFPA-13, SECTION: 9.2.3.4. REFER TO A.9.2.3.4.3(B) FOR ACCEPTABLE.

W. ALL DROPS TO SPRINKLER HEADS SHALL TEE / ELBOW OFF TOP OF BRANCH PIPE, EXCEPT WHERE STRUCTURAL, ARCHITECTURAL, OR MECHANICAL EQUIPMENT CONDITIONS PRECLUDE CONVENTIONAL INSTALLATION.

X. SPRINKLER HEADS SHALL BE IN A SYMMETRICAL PATTERN, NOT NECESSARILY IN THE CENTER OF ROOMS, CORRIDORS OR CEILING TILE.

Y. THE FIRE PROTECTION CONTRACTOR SHALL LOCATE THE INSPECTOR'S TEST CONNECTION AND MAIN DRAIN LOCATIONS IN ACCORDANCE WITH NFPA-13.

Z. FIRE DEPARTMENT CONNECTION SHALL BE LOCATED NOT MORE THAN 100 FEET AWAY FROM THE NEAREST FIRE HYDRANT CONNECTED TO AN APPROVED WATER SUPPLY AND SHALL BE LOCATED NOT LESS THAN 18 INCHES, NOR MORE THAN 48 INCHES ABOVE ADJACENT SURFACE.

THE FIRE PROTECTION DRAWING IS DESIGNED TO BE IN CONFORMANCE WITH NFPA 13. IT IS A PERFORMANCE BASED DRAWING INDICATING THE EXTENT OF FIRE PROTECTION WORK FOR THE AREA THAT THIS DRAWING REPRESENTS. THIS DRAWING IS "FOR INFORMATION ONLY", AS A REFERENCE FOR THE FIRE PROTECTION CONTRACTOR TO BASE THE DESIGN OF THE FIRE PROTECTION SYSTEM ON. THE CONTRACTOR SHALL VERIFY THE EXACT CONDITIONS THAT THIS DRAWING REPRESENTS, INCLUDING ANY PERCEIVED CONCEALED SPACES, AND THE BUILDING TYPE AND CONSTRUCTION AS OUTLINED IN THE INTERNATIONAL BUILDING CODE, PRIOR TO THE START OF WORK. REFER TO THE INTERNATIONAL BUILDING CODE, ESPECIALLY CHAPTERS 6 (TYPES OF CONSTRUCTION) AND CHAPTER 9 (FIRE PROTECTION SYSTEMS), NFPA 13, AND THE PROJECT SPECIFICATIONS FOR OTHER FIRE PROTECTION REQUIREMENTS.

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seal

issue / revision — date:
- Design Update 03/17/22
- Draft Elevations April 2022
- Schematic Design 06/10/2022
- Design Development 09/09/2022

job # 168-09

drawn Drawn By

chkd Checker

description
GENERAL INFORMATION

number
F-001

THE FIRE PROTECTION DRAWING IS DESIGNED TO BE IN CONFORMANCE WITH NFPA 13. IT IS A PERFORMANCE BASED DRAWING INDICATING THE EXTENT OF FIRE PROTECTION WORK FOR THE AREA THAT THIS DRAWING REPRESENTS. THIS DRAWING IS "FOR INFORMATION ONLY", AS A REFERENCE FOR THE FIRE PROTECTION CONTRACTOR TO BASE THE DESIGN OF THE FIRE PROTECTION SYSTEM ON. THE CONTRACTOR SHALL VERIFY THE EXACT CONDITIONS THAT THIS DRAWING REPRESENTS, INCLUDING ANY PERCEIVED CONCEALED SPACES, AND THE BUILDING TYPE AND CONSTRUCTION AS OUTLINED IN THE INTERNATIONAL BUILDING CODE, PRIOR TO THE START OF WORK. REFER TO THE INTERNATIONAL BUILDING CODE, ESPECIALLY CHAPTERS 6 (TYPES OF CONSTRUCTION) AND CHAPTER 9 (FIRE PROTECTION SYSTEMS), NFPA 13, AND THE PROJECT SPECIFICATIONS FOR OTHER FIRE PROTECTION REQUIREMENTS.

GENERAL NOTES

A. ALL LIVING UNIT DISTRIBUTION TO BE BASED ON NFPA-13R STANDARDS UNLESS OTHERWISE NOTED ON PLANS.

B. ALL COMMON AREA (CORRIDORS, MEETING ROOMS, BREAK ROOMS, ETC.) DISTRIBUTION TO BE BASED ON LIGHT HAZARD CLASSIFICATION AS OUTLINED IN NFPA-13 STANDARDS UNLESS OTHERWISE NOTED ON PLANS.

KEYNOTES (#)

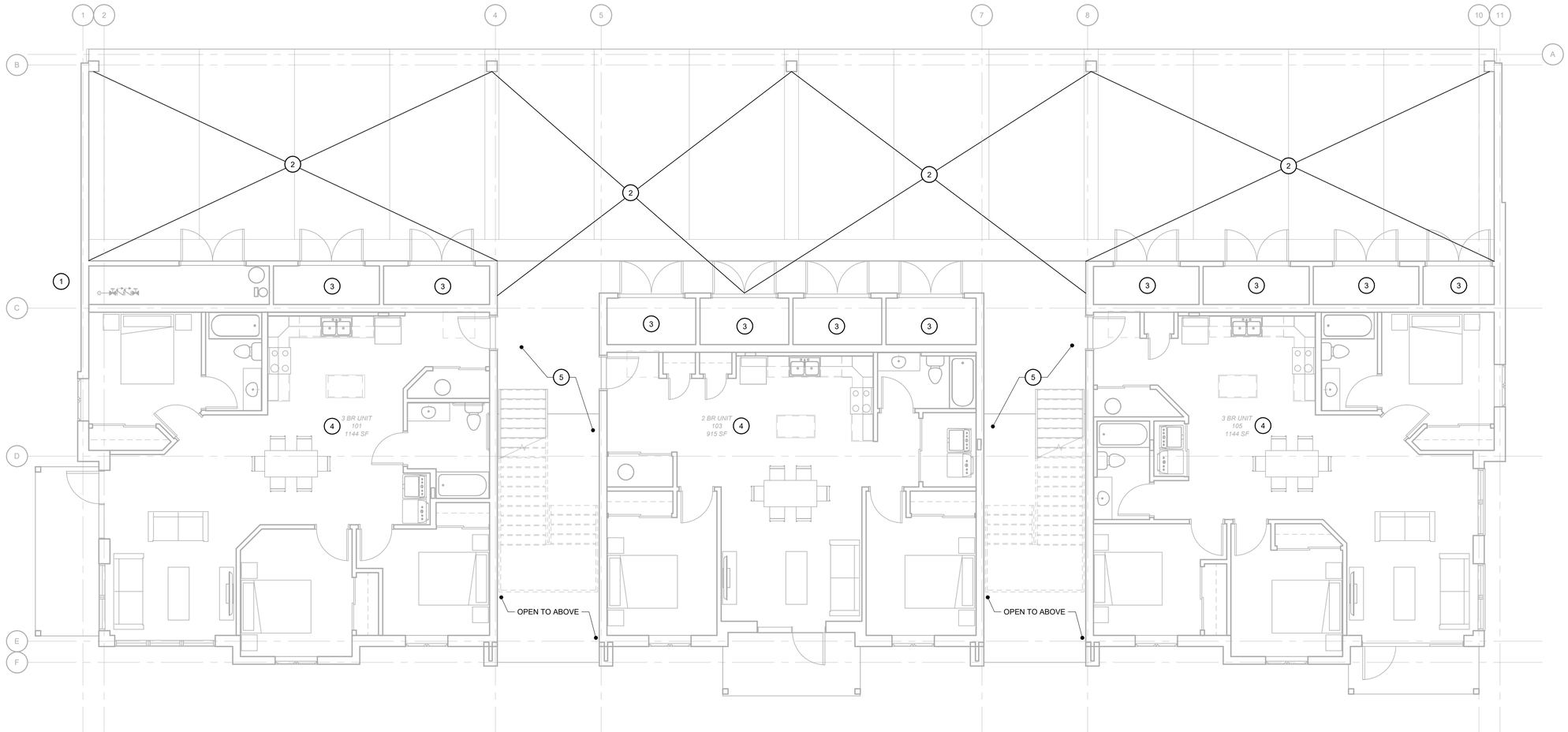
1 BASE BID: PROVIDE ALL WET-PIPE SYSTEM RISER ASSEMBLY AS DETAILED SHEET F-501. ALTERNATE BID #1: PROVIDE DRY-PIPE SYSTEM RISER ASSEMBLY AS DETAILED SHEET F-501.

2 BASE BID: PROVIDE ALL WET-PIPE SYSTEM DISTRIBUTION IN CONCEALED JOIST SPACE ABOVE PARKING AREA BASED ON ORDINARY HAZARD, GROUP-1 AS OUTLINED IN NFPA-13 STANDARDS. INCLUDE HEAT TRACE SYSTEM THROUGHOUT. ALTERNATE BID #1: PROVIDE DRY-PIPE SYSTEM SPRINKLER SYSTEM DISTRIBUTION THROUGHOUT PARKING AREA (ORDINARY HAZARD, GROUP-1) WITH PIPING CONCEALED IN JOIST SPACE.

3 BASE BID: PROVIDE ALL WET-PIPE SYSTEM DISTRIBUTION IN CONCEALED JOIST SPACE ABOVE GARAGE STORAGE AREAS (ORDINARY HAZARD, GROUP-1). INCLUDE HEAT TRACE SYSTEM THROUGHOUT. ALTERNATE BID #1: PROVIDE DRY-PIPE SYSTEM SPRINKLER SYSTEM DISTRIBUTION WITH PIPING CONCEALED IN JOIST SPACE (ORDINARY HAZARD, GROUP-1).

4 BASE BID: PROVIDE ALL WET-PIPE SYSTEM DISTRIBUTION THROUGHOUT TENANT SPACES AS OUTLINED IN NFPA-13R STANDARDS. ALTERNATE BID #1: PROVIDE DRY-PIPE SYSTEM SPRINKLER SYSTEM DISTRIBUTION AS OUTLINED IN NPFA-13R STANDARDS.

5 BASE BID: PROVIDE DRY PENDENT SIDE WALL SPRINKLER BENEATH BOTTOM OF STAIRWELL/LANDING EXTENDED FROM WET PIPE SYSTEM IN ADJACENT UNIT. ALTERNATE BID #1: SPRINKLER BOTTOM OF STAIRWELL (BENEATH LANDING) USING DRY SPRINLER DISTRIBUTION. INCLUDE LOW-POINT DRAIN ELBOW.



1 **FIRST FLOOR FIRE PROTECTION PLAN**
SCALE: 3/16" = 1'-0"

0 2 4 8

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issue / revision	date:
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issue / revision

job # 168-09

drawn Drawn By

chkd Checker

description
FIRST FLOOR FIRE PROTECTION PLAN

number
F-101

GENERAL NOTES

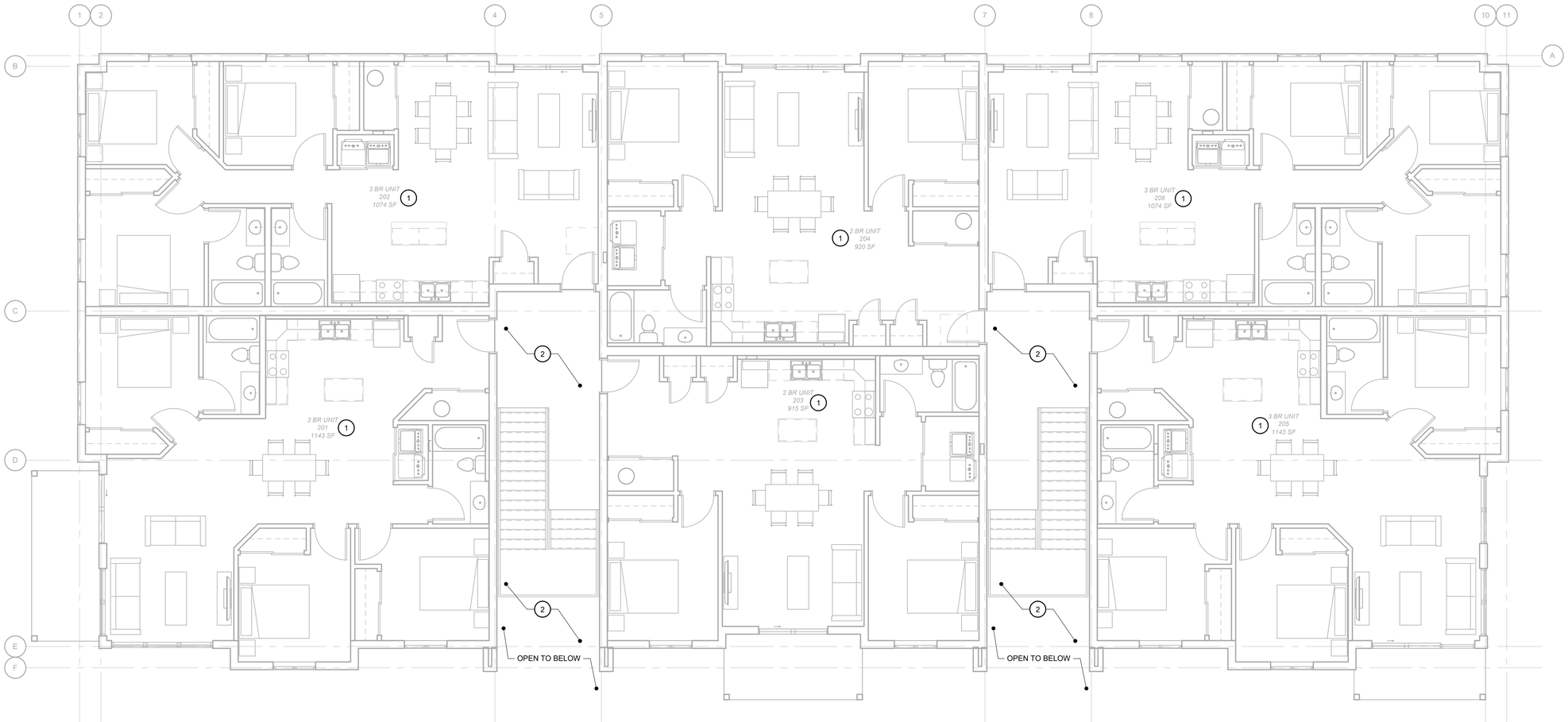
A. ALL LIVING UNIT DISTRIBUTION TO BE BASED ON NFPA-13R STANDARDS UNLESS OTHERWISE NOTED ON PLANS.

B. ALL COMMON AREA (CORRIDORS, MEETING ROOMS, BREAK ROOMS, ETC.) DISTRIBUTION TO BE BASED ON LIGHT HAZARD CLASSIFICATION AS OUTLINED IN NFPA-13 STANDARDS UNLESS OTHERWISE NOTED ON PLANS.

KEYNOTES (#)

1 BASE BID: PROVIDE ALL WET-PIPE SYSTEM DISTRIBUTION THROUGHOUT TENANT SPACES AS OUTLINED IN NFPA-13R STANDARDS. ALTERNATE BID #1: PROVIDE DRY-PIPE SYSTEM SPRINKLER SYSTEM DISTRIBUTION AS OUTLINED IN NPFA-13R STANDARDS.

2 BASE BID: PROVIDE DRY PENDENT SIDEWALL SPRINKLER HEAD DISTRIBUTION THROUGHOUT UPPER STAIRWELL LANDING AND ABOVE CLEARSTORY AREA. COORDINATE SPRINKLER HEAD PIPE LENGTH WITH RELATED WET-PIPE SPRINKLER PIPING IN ADJACENT TENANT SPACE SOFFIT. ALTERNATE BID #1: PROVIDE DRY-PIPE SYSTEM SPRINKLER DISTRIBUTION THROUGHOUT UPPER STAIRWELL LANDING AND CLEARSTORY AREA.



1 **SECOND FLOOR FIRE PROTECTION PLAN**
SCALE: 3/16" = 1'-0"

0 2 4 8

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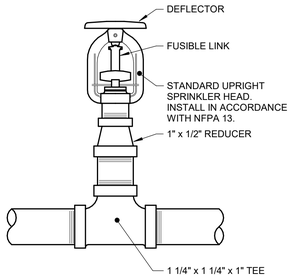
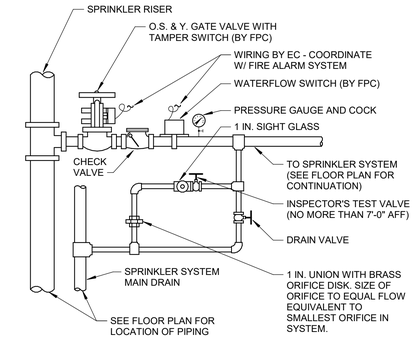
SECOND FLOOR FIRE PROTECTION PLAN

number
F-102



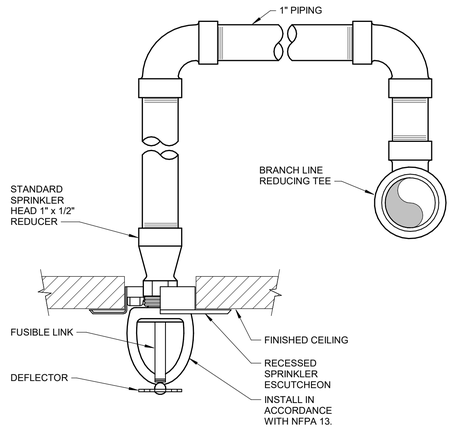
6 UPRIGHT SPRINKLER HEAD DETAIL

SCALE: NOT TO SCALE



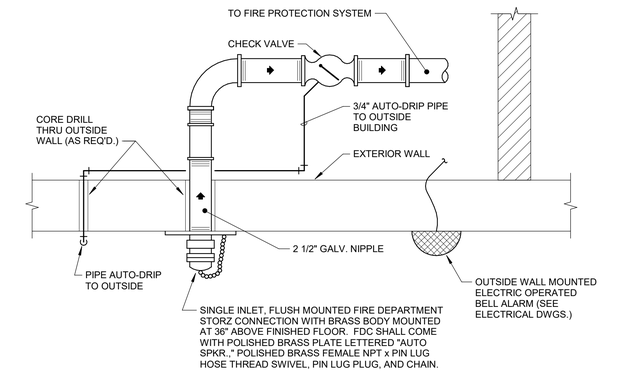
3 SPRINKLER SYSTEM ZONE VALVE DETAIL

SCALE: NOT TO SCALE



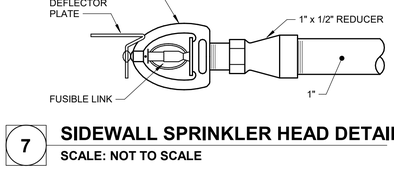
5 SEMI-RECESSED SPRINKLER HEAD DETAIL

SCALE: NOT TO SCALE



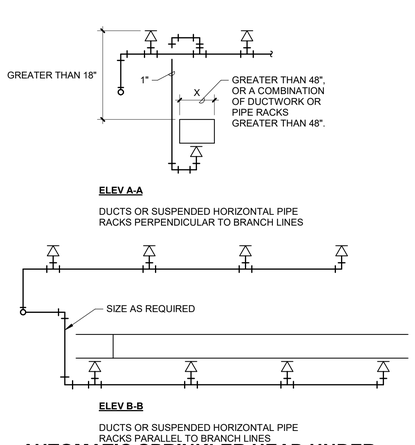
2 FIRE DEPARTMENT CONNECTION DETAIL

SCALE: NOT TO SCALE



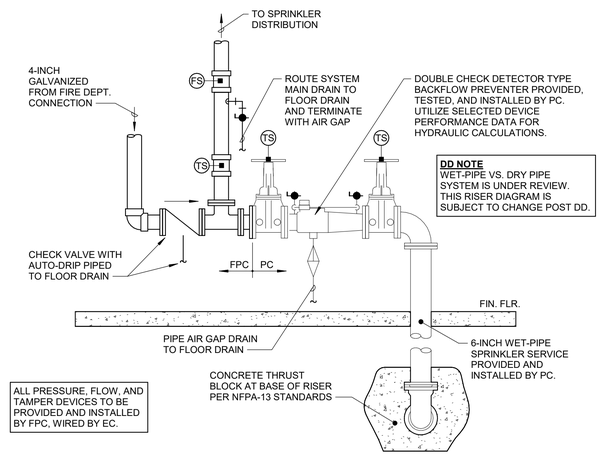
7 SIDEWALL SPRINKLER HEAD DETAIL

SCALE: NOT TO SCALE



4 AUTOMATIC SPRINKLER HEAD UNDER DUCTS AND PIPE RACKS

SCALE: NOT TO SCALE



1 FIRE PROTECTION RISER DETAIL

SCALE: NOT TO SCALE

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job #: 168-09

drawn: Drawn By

chkd: Checker

description
DIAGRAMS

number
F-501

SYMBOLS LEGEND

NOTE: NOT ALL SYMBOLS ARE USED IN CONSTRUCTION DOCUMENTS

HYDRONIC

- 3-WAY CONTROL VALVE
- ANGLE GATE VALVE
- ANGLE GLOBE VALVE
- BALANCING/SHUTOFF VALVE
- BALL VALVE
- BUTTERFLY VALVE
- CALIBRATED BALANCING VALVE
- CHECK VALVE
- CONTROL VALVE
- EXPANSION VALVE
- GAS COCK
- GATE VALVE
- GLOBE VALVE
- PLUG VALVE
- PRESSURE REDUCING VALVE (WATER)
- PRESSURE REGULATOR (GAS)
- QUICK OPEN VALVE
- SAFETY RELIEF VALVE
- SOLENOID VALVE
- VACUUM RELIEF VALVE
- AUTOMATIC AIR VENT
- MANUAL AIR VENT
- FLOW SENSOR/SWITCH
- PRESSURE SENSOR/SWITCH
- TEMPERATURE SENSOR/SWITCH
- PRESSURE GAUGE
- THERMOMETER
- PIPE SLOPE ARROW
- PIPE ANCHOR
- PIPE GUIDES
- PIPE EXPANSION JOINT
- FLEXIBLE PIPE CONNECTOR
- PIPE UNION
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- WYE STRAINER
- WYE STRAINER W/DRAIN VALVE
- DIRECTION OF FLOW
- STEAM BUCKET TRAP
- STEAM F&T TRAP
- BACKFLOW PREVENTER
- PRESSURE/TEMPERATURE PLUG
- PUMP
- METER
- PIPE TURNING UP
- PIPE TURNING DOWN
- TEE OFF TOP
- TEE OFF BOTTOM
- PIPE TEE
- PIPE CAP
- PLAN 90 DEGREE ELBOW
- PLAN 45 DEGREE ELBOW

PIPING SYSTEM (SOLID LINE)

BD	BOILER BLOW DOWN
CD	CONDENSATE DRAIN
CHS	CHILLED WATER SUPPLY
CWS	CONDENSER WATER SUPPLY
HCWS	DUAL TEMPERATURE SUPPLY
HPS	HIGH PRESSURE STEAM
HRS	HEAT RECOVERY SUPPLY
HTWS	HIGH TEMP WATER SUPPLY
HWS	HOT WATER SUPPLY
LPS	LOW PRESSURE STEAM
LS	LOOP SUPPLY
MPS	MEDIUM PRESSURE STEAM
PD	PUMP DISCHARGE
RHG	REFRIGERANT HOT GAS
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION

PIPING SYSTEM (DASHED LINE)

CHR	CHILLED WATER RETURN
CWR	CONDENSER WATER RETURN
HCWR	DUAL TEMPERATURE RETURN
HPR	HIGH PRESSURE STEAM CONDENSATE RETURN
HRR	HEAT RECOVERY RETURN
HTWR	HIGH TEMP WATER RETURN
HWR	HOT WATER RETURN
LPR	LOW PRESSURE STEAM CONDENSATE RETURN
LR	LOOP RETURN
MPR	MEDIUM PRESSURE STEAM CONDENSATE RETURN

VENTILATION

- THERMOSTAT
- AHU-1 / GUARD — EQUIPMENT TO BE CONTROLLED / LOCKABLE GUARD WHERE INDICATED
- TEMP / HUMID / CO / CO2 / GUARD — SENSOR / ELEMENT TO BE MONITORED / LOCKABLE GUARD WHERE INDICATED
- HUMIDISTAT
- WALL SWITCH
- CFM — TRANSFER AIR
- 12x8 — RECTANGULAR DUCT
- 12"ø — ROUND DUCT
- 12x8ø — FLAT OVAL DUCT
- SUPPLY DIFFUSER/REGISTER
- RETURN REGISTER/GRILLE
- EXHAUST REGISTER/GRILLE
- DIFFUSER AIRFLOW PATTERN IF OTHER THAN 4-WAY BLOW
- FLEXIBLE BRANCH RUNOUT TO SUPPLY DIFFUSER, 36" MAX LENGTH
- CEILING RETURN REGISTER WITH LINED DUCT FOR SOUND ATTENUATION OPEN TO CEILING PLENUM
- FLEXIBLE DUCT CONNECTION TO EQUIPMENT OR BETWEEN DUCTS
- VOLUME DAMPER
- MOTORIZED DAMPER
- FIRE DAMPER
- SMOKE DAMPER
- COMBINATION FIRE/SMOKE DAMPER
- SUPPLY AIR DUCT TOWARDS
- SUPPLY AIR DUCT AWAY
- RETURN/OUTDOOR AIR DUCT TOWARDS
- RETURN/OUTDOOR AIR DUCT AWAY
- EXHAUST AIR DUCT TOWARDS
- EXHAUST AIR DUCT AWAY

GENERAL

- AHU / 1 — MECHANICAL EQUIPMENT TAG: EQUIPMENT TYPE / EQUIPMENT MARK
- S1 / 12x12 / 250 — AIR TERMINAL DESIGNATION: THROAT SIZE / AIRFLOW IN CFM
- ## / # — DETAIL OR SECTION MARK: DETAIL # / SHEET #
- # — KEYNOTE
- POINT OF NEW CONNECTION
- CAP EXISTING PIPE OR DUCT
- NEW — BOLD TEXT INDICATES PROPOSED ITEM
- *EXISTING* — ITALIC TEXT INDICATES EXISTING ITEM
- LINE STYLE INDICATES DEMOLISHED ITEM

ABBREVIATIONS

AC	ABOVE CEILING/AIR CONDITIONER
ACC	AIR COOLED CONDENSER
AF	AIR FILTER
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AL	ALUMINUM
AMS	AIR MEASURING STATION
AS	AIR SEPARATOR
AV	AUTOMATIC AIR VENT
B	BOILER
BAS	BUILDING AUTOMATION SYSTEM
BDD	BACKDRAFT DAMPER
BFC	BELOW FINISHED CEILING
BFP	BACKFLOW PREVENTION DEVICE
BJ	BETWEEN JOISTS
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTUH	BRITISH THERMAL UNITS PER HOUR
CA	COMPRESSED AIR
CBS	COUNTER BALANCED SHUTTER
CC	COOLING COIL
CF	CEILING / CIRCULATING FAN
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHP	CHILLED WATER PUMP
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
CNV	CONVECTOR
COND	CONDENSATE
CP	CONDENSATE PUMP
CRAC	COMPUTER ROOM AIR CONDITIONER
CT	COOLING TOWER
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CV	CONTROL VALVE
CW	DOMESTIC COLD WATER
CWP	CONDENSER WATER PUMP
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
DAC	DOOR AIR CURTAIN
DC	DRY COOLER
DH	DEHUMIDIFIER
DN	DOWN
DOAS	DEDICATED OUTDOOR AIR SYSTEM
DP	DIFFERENTIAL PRESSURE
DS	DUCT SILENCER
DSU	DUCTLESS SPLIT UNIT
DX	DX COOLING COIL
EA	EXHAUST AIR
EBB	ELECTRIC BASEBOARD HEATER
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EG	EXHAUST GRILLE (LESS DAMPER)
EHC	ELECTRIC HEATING COIL
EL	ELEVATION
ER	EXHAUST REGISTER
ERP	ELECTRIC RADIANT PANEL
ERV	ENERGY RECOVERY VENTILATOR
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
FA	FRESH AIR
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FDC	FLEXIBLE DUCT CONNECTION
FFA	FROM FLOOR ABOVE
FFB	FROM FLOOR BELOW
FPC	FLEXIBLE PIPE CONNECTION
FPT	FAN POWERED AIR TERMINAL
FT	FINNED TUBE RADIATION
GC	GENERAL CONTRACTOR
GF	GAS FURNACE
GIH	GRAVITY INTAKE HOOD
GPM	GALLONS PER MINUTE
GR	GLYCOL RETURN
GRH	GAS RADIANT HEATER
GS	GLYCOL SUPPLY
GUH	GAS UNIT HEATER
HU	HUMIDIFIER
HC	HEATING COIL
HCWR	DUAL TEMPERATURE RETURN
HCWS	DUAL TEMPERATURE SUPPLY
HP	HEAT PUMP
HPR	HIGH PRESSURE STEAM RETURN
HPS	HIGH PRESSURE STEAM SUPPLY
HRC	HEAT RECOVERY COIL
HRV	HEAT RECOVERY VENTILATOR (SENSIBLE)
HS	HUMIDITY SENSOR
HWP	HOT WATER PUMP
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HX	HEAT EXCHANGER
ISP	INTERNAL STATIC PRESSURE
KH	KITCHEN HOOD - COMMERCIAL
L	LOUVER
LPR	LOW PRESSURE STEAM RETURN
LPS	LOW PRESSURE STEAM SUPPLY
MA	MIXED AIR
MAU	MAKEUP AIR UNIT
MBH	THOUSANDS OF BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MD	MOTORIZED DAMPER
MS	MOTORIZED SHUTTER
NTS	NOT TO SCALE
OA	OUTDOOR AIR
OBD	OPPOSED BLADE DAMPER
P	PUMP
PC	PLUMBING CONTRACTOR
PBD	PARALLEL BLADE DAMPER
PDH	POOL ROOM DEHUMIDIFIER
PRV	PRESSURE RELIEF VALVE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PTAC	PACKAGED TERMINAL AIR CONDITIONER
RA	RETURN AIR
RF	RETURN AIR FAN
RG	RETURN GRILLE (LESS DAMPER)
RH	ROOF HOOD
RHC	REHEAT COIL
RLFA	RELIEF AIR
RP	RADIANT PANEL
RPZ	REDUCED PRESSURE BFP
RR	RETURN REGISTER (WITH DAMPER)
RTU	ROOFTOP AIR HANDLING UNIT
SA	SUPPLY AIR
SAS	SELF-ACTING SHUTTER
SD	SUPPLY DIFFUSER/SMOKE DAMPER
SF	SUPPLY FAN / SQUARE FOOT
SFD	SMOKE/FIRE DAMPER
SG	SUPPLY GRILLE
SR	SUPPLY REGISTER
TCAC	TEMP. CONTROL AIR COMPRESSOR
TCAD	TEMP. CONTROL AIR DRYER
TDV	TRIPLE DUTY VALVE
TFA	TO FLOOR ABOVE
TFB	TO FLOOR BELOW
TJ	THROUGH JOISTS
TOD	TOP OF DUCT
TOP	TOP OF PIPE
TSP	TOTAL STATIC PRESSURE
UC	UNIT COOLER
UFD	UNDERFLOOR DUCT
UFT	UNDERFLOOR FAN TERMINAL
UH	UNIT HEATER
UV	UNIT VENTILATOR
VAV	VARIABLE AIR VOLUME TERMINAL
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
VRP	VERTICAL RADIANT PANEL
WAC	WINDOW / WALL AIR CONDITIONER

GENERAL NOTES

COMMON REQUIREMENTS

A. THIS FACILITY HAS BEEN DESIGNATED A "SMOKE-FREE" ENVIRONMENT. NO MECHANICAL VENTILATION PROVISIONS HAVE BEEN MADE TO ACCOMMODATE TOBACCO USAGE BY THE BUILDING OCCUPANTS

B. ALL MECHANICAL SYSTEMS SHALL BE INSTALLED TO THE SATISFACTION OF THE LOCAL CODE AUTHORITIES HAVING JURISDICTION

C. EVERY ATTEMPT HAS BEEN MADE TO COORDINATE THE ROUTING OF DUCTWORK WITHIN THE WOOD TRUSSED ATTIC SPACE. ACTUAL LOCATION OF TRUSS WEBS HOWEVER CAN NOT BE DETERMINED UNTIL FABRICATION DRAWINGS ARE SUBMITTED FOR REVIEW. WHERE POSSIBLE, REFRAIN FROM PREFABRICATING DUCTWORK DESIGNATED FOR INSTALLATION WITHIN THE ATTIC UNTIL ROOF FRAMING IS IN PLACE AND ACTUAL STRUCTURAL CONDITIONS CAN BE FIELD VERIFIED

MECHANICAL EQUIPMENT INSTALLATION

A. INSTALL EQUIPMENT TO ALLOW MAXIMUM POSSIBLE HEADROOM UNLESS SPECIFIC MOUNTING HEIGHTS ARE INDICATED

B. INSTALL EQUIPMENT LEVEL AND PLUMB, PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS IN EXPOSED INTERIOR SPACES, UNLESS OTHERWISE INDICATED

C. INSTALL HVAC EQUIPMENT TO FACILITATE SERVICE, MAINTENANCE, AND REPAIR OR REPLACEMENT OF COMPONENTS. CONNECT EQUIPMENT FOR EASE OF REMOVAL, WITH MINIMUM INTERFERENCE TO OTHER INSTALLATIONS

D. ALL MECHANICAL EQUIPMENT WITH THE EXCEPTION OF AIR HANDLING UNITS, SUPPORTED FROM FLOOR STRUCTURE SHALL BE MOUNTED ON 4" THICK CONCRETE HOUSEKEEPING PADS UNLESS NOTED OTHERWISE. AIR-HANDLING UNITS SHALL BE MOUNTED ON 6" THICK CONCRETE HOUSEKEEPING PADS TO ACCOMMODATE PROPER TRAPPING OF THE CONDENSATE DRAIN

E. AIR FILTERS SHALL BE REPLACED IN ALL AIR HANDLING EQUIPMENT EMPLOYING SUCH PRIOR TO FINAL COMPLETION AND OWNER OCCUPANCY

F. THE INSTALLING CONTRACTOR ASSUMES FULL RESPONSIBILITY FOR ALL MECHANICAL EQUIPMENT PUT INTO OPERATION PRIOR TO THE INSTALLATION OF A WORKING CONTROL SYSTEM, TESTING, AND BALANCING, AND SUBSTANTIAL COMPLETION. ALL RETURN AND EXHAUST DUCT OPENINGS SHALL BE COVERED WITH ROLL TYPE FILTER MEDIA DURING SUCH TEMPORARY OPERATION. OPERATION OF THE MECHANICAL EQUIPMENT PRIOR TO FINAL COMPLETION SHALL NOT IMPACT THE EQUIPMENT WARRANTY. MINIMUM 1-YEAR FROM SUBSTANTIAL COMPLETION UNLESS SPECIFIED OTHERWISE

G. PROVIDE FLEXIBLE DUCT CONNECTION BETWEEN MOTOR DRIVEN MECHANICAL UNITS AND SHEET METAL SUPPLY, OUTDOOR AIR, EXHAUST, AND/OR RETURN AIR DUCTWORK CONNECTIONS

H. PROVIDE FLEXIBLE PIPE CONNECTION BETWEEN MOTOR DRIVEN MECHANICAL UNITS AND CONNECTING PIPING

I. BASIS OF DESIGN MECHANICAL EQUIPMENT IS AS SCHEDULED ON THE DRAWINGS. INSTALLING CONTRACTOR ASSUMES RESPONSIBILITY FOR COORDINATING PHYSICAL SPACE REQUIREMENTS OF EQUIVALENT CAPACITY MECHANICAL EQUIPMENT DEEMED ACCEPTABLE BY THE ENGINEER

J. MECHANICAL EQUIPMENT FACTORY FINISH DAMAGED DURING THE COURSE OF CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION PRIOR TO FINAL ACCEPTANCE

DUCTWORK REQUIREMENTS

A. DUCTWORK IS SHOWN IN SCHEMATIC FORM. ALL REQUIRED DUCT RISERS AND DROPS TO ALLOW GENERAL ROUTING DEPICTED MAY NOT BE SHOWN. PROVIDE OFFSETS AS REQUIRED TO MEET SPACE REQUIREMENTS AND TO AVOID INTERFERENCE WITH OTHER TRADES AND FIELD CONDITIONS. EXACT LOCATION OF THE DUCTWORK MAY VARY ACCORDING TO THE COORDINATED SPACE REQUIREMENTS. EACH TRADE SHALL BE TOTALLY RESPONSIBLE FOR COORDINATION WITH OTHER TRADES. NOTIFY ENGINEER OF CONDITIONS REPRESENTING SIGNIFICANT CHANGES TO THE DESIGNED ROUTING

B. COMPLY WITH NFPA 90A, "INSTALLATION OF AIR CONDITIONING AND VENTILATING SYSTEMS," UNLESS OTHERWISE INDICATED

C. COMPLY WITH NFPA 90B, "INSTALLATION OF WARM AIR HEATING AND AIR CONDITIONING SYSTEMS," UNLESS OTHERWISE INDICATED

D. FABRICATE RECTANGULAR DUCTS, ELBOWS, TRANSITIONS, OFFSETS, BRANCH CONNECTIONS, AND OTHER CONSTRUCTION WITH GALVANIZED, SHEET STEEL, ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE." COMPLY WITH REQUIREMENTS FOR METAL THICKNESS, REINFORCING TYPES AND INTERVALS, TIE-ROD APPLICATIONS, AND JOINT TYPES AND INTERVALS

E. COORDINATE SIZE, QUANTITY, AND LOCATION OF ALL OPENINGS REQUIRED FOR DUCT AND PIPE PENETRATIONS THROUGH WALLS, FLOORS, AND ROOFS, WITH CONTRACTOR RESPONSIBLE FOR ROUGH FRAMING. COORDINATE LOCATION OF AIR INTAKES WITH EXHAUST AND PLUMBING VENTS SO THAT INTAKES ARE A MINIMUM OF 10 FEET FROM EXHAUST OPENINGS OR PLUMBING VENTS

F. INSTALL DUCTS IN LONGEST LENGTH POSSIBLE AND FEWEST POSSIBLE JOINTS. INSTALL FABRICATED FITTINGS FOR CHANGES IN DIRECTIONS, CHANGES IN SIZE AND SHAPE, AND CONNECTIONS

G. INSTALL DUCTS, UNLESS OTHERWISE INDICATED, VERTICALLY AND HORIZONTALLY, PARALLEL AND PERPENDICULAR TO BUILDING LINES; AVOID DIAGONAL RUNS UNLESS SPECIFICALLY INDICATED ON DRAWINGS

H. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF CEILING MOUNTED DEVICES. COORDINATE MECHANICAL CEILING DEVICES SUCH AS DIFFUSERS AND REGISTERS WITH LIGHT FIXTURES, SPEAKERS, SPRINKLER HEADS, ETC.

I. ELECTRICAL EQUIPMENT SPACES: ROUTE DUCTWORK TO AVOID PASSING THROUGH TRANSFORMER VAULTS AND ELECTRICAL EQUIPMENT SPACES AND ENCLOSURES. AVOID ROUTING DUCTWORK DIRECTLY ABOVE ELECTRICAL EQUIPMENT UNLESS SPECIFICALLY INDICATED ON THE MECHANICAL DRAWINGS

J. NON-FIRE-RATED PARTITION PENETRATIONS: WHERE DUCTS PASS THROUGH INTERIOR PARTITIONS AND ARE EXPOSED TO VIEW IN MECHANICAL ROOMS, CONCEAL SPACE BETWEEN CONSTRUCTION OPENING AND DUCT OR DUCT INSULATION WITH SHEET METAL FLANGES OF SAME METAL THICKNESS AS DUCT. OVERLAP OPENING ON FOUR SIDES BY AT LEAST 1-1/2 INCHES UNLESS INDICATED OTHERWISE

K. FIRE-RATED PARTITION PENETRATIONS: WHERE DUCTS PASS THROUGH INTERIOR PARTITIONS, INSTALL APPROPRIATELY RATED FIRE DAMPER. FIRE DAMPER INSTALLATION MUST STRICTLY ADHERE TO MANUFACTURER'S WRITTEN INSTRUCTIONS

L. PROVIDE MANUAL VOLUME-CONTROL BALANCING DAMPER AT ALL BRANCH DUCTS AND AT ALL OTHER LOCATIONS REQUIRED FOR A COMPLETE AND BALANCEABLE AIR DISTRIBUTION SYSTEM

M. BALANCE ENTIRE AIR DISTRIBUTION SYSTEM TO AIRFLOW QUANTITIES INDICATED ON MECHANICAL DRAWINGS

N. FLEXIBLE DUCTWORK SHALL BE ALLOWED ONLY IN POSITIVE PRESSURE APPLICATIONS AT SUPPLY BRANCH RUNOUTS TO DIFFUSERS ABOVE ACCESSIBLE CEILINGS. FLEXIBLE DUCTWORK SHALL NOT EXCEED 36" IN LENGTH. 90 DEGREE TURNS SHALL ONLY BE ALLOWED IF RETAINING BANDS EQUAL TO THERMAFLEX "FLEX-FLOW" ARE EMPLOYED. UNDER NO CIRCUMSTANCES SHALL FLEXIBLE DUCTWORK BE ALLOWED IN NEGATIVE PRESSURE APPLICATIONS

DESIGN CONDITIONS

HVAC DESIGN LOAD CALCULATIONS ARE BASED ON THE FOLLOWING CLIMATE DATA:

CITY AND STATE: LAFAYETTE, CO

WINTER OUTDOOR AMBIENT DB: -3°F

SUMMER OUTDOOR AMBIENT DB/WB: 93°F / 60°F

MECHANICAL SYSTEMS HAVE BEEN DESIGNED BASED UPON THE 2021 INTERNATIONAL MECHANICAL CODE, 2021 INTERNATIONAL ENERGY CONSERVATION CODE, NATIONAL FIRE PROTECTION (NFPA) STANDARDS, AND AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR-CONDITIONING ENGINEERS (ASHRAE) ACCEPTED STANDARDS AND PRACTICES

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seal

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- Schematic Design 06/10/2022
- Design Development 09/09/2022

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chkd BB

description
GENERAL INFORMATION

number
M-001

KEYNOTES (#)

1 INSTALL UNDER CABINET KITCHEN HOOD WITH 2-SPEED BLOWER EXHAUST FAN. MOUNT 18 TO 24 INCHES FROM COOKTOP TO BOTTOM OF HOOD. COORDINATE EXHAUST DUCTING FROM FAN TO OUTSIDE OF BUILDING WITH ARCHITECT AND OTHER TRADES. USE THE SHORTEST, STRAIGHTEST ROUTE POSSIBLE. EXHAUST DUCT TO BE INSULATED TO NOT LESS THAN R-VALUE OF R-8 TO REDUCE ENERGY LOSS AND INHIBIT MOLD GROWTH.

2 PROVIDE WITH DRYER BOX MODEL DB-425 BEHIND DRYER. COORDINATE EXACT MOUNTING HEIGHT WITH OWNER AND PROVIDED DRYER TO ALLOW DRYER TO BE UP AGAINST WALL AND NOT IMPACT ROUTING OF DRYER VENT FROM VENT OUTLET TO DRYER BOX CONNECTION. ROUTE 4" RIGID DRYER VENT DUCT FROM DRYER BOX UP ABOVE CEILING AND THROUGH SIDEWALL. DRYER VENT SHALL BE SMOOTH WALL WITH EXTERIOR CLAMPS SO NO RIDGES OR SCREWS ARE IN AIRSTREAM. COORDINATE BOX AND VENT WITH PLUMBING TO AVIOD CONFLICT WITH SUPPLY WATER PIPING AND PLUMBING VENT. TERMINATE VENT AT METAL DRYER OUTLET WITH LOUVERS AND HOOD. PAINT WALL CAP TO MATCH BUILDING FACADE. COORDINATE WITH ARCHITECT FOR APPROVAL OF COLOR AND EXACT WALL PENETRATION LOCATION.

3 COORDINATE EXACT LOCATION, STYLE, AND COLOR OF WALL CAPS WITH ARCHITECT.

4 APPROXIMATE LOCATION OF RADON MITIGATION SUCTION PIT.

5 6" PVC STACK, VENTED TO ROOF FOR RADON MITIGATION.

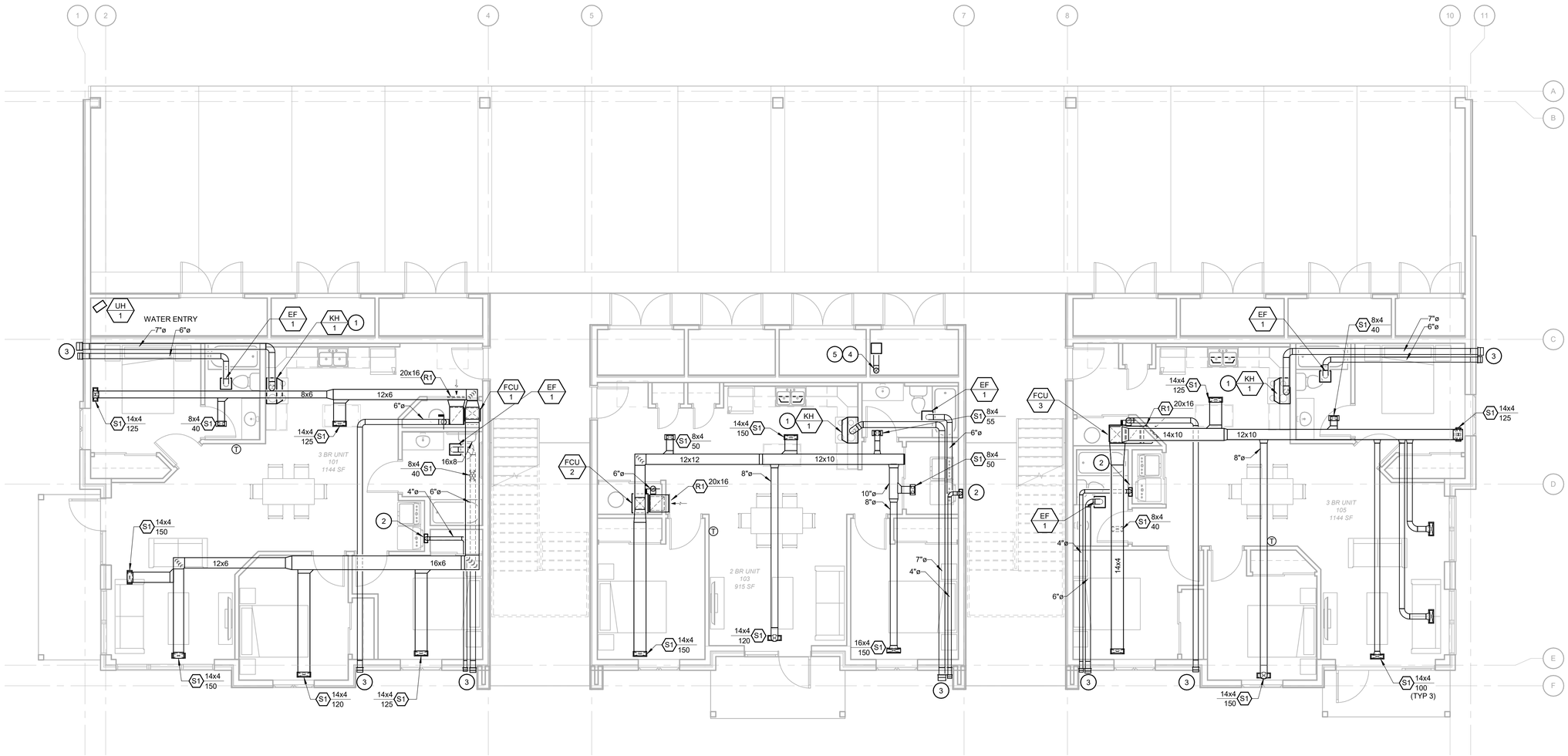
GENERAL NOTES

A. CEILING SPACE IS CONSTRAINED. EQUIPMENT LOCATION AND DUCT ROUTING HAS BEEN CAREFULLY CONSIDERED. CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH ALL TRADES PRIOR TO INSTALLATION OF ANY COMPONENT. NOTIFY ENGINEER PRIOR TO INSTALLATION OF EQUIPMENT IF UNFORESEEN SPACE CONFLICTS ARE DETERMINED.

B. ALL DUCTWORK SHALL BE CONCEALED IN THE DEPTH OF THE CEILING FRAMEWORK OR SOFFITS.

C. ADA ACCESSIBLE THERMOSTATS SHALL BE INSTALLED PER ANSI 117.1 SECTION 308. THERMOSTAT MOUNTING HEIGHT SHALL BE 48" AFF TO TOP OF THERMOSTAT. COORDINATE FINAL LOCATION WITH ADJACENT LIGHT SWITCHES.

D. ALL EXTERIOR WALL AND ROOF PENETRATIONS SHALL BE SEALED WATERTIGHT.



1 FIRST FLOOR VENTILATION PLAN
SCALE: 3/16" = 1'-0"

0 2 4 8

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chkd BB

description
FIRST FLOOR VENTILATION PLAN

number
M-101

KEYNOTES (#)

1 INSTALL UNDER CABINET KITCHEN HOOD WITH 2-SPEED BLOWER EXHAUST FAN. MOUNT 18 TO 24 INCHES FROM COOKTOP TO BOTTOM OF HOOD. COORDINATE EXHAUST DUCTING FROM FAN TO OUTSIDE OF BUILDING WITH ARCHITECT AND OTHER TRADES. USE THE SHORTEST, STRAIGHTEST ROUTE POSSIBLE. EXHAUST DUCT TO BE INSULATED TO NOT LESS THAN R-VALUE OF R-8 TO REDUCE ENERGY LOSS AND INHIBIT MOLD GROWTH.

2 PROVIDE WITH DRYER BOX MODEL DB-425 BEHIND DRYER. COORDINATE EXACT MOUNTING HEIGHT WITH OWNER AND PROVIDED DRYER TO ALLOW DRYER TO BE UP AGAINST WALL AND NOT IMPACT ROUTING OF DRYER VENT FROM VENT OUTLET TO DRYER BOX CONNECTION. ROUTE 4" RIGID DRYER VENT DUCT FROM DRYER BOX UP ABOVE CEILING AND THROUGH SIDEWALL. DRYER VENT SHALL BE SMOOTH WALL WITH EXTERIOR CLAMPS SO NO RIDGES OR SCREWS ARE IN AIRSTREAM. COORDINATE BOX AND VENT WITH PLUMBING TO AVIOD CONFLICT WITH SUPPLY WATER PIPING AND PLUMBING VENT. TERMINATE VENT AT METAL DRYER OUTLET WITH LOUVERS AND HOOD. PAINT WALL CAP TO MATCH BUILDING FACADE. COORDINATE WITH ARCHITECT FOR APPROVAL OF COLOR AND EXACT WALL PENETRATION LOCATION.

3 COORDINATE EXACT LOCATION, STYLE, AND COLOR OF WALL CAPS WITH ARCHITECT.

4 6" PVC STACK, VENTED TO ROOF FOR RADON MITIGATION.

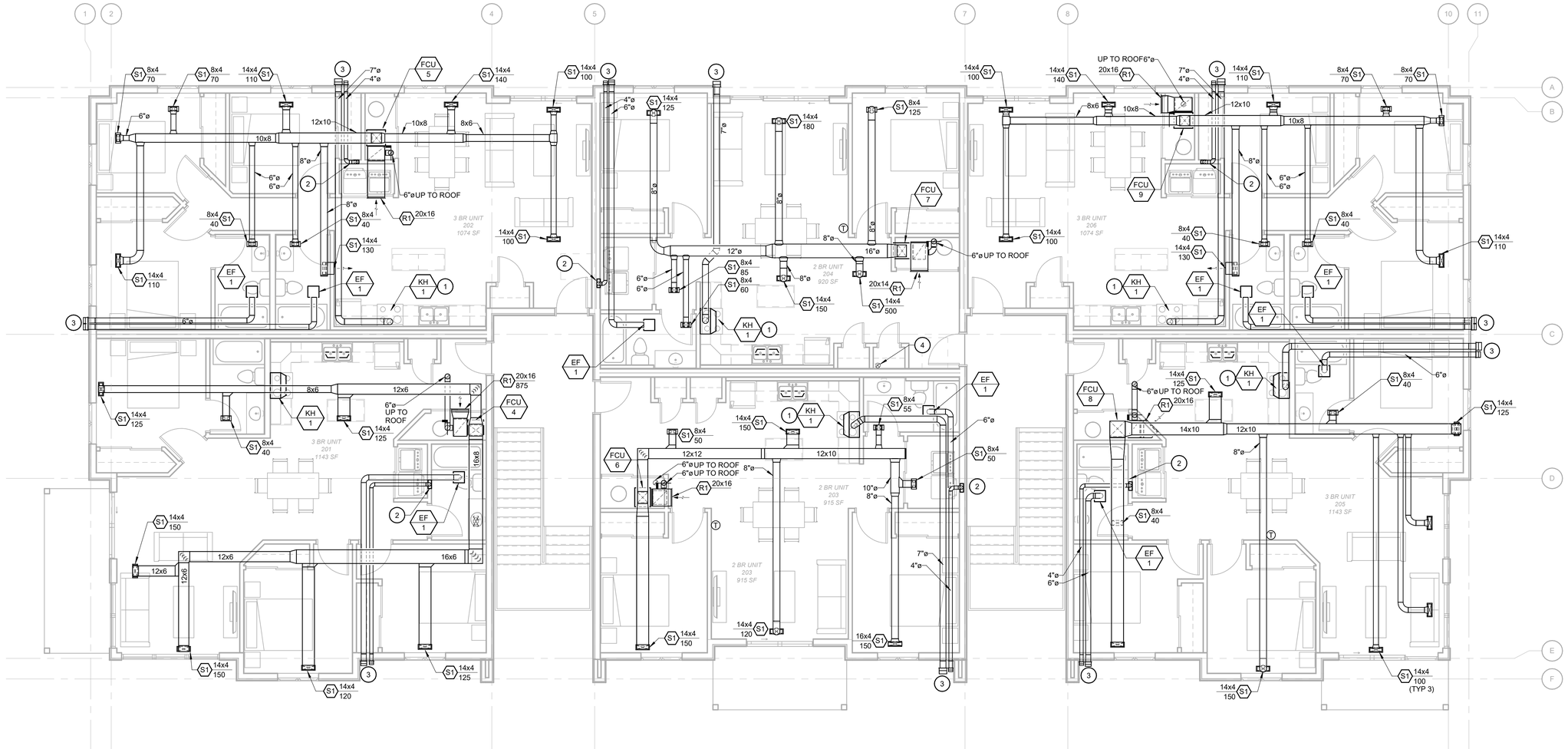
GENERAL NOTES

A. CEILING SPACE IS CONSTRAINED. EQUIPMENT LOCATION AND DUCT ROUTING HAS BEEN CAREFULLY CONSIDERED. CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH ALL TRADES PRIOR TO INSTALLATION OF ANY COMPONENT. NOTIFY ENGINEER PRIOR TO INSTALLATION OF EQUIPMENT IF UNFORESEEN SPACE CONFLICTS ARE DETERMINED.

B. ALL DUCTWORK TO BE CONCEALED IN THE DEPTH OF THE CEILING FRAMEWORK, ATTIC, OR SOFFITS.

C. ADA ACCESSIBLE THERMOSTATS SHALL BE INSTALLED PER ANSI 117.1 SECTION 308, THERMOSTAT MOUNTING HEIGHT SHALL BE 48" AFF TO TOP OF THERMOSTAT. COORDINATE FINAL LOCATION WITH ADJACENT LIGHT SWITCHES.

D. ALL EXTERIOR WALL AND ROOF PENETRATIONS SHALL BE SEALED WATERTIGHT.



1 **SECOND FLOOR VENTILATION PLAN**
SCALE: 3/16" = 1'-0"

0 2 4 8

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chkd BB

description: SECOND FLOOR VENTILATION PLAN

number: M-102

KEYNOTES (#)

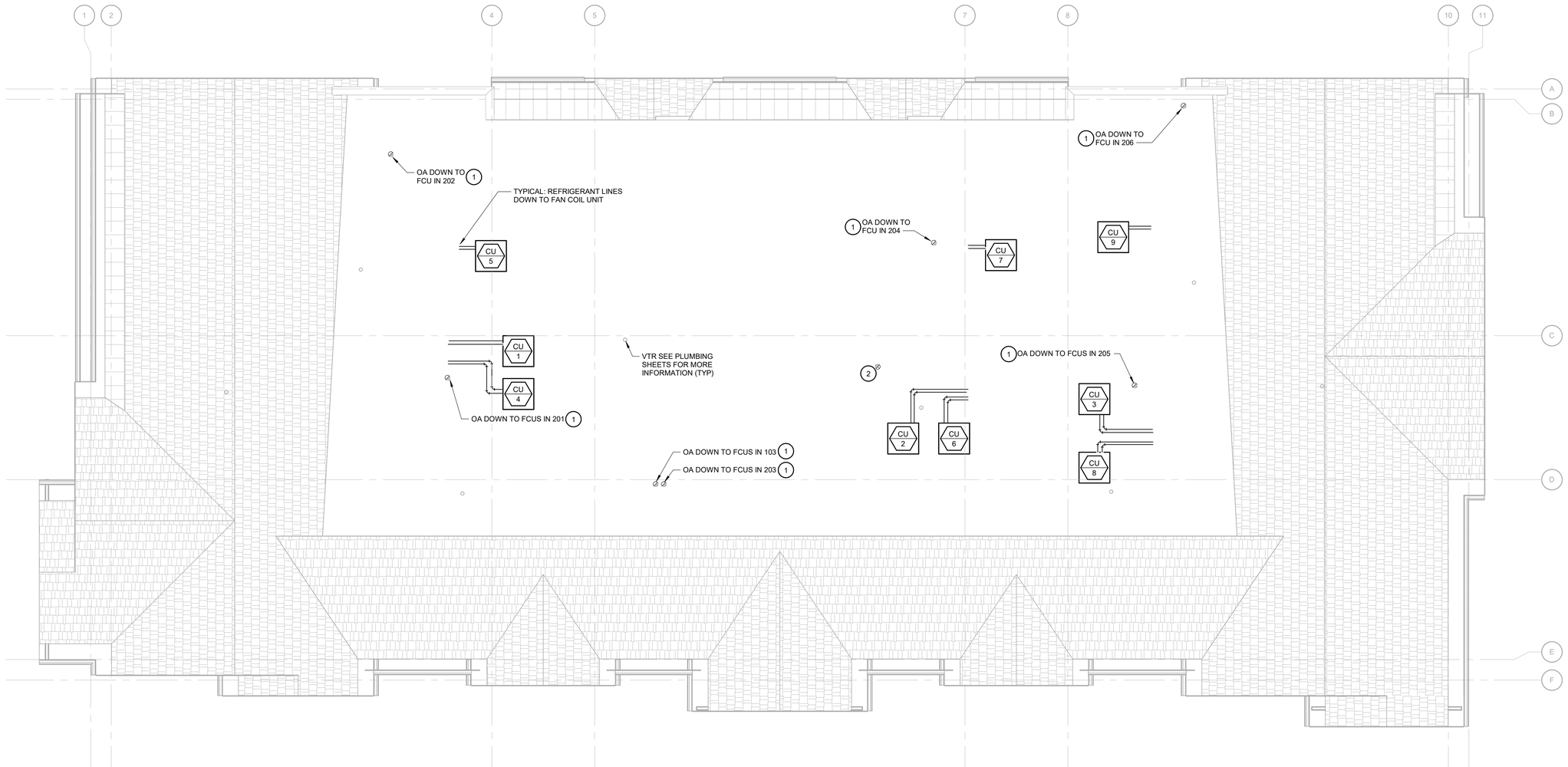
1 PROVIDE RAINCAP.

2 LOCATION OF FUTURE INLINE RADON MITIGATION EXHAUST FAN.

GENERAL NOTES

A. ALL WALL AND ROOF PENETRATIONS SHALL BE SEALED WATER TIGHT.

B. DRAIN ALL CONDENSATE TO ROOF.



1 ROOF MECHANICAL PLAN

SCALE: 3/16" = 1'-0"

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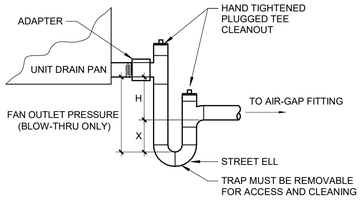
description

ROOF MECHANICAL PLAN

number

M-104

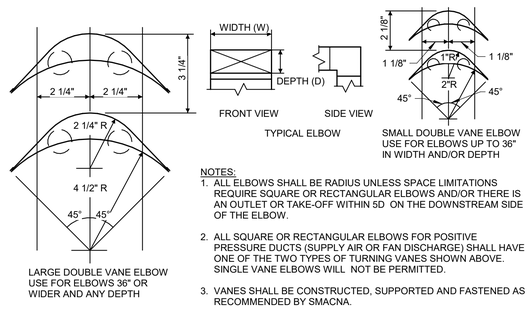


FOR DRAW THRU UNITS
H = FAN INLET PRESSURE +1"
X = FAN INLET PRESSURE / 2

FOR BLOW THRU UNITS
H = 1/2" MIN.
X = FAN OUTLET PRESSURE +1/2"

6 CONDENSATE DRAIN

SCALE: No Scale



LARGE DOUBLE VANE ELBOW
USE FOR ELBOWS 36" OR
WIDER AND ANY DEPTH

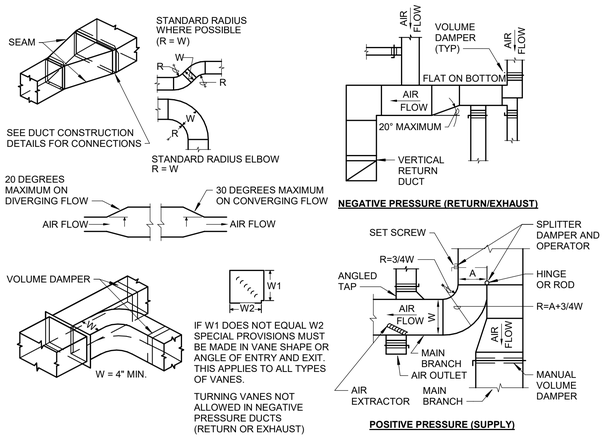
TYPICAL ELBOW

SMALL DOUBLE VANE ELBOW
USE FOR ELBOWS UP TO 36"
IN WIDTH AND/OR DEPTH

NOTES:
1. ALL ELBOWS SHALL BE RADIUS UNLESS SPACE LIMITATIONS REQUIRE SQUARE OR RECTANGULAR ELBOWS AND/OR THERE IS AN OUTLET OR TAKE-OFF WITHIN 5D ON THE DOWNSTREAM SIDE OF THE ELBOW.
2. ALL SQUARE OR RECTANGULAR ELBOWS FOR POSITIVE PRESSURE DUCTS (SUPPLY AIR OR FAN DISCHARGE) SHALL HAVE ONE OF THE TWO TYPES OF TURNING VANES SHOWN ABOVE. SINGLE VANE ELBOWS WILL NOT BE PERMITTED.
3. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.
4. TURNING VANES NOT ALLOWED IN NEGATIVE PRESSURE DUCTS (RETURN, EXHAUST, OR OUTDOOR AIR).

3 TURNING VANES

SCALE: NOT TO SCALE



IF W1 DOES NOT EQUAL W2 SPECIAL PROVISIONS MUST BE MADE IN VANE SHAPE OR ANGLE OF ENTRY AND EXIT. THIS APPLIES TO ALL TYPES OF VANES.

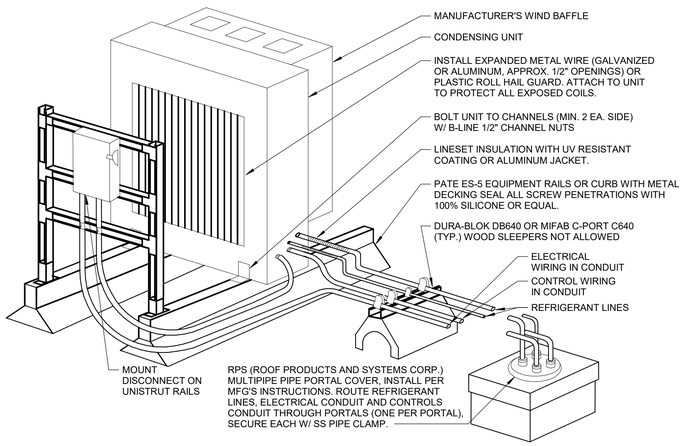
TURNING VANES NOT ALLOWED IN NEGATIVE PRESSURE DUCTS (RETURN OR EXHAUST)

NEGATIVE PRESSURE (RETURN/EXHAUST)

POSITIVE PRESSURE (SUPPLY)

5 RECTANGULAR DUCT CONSTRUCTION

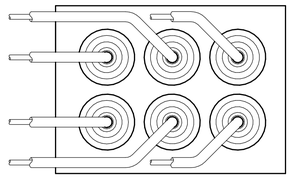
SCALE: NOT TO SCALE



NOTES:
1. INSTALL WIND BAFFLE ON FAN DISCHARGE SIDE IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2. REFRIGERANT LINES SIZED BY MFG, PROVIDE VALVES, SIGHT GLASS, ETC. AS REQUIRED BY MANUFACTURER.
3. ALL REFRIGERANT PIPING ON ROOF SHALL BE INSULATED AND PROTECTED WITH PVC OR GALVANIZED JACKET.
4. INSTALL CURB SUCH THAT TOP IS MIN. 12" ABOVE ROOF. CONTRACTOR SHALL EXTEND ROOFING TO VERTICAL FACES OF CURB.
5. ROUTE ALL POWER AND CONTROL WIRING IN GRS CONDUIT.

2 PREFABRICATED ROOF CURB

SCALE: NOT TO SCALE

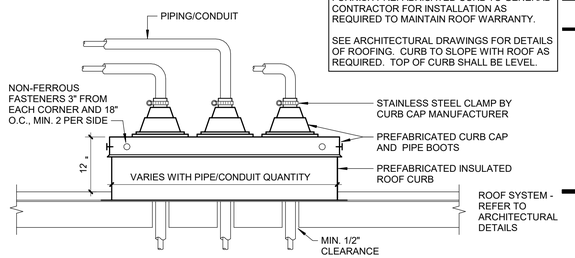


TOP VIEW

NOTE:

FURNISH PREFABRICATED CURB TO GENERAL CONTRACTOR FOR INSTALLATION AS REQUIRED TO MAINTAIN ROOF WARRANTY.

SEE ARCHITECTURAL DRAWINGS FOR DETAILS OF ROOFING. CURB TO SLOPE WITH ROOF AS REQUIRED. TOP OF CURB SHALL BE LEVEL.



SIDE VIEW

4 CONDENSER UNIT SUPPORT RAIL DETAIL

SCALE: NOT TO SCALE

1 PREFABRICATED PIPE CURB (WITH CAP AND BOOTS)

SCALE: NOT TO SCALE

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chkd BB

description
DIAGRAMS

number
M-501

SEQUENCE OF OPERATIONS

EXHAUST FAN:
SHALL BE WALL CONTROLLED AND OPERATE INTERMITTENTLY WITH MANUAL WALL SWITCH.

HEAT PUMP/FAN COIL UNIT:
COOLING
CONTROLLER SHALL ENERGIZE HEAT PUMP TO MAINTAIN SPACE TEMPERATURE SETPOINT AS MEASURED AT FAN COIL UNIT THERMOSTAT.

HEATING
HEAT PUMP IS THE PRIMARY HEATING AND ELECTRICAL RESISTANCE HEATING IS SECONDARY. WHEN SPACE TEMPERATURE DROPS BELOW 3° FROM SETPOINT THE SECONDARY ELECTRIC RESISTANCE HEATING WILL ENGAGE AND OPERATE IN CONJUNCTION WITH THE HEAT PUMP. WHEN THE TEMPERATURE IS WITHIN 1°F OF THE SETPOINT THE SECONDARY ELECTRICAL RESISTANCE HEAT WILL SHUT OFF.

TEMPERATURE SETPOINTS HEAT PUMP UNITS:
- COOLING 75°F (OCCUPIED) 80°F (UNOCCUPIED)
- HEATING 68°F (OCCUPIED) 60°F (UNOCCUPIED)

UNIT HEATER:
SPACE THERMOSTAT SHALL OPERATE UNIT HEATER WHEN SPACE TEMPERATURE DROPS BELOW 50°F (ADJUSTABLE) AND TURN OFF WHEN SPACE TEMPERATURE REACHES 60°F (ADJUSTABLE).

AIR DEVICE SCHEDULE

MARK	MANUFACTURER	MODEL	SERVICE	STYLE	FACE SIZE	FRAME	FINISH	MATERIAL	REMARKS
S1	PRICE	620	SUPPLY	LOUVERED GRILLE	2" GREATER THAN PLAN	SURFACE	WHITE	ALUMINUM	1, 3
R1	PRICE	610Z	RETURN	LOUVERED GRILLE	2" GREATER THAN PLAN	SURFACE	WHITE	ALUMINUM	2, 3

NOTES:
1. SUPPLY GRILLES TO BE SUPPLIED WITH OPTIONAL OPPOSED BLADE DAMPERS FOR AIRFLOW ADJUSTMENT.
2. RETURN GRILLE WITH 0° DEFLECTION AND 3/4" BLADE SPACING.
3. SEE PLANS FOR NECK SIZES.

KITCHEN HOOD SCHEDULE

MARK	MANUFACTURER	MODEL	TYPE	SERVICE	BLOWER		LIGHTING	SONES	ELECTRICAL DATA		PHYSICAL DATA			REMARKS
					SPEED	CFM			V/PH	AMPS	L (IN.)	W (IN.)	H (IN.)	
KH-1	BROAN	BCSEK130SS	UNDER-CABINET	APARTMENTS	2	150/300	LED	1.5/5	120/1	0.65	20	30	6	ALL

NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
2. PROVIDE WALL CAP MODEL 647 WITH SPRING LOADED BACKDRAFT DAMPER AND BIRD SCREEN. WALL CAP TO BE PAINTED PER ARCHITECT APPROVED COLOR.

UNIT HEATER SCHEDULE

MARK	MANUFACTURER	MODEL	LOCATION	ARRANGEMENT	FAN CFM	MOTOR		ELECTRICAL DATA				PHYSICAL DATA				REMARKS
						POWER (HP)	RPM	KW	MBTU	AMPS	VOLTS/PH	W. (IN.)	H. (IN.)	D. (IN.)	WT. (LB.)	
UH-1	QMARK	MUH05	WATER ENTRY	WALL MOUNTED	350/800	1/100	1600	5.0	17.0	24	208/1	14	16	7.5	30	ALL

NOTES:
1. PROVIDE INTEGRATED THERMOSTAT AND OPTIONAL MANUFACTURERS MOUNTING BRACKET.
2. PROVIDE AUTOMATIC RESET LINEAR THERMAL CUT-OUT TO PROVIDE PROTECTION FOR THE HEATER ELEMENT.

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL	TYPE	DRIVE	LOCATION	SERVICE	CFM	MAX SP (IN. W.C.)	SONES	ELECTRICAL DATA			PHYSICAL DATA				REMARKS
										WATTS	V/PH	FLA	L (IN.)	W (IN.)	H (IN.)	WT. (LBS.)	
EF-1	GREENHECK	SP-B110ESL	CEILING HUNG	DIRECT	RESTROOMS	RESTROOMS	80	0.30	2.5	30.0	115/1	0.27	12	14	7	10	ALL

NOTES:
1. CONTROL WITH MANUAL WALL SWITCH IN APARTMENTS.
2. PROVIDE WITH INTEGRAL BACKDRAFT DAMPER, DICONNECT SWITCH, AND ROUND OUTLET DUCT COLLAR WITH MOUNTING BRACKETS.
3. ENERGY STAR RATED.
4. PROVIDE WITH LED PANEL LIGHT GRILLE.

CONDENSING UNIT SCHEDULE

MARK	MANUFACTURER	MODEL	LOCATION	SERVICE	AMBIENT TEMP. (°F)	REFRIG. TYPE	NOM. CAP. (TONS)	SEER/EER	COMPRESSOR		FAN		ELECTRICAL DATA			PHYSICAL DATA				REMARKS
									QTY.	RLA EACH	QTY.	WATTS	V/PH	MCA	MOCP	W (IN.)	D (IN.)	H (IN.)	WT. (LB.)	
CU-1	MITSUBISHI	NTXSKH30A112AA	ROOF	FCU-1	95	R-410A	2.5	15/12.5	1	18.0	1	74	230/1	24	40	41.3	14.2	52.7	261	ALL
CU-2	MITSUBISHI	NTXSKH24A112AA	ROOF	FCU-2	95	R-410A	2.0	16/9.9	1	18.0	1	74	230/1	17	27	37.4	14.2	37.1	190	ALL
CU-3	MITSUBISHI	NTXSKH30A112AA	ROOF	FCU-3	95	R-410A	2.5	15/12.5	1	18.0	1	74	230/1	24	40	41.3	14.2	52.7	261	ALL
CU-4	MITSUBISHI	NTXSKH30A112AA	ROOF	FCU-4	95	R-410A	2.5	15/12.5	1	18.0	1	74	230/1	24	40	41.3	14.2	52.7	261	ALL
CU-5	MITSUBISHI	NTXSKH36A112AA	ROOF	FCU-5	95	R-410A	3.0	16/9.5	1	18.0	1	74	230/1	26	42	41.3	14.2	52.7	261	ALL
CU-6	MITSUBISHI	NTXSKH24A112AA	ROOF	FCU-6	95	R-410A	2.0	16/9.9	1	18.0	1	74	230/1	17	27	37.4	14.2	37.1	190	ALL
CU-7	MITSUBISHI	NTXSKH30A112AA	ROOF	FCU-7	95	R-410A	2.5	15/12.5	1	18.0	1	74	230/1	24	40	41.3	14.2	52.7	261	ALL
CU-8	MITSUBISHI	NTXSKH30A112AA	ROOF	FCU-8	95	R-410A	2.5	15/12.5	1	18.0	1	74	230/1	24	40	41.3	14.2	52.7	261	ALL
CU-9	MITSUBISHI	NTXSKH36A112AA	ROOF	FCU-9	95	R-410A	3.0	16/9.5	1	18.0	1	74	230/1	26	42	41.3	14.2	52.7	261	ALL

NOTES:
1. OUTDOOR CONDENSING UNIT POWERS THE INDOOR FAN COIL UNIT.
2. INSTALL UNIT ON ROOF. PROVIDE REFRIGERANT AND ELECTRICAL ROOF PENETRATIONS USING CURB AND PIPE BOOTS BY PORTALS PLUS OR EQUAL.
2. PROVIDE WITH HAIL GUARD, LOW AMBIENT KIT WITH LOW AMBIENT START CAPABILITY, AND NON-FUSED ELECTRICAL DISCONNECT.
3. MATCHING EVAPORATIVE COIL TO BE INSTALLED IN INDOOR UNIT.
4. REFRIGERANT LINES TO BE SIZED AND INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
5. ACCEPTABLE ALTERNATE MANUFACTURERS: CARRIER, SAMSUNG, AND DAIKIN.
6. SCCR OF 5 KA.

FAN COIL SCHEDULE

MARK	MANUFACTURER	MODEL	LOCATION	SERVICE	ARRANGEMENT	OUTDOOR AIR	SUPPLY FAN		COOLING	HEATING			ELECTRICAL DATA			PHYSICAL DATA				REMARKS
										HEAT PUMP	ELECTRIC									
						CFM	CFM	ESP (IN. W.G.)	TOTAL CAP. @ SITE COND. (MBH)	TOTAL CAP. @ SITE COND. (MBH)	ELECTRIC HEATER (KW)	MCA	MOP	V/PH	FLA	MCA	W (IN.)	D (IN.)	H (IN.)	WT. (LB.)	
FCU-1	MITSUBISHI	NTXAMT30A112AA	101 MECH RM.	APT. 101	VERTICAL	70	875	0.5	20.2	22.4	10	52.1	60	230/1	3.3	4.1	21.0	21.6	43.8	119	ALL
FCU-2	MITSUBISHI	NTXAMT24A112AA	103 MECH RM.	APT. 103	VERTICAL	70	735	0.5	18.0	18.6	8	41.7	45	230/1	2.4	3.0	17.0	21.6	39.8	93	ALL
FCU-3	MITSUBISHI	NTXAMT30A112AA	105 MECH RM.	APT. 105	VERTICAL	70	875	0.5	20.2	22.4	10	52.1	60	230/1	3.3	4.1	21.0	21.6	43.8	119	ALL
FCU-4	MITSUBISHI	NTXAMT30A112AA	204 MECH RM.	APT. 201	VERTICAL	70	875	0.5	20.2	22.4	10	52.1	60	230/1	3.3	4.1	21.0	21.6	43.8	119	ALL
FCU-5	MITSUBISHI	NTXAMT36A112AA	201 MECH RM.	APT. 202	VERTICAL	70	910	0.5	24.7	25.0	10	52.1	60	230/1	3.3	4.1	21.0	21.6	43.8	119	ALL
FCU-6	MITSUBISHI	NTXAMT24A112AA	205 MECH RM.	APT. 203	VERTICAL	70	735	0.5	18.0	18.6	8	41.7	45	230/1	2.4	3.0	17.0	21.6	39.8	93	ALL
FCU-7	MITSUBISHI	NTXAMT30A112AA	202 MECH RM.	APT. 204	VERTICAL	70	875	0.5	20.2	22.4	10	52.1	60	230/1	3.3	4.1	21.0	21.6	43.8	119	ALL
FCU-8	MITSUBISHI	NTXAMT30A112AA	206 MECH RM.	APT. 205	VERTICAL	70	875	0.5	20.2	22.4	10	52.1	60	230/1	3.3	4.1	21.0	21.6	43.8	119	ALL
FCU-9	MITSUBISHI	NTXAMT36A112AA	203 MECH RM.	APT. 206	VERTICAL	70	910	0.5	24.7	25.0	10	52.1	60	230/1	3.3	4.1	21.0	21.6	43.8	119	ALL

NOTES:
1. INDOOR FAN COIL UNIT IS POWERED BY OUTDOOR CONDENSING UNIT.
2. PROVIDE WITH CONDENSATE OVERFLOW SWITCH.
3. PROVIDE 12 VDC, DELUXE MA REMOTE CONTROLLER MODEL TAR-40MAAU. SUPPLY VOLTAGE FROM INDOOR UNIT.
4. PROVIDE OPTIONAL ELECTRIC HEAT KIT FOR MULTI-POSITION AIR HANDLER. A SEPARATE POWER SUPPLY MUST BE PROVIDED.

FUTURE RADON EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL	TYPE	DRIVE	CFM	TSP (IN. W.C.)	SONES	ELECTRICAL DATA			PHYSICAL DATA			REMARKS
								WATTS	V/PH	FLA	L (IN.)	W (IN.)	WT. (LBS.)	
RF-1	FANTECH	RN2X	INLINE	DIRECT	280	0.2	7.4	67	115/1	1.5	9	11.5	12	ALL

NOTES:
1. FAN TO OPERATE CONTINOUSLY.
2. PROVIDE WITH DISCONNECT SWITCH.
3. CONNECT FAN TO 6" PVC FOR RADON MITIGATION.

MINIMUM VENTILATION RATES

IN ACCORDANCE WITH 2021 IMC SECTION 403.3.2.1 AND TABLE 403.3.2.3.

APARTMENT	OCCUPANCY	AREA	EA REQUIRED	EA PROVIDED	OA REQUIRED	OA PROVIDED
	NUM. BEDROOMS +1	FT2	CFM	CFM	CFM	CFM
101 (3 BED)	4	1144	50	80	41	70
103 (2 BED)	3	915	50	80	32	70
105 (3 BED)	4	1144	50	80	41	70
201 (3 BED)	4	1143	50	80	41	70
202 (3 BED)	4	1073	50	80	41	70
203 (2 BED)	3	915	50	80	32	70
204 (2 BED)	3	920	50	80	32	70
205 (3 BED)	4	1143	50	80	41	70
206 (3 BED)	4	1074	50	80	41	70

NOTES:
1. ALL RESTROOMS TO HAVE 80 CFM OF INTERMITTENT EXHAUST.
2. ALL KITCHENS TO HAVE 300 CFM OF INTERMITTENT EXHAUST.

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SCHEDULES

number
M-601

SYMBOLS LEGEND

NOTE: NOT ALL SYMBOLS ARE USED IN CONSTRUCTION DOCUMENTS

PIPING

- PIPE SLOPE ARROW
- FLOW ARROW
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- 3-WAY CONTROL VALVE
- ANGLE GATE VALVE
- ANGLE GLOBE VALVE
- BALANCING/SHUTOFF VALVE
- BALL VALVE
- BUTTERFLY VALVE
- CALIBRATED BALANCING VALVE
- CHECK VALVE
- CONTROL VALVE
- EXPANSION VALVE
- GAS COCK
- GATE VALVE
- GLOBE VALVE
- PLUG VALVE
- PRESSURE REDUCING VALVE (WATER)
- PRESSURE REGULATOR (GAS)
- QUICK OPEN VALVE
- SAFETY RELIEF VALVE
- SOLENOID VALVE
- VACUUM RELIEF VALVE
- BACKFLOW PREVENTER
- HOSE BIBB / SILLCOCK
- AUTOMATIC AIR VENT
- PRESSURE GAUGE
- THERMOMETER
- (F) FLOW SWITCH
- (P) PRESSURE SWITCH
- (T) TEMPERATURE SWITCH
- PIPE UNION
- WYE STRAINER
- WYE STRAINER W/DRAIN VALVE
- PUMP
- OR FLOOR DRAIN - ROUND OR SQUARE
- OR FLOOR CLEANOUT - ROUND OR SQUARE
- CO SUSPENDED CLEANOUT
- WCO WALL CLEANOUT
- PIPE CAP
- PIPE TURNING DOWN
- PIPE TURNING UP
- TEE UP
- TEE DOWN
- DROP AND RUN
- DROP AND TURN
- TEE OFF TOP
- TEE OFF BOTTOM
- CROSS AND RISER
- PLAN 90° ELBOW
- PIPE TEE
- FLEXIBLE PIPE CONNECTOR
- PIPE ANCHOR
- PIPE GUIDES
- (M) WATER METER

GENERAL

- ## / # DETAIL OR SECTION MARK — DETAIL # / SHEET #
- POINT OF NEW CONNECTION
- POINT OF TERMINATION/CAP
- L1 PLUMBING EQUIPMENT DESIGNATION
- # PLUMBING KEYNOTE
- K22 KITCHEN EQUIPMENT DESIGNATION
- NEW BOLD TEXT INDICATES NEW ITEM
- *EXISTING* ITALIC TEXT INDICATES EXISTING ITEM
- ------- LINE STYLE INDICATES DEMOLISHED ITEM

PIPING SYSTEM

———	AW	ACID WASTE
	CA	COMPRESSED AIR
	CD	CONDENSATE DRAIN
	CO2	CARBON DIOXIDE
	G	NATURAL GAS
	GW	GREASE WASTE
	MA	MEDICAL AIR
	N2	NITROGEN
	N2O	NITROUS OXIDE
	OST	OVERFLOW STORM
	OW	OIL WASTE
	O2	OXYGEN
	PD	PUMP DISCHARGE
	ST	STORM
	VAC	VACUUM
	WAGD	WASTE ANESTHETIC GAS DISPOSAL
	W	SANITARY WASTE
— — —	AV	ACID VENT
	OV	OIL VENT
	V	SANITARY VENT
——-——	CW	DOMESTIC COLD WATER
	DI	DE-IONIZED WATER
	FCW	FILTERED COLD WATER
	LCW	LAB COLD WATER
	NPCW	NONPOTABLE COLD WATER
	RO	REVERSE OSMOSIS WATER
	SCW	SOFTENED COLD WATER
——--——	HW	DOMESTIC HOT WATER
	HW (---)	DOMESTIC HOT WATER (OTHER TEMP)
	LHW	LAB HOT WATER
	TW	TEPID WATER
——---——	HWC	DOMESTIC HW RECIRCULATION
	LHWC	LAB HW RECIRCULATION

ABBREVIATIONS

AC	ABOVE CEILING
AD	AREA DRAIN
AFF	ABOVE FINISHED FLOOR
BAS	BUILDING AUTOMATION SYSTEM
BF	BELOW FLOOR
BG	BELOW GRADE
BH	BOOSTER HEATER
BFP	BACKFLOW PREVENTION DEVICE
BJ	BETWEEN JOISTS
BOP	BOTTOM OF PIPE
BTUH	BRITISH THERMAL UNITS PER HOUR
CF	COMBINATION FIXTURE
COND	CONDENSATE
CP	CONDENSATE PUMP
CSS	CLINICAL SERVICE SINK
CV	CONTROL VALVE
DF	DRINKING FOUNTAIN
DN	DOWN
DS	DOWNSPOUT NOZZLE
DW	DISHWASHER
EC	ELECTRICAL CONTRACTOR
EEW	EMERGENCY EYE WASH
ESH	COMB. EMERGENCY EYE WASH/SHOWER
ET	EXPANSION TANK
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
FA	FROM ABOVE
FB	FROM BELOW
FBO	FURNISHED BY OTHERS
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FFA	FROM FLOOR ABOVE
FFB	FROM FLOOR BELOW
FPC	FIRE PROTECTION SUBCONTRACTOR
FS	FLOOR SINK
FT	FILL TANK
GD	GARBAGE DISPOSAL
GPM	GALLONS PER MINUTE
GWH	GAS WATER HEATER
GC	GENERAL CONTRACTOR
HAP	HIGH AS POSSIBLE
HB	HOSE BIBB (INTERIOR)
HS	HOSE STATION
HWCP	HOT WATER RECIRCULATION PUMP
IM	ICE MAKER
L	LAVATORY
LT	LAUNDRY TUB
MBH	THOUSANDS OF BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MSB	MOP SINK BASIN
NTS	NOT TO SCALE
ORD	OVERFLOW ROOF DRAIN
P	PUMP
PC	PLUMBING CONTRACTOR
PRV	PRESSURE RELIEF VALVE
RD	ROOF DRAIN
SC	SILLCOCK (EXTERIOR)
SE	SEWAGE EJECTOR
SF	SQUARE FOOT
SH	SHOWER
SK	SINK
SP	SUMP PUMP
SS	SERVICE SINK
TFA	TO FLOOR ABOVE
TB	TO BELOW
TFB	TO FLOOR BELOW
TMV	THERMOSTATIC MIXING VALVE
TOP	TOP OF PIPE
UR	URINAL
VB	VACUUM BREAKER
VTR	VENT THRU ROOF
WB	WASHER BOX
WC	WATER CLOSET
WCO	WALL CLEANOUT
WF	WASH FOUNTAIN
WFL	WATER FILTER
WS	WATER SOFTENER
YCO	YARD CLEANOUT

GENERAL NOTES

COMMON REQUIREMENTS

A. WORK SHALL BE PERFORMED BY A LICENSED PLUMBER OF THE STATE OF COLORADO.

B. MATERIALS, INSTALLATION AND TESTING SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF STATE AND LOCAL CODE PROCEDURES, METHODS AND REQUIREMENTS, INCLUDING THE MOST STRINGENT OF HEALTH AND SAFETY STANDARDS AS REQUIRED AND AS INTERPRETED BY THE AUTHORITY HAVING JURISDICTION. APPLICABLE CODES AND STANDARDS INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
"COLORADO STATE PLUMBING CODE"
"INTERNATIONAL PLUMBING CODE" 2015 EDITION
"INTERNATIONAL FUEL GAS CODE" 2015 EDITION
APPLICABLE LOCAL AND MUNICIPAL CODES AND ORDINANCES.

C. MEANING AND INTENT OF DRAWINGS: DRAWINGS ARE DIAGRAMMATIC AND PLUMBING SYSTEMS ARE SHOWN IN SCHEMATIC FORM. DRAWINGS DO NOT SHOW EVERY PLUMBING SYSTEM COMPONENT AND SHOULD BE FOLLOWED AS CLOSELY AS CIRCUMSTANCES WILL PERMIT. PLUMBING SYSTEM INSTALLATIONS RELATED TO THIS PROJECT SHALL BE PROVIDED TO MEET THE INTENT AND MEANING OF THE DRAWINGS IN COMPLIANCE WITH APPLICABLE CODES, AND STANDARDS. WHERE APPLICABLE THE PLUMBING CONTRACTOR SHALL FIELD VERIFY CONDITIONS PRIOR TO INSTALLATION. REPORT ANY QUESTIONS, OR CONCERNS TO THE ARCHITECT/ENGINEER PRIOR TO PROCEEDING WITH WORK. NOTED DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS. MINOR CHANGES IN LOCATIONS OF PLUMBING EQUIPMENT, &/OR SYSTEMS FROM THOSE INDICATED ON DRAWINGS SHALL BE MADE WITHOUT EXTRA COST. A COMPLETE AND OPERATIONAL PLUMBING SYSTEM SHALL BE PROVIDED.

D. THE PLUMBING CONTRACTOR SHALL REFER TO BOTH DRAWINGS AND SPECIFICATIONS FOR ALL PLUMBING CRITERIA REQUIRED FOR THIS PROJECT.

E. PLUMBING CONTRACTOR IS RESPONSIBLE FOR ALL PLUMBING UTILITY SERVICES FROM 5'-0" OUTSIDE BUILDING FOUNDATION WALL TO WITHIN THE BUILDING UNLESS NOTED OTHERWISE ON PLANS. SEE SITE UTILITY PLANS FOR RELATED SITE UTILITY WORK BY OTHERS.

F. COORDINATE ROUTING OF PIPING WITH ALL OTHER TRADES AND STRUCTURAL CONDITIONS TO AVOID ANY ROUTING CONFLICTS OR SERVICE INTERFERENCES.

G. MAINTAIN A MINIMUM CLEARANCE IN FRONT OF AND FROM EITHER SIDE OF ELECTRICAL PANELS, EQUIPMENT, ETC., AS OUTLINED IN NEC STANDARDS. PIPE SYSTEMS SHALL NOT BE ROUTED DIRECTLY OVER PANELS, EQUIPMENT, ETC.

H. INCLUDE IN BID, ALL LICENSE, PERMIT, INSPECTION AND OTHER FEES REQUIRED BY UTILITY COMPANIES OR AUTHORITIES HAVING JURISDICTION REQUIRED FOR COMPLETION OF WORK SO THAT NO UNEXPECTED ADDITIONAL EXPENSES ARE INTRODUCED TO OWNER.

I. ALL CLEANOUTS, VALVES, WATER HAMMER ARRESTORS, ETC. ARE TO BE ACCESSIBLE. EXTEND PIPING AND COORDINATE ACCESS PANEL SIZE AND LOCATION AS NECESSARY.

J. PLUMBING CONTRACTOR SHALL CLEAN WORK AREA OF ALL DUST AND DEBRIS GENERATED BY THEIR WORK AT THE END OF EACH WORK DAY.

K. ALL PLUMBING SYSTEM VALVES SHALL BE INSTALLED IN A LOCATION AND ORIENTATION THAT WILL PERMIT INTENDED USE.

L. PROVIDE STOPS AND/OR ISOLATION VALVES TO EACH INDIVIDUAL FIXTURE, FIXTURE GROUP OR PIECE OF EQUIPMENT PER APPLICABLE CODES TO ALLOW FOR INDIVIDUAL SERVICING UNLESS NOTED OTHERWISE ON PLANS.

M. SANITARY WASTE PIPING SHALL BE SLOPED AT 1/8-INCH PER FOOT MINIMUM FOR ALL PIPING 4-INCH AND LARGER AND AT 1/4-INCH PER FOOT MINIMUM FOR ALL PIPING 3-INCH AND SMALLER.

N. INDIRECT DRAIN PIPING FROM FIXTURES, SPECIALTIES, AND EQUIPMENT SHALL BE ROUTED TO FLOOR DRAIN OR OTHER APPROVED RECEPTACLE AND TERMINATED WITH AN AIR GAP 2 TIMES THE DIAMETER OF THE DRAIN PIPING, BUT NOT LESS THAN 1 INCH GAP. SUPPORT PIPING SO DRAIN PIPING CANNOT BE DEFLECTED FROM DRAIN SOURCE.

O. ALL VENTS FROM HORIZONTAL SOIL OR WASTE PIPE SHALL COME OFF TOP OR AT 45 DEGREE VERTICALLY FROM CENTER OF PIPE BEFORE OFFSETTING HORIZONTALLY TO RISER.

P. ALL VENT TERMINATIONS SHALL BE COORDINATED WITH BUILDING OPENINGS, AIR INTAKES AND AIR EXHAUST OPENINGS. ADJUST VENT THROUGH ROOF LOCATIONS TO COMPLY WITH APPLICABLE CODE.

Q. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR ASSURING ALL HANGERS AND SUPPORTS ARE SECURELY ANCHORED OR ATTACHED TO BUILDING ELEMENTS ADEQUATE FOR INTENDED PLUMBING SYSTEM OR EQUIPMENT.

R. PLUMBING CONTRACTOR TO PROVIDE AND INSTALL NAIL PLATES WHERE PIPING PASSES THROUGH STUD(S) WITHIN 2" OF NAILING SURFACE TO PROTECT PIPE FROM NAILS OR DRYWALL SCREWS.

S. PLUMBING CONTRACTOR SHALL PROVIDE APPROVED WATER HAMMER ARRESTORS IN WATER LINES SERVING QUICK-CLOSING VALVES, BATTERIED, OR BACK TO BACK FIXTURES WITH INDIVIDUAL ISOLATION VALVES.

T. ALL NEWLY INSTALLED CIRCULATED HOT WATER SHALL BE WITHIN THE MAXIMUM ALLOWABLE PIPE LENGTH TO TERMINATE AT EACH FIXTURE, OR APPLIANCE AS OUTLINED IN THE INTERNATIONAL ENERGY CONSERVATION CODE. SPECIAL ATTENTION SHOULD BE PAID TO PUBLIC LAVATORIES WHERE MAXIMUM PIPE LENGTHS ARE LIMITED. REFER TO PLUMBING PLANS AND DETAILS FOR CLARIFICATION.

U. ALL P-TRAPS FOR FLOOR DRAINS AND FLOOR SINKS SHALL BE DEEP SEAL TYPE. TRAPS SHALL MAINTAIN THE SEWER GAS SEALS BY MEANS OF A PRIMING DEVICE DESIGNED FOR SUCH PURPOSES OR BY OTHER METHODS AS ACCEPTABLE BY CODE AND AHJ.

V. PLUMBING CONTRACTOR TO INSTALL, TEST, AND FIELD BALANCE APPROVED EQUIPMENT PER MANUFACTURER'S WRITTEN INSTRUCTIONS AND RECOMMENDATIONS.

W. PROVIDE INSULATION FOR THE PLUMBING PIPING SYSTEMS DESCRIBED IN THESE DRAWINGS AS PER THE IPC AND THE IECC.

X. PLASTIC PIPING SHALL NOT BE ALLOWED IN ANY CAVITY THAT CAN BE USED AS AN AIR TRANSFER PLENUM.

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issue / revision

job # 168-09

drawn BJ

chkd RO

description

GENERAL INFORMATION

number

P-001

KEYNOTES (#)

GENERAL NOTES

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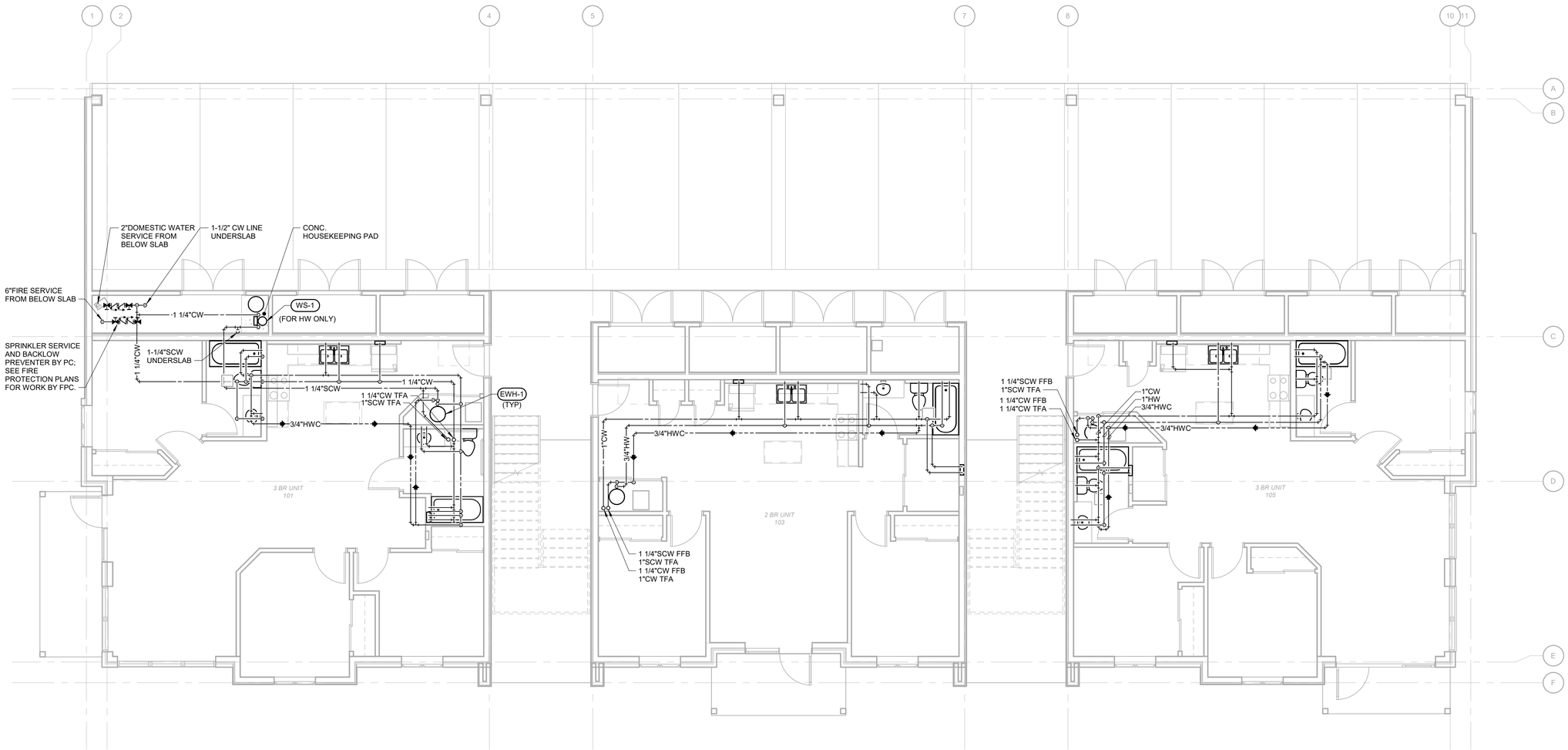

1 FIRST FLOOR DOMESTIC PLUMBING PLAN
SCALE: 3/16" = 1'-0"

0 2 4 8

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issue / revision

job # 168-09
drawn BJ
chkd RO

description
FIRST FLOOR DOMESTIC PLUMBING PLAN

number
P-101

KEYNOTES (#)

GENERAL NOTES

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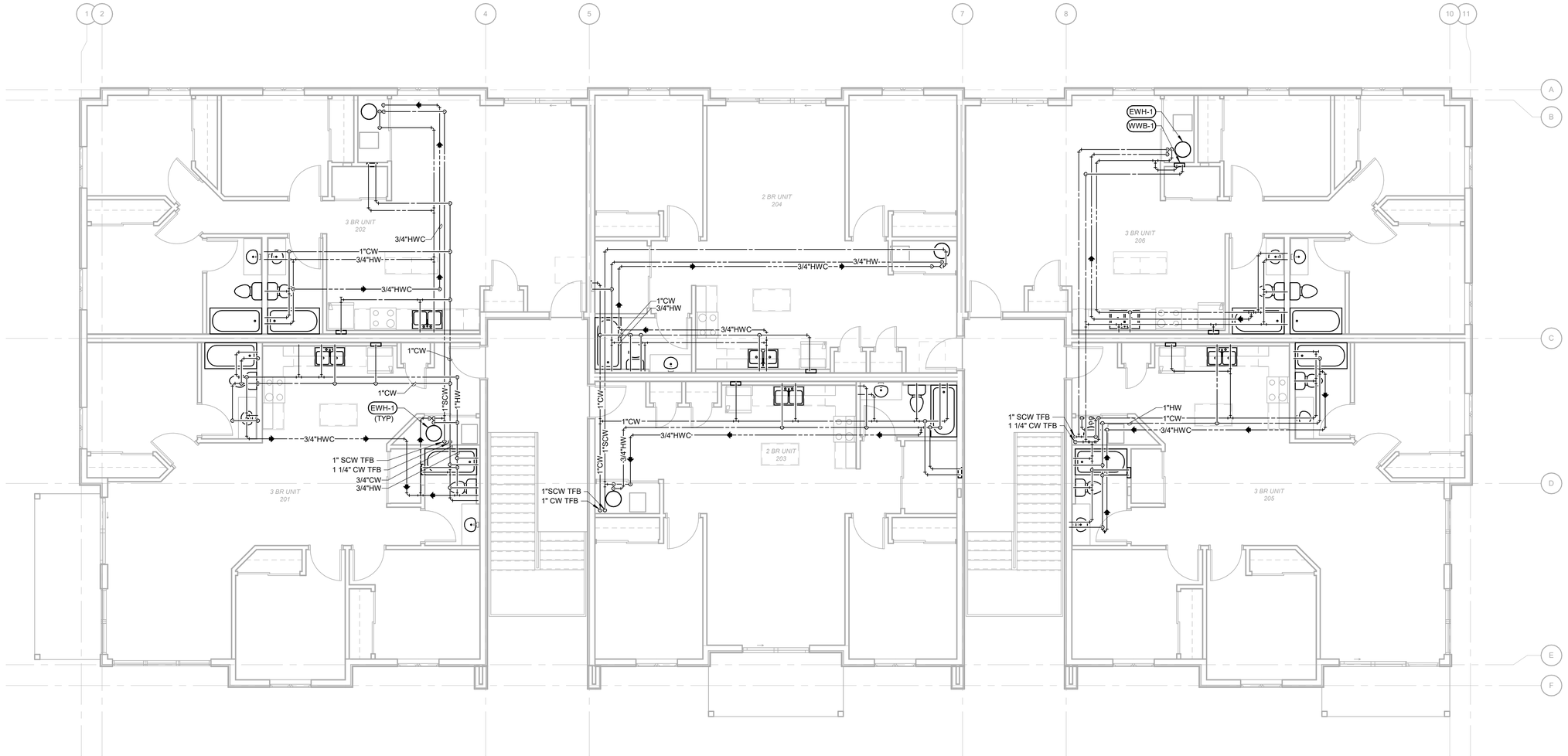

1 SECOND FLOOR DOMESTIC PLUMBING PLAN
SCALE: 3/16" = 1'-0"

0 2 4 8

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chkd RO

description
SECOND FLOOR DOMESTIC PLUMBING PLAN

number
P-102

KEYNOTES (#)

1 PC TO TERMINATE VENT 17" ABOVE ROOF MINIMUM. ROOF FLASHING COMPATIBLE WITH BUILT UP ROOFING SYSTEM BY ROOFING CONTRACTOR.

GENERAL NOTES

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1 ROOF PLUMBING PLAN
SCALE: 3/16" = 1'-0"

0 2 4 8

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issue / revision

job # 168-09
drawn BJ
chkd RO

ROOF PLUMBING PLAN

description

P-104

number

KEYNOTES (#)

GENERAL NOTES

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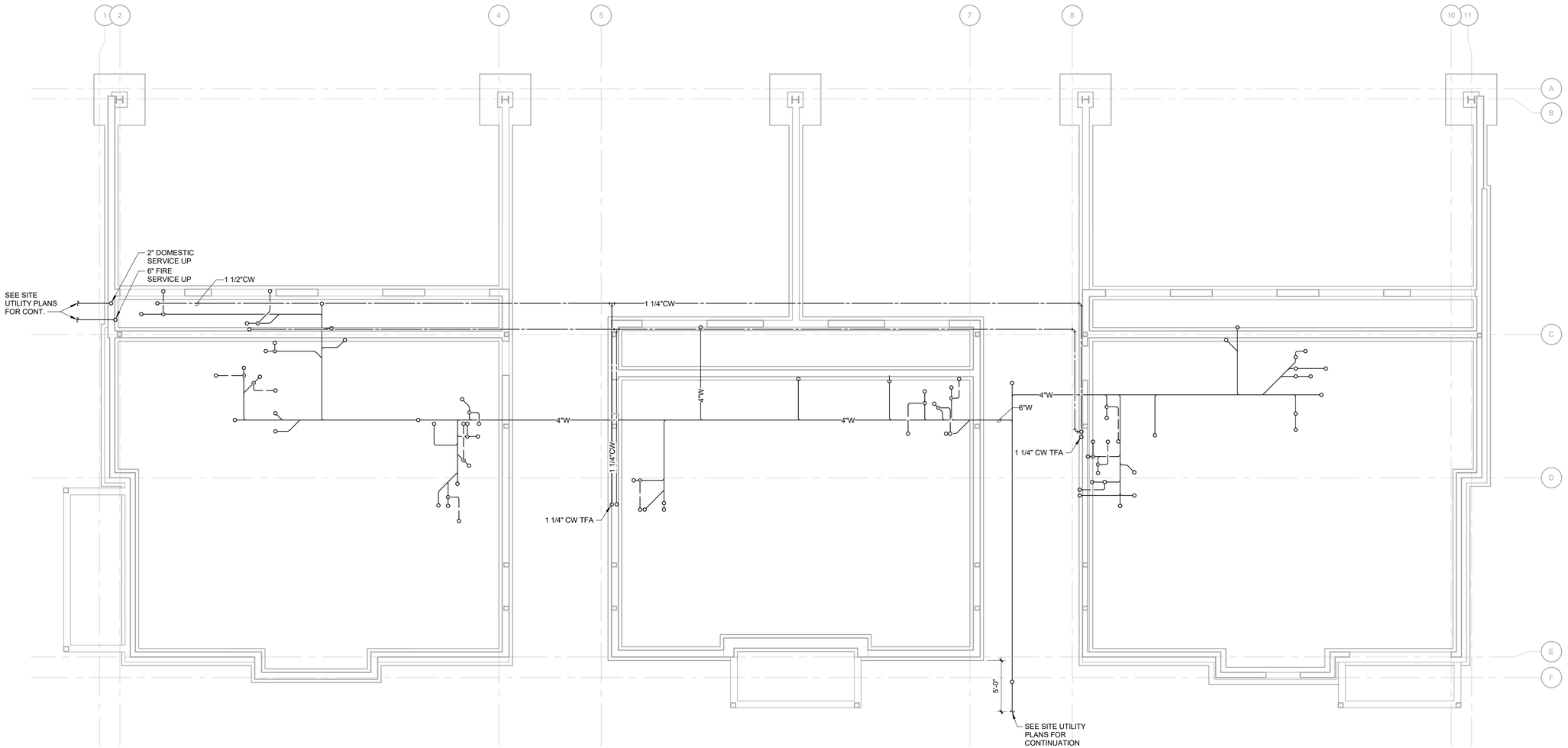

1 UNDERSLAB PLUMBING PLAN
SCALE: 3/16" = 1'-0"

0 2 4 8

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Design Development 09/09/2022

issue / revision

job # 168-09
drawn BJ
chkd RO

description
UNDERSLAB DWV PLUMBING PLAN

number
P-200

KEYNOTES (#)

GENERAL NOTES

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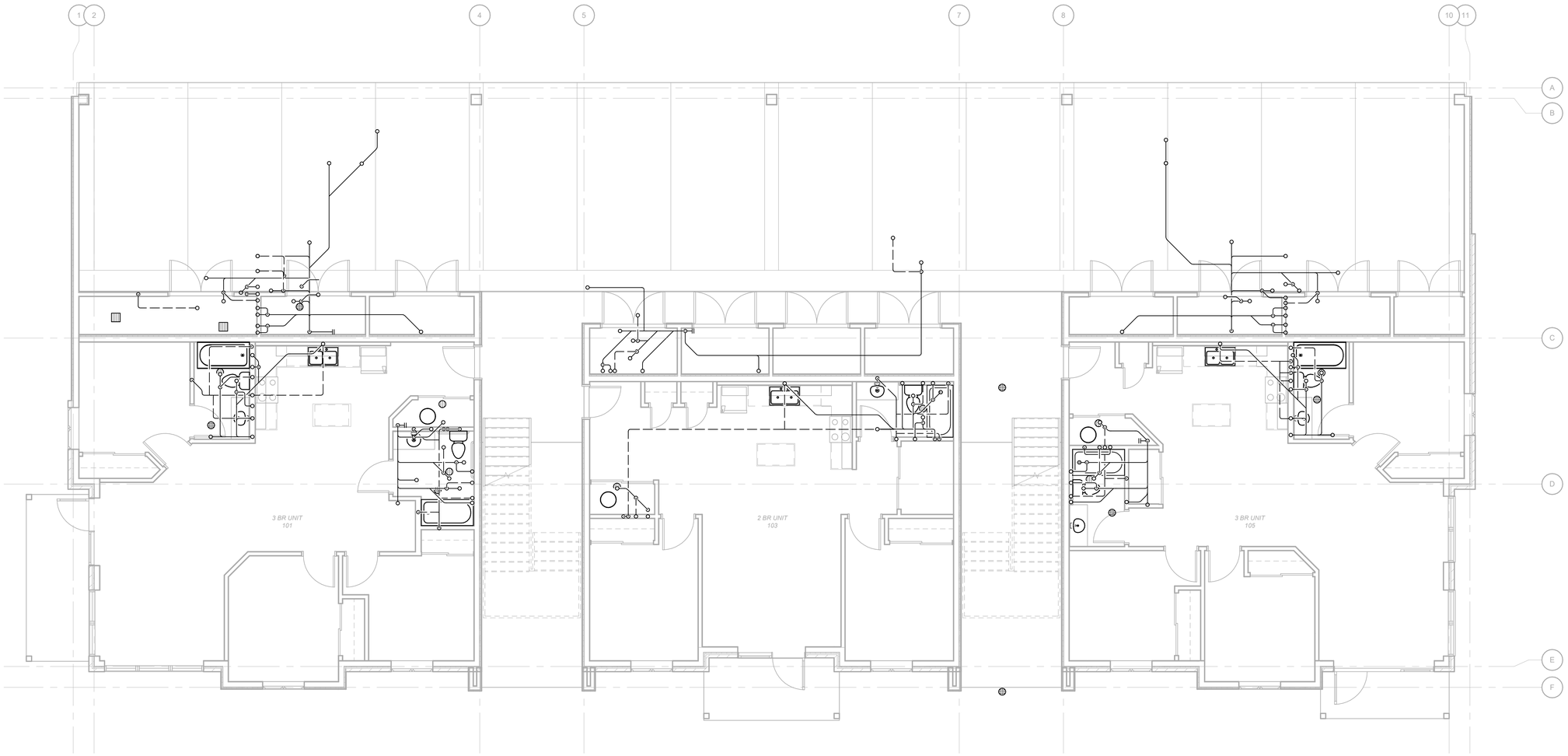

1 **FIRST FLOOR DRAIN WASTE AND VENT PLAN**
SCALE: 3/16" = 1'-0"

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- FLATS
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Lafayette, Colorado 80026

seal

issue / revision	date:
Design Update	03/17/22
Draft Elevations	April 2022
Schematic Design	06/10/2022
Design Development	09/09/2022

issue / revision

job # 168-09
drawn BJ
chkd RO

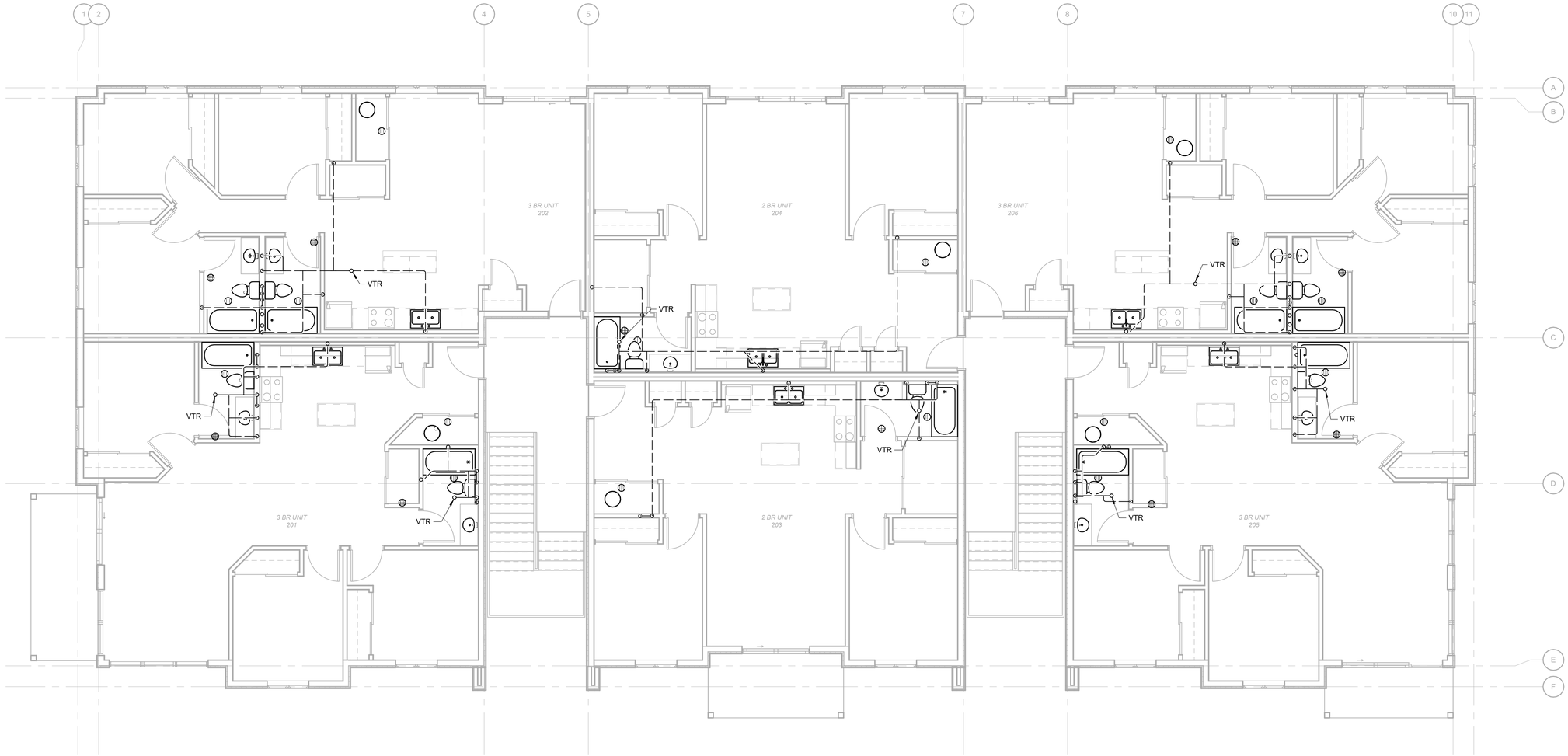
description
FIRST FLOOR DWV PLUMBING PLAN

number
P-201

KEYNOTES (#)

GENERAL NOTES

A.
B.
C.
D.
E.
F.
G.
H.
I.
J.
K.
L.
M.
N.
O.



1 **SECOND FLOOR DRAIN WASTE AND VENT PLAN**
SCALE: 3/16" = 1'-0"

0 2 4 8

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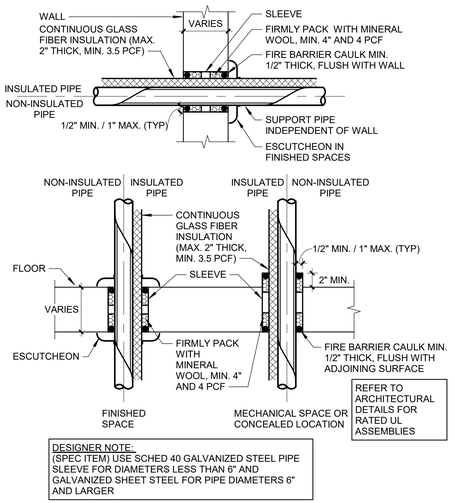
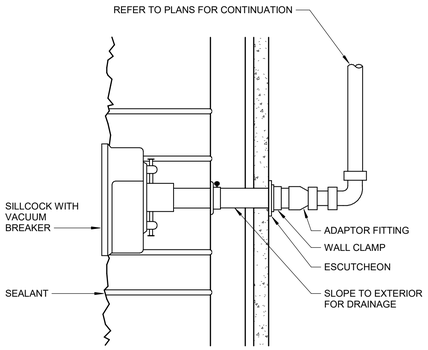
SECOND FLOOR DWV PLUMBING PLAN

number
P-202



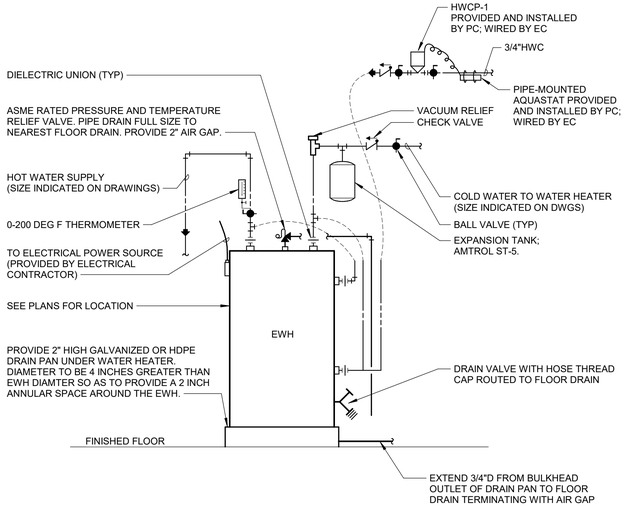
6 PIPE PENETRATION FOR FIRE-RATED WALLS AND FLOORS

SCALE: No Scale



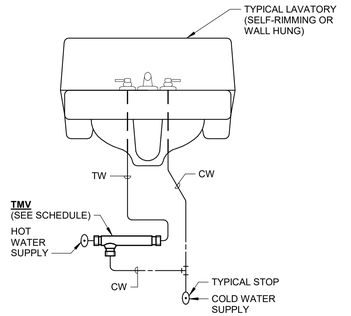
7 WALL HYDRANT (RECESSED)

SCALE: No Scale



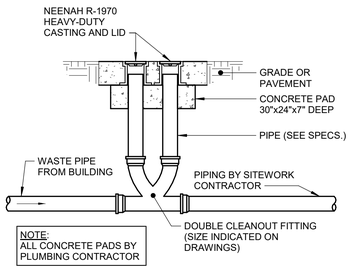
5 ELECTRIC WATER HEATER DIAGRAM

SCALE: 12" = 1'-0"



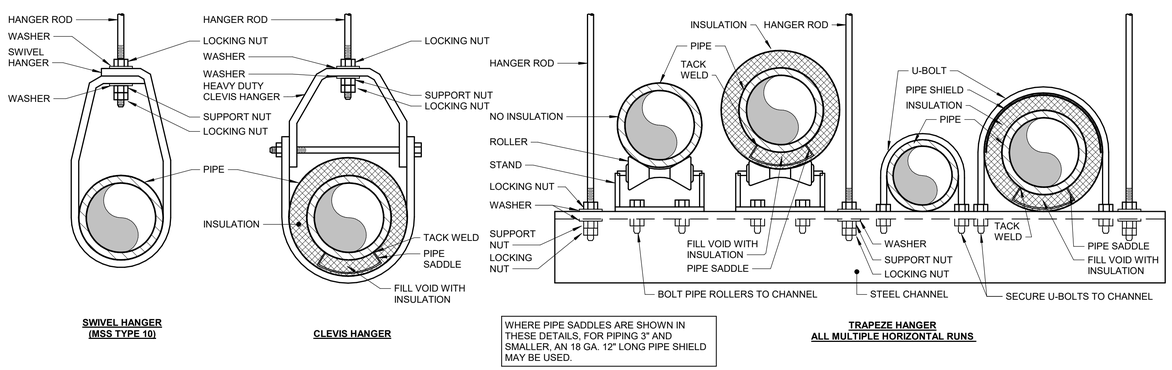
3 POINT-OF-USE MIXING VALVE

SCALE: No Scale



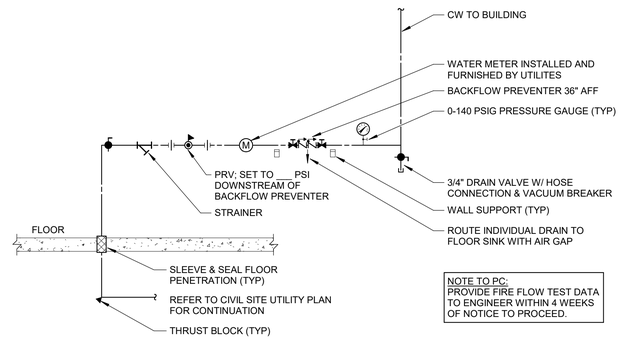
2 YARD CLEANOUT (TWO-WAY)

SCALE: No Scale



4 PIPING SUPPORTS

SCALE: No Scale



1 DOMESTIC WATER SERVICE DIAGRAM

SCALE: NOT TO SCALE

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DIAGRAMS

description

number P-501

PLUMBING PIPING MATERIAL SCHEDULE

SYSTEM TYPE	MATERIAL SELECTION
DOM. CW BELOW GRADE	ASTM B42 TYPE K COPPER, AWWA C151/A21.51 DUCTILE IRON PIPE, OR HDPE.
DOM. CW ABOVE GRADE	ASTM B88 (ASTM B88M), TYPE L COPPER OR PEX PIPING (ASTM F876 OR ASTM F877; 160 PSIG AT 73 DEGREES F) FOR ONE INCH PIPING AND SMALLER.
DOM. HW ABOVE GRADE	ASTM B88 (ASTM B88M), TYPE L COPPER OR PEX PIPING (ASTM F876 OR ASTM F877; 160 PSIG AT 73 DEGREES F) FOR ONE INCH PIPING AND SMALLER.
SANITARY WASTE BELOW GRADE PIPING , WITHIN 5 FEET OF BUILDING	CAST IRON, CISPI 301 HUBLESS OR HUB AND SPIGOT PIPING; OR ASTM D2665 SCHEDULE 40 PVC
SANITARY WASTE ABOVE GRADE PIPING TO FIXTURES	CAST IRON, CISPI 301 HUBLESS OR HUB AND SPIGOT PIPING; OR ASTM D2665 SCHEDULE 40 PVC
SANITARY VENT PIPING	CAST IRON, CISPI 301 HUBLESS OR HUB AND SPIGOT PIPING; OR ASTM D2665 SCHEDULE 40 PVC

NOTES:
PLASTIC PIPING (PVC, CPVC, PEX, ETC.) IS NOT ALLOWED IN RETURN AIR PLENUMS UNLESS THE PIPING IS ASTM E84 (25/50) RATED AND APPROVED BY ENGINEER FOR USE IN EACH INSTANCE.

PROVIDE ALL DOMESTIC SOLDER COPPER SYSTEMS WITH ASME B16.18 OR ASME B16.22 PIPE FITTINGS, SOLDER AND FLUX (IF USED) THAT COMPLY WITH NSF 61 AND NSF 372 FOR MAXIMUM LEAD CONTENT FOR COPPER PIPING INSTALLATIONS.

PROVIDE ALL MECHANICAL PRESSED SEALED DOMESTIC COPPER PIPING WITH DOUBLE PRESSED TYPE, NSF 61/NSF 372 APPROVED FITTINGS UTILIZING EDPM, NON-TOXIC RUBBER SEALING ELEMENTS WITH FOOD GRADE RATED LUBRICANTS.

FOR DOMESTIC PEX PIPING INSTALLATIONS, PROVIDE WITH BRASS AND COPPER FITTINGS OR BRASS AND ENGINEERED POLYMER (EP) FITTINGS THAT COMPLY WITH ASTM F1960 AND ASTM F1960, OR COLD EXPANSION FITTINGS THAT CONFORM WITH ASTM F1960.

PROVIDE ALL HUBLESS CAST IRON PIPING WITH CAST IRON FITTINGS AND EACH JOINT WITH CISPI 310, HEAVY DUTY, STAINLESS STEEL CLAMP AND SHIELD ASSEMBLY WITH NEOPRENE GASKETS.

PROVIDE ALL HUB AND SPIGOT CAST IRON PIPING WITH ASTM C564, COMPRESSION TYPE, NEOPRENE GASKETS.

PROVIDE ASTM D2564 SOLVENT FOR ANY PVC DRAIN PIPING.

FOR ALL PIPING, PROVIDE BRACING IN ACCORDANCE WITH MSS SP 58 ATTACHED TO STRUCTURE OR TRAPEZE HANGERS.
GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS. PROVIDE DIELECTRIC INSULATORS FOR ANY DISSIMILAR METAL CONTACT BETWEEN PIPING, AND PIPING-AND-HANGERS IN ALL INSTANCES. PROVIDE CLEARANCE FROM HANGERS, FROM STRUCTURE, AND OTHER EQUIPMENT FOR INSTALLATION OF THE INSULATION AND TO PROVIDE ACCESS TO VALVES, FITTINGS AND OTHER APPURTENANCES.

FOR ALL BELOW GRADE METALLIC PIPING, LAP AND DOUBLE WRAP BELOW GRADE PIPING AND PIPING THROUGH GRADE PENETRATIONS CONTINUOUSLY TO APPROXIMATELY THREE INCHES ABOVE GRADE WITH PROTECTIVE TAPE AND/OR PLASTIC WRAPPING TO PREVENT DAMAGE AND CORROSION. COORDINATE EXACT REQUIREMENTS WITH LOCAL AHJ PRIOR TO INSTALLATION.

IN ALL CASES REFER TO PLUMBING SPECIFICATIONS.

PLUMBING FIXTURE SCHEDULE

PLAN MARK	FIXTURE DESCRIPTION AND REMARKS	MINIMUM INDIVIDUAL LINE SIZES. REFER TO DRAWINGS FOR INDIVIDUAL SPECIFIC INSTANCES.				
		COLD WATER	HOT WATER	WASTE	VENT	ELEC
BFP-1	REDUCED PRESSURE BACKFLOW PREVENTER - BRONZE SEATS AND STAINLESS STEEL TRIM. THE ASSEMBLY SHALL INCLUDE QUARTER TURN SHUT-OFF VALVES, TEST COCKS, AND WYE STRAINER. ACCEPTABLE MANUFACTURERS: WATTS (LF909QT).	3"	N/A	N/A	N/A	N/A
BT-1	BATHTUB- FIBERGLASS	1/2"	1/2"	2"	2"	N/A
FCO-1	FLOOR CLEANOUTS - STANDARD ROUND DUCO CAST IRON BODY, BRONZE ATTACHMENT SCREWS, SLEEVED FULL THICKNESS OF FLOOR SLAB. TOP SHAPE: SQUARE WHERE FLOOR COVERING HAS RECTANGULAR PATTERN, ROUND IN OTHER AREAS. TOP COVER: FOR VINYL TILE AND SIMILAR FLOOR COVERINGS, RECESSED TO RECEIVE INSET OF FLOOR MATERIAL, OTHER AREAS: NICKEL BRONZE SCORIATED FINISH. ACCEPTABLE MANUFACTURERS: JAY R. SMITH (4020)	N/A	N/A	SEE DWGS	N/A	N/A
FD-1	FLOOR DRAIN - NICKEL-BRONZE FINISH, HEEL-PROOF, SQUARE GRATE FINISH AREA. PROVIDE WITH TS-1 TRAP SEAL. ACCEPTABLE MANUFACTURERS: JAY R SMITH (2005)	N/A	N/A	SEE DWGS	SEE DWGS	N/A
L-1	LAVATORY- ADA COMPLIANT WHITE VITREOUS CHINA, 20-3/8" X 17-3/8" INCH , DROP-IN LAVATORY WITH FRONT OVERFLOW. ACCEPTABLE MANUFACTURERS: AMERICAN STANDARD MODEL (AQUALYN), ELJER, CRANE, GERBER. LAVATORY TRIM: SINGLE HANDLE,SOLID BRASS BODY, CHROME PLATED FINISH, CONVENTIONAL SPOUT WITH 0.5 GPM VANDAL RESISTANT AERATOR. ACCEPTABLE MANUFACTURERS: DELTA (520-DST) , MOEN, KOHLER SUPPLIES STOPS: QUARTER TURN, SOLID BRASS, ANGLE STOPS, CHROME PLATED, COPPER RISER TUBES AND WALL ESCUTCHEONS. PROVIDE POINT OF USE MIXING VALVE.	1/2"	1/2"	1-1/2"	1-1/2"	N/A
RH-1	ROOF HYDRANT- FREEZELESS, AUTOMATIC DRAINING, WITH BACKFLOW PREVENTER, ASSE 1052 LISTED WITH 3/4" THREADED HOSE CONNECTION. PROVIDE WITH CAST IRON UNDERDECK FLANGE FOR HYDRANT SUPPORT AND EDPM BOOT COVER TO COVER WELL SEAL. ACCPETABLE MANUFACTURERS: WOODFORD (RHY2-MS)	1"	N/A	N/A	N/A	N/A
RD-1	ROOF DRAIN - CAST IRON BODY AND CAST IRON, VANDAL PROOF DOME. INCLUDE: INTEGRAL GRAVEL STOPS AND GRAVEL GUARD AND UNDERDECK CLAMP. ACCEPTABLE MANUFACTURERS: JAY R. SMITH (1015 SERIES)	N/A	N/A	4"	N/A	N/A
RWB-1	RECESSED WALL BOX - 5-5/8 INCH x 5-1/8 x 2-1/2 INCH BOX CONSTRUCTED OF 20 GAUGE STEEL THAT IS WHITE POWDER COATED, WITH COLD WATER SUPPLY CONNECTION, QUARTER TURN ISOLAITON AND INTEGRAL WATER HAMMER ARRESTOR. ACCEPTABLE MANUFACTURERS: PPP (MM-500MIMB) OATEY, GUY GRAY, SIOUX CHIEF. ACCESSORIES: VERIFY EQUIPMENT LOCATION AND ROUGH IN REQUIREMENTS. MOUNT IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. COORDINATE EXACT MOUNTING HEIGHT WITH NEARBY CABINETRY.	1/2"	N/A	N/A	N/A	N/A
S-1	SINK- COUNTER MOUNTED, SELF-RIMMING, 18 GAUGE 304 STAINLESS STEEL, 22 INCH x 25 INCH x 7-1/2 INCH DEEP, SINGLE COMPARTMENT, UNDERCOATED AND THREE HOLE DRILLING WITH 4" CENTERS. ACCEPTABLE MANUFACTURERS: JUST MFG. (SL-2225-A-GR), ELKAY. SINK TRIM: SINGLE HANDLE FAUCET, ADA, 1.5 GPM MAX, WITH 8" DECK PLATE. ACCEPTABLE MANUFACTURERS: DELTA (4353-DST), MOEN, AMERICAN STANDARD. ACCESSORIES: 17 GAUGE P-TRAP WITH CLEANOUT, ZURN (Z8702). VERIFY EQUIPMENT LOCATION AND ROUGH IN REQUIREMENTS. SUPPLIES STOPS: QUARTER TURN, SOLID BRASS, ANGLE STOPS, CHROME PLATED, COPPER RISER TUBES AND WALL ESCUTCHEONS.	1/2"	1/2"	1-1/2"	1-1/2"	N/A
WC-1	WATER CLOSET- ADA HEIGHT, FLOOR MOUNTED, WHITE VITREOUS CHINA, PRESSURE ASSIST TANK TYPE, WATER CLOSET WITH ELONGATED BOWL. WATER CLOSET SHALL FLUSH ON 1.28 GPF OF WATER OR LESS. ACCEPTABLE MANUFACTURERS:	1/2"	N/A	4"	2"	N/A
WCO-1	WALL CLEAN OUT - DUCO CAST IRON CLEANOUT TEE WITH GAS AND WATER TIGHT BRONZE PLUG, SMOOTH STAINLESS STEEL ACCESS COVER AND VANDAL PROOF SCREW. APPROVED MANUFACTURERS: JAY R. SMITH (9776), WADE, ZURN OR JOSAM.	N/A	N/A	SEE DWGS	SEE DWGS	N/A
WH-1	WALL HYDRANT - CONCEALED, FREEZEPROOF WALL HYDRANT WITH AUTOMATIC DRAIN, HOSE CONNECTION, LOOSE TEE KEY AND INTEGRAL BACKFLOW PREVENTER. ACCEPTABLE MANUFACTURERS: WOODFORD (B67)	3/4"	N/A	N/A	N/A	N/A
WWB-1	WASHER WALL BOX - 8.5 INCH X 6 INCH BOX CONSTRUCTED OF POWDER COATED SHEET METAL, WITH HOT AND COLD WATER SUPPLY VALVES WITH INTEGRAL HAMMER ARRESTORS, AND LEFT OR RIGHT HAND DRAIN CONNECTION. ACCEPTABLE MANUFACTURERS: GUY GRAY (MODEL NUMBER: MWB-16), PPP, OATEY ACCESSORIES: MOUNT IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.	1/2"	1/2"	2"	2"	NA
YCO-1	YARD CLEAN OUT - HEAVY DUTY, CAST IRON, CLEANOUT AND DOUBLE FLANGED HOUSING, WITH TRAFFIC RATED SCORIATED TOP, AND GAS AND WATER TIGHT PLUG. ACCEPTABLE MANUFACTURERS: JAY R. SMITH 4250	N/A	N/A	SEE DWGS	N/A	N/A

WATER PIPE SIZING PER 2015 IPC APPENDIX E

SANITARY DRAIN SIZING PER CHAPTER 7 OF THE 2015 IPC

FIXTURE	OCCUPANCY	TYPE OF CONTROL	QTY	SUPPLY LOAD VALUES (WSFU)		UNITS	DRAIN LOAD VALUES (DFU)	
				TOTAL EA	TOTAL UNITS		DFU EA	TOTAL DFU
BATHROOM GROUP	PRIVATE	FLUSH TANK	15	3.6	54.00		5	75.00
DRINKING FOUNTAIN OR WATER COOLER	OFFICES ETC	3/8 IN VALVE	0	0.25	0.00		0.5	0.00
KITCHEN SINK	PRIVATE	FAUCET	9	1.4	12.60		2	18.00
LAVATORY	PUBLIC	FAUCET	0	2	0.00		1	0.00
WATER CLOSET	PUBLIC	FLUSH TANK	0	5	0.00		4	0.00
SERVICE SINK	OFFICES ETC	FAUCET	0	3	0.00		2	0.00
WALL HYDRANT	PUBLIC	FAUCET	2	2.5	5.00		0	0.00
WASHING MACHINE 8LB	PRIVATE	AUTOMATIC	9	1.4	12.60		2	18.00
DISHWASHING MACHINE DOMESTIC	PRIVATE	AUTOMATIC	9	1.4	12.60		2	18.00
RECESSED WALL BOX	ANY	ANY	9	0.25	2.25		0	0.00
FLOOR DRAIN 2 INCH	ANY	NONE	9				3	27.00
FLOOR SINKS 4 INCH	ANY	NONE	0				6	0.00
FLOOR DRAIN 4 INCH	ANY	NONE					6	0.00
TOTAL FIXTURE UNITS					99.05	WSFU	DFU	156.00
DEMAND LOAD BASED ON SYSTEM TYPE		FLUSH TANK SYSTEM			124.0	GPM		
ADDITIONAL LOADS	No Simultaneous Irrigation System				0.0	GPM	DFU	
DEMAND TOTALS					124.0	GPM	DFU	156.00
DOMESTIC SUPPLY TAP SIZE REQUIRED					3.00	INCHES		
DOMESTIC SUPPLY TAP SIZE PROVIDED (PER LOCAL UTILITY PROVIDER)						INCHES		NEW
METER SIZE REQUIRED						INCHES		
METER SIZE PROVIDED						INCHES		NEW
INTERNAL DOMESTIC BUILDING DISTRIBUTION PIPE SIZE REQUIRED					3.00	INCHES		
INTERNAL DOMESTIC BUILDING DISTRIBUTION PIPE SIZE PROVIDED						INCHES		NEW
							SLOPE (IN/ 1 FT)	
BUILDING DRAIN SERVICE SIZE AND SLOPE REQUIRED					4.00	INCHES	1/4	
BUILDING DRAIN SERVICE SIZE AND SLOPE PROVIDED					4.00	INCHES	1/4	NEW
NOTE: VALUES INDICATED ARE WORST CASE BETWEEN IPC, UPC, OR LOCAL REQUIREMENTS.								

HYBRID ELECTRIC WATER HEATER SCHEDULE

PLAN MARK	MANUFACTURER	MODEL	LOCATION	STORAGE IN GALLONS	RECOVERY GPH @ 90 DEG.	COMPRESSOR BTUH		NUMBER OF ELEMENTS	ELECTRICAL DATA		PHYSICAL DATA			REMARKS
						BTU/H	SOUND LVL. (DBA)		KW INPUT	V/PH	H (IN.)	DIA. (IN.)	OPER. WT. (LB.)	
EWH-1	RHEEM	PROPH40 T2 RH375-SO	SEE PLANS	36	26	4,200	49	1	4.1	240/1	62.25	20.25	474 LBS	SEE NOTES.
NOTES:	1. PROVIDE WATER HEATER SCHEDULED ABOVE OR APPROVED EQUIVALENT HYBRID MODEL HAVING: ENERGY SAVER, HEAT PUMP, HIGH DEMAND, ELECTRIC, AND VACATION OPERATION MODES, DIGITAL ELETRONIC USER INTERFACE, AND ENERGY STAR RATING. 2. SET MAX OUTLET TEMPERATURE TO 130°F MIMIMUM. 3. 10-YEAR LIMITED TANK AND PARTS WARRANTY.													

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chkd RO

SCHEDULES
description

P-601
number

SYMBOLS LEGEND

NOTE: NOT ALL SYMBOLS ARE USED IN CONSTRUCTION DOCUMENTS

GENERAL

- AHU 1 — MECHANICAL EQUIPMENT CALL-OUT: REFER TO THE EQUIPMENT DATA SCHEDULE FOR DETAILS
- GWH1 — PLUMBING EQUIPMENT CALL-OUT: REFER TO THE EQUIPMENT DATA SCHEDULE FOR DETAILS
- # — KEYNOTE
- 100A4G — FEEDER CALL-OUT
- 1 — FOOD SERVICE EQUIPMENT DESIGNATION
- *Room name 101A* — ROOM NUMBER
- 1 — REVISION CALL-OUT
- NEW EQUIPMENT (TYPICAL)
- EXISTING EQUIPMENT (TYPICAL)
- DEMOLITION EQUIPMENT (TYPICAL)
- WALL MOUNT BRACKET (TYPICAL)

WIRING AND CONDUITS

- CONDUIT - CONCEALED IN SUSPENDED CEILING OR WALL
- CONDUIT - EXPOSED
- CONDUIT - CONCEALED BELOW SLAB OR GRADE
- CONDUIT - TURNING UP
- CONDUIT - TURNING DOWN
- CONDUIT - UP AND DOWN (CHANGE IN ELEVATION)
- CONDUIT - CONTINUED
- CONDUIT - FLEXIBLE
- CONDUIT - CAPPED
- J — JUNCTION BOX
- J — JUNCTION BOX - EMERGENCY POWER
- CONDUIT FITTING (CONDULET)
- EXPANSION FITTING
- SEALING FITTING
- CABLE TRAY

COMMUNICATIONS (FOR ROUGH-IN ONLY WITH 1" CONDUIT TO ACCESSIBLE CEILING

- TTB — TELEPHONE TERMINAL BACKBOARD (PROVIDE WITH 3/4" FIRE RATED PLYWOOD)
- TELEPHONE OUTLET - WALL MOUNTED
  - - WALL MOUNTED
  - T TOUCH TONE DEVICE FOR THE DEAF
  - W WALL PHONE
  - D DEDICATED TELEPHONE OUTLET
- TELEPHONE OUTLET - ABOVE COUNTER
- TELEPHONE OUTLET - FLUSH FLOOR MOUNTED
- TELEPHONE OUTLET - CEILING MOUNTED
- DATA OUTLET - WALL MOUNTED
- DATA OUTLET - ABOVE COUNTER
- DATA OUTLET - FLUSH FLOOR MOUNTED
- DATA OUTLET - CEILING MOUNTED
- COMBINATION TELEPHONE/DATA OUTLET - WALL MOUNTED
- COMBINATION TELEPHONE/DATA OUTLET - ABOVE COUNTER
- COMBINATION TELEPHONE/DATA OUTLET - FLUSH FLOOR MOUNTED
- COMBINATION TELEPHONE/DATA OUTLET - CEILING MOUNTED
- WAP — WIRELESS ACCESS POINT

POWER

- BRANCH CIRCUIT PANELBOARD - SURFACE MOUNTED
- BRANCH CIRCUIT PANELBOARD - FLUSH MOUNTED
- DISTRIBUTION PANELBOARD OR SWITCHBOARD
- T — TRANSFORMER
- T — POLE MOUNTED TRANSFORMER
- MOTOR CONTROL CENTER
- CONTROL PANEL
- GROUND BAR
- M — UTILITY KILOWATT-HOUR METER
- SAFETY SWITCH - NON-FUSIBLE
- F — SAFETY SWITCH - FUSIBLE
- C — ENCLOSED CIRCUIT BREAKER
- MAGNETIC STARTER
- VFD — COMBINATION STARTER
  - VFD VARIABLE FREQUENCY DRIVE
- EQUIPMENT - MOTOR
- DUPLEX RECEPTACLE (NEMA 5-20R)
  - GFI GROUND FAULT CIRCUIT INTERRUPTER
  - SS SURGE SUPPRESSOR (ISOLATED GROUND TYPE)
  - WP WEATHERPROOF
  - HG HOSPITAL GRADE
  - TR TAMPER RESISTANT
  - C CONTROLLED
  - D DEDICATED
  - USB STANDARD DUPLEX WITH 2 USB PORTS
- DUPLEX RECEPTACLE - ABOVE COUNTER
- DUPLEX RECEPTACLE - SPLIT WIRED
- DUPLEX RECEPTACLE - EMERGENCY POWER
- DUPLEX RECEPTACLE - CEILING MOUNTED
- DUPLEX RECEPTACLE - FLUSH FLOOR MOUNTED
- QUADRUPLEX RECEPTACLE
- QUADRUPLEX RECEPTACLE - ABOVE COUNTER
- QUADRUPLEX RECEPTACLE - FLUSH FLOOR MOUNTED
- SINGLE RECEPTACLE
- SPECIAL PURPOSE RECEPTACLE
- SPECIAL PURPOSE RECEPTACLE - CEILING MOUNTED
- SPECIAL PURPOSE RECEPTACLE - FLUSH FLOOR MOUNTED
- FLOOR BOX - SEE SPECS OR KEYED NOTES ON PLAN FOR DETAILS
- PP — POWER POLE
- CEILING FAN
- HAND DRYER

NURSE CALL

- NCCP — NURSE CALL CONTROL PANEL
- N # — NURSE CALL DEVICE
  - P PULL CORD
  - B BED STATION
  - D DUTY STATION
  - M MASTER STATION
- NURSE CALL DOME LIGHT

LIGHTING

- A — LUMINAIRE TYPE
- LUMINAIRE - RECESSED (REFER TO LUMINAIRE SCHEDULE)
- 1LP-1a NL — CONNECTED FOR NIGHT LIGHT USE; CIRCUIT NUMBER AND SWITCH LEG (LUMINAIRES ARE CONTROLLED BY LOCAL SWITCH UNLESS DESIGNATION GIVEN); PANEL NAME
- LUMINAIRE - SURFACE MOUNTED
- RECESSED LUMINAIRE CONNECTED TO THE EMERGENCY POWER SYSTEM OR BALLAST/DRIVER
- OPEN INDUSTRIAL LUMINAIRE
- OPEN INDUSTRIAL LUMINAIRE EMERGENCY POWER SYSTEM OR BALLAST/DRIVER
- WALL MOUNTED LUMINAIRE
- RECESSED DOWNLIGHT - CEILING MOUNTED
- RECESSED DOWNLIGHT w/ EMERGENCY BALLAST/DRIVER - CEILING MTD.
- SURFACE MOUNTED DOWNLIGHT
- RECESSED ADJUSTABLE/WALLWASH - CEILING MOUNTED
- POLE MOUNTED SITE LIGHTING - SINGLE HEAD
- POLE MOUNTED SITE LIGHTING - DUAL HEAD
- POLE MOUNTED SITE LIGHTING - TRIPLE HEAD
- POLE MOUNTED SITE LIGHTING - QUAD HEAD
- LINEAR PENDANT
- PENDANT
- TRACK LIGHTING
- EXIT SIGN - SINGLE FACE, CEILING MOUNTED ARROW INDICATES DIRECTION OF EXIT
- EXIT SIGN - SINGLE FACE, WALL MOUNTED
- EXIT SIGN - DUAL FACE, CEILING MOUNTED
- EXIT SIGN - DUAL FACE, WALL MOUNTED
- EXIT SIGN WITH EMERGENCY LIGHT ARROW INDICATES DIRECTION OF EXIT
- EMERGENCY LIGHT
- $a — TOGGLE SWITCH
  - 2 DOUBLE-POLE SINGLE-THROW (DPST)
  - 3 3-WAY
  - 4 4-WAY
  - b LOWER CASE LETTER DENOTES LTG. SWITCH GROUP
  - D DIMMER (WALL BOX TYPE)
  - K KEY OPERATED
  - LV LOW VOLTAGE SWITCH
  - MC MOMENTARY CONTACT SWITCH
  - OS WALL BOX OCCUPANCY SENSOR
  - OS2 WALL BOX OCCUPANCY SENSOR FOR TWO LEVEL SWITCHING
  - P PILOT LIGHT
  - T TIMER
  - TC TEACHER CONTROLS STATION
  - TE TEACHER ENTRY STATION
  - VS WALL BOX VACANCY SENSOR
  - WP WEATHERPROOF
- OS a — CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR; a LOWER CASE LETTER DENOTES LTG. SWITCH GROUP
- DL a — CEILING MOUNTED DAYLIGHT SENSOR; a LOWER CASE LETTER DENOTES LTG. SWITCH GROUP
- VS a — CEILING MOUNTED DUAL TECHNOLOGY VACANCY SENSOR; a LOWER CASE LETTER DENOTES LTG. SWITCH GROUP
- PC — PHOTOCELL
- RC — ROOM CONTROLLER
- LC1 — LIGHTING CONTACTOR
- LRP — LIGHTING RELAY PANEL
- INV — INVERTER

FIRE ALARM

- FCP — MAIN CONTROL PANEL (FCP)
  - FCP F/A MAIN CONTROL PANEL
  - FSA FIRE SYSTEM ANNUNCIATOR
  - FTR F/A TRANSPONDER OR TRANSMITTER
  - ESR ELEVATOR STATUS RECALL
  - FRP F/A RELAY PANEL
  - FAC F/A COMMUNICATOR
  - FPS FIRE ALARM ANNUNCIATION CIRCUIT POWER SUPPLY
- F — MANUAL PULL STATION
- S P — SMOKE DETECTOR
  - P PHOTOELECTRIC
  - PL PLENUM SMOKE DETECTOR
  - S SOUNDER BASE
- D — DUCT DETECTOR HOUSING AND SAMPLING TUBE
- H R — THERMAL (HEAT) DETECTOR
  - R RATE OF RISE ONLY
  - F FIXED TEMPERATURE
  - L LINE TYPE FIXED TEMPERATURE CABLE

  ALL HEAT DETECTORS SHALL BE 135°, COMBINATION TYPE UNLESS INDICATED OTHWERWISE.
- DP — SUPERVISORY SWITCH - DRY-PIPE PRESSURE SWITCH
- TS — SUPERVISORY SWITCH - TAMPER SWITCH
- WF — SUPERVISORY SWITCH - WATER FLOW SWITCH
- CONTROL DEVICE - DOOR HOLD OPEN
- F C — ADDRESSABLE INTERFACE MODULE
  - C CONTROL
  - M MONITORING
  - S SIGNALLING
  - V SOLENOID VALVE
- C — NOTIFICATION APPLIANCE
  - C CHIME
  - H HORN
  - LF LOW FREQUENCY
- 75 — NOTIFICATION APPLIANCE - STROBE ONLY; CANDELA VALUE AS SHOWN MINIMUM
- C 75 — NOTIFICATION APPLIANCE WITH STROBE; CANDELA VALUE AS SHOWN MINIMUM
  - C CHIME
  - H HORN
  - LF LOW FREQUENCY
- F — SHUNT TRIP PUSH BUTTON
- C 75 — NOTIFICATION APPLIANCE (CEILING)
  - C CHIME STROBE
  - H HORN STROBE
  - LF LOW FREQUENCY

  CANDELA VALUE AS SHOWN MINIMUM
- CO — CARBON MONOXIDE DETECTOR
- S 75 — CEILING MOUNTED COMBINATION VOICE EVACUATION SPEAKER AND STROBE; CANDELA VALUE AS SHOWN MINIMUM
- 75 S — COMBINATION VOICE EVACUATION SPEAKER AND STROBE NOTIFICATION APPLIANCE; CANDELA VALUE AS SHOWN MINIMUM
- S — CEILING MOUNTED VOICE EVACUATION SPEAKER
- S — VOICE EVACUATION SPEAKER NOTIFICATION APPLIANCE
- $ RTS — REMOTE TEST SWITCH

SPECIAL SYSTEMS

- ACCP — ACCESS CONTROL CONTROL PANEL
- DVR — DVR AND RACK
- CR — CARD READER - WITH 3/4" CONDUIT
  - K WITH KEY PAD
- ES — ELECTRIC STRIKE WITH 3/4" CONDUIT
- ML — ELECTRO-MAGNETIC LOCK WITH 3/4" CONDUIT
- VM — VIDEO MONITOR, FLAT SCREEN LCD WITH 3/4" CONDUIT
- DC — DOOR STATUS SWITCH WITH 3/4" CONDUIT
- MS — MOTION DETECTOR WITH 3/4" CONDUIT
- PS — POWER SUPPLY FOR PTZ CAMERA WITH 3/4" CONDUIT
- PS4 — 4-CHANNEL CAMERA POWER SUPPLY WITH 3/4" CONDUIT
- INDOOR FIXED CAMERA WITH 3/4" CONDUIT
  - PTZ PAN TILT ZOOM
  - WP WEATHERPROOF
- TV — TV OUTLET WITH 3/4" CONDUIT
- HANDICAP DOOR OPERATORS - SEE ARCHITECURALS WITH 3/4" CONDUIT
- GB — GLASS BREAK SENSOR WITH 3/4" CONDUIT
- V — VOLUME CONTROLLER - WITH 3/4" CONDUIT
- S — CEILING MOUNTED SPEAKER
- S — WALL MOUNTED SPEAKER
- IMS — INTERCOM MASTER STATION
- I — INTERCOM REMOTE STATION
  - P PEDESTAL MOUNT
  - S HIGH SECURITY
  - G GENERAL USE
- PUSH BUTTON
- DB — DOOR BELL SPEAKER/ CHIME
- C — CLOCK
- C C — DOUBLE SIDED CLOCK
- RX — REQUEST TO EXIT

ONE-LINE DIAGRAM

- SERVICE DROP
- PANEL ### — PANELBOARD
- T-1 45 KVA 3Ø 208Y/120VAC — DELTA-WYE TRANSFORMER
- G — # KVA/KW 480Y/277V, 3Ø, 4W — GENERATOR
- # A # POLES — AUTOMATIC TRANSFER SWITCH
- GROUND
- # AF # AT — CIRCUIT BREAKER
- # AF # AT — DRAWOUT CIRCUIT BREAKER
- M — # A — METER
- CURRENT TRANSFORMER
- POTENTIAL TRANSFORMER
- G — GROUND FAULT PROTECTED BREAKER
- ST — SHUNT TRIP BREAKER
- # A — SWITCH
- FUSE
- CONTACTOR
- THERMAL OVERLOAD
- 49 — ELECTRONIC OVERLOAD
- SPD — SURGE PROTECTION DEVICE
- VFD — VARIABLE FREQUENCY DRIVE
- K — KIRK KEY INTERLOCK
- DPM — DIGITAL POWER METER

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GENERAL NOTES

COMMON REQUIREMENTS:

A. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS, ELEVATIONS, AND BUILDING DETAILS. VERIFY LOCATION OF ALL WALL OUTLETS, SWITCHES, ETC., WITH ARCHITECTURAL DRAWINGS AND ACTUAL CONDITIONS.

B. PRIOR TO ROUGH-IN AND FINAL CONNECTION OF EQUIPMENT, VERIFY ELECTRICAL REQUIREMENTS OF EQUIPMENT WITH OTHER TRADES CONSTRUCTION DOCUMENTS AND FINALIZED SHOP DRAWINGS. VERIFICATION SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING: VOLTAGE, AMPERAGE, TOTAL LOAD, OVER-CURRENT PROTECTION REQUIREMENTS, MOUNTING HEIGHT OF ELECTRICAL CONNECTION, CABLE TYPE AND SIZE, WIRING DIAGRAMS.

C. COORDINATE SCHEDULE OF CONSTRUCTION WITH THE OWNER, OTHER TRADES AND UTILITIES INVOLVED BEFORE TRENCHING AND INSTALLATION OF UNDERGROUND CONDUIT. USE EXTREME CAUTION DURING EXCAVATION TO LOCATE EXISTING UNDERGROUND PIPING, CONDUITS, ETC. LOCATE AND PROTECT ANY BURIED UTILITIES IN AREAS OF EXCAVATION.

D. GROUT AND SEAL ALL CONDUIT PENETRATIONS OF WALLS AND FLOOR SLABS TO PRESERVE FIRE RATING AND WATERTIGHT INTEGRITY.

E. THE CONTRACTOR SHALL CONTACT AND OBTAIN FROM THE UTILITY COMPANY ALL INFORMATION, REQUIREMENTS, THEIR CONSTRUCTION DRAWINGS AND SPECIFICATIONS TO COMPLETE THE ELECTRICAL PRIMARY/SECONDARY SERVICE TO THIS PROJECT. INCLUDE IN BASE BID, BUT NOT LIMIT TO, TRENCHING, BACKFILL, TRANSFORMER CONCRETE PAD, CONDUITS, METERING REQUIREMENTS, AND PROVIDE COMPLIANT EQUIPMENT IN THE CORRECT SEQUENCE, CONTRIBUTION COSTS, ENGINEERING FEE AND SERVICE CHARGES FOR ALL ELECTRICAL SERVICES TO THIS PROJECT.

F. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR ACTUAL LAYOUT OF LUMINAIRES AND CEILING TYPES. VERIFY CEILING TYPES PRIOR TO ORDERING LUMINAIRES.

G. REFER TO ARCHITECTURAL PLANS TO CONFIRM ALL FIRE-RATED CEILINGS AND WALLS.

1. ALL PENETRATIONS OF FIRE-RESISTIVE FLOORS OR SHAFT WALLS SHALL BE PROTECTED BY MATERIALS AND INSTALLATION DETAILS THAT CONFORM TO UNDERWRITERS' LABORATORIES LISTINGS FOR "THROUGH-PENETRATION FIRE STOP SYSTEMS." THE CONTRACTOR SHALL SUBMIT SHOP DRAWING DETAILS, FURNISHED BY THE MANUFACTURER OF THE FIRE STOP MATERIAL, WHICH SHOW COMPLETE CONFORMANCE TO THE UL LISTING AND SHALL BE SPECIFIC FOR EACH PENETRATION WITH ALL VARIABLES DEFINED. THESE FINAL AND APPROVED DRAWINGS SHALL BE READILY AVAILABLE TO THE LOCAL INSPECTORS AT ALL TIMES AT THE PROJECT SITE.

H. ALL LIGHT FIXTURES SHALL BE EQUIPPED WITH A GREEN GROUND WIRE BONDED TO THE HOUSING.

I. FINISH OF ALL LIGHTING FIXTURES IS SUBJECT TO ARCHITECT'S APPROVAL. SUBMIT SAMPLES IF REQUESTED.

J. ALL LUMINAIRES WITH EMERGENCY BATTERIES SHALL HAVE THE BATTERY CHARGER CIRCUITED TO THE AMBIENT LIGHTING CIRCUIT IN THE SPACE BUT SHALL BE UNSWITCHED. IF THE LUMINAIRE IS INDICATED AS SWITCHED, ONLY THE LUMINAIRE SHALL BE CONTROLLED BY THE SWITCHED CONDUCTORS (BATTERY CHARGER SHALL REMAIN UNSWITCHED).

K. THE ELECTRICAL CONTRACTOR SHALL BE HELD FINANCIALLY RESPONSIBLE FOR ANY AND ALL COSTS OF THE ENGINEERS TIME REQUIRED TO REVIEW AND RESEARCH NON-SPECIFIED EQUIPMENT SUBMITTED FOR SUBSTITUTION BY THE ELECTRICAL CONTRACTOR. THESE COSTS SHALL BE AUTOMATICALLY INVOICED TO THE CONTRACTOR UNLESS SUCH SUBSTITUTIONS FOLLOW THE GUIDELINES FOR SUBSTITUTION AND ARE WITHIN THE PROPER TIME FRAME AS OUTLINED IN OTHER SECTIONS OF THIS SPECIFICATION.

L. FIELD ADJUST ALL LUMINAIRES REQUIRING AIMING WITH THE OWNER PRESENT AND TO THEIR SATISFACTION.

M. ON LINEAR WALL SLOT LUMINAIRES, LAMPS SHALL BE CONTINUOUS INCLUDING CORNERS.

N. PROVIDE AND INSTALL IN EACH PANEL, TYPEWRITTEN NEAT TWO-COLUMN CIRCUIT INDEX CARD SET UNDER PLASTIC COVERS ON INSIDE OF DOORS. EACH ODD-NUMBERED CIRCUIT SHALL BE IN SEQUENCE ON ONE COLUMN AND THE EVEN-NUMBERED CIRCUITS ON THE OTHER COLUMN (E.G. 1,3,5…;2,4,6…). EACH CIRCUIT SHALL BE IDENTIFIED AS TO THE USE AND ROOM NAME(S) OR AREA(S). THE CONTRACTOR SHALL CONFIRM ROOM NAMES AND/OR ROOM NUMBERS WITH THE ARCHITECT PRIOR TO PROJECT COMPLETION.

O. PRIOR TO SUBMITTING BID PROPOSAL, BIDDER SHALL EXAMINE ALL GENERAL CONSTRUCTION DRAWINGS AND VISIT CONSTRUCTION SITE TO BE FAMILIAR WITH EXISTING CONDITIONS UNDER WHICH THEY WILL HAVE TO OPERATE AND WHICH WILL IN ANY WAY AFFECT THE WORK UNDER THIS CONTRACT. NO SUBSEQUENT ALLOWANCE WILL BE MADE IN THIS CONNECTION ON BEHALF OF THE CONTRACTOR FOR ANY ERROR OR NEGLIGENCE ON HIS PART.

P. CONTRACTOR SHALL NOT SCALE DRAWING FOR QUANTITIES. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL MEASUREMENTS.

Q. IF POSSIBLE, ALL NEWLY INSTALLED RECEPTACLES SHALL BE INSTALLED IN SEPARATE OR ADJACENT STUD SPACES, TO AVOID SOUND TRANSMISSION AND WALL INTEGRITY ISSUES. ALL NEWLY INSTALLED RECEPTACLES LOCATED IN COMMON STUD SPACES OF FIRE-RESISTANT WALLS SHALL BE EQUIPPED WITH FIRE-RESISTANT PUTTY PADS AT THE BACK OF EACH BOX IN ACCORDANCE WITH NEC.

R. SECURE ALL LOW VOLTAGE DATA, SIGNALING AND CONTROL WIRING TO THE STRUCTURE AT INTERVALS NO MORE THAN 4 FEET.

S. ALL FLOOR MOUNTED SWITCH GEAR, UNIT SUBSTATIONS, BOXES AND TRANSFORMERS LARGER THAN 75 KVA SHALL BE INSTALLED ON A NOMINAL 4" HOUSEKEEPING PAD. PAD SHALL EXTEND FROM ELECTRICAL EQUIPMENT 6" IN ANY DIRECTION.

T. WHERE CONDUIT AND WIRING RUNS ARE NOT SHOWN ON FLOOR PLANS, THE CONTRACTOR SHALL DETERMINE AND PROVIDE THE REQUIRED CONDUIT AND WIRING FOR SPECIFIED CIRCUITING IN ACCORDANCE WITH NEC AND THE FOLLOWING MINIMUM REQUIREMENTS:

1. MINIMUM CONDUIT SIZE SHALL BE 3/4".
2. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG. #10 AWG SHALL BE USED FOR HOME RUNS OF 20 AMP BRANCH CIRCUITS OVER 100 FEET IN LENGTH.
3. EACH RACEWAY SHALL CONTAIN AN INSULATED EQUIPMENT GROUNDING CONDUCTOR PER NEC.
4. DERATING OF CONDUCTOR AMPACITY SHALL BE APPLIED PER NEC.
5. NO SHARING OF NEUTRALS ALLOWED. CIRCUIT SHALL HAVE DEDICATED NEUTRAL CONDUCTORS. ONE CIRCUIT, ONE NEUTRAL.
6. MAXIMUM SIX FOOT FLEXIBLE LUMINAIRE WHIP SHALL BE USED FOR FINAL CONNECTIONS TO LIGHT FIXTURES INSTALLED IN LAY-IN CEILINGS. MAXIMUM FOUR LUMINAIRE WHIPS SHALL BE CONNECTED FROM ONE JUNCTION BOX. FEED THRU BETWEEN LUMINAIRES SHALL NOT BE ALLOWED.
   a. EXCEPTION: ALL RECESSED LUMINAIRES IN HARD CEILINGS SHALL HAVE FEED-THRU JUNCTION BOXES.

U. INSTALL CARBON MONOXIDE DETECTORS IN DWELLING UNITS, SLEEPING UNITS AND CLASSROOMS OF GROUP E OCCUPANCY PER IFC 915.

ABBREVIATIONS

%Z	IMPEDANCE
(E)	EXISTING (ALSO COVERED BY TEXT WEIGHT)
(F)	FUTURE
(PART)	PARTIAL CIRCUIT
(R)	RELOCATE
A	AMPERES
AC	6" ABOVE COUNTER
ADA	AMERICANS WITH DISABILITIES ACT
AF	AMPERES FRAME
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPERES INTERRUPTION CAPACITY
AL	ALUMINUM
AT	AMPERES TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BMS	BUILDING MANAGEMENT SYSTEM
C	CONDUIT
CAM	CAMERA
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CCW	COUNTER CLOCKWISE
CKT	CIRCUIT
CL	CENTER LINE
CLG	CEILING
CO	CONDUIT ONLY
CRI	COLOR RENDERING INDEX
CT	CURRENT TRANSFORMER
CU	COPPER
CW	CLOCKWISE
D	DEDICATED
DIA	DIAMETER
DISC	DISCONNECT
DIST	DISTRIBUTION
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
DR	DUPLEX RECEPTACLE
DWG	DRAWING(S)
EC	ELECTRICAL CONTRACTOR
ELC	ELEVATOR CONTRACTOR
ELEC	ELECTRIC/ELECTRICAL
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
EWC	ELECTRIC WATER COOLER
F	FUSED
FA	FIRE ALARM
FAA	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
FC	FOOTCANDLE
FLA	FULL LOAD AMPERES
FMC	FLEXIBLE METAL CONDUIT
FO	FIBER OPTIC
FPC	FIRE PROTECTION CONTRACTOR
FS	FUSED SWITCH
FSC	FOOD SERVICE CONTRACTOR
FSD	FIRE/SMOKE DAMPER
FT	FOOT/FEET
FVNR	FULL VOLTAGE, NON-REVERSING
FVR	FULL VOLTAGE, REVERSING
G/GND	GROUND/GROUNDING
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GF	GROUND FAULT
GFI/GFCI	GROUND FAULT INTERRUPTER
H	HORIZONTALLY MOUNTED
HG	HOSPITAL GRADE
HH	HANDHOLE
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTO
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HZ	FREQUENCY
I/O	INPUT/OUTPUT
ID	INSIDE DIAMETER
IDF	INTERMEDIATE DISTRIBUTION FRAME
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
ISC	SHORT CIRCUIT CURRENT
JB	JUNCTION BOX
K	KELVIN (COLOR TEMPERATURE)
KCMIL	1000 CIRCULAR MILS
KV	KILOVOLTS
KVA	KILVOLT-AMPERES
KW	KILOWATTS
KWH	KILOWATT-HOUR
LAN	LOCAL AREA NETWORK
LC	LIGHTING CONTACTOR
LCP	LIGHTING CONTROL PANEL
LED	LIGHT EMITTING DIODE
LF	LINEAR FOOT
LFMC	LIQUID-TIGHT FLEXIBLE METAL CONDUIT
LM	LUMEN
LTG	LIGHTING
LV	LOW VOLTAGE
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPERES
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MDF	MAIN DISTRIBUTION FRAME
MDP	MAIN DISTRIBUTION PANEL
MEPFP	MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION
MGB	MASTER GROUND BAR
MH	METAL HALIDE
MIN	MINIMUM
MLO	MAIN LUG ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MSB	MAIN SWITCHBOARD
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
MVA	MEGAVOLT-AMPERES
MW	MEGAWATT
MWH	MEGAWATT-HOURS
N	NEUTRAL
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NF	NON-FUSED
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NP	NAMEPLATE
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OWN	OWNER
P	POLE
PA	PUBLIC ADDRESS
PB	PULL BOX
PC	PLUMBING CONTRACTOR
PF	POWER FACTOR
PH	PHASE
PIR	PASSIVE INFRARED
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PR	PAIR
PRI	PRIMARY
PT	POTENTIAL TRANSFORMER
PV	PHOTOVOLTAIC
PVC	POLYVINYL CHLORIDE
PWC	PRE-WIRED CONTROLS
PWR	POWER
RCPT	RECEPTACLE
REQD	REQUIRED
RF	RADIO FREQUENCY
RM	ROOM
RMC	RIGID METAL CONDUIT
RNC	RIGID NON-METALLIC CONDUIT (SCH 40)
RVAT	REDUCED VOLTAGE - AUTOTRANSFORMER
SC	SHORT CIRCUIT
SCC	SHORT CIRCUIT CURRENT RATING
SDP	SUBDISTRIBUTION PANEL
SEC	SECONDARY
SHLD	SHIELD(ED) (AS IN CABLE)
SHT	SHEET
SPD	SURGE-PROTECTIVE DEVICE
SPDT	SINGLE POLE DOUBLE THROW
SPST	SINGLE POLE SINGLE THROW
SR	SINGLE RECEPTACLE
SS	SURGE SUPPRESSOR (ISOLATED GROUND TYPE)
ST	SHUNT TRIP
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TBD	TO BE DETERMINED
TC	TIMECLOCK
TCC	TEMPERATURE CONTROLS CONTRACTOR
TEMP	TEMPERATURE
TR	TAMPER RESISTANT
TT	THERMAL TRIP SWITCH
TTB	TELEPHONE TERMINAL BOARD
TYP	TYPICAL
U	UTILITY
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERUPTABLE POWER SUPPLY
USB	STANDARD DUPLEX WITH 2 USB PORTS
V	VOLTS
VA	VOLT-AMPERES
VAC	VOLTS ALTERNATING CURRENT
VDC	VOLTS DIRECT CURRENT
VFD	VARIABLE FREQUENCY DRIVE
VND	VENDOR
W	WATTS
W	WIRE
WHM	WATTHOUR METER
WP	WEATHERPROOF
XFMR	TRANSFORMER
XP	EXPLOSION PROOF

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WORK INCLUDED

A. THE WORK TO BE PERFORMED UNDER THIS DIVISION OF THE SPECIFICATIONS SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, TRANSPORTATION, CONSTRUCTION, FACILITIES, AND INCIDENTALS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF ALL ELECTRICAL WORK AS SHOWN AND INDICATED ON THE CONTRACT DRAWINGS, AND/OR HEREIN SPECIFIED WITH THE INTENT THAT THE INSTALLATION SHALL BE COMPLETE IN EVERY RESPECT, READY FOR USE. COMPLY WITH THE LATEST EDITION IN FORCE OF THE NFPA CODES INCLUDING THE NATIONAL ELECTRICAL CODE AND ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES.

SUBMITTALS

A. SUBMIT ELECTRONIC COPIES OF PRODUCT DATA, SHOP DRAWINGS, WIRING DIAGRAMS AND LITERATURE ON SYSTEMS INDICATED BELOW. LITERATURE SHALL BE MARKED TO INDICATE THE SIZE, TYPE OR MODEL BEING PROPOSED AND ALL ACCESSORIES TO BE PROVIDED.

HAND HOLES
IDENTIFICATION PRODUCTS
WIRING DEVICES/COVER PLATES
GROUNDING PRODUCTS
PANELBOARDS
METER CENTERS
CT CABINETS
SAFETY SWITCHES
LIGHTING

B. SUBMIT ELECTRONIC COPIES OF PRODUCT DATA, SHOP DRAWINGS, WIRING DIAGRAMS, LAYOUT DRAWINGS , BATTERY CALCULATIONS PER CODE (IF SYSTEM REQUIRED), AND NICET CERTIFICATE FOR DESIGN TECHNICIAN (IF SYSTEM REQUIRED). LITERATURE SHALL BE MARKED TO INDICATE THE SIZE, TYPE OR MODEL BEING PROPOSED AND ALL ACCESSORIES TO BE PROVIDED:

FIRE ALARM
LIGHTING CONTROL

GENERAL

A. "APPROVED EQUAL" INDICATES THE SPECIFYING ENGINEER SHALL APPROVE ALL CONTRACTOR PROPOSED ALTERNATE MATERIAL OR MANUFACTURERS. ENGINEER'S DECISION IS FINAL.

B. THE ELECTRICAL CONTRACTOR SHALL BE HELD FINANCIALLY RESPONSIBLE FOR ANY AND ALL COSTS OF THE ENGINEER'S TIME REQUIRED TO REVIEW AND RESEARCH NON-SPECIFIED EQUIPMENT SUBMITTED FOR SUBSTITUTION BY THE ELECTRICAL CONTRACTOR. THESE COSTS SHALL BE AUTOMATICALLY INVOICED TO THE CONTRACTOR UNLESS SUCH SUBSTITUTIONS FOLLOW THE GUIDELINES FOR SUBSTITUTION AND ARE WITHIN THE PROPER TIME FRAME AS OUTLINED IN OTHER SECTIONS OF THIS SPECIFICATION.

WARRANTY

A. CONTRACTOR'S WARRANTY ON COMPLETE ELECTRICAL INSTALLATION SHALL BE FOR A TIME PERIOD OF ONE (1) YEAR FROM SUBSTANTIAL COMPLETION.

B. MANUFACTURER'S WARRANTY ON ALL EQUIPMENT SHALL BE FOR A TIME PERIOD OF ONE (1) YEAR FROM SUBSTANTIAL COMPLETION UNLESS NOTED OTHERWISE.

COORDINATION

A. IN GENERAL, COORDINATE WORK THOROUGHLY WITH OTHER TRADES, OWNER AND UTILITY COMPANIES TO PROVIDE EFFICIENT FLOW OF THE WORK AND TIMELY COMPLETION OF THE CONTRACT.

B. COORDINATE INSTALLATION OF SERVICE ENTRANCE THOROUGHLY WITH UTILITY COMPANY. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS RELATED TO SERVICE ENTRANCE WORK, INCLUDING ANY CHARGES FROM THE UTILITY COMPANY.

BASIC MATERIALS

A. IN GENERAL ALL MATERIALS SHALL BE: NEW, U.L. LISTED FOR THE SPECIFIC APPLICATION AS SPECIFIED OR AS REQUIRED, AND INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

B. IDENTIFICATION: LAMINATED PLASTIC LABELS ON ALL EQUIPMENT, SWITCHES, CONTROLS, ETC.

C. "APPROVED EQUAL" INDICATES THE SPECIFYING ENGINEER SHALL APPROVE ALL CONTRACTOR PROPOSED ALTERNATE MATERIAL OR MANUFACTURERS. ENGINEER'S DECISION IS FINAL.

EXCAVATION AND BACKFILL

A. TRENCHES SHALL BE EXCAVATED TO UNIFORM WIDTH, SUFFICIENTLY WIDE TO PROVIDE AMPLE WORKING ROOM AND MINIMUM OF 6" TO 9" INCHES ON BOTH SIDES OF CONDUIT. CONDUIT SHALL BE 24" MINIMUM BELOW FINISHED GRADE.

B. UNDER SIDEWALKS AND PAVED AREAS, BACKFILL ALL TRENCHES WITH COMPACTED, CLEAN, WASHED, GRANULAR BACKFILL COMPACTED TO NOT LESS THAN 100% OF STANDARD PROCTOR MAXIMUM DRY DENSITY.

C. OTHER AREAS: USE EXCAVATED OR BORROWED MATERIALS FREE OF DEBRIS. NEATLY MOUND MATERIALS TO COMPENSATE FOR LATER SETTLEMENT.

D. PROVIDE UNDERGROUND WARNING TAPE AT 12 INCH DEPTH. TAPE SHALL BE MADE OF ACID AND ALKALI RESISTANT POLYTHENE FILM, SIX INCHES WIDE, AND READ "CAUTION BURIED ELECTRICAL LINE" OVER ENTIRE LENGTH.

E. CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO EXISTING CONDITIONS INCLUDING, BUT NOT LIMITED TO, SODDING AND REMOVAL/REPLACEMENT OF EXISTING PLANTINGS.

CONDUIT

A. ELECTRICAL METALLIC TUBING (EMT): COMPLYING WITH ANSI C80.3 WITH COMPRESSION TYPE FITTINGS, SIZED AS SHOWN ON DRAWINGS OR IF NOT SIZED ON THE DRAWINGS, IN ACCORDANCE WITH NEC AND OTHER APPLICABLE PORTIONS OF CONTRACT DOCUMENTS.

B. RIGID GALVANIZED STEEL (RGS) CONDUIT: COMPLYING WITH ANSI C80.1, THREADED CONDUIT WITH APPROVED FITTINGS, SIZED AS SHOWN ON DRAWINGS OR IF NOT SIZED ON THE DRAWINGS, IN ACCORDANCE WITH NEC AND OTHER APPLICABLE PORTIONS OF THE CONTRACT DOCUMENTS.

C. RIGID NON-METALLIC (PVC) CONDUIT: SCHEDULE 40 PVC TYPE COMPLYING WITH NEMA TC2, U.L. 651, AND ARTICLE 347 OF NEC. FITTINGS SHALL BE PVC, CHEMICAL SOLVENT SEALING TYPE. SIZED AS SHOWN ON THE DRAWINGS OR IF NOT SIZED ON THE DRAWINGS, IN ACCORDANCE WITH NEC AND OTHER APPLICABLE PORTIONS OF THE CONTRACT DOCUMENTS.

D. FLEXIBLE METAL CONDUIT: FLEXIBLE STEEL CONDUIT WITH ZINC COATING AND APPROVED FITTINGS, SIZED AS SHOWN ON DRAWINGS OR IF NOT SIZED ON THE DRAWINGS, IN ACCORDANCE WITH NEC AND OTHER APPLICABLE PORTIONS OF THE CONTRACT DOCUMENTS.

E. LIQUIDTIGHT FLEXIBLE METAL (LT) CONDUIT: FLEXIBLE STEEL CONDUIT WITH PVC JACKET WITH APPROVED FITTINGS, SIZED AS SHOWN ON DRAWINGS OR IF NOT SIZED ON THE DRAWINGS, IN ACCORDANCE WITH NEC AND OTHER APPLICABLE PORTIONS OF THE CONTRACT DOCUMENTS.

F. MINIMUM CONDUIT SIZE SHALL BE 3/4".

G. EMT MAY BE USED WHERE PERMITTED BY NEC EXCEPT WHERE OTHER TYPE IS SPECIFIED HEREIN OR NOTED ON DRAWINGS.

H. RGS CONDUIT SHALL BE USED IN OUTDOOR EXPOSED LOCATIONS, INDOOR DAMP OR WET LOCATIONS, HAZARDOUS LOCATIONS, OR WHERE REQUIRED BY NEC AND WHERE NOTED ON DRAWINGS.

I. PVC CONDUIT SHALL BE USED IN UNDERGROUND INSTALLATIONS, BELOW CONCRETE FLOOR SLAB (WITH RGS CONDUIT STUB UPS), WHERE REQUIRED BY NEC AND WHERE NOTED ON THE DRAWINGS.

J. FLEXIBLE METAL CONDUIT SHALL BE USED FOR CONNECTION TO VIBRATING EQUIPMENT IN INDOOR DRY LOCATIONS, FOR CONNECTION TO INDOOR RECESSED LIGHT FIXTURES (SIX FOOT MAXIMUM LENGTH), WHERE REQUIRED BY NEC AND WHERE NOTED ON DRAWINGS.

K. LT CONDUIT SHALL BE USED FOR CONNECTION TO VIBRATING EQUIPMENT IN OUTDOOR LOCATIONS, IN DAMP OR WET INDOOR LOCATIONS, HAZARDOUS LOCATIONS, OR WHERE REQUIRED BY NEC AND WHERE NOTED ON THE DRAWINGS.

L. CONDUIT SHALL BE INSTALLED CONCEALED UNLESS NOTED OTHERWISE ON DRAWINGS.

M. WHEN NOTED ON DRAWINGS, CONDUIT SHALL BE INSTALLED EXPOSED WITH CONDUIT PARALLEL TO AND AT RIGHT ANGLES TO NEARBY SURFACES OR STRUCTURAL MEMBERS.

N. PROVIDE CONDUIT SEALING FITTINGS IN ACCORDANCE WITH NEC AND WHERE INDICATED ON DRAWINGS. LOCATE FITTINGS AT SUITABLE, APPROVED, ACCESSIBLE LOCATIONS AND FILL WITH U.L. LISTED SEALING COMPOUND. INSTALL SEALING FITTINGS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

BOXES

A. ALL STANDARD INTERIOR OUTLET BOXES SHALL:

1. BE STAMPED, ONE PIECE, GALVANIZED STEEL.
2. BE OF PROPER SIZE AND SHAPE FOR CONDUITS ENTERING THEM.
3. BE U.L. LISTED AND NEC RATED FOR THEIR APPLICATION.
4. BE CAST TYPE FOR EXPOSED WORK BELOW 10'-0" AFF.

B. ALL PULL/JUNCTION BOXES AND ENCLOSURES SHALL:

1. BE NEMA TYPE 1 FOR INDOOR DRY LOCATIONS.
2. BE NEMA TYPE 3R OR NEMA TYPE 4 FOR INDOOR DAMP OR WET LOCATIONS AND OUTDOOR LOCATIONS.
3. BE OF PROPER SIZE AND SHAPE FOR CONDUITS ENTERING THEM.
4. BE U.L. LISTED AND LABELED FOR THEIR APPLICATION.

C. FLOOR BOXES:

1. BE CAST IRON, FULLY ADJUSTABLE (WITH INTERGRAL MEANS FOR LEVELING ADJUSTMENT PRIOR TO AND AFTER CONCRETE POUR).
2. PROVIDE COMPATIBLE FLOOR BOX SERVICE FITTINGS.
3. FURNISH WITH ALL COMPONENTS, ADAPTERS AND TRIMS REQUIRED FOR A COMPLETE INSTALLATION.

HANDHOLES

A. HANDHOLES SHALL BE QUAZITE 'PC' STYLE (STACKABLE) BOX ASSEMBLY WITH LOCKING COVER HAVING 'ELECTRIC' LOGO. HANDHOLES SHALL BE STACKED TO PROVIDE DEPTH REQUIRED.

B. PROVIDE HANDHOLES AS REQUIRED BY NEC AND AS NEEDED TO FACILITATE INSTALLATION OF CONDUCTORS. SIZE HANDHOLES IN ACCORDANCE WITH NEC.

C. LOCATION OF HANDHOLES SHALL BE APPROVED BY ARCHITECT/ENGINEER AND OWNER BEFORE INSTALLATION.

WIRE AND CABLES

A. ALL CONDUCTORS SHALL BE COPPER, 600 VOLT, TYPE THHN/THWN UNLESS OTHERWISE NOTED. MINIMUM WIRE SIZE SHALL BE #12 AWG FOR POWER WIRING AND #14 AWG FOR CONTROL WIRING.

B. ALL CONDUCTORS SHALL BE COLOR CODED WITH WIRE LABELS INSTALLED FOR EASY IDENTIFICATION.

C. ALL CONDUCTORS SIZE #10 AND SMALLER SHALL BE SOLID COPPER. CONDUCTORS SIZE #8 AND LARGER SHALL BE STRANDED.

D. ALL CONDUCTORS FOR BRANCH CIRCUITS SHALL BE COPPER.

E. MC CABLE SHALL NOT BE USED EXCEPT FOR FIXTURE WHIPS.

WIRE CONNECTIONS AND DEVICES

A. ALL CONNECTORS SHALL BE OF MATERIAL COMPATIBLE WITH THE MATERIAL OF THE CONDUCTORS TO PREVENT CORRODING, DIFFERENCES IN COEFFICIENTS OF EXPANSION AND ELECTROLYSIS AS MANUFACTURED BY IDEAL, BURNDY, THOMAS AND BETTS, AND 3-M.

IDENTIFICATION

A. ALL PANELBOARDS, SWITCHBOARDS, DISCONNECT DEVICES, CONTROLLERS, ETC., SHALL BE PROVIDED WITH A WHITE NAMEPLATE WITH BLACK ENGRAVED LETTERS MOUNTED IN A VISIBLE LOCATION ON THE DEVICE. PLATE SHALL INDICATE THE DEVICE TAG, THE SOURCE OF POWER AND THE CIRCUIT NUMBER.

B. ALL PANELBOARDS SHALL BE PROVIDED WITH A TYPEWRITTEN CIRCUIT DIRECTORY, LAMINATED AND MOUNTED INSIDE THE PANEL COVER.

D. WIRE SHALL BE COLOR CODED IN INDUSTRY STANDARD FORMAT, COLORED CONDUCTOR OR COLORED TAPE WRAPPING.

WIRE COLOR CODE FOR 120/240V, 1Ø, 3W
PHASE A: BLACK
PHASE B: RED
NEUTRAL: WHITE
GROUND: GREEN

WIRING DEVICES

A. PROVIDE PRODUCTS LISTED AND CLASSIFIED BY UNDERWRITERS LABORATORIES INC. AS SUITABLE FOR THE PURPOSE SPECIFIED AND INDICATED.

B. APPROVED MANUFACTURERS:

1. HUBBELL WIRING DEVICES-KELLEMS
2. LEVITON
3. PASS & SEYMOUR/LEGRAND

C. COLOR SHALL BE DETERMINED BY THE DESIGN PROFESSIONAL DURING SHOP DRAWING REVIEW.

D. RECEPTACLES - GENERAL REQUIREMENTS: SELF-GROUNDING, COMPLYING WITH NEMA WD 1 AND NEMA WD 6, AND LISTED AS COMPLYING WITH UL 498, AND WHERE APPLICABLE, FS W-C-596; TYPES AS INDICATED ON THE DRAWINGS. WIRING PROVISIONS: TERMINAL SCREWS FOR SIDE WIRING OR SCREW ACTUATED BINDING CLAMP FOR BACK WIRING WITH SEPARATE GROUND TERMINAL SCREW.

1. STANDARD CONVENIENCE RECEPTACLES: INDUSTRIAL SPECIFICATION GRADE, 15 OR 20A, 125V, NEMA 5-15R/5-20R; SINGLE OR DUPLEX AS INDICATED ON THE DRAWINGS.
2. NEMA CONFIGURATIONS SPECIFIED ARE ACCORDING TO NEMA WD 6.
4. WEATHER RESISTANT CONVENIENCE RECEPTACLES: INDUSTRIAL SPECIFICATION GRADE, 20A, 125V, GFCI, NEMA 5-20R, LISTED AND LABELED AS WEATHER RESISTANT TYPE COMPLYING WITH UL 498 SUPPLEMENT SE SUITABLE FOR INSTALLATION IN DAMP OR WET LOCATIONS; SINGLE OR DUPLEX AS INDICATED ON THE DRAWINGS. RECEPTACLE SHALL BE PROVIDED WITH A WHILE-IN-USE COVER.
5. TAMPER RESISTANT CONVENIENCE RECEPTACLES: SHALL BE USED IN ALL RESIDENTIAL UNITS AND WHERE DICTATED BY NEC.
   a. INDUSTRIAL SPECIFICATION GRADE, 15 OR 20A, 125V, NEMA 5-15R/5-20R, LISTED AND LABELED AS TAMPER RESISTANT TYPE. SINGLE OR DUPLEX AS INDICATED ON THE DRAWINGS.
   b. TAMPER RESISTANT AND WEATHER RESISTANT GFCI RECEPTACLES: INDUSTRIAL SPECIFICATION GRADE, DUPLEX, 15 OR 20A, 125V, NEMA 5-15R/5-20R, RECTANGULAR DECORATOR STYLE, LISTED AND LABELED AS TAMPER RESISTANT TYPE AND AS WEATHER RESISTANT TYPE COMPLYING WITH UL 498 SUPPLEMENT SE SUITABLE FOR INSTALLATION IN DAMP OR WET LOCATIONS.
6. USB CHARGING STATION RECEPTACLE: INDUSTRIAL SPECIFICATION GRADE, 125V, FOUR USB CHARGING PORTS. OVERALL, 4.2A USB CHARGING CAPABILITY.
7. GFCI RECEPTACLES:
   a. GENERAL REQUIREMENTS: SELF-TESTING, WITH FEED-THROUGH PROTECTION AND LIGHT TO INDICATE GROUND FAULT TRIPPED CONDITION AND LOSS OF PROTECTION; LISTED AS COMPLYING WITH UL 943, CLASS A. INDUSTRIAL SPECIFICATION GRADE, DUPLEX, 20A, 125V, NEMA 5-20R, RECTANGULAR...
   b. PROVIDE TEST AND RESET BUTTONS OF SAME COLOR AS DEVICE.
   c. WEATHER RESISTANT GFCI RECEPTACLES: INDUSTRIAL SPECIFICATION GRADE, DUPLEX, 20A, 125V, NEMA 5-20R, RECTANGULAR DECORATOR STYLE, LISTED AND LABELED AS WEATHER RESISTANT TYPE COMPLYING WITH UL 498 SUPPLEMENT SE SUITABLE FOR INSTALLATION IN DAMP OR WET LOCATIONS. RECEPTACLE SHALL BE PROVIDED WITH A WHILE-IN-USE COVER.

E. WALL SWITCHES - GENERAL REQUIREMENTS: AC ONLY, QUIET OPERATING, GENERAL-USE SNAP SWITCHES WITH SILVER ALLOY CONTACTS, COMPLYING WITH NEMA WD 1 AND NEMA WD 6, AND LISTED AS COMPLYING WITH UL 20 AND WHERE APPLICABLE, FS W-S-896; TYPES AS INDICATED ON THE DRAWINGS. STANDARD WALL SWITCHES: INDUSTRIAL SPECIFICATION GRADE, 20 A, 120/277 V WITH STANDARD TOGGLE TYPE SWITCH ACTUATOR AND MAINTAINED CONTACTS; SINGLE POLE SINGLE THROW, DOUBLE POLE SINGLE THROW, THREE WAY, OR FOUR WAY AS INDICATED ON THE DRAWINGS.

1. WIRING PROVISIONS: TERMINAL SCREWS FOR SIDE WIRING AND SCREW ACTUATED BINDING CLAMP FOR...
2. WIRING WITH SEPARATE GROUND TERMINAL SCREW.

F. WALL PLATES: CONFIGURATION: ONE PIECE COVER AS REQUIRED FOR QUANTITY AND TYPES OF CORRESPONDING WIRING DEVICES. COMPLY WITH UL 514D. SIZE: STANDARD, SCREWS: METAL WITH SLOTTED HEADS, FINISHED TO MATCH COVER.

1. FINISH:
   a. NYLON WALL PLATES: SMOOTH FINISH, HIGH-IMPACT THERMOPLASTIC. TO BE USED IN ALL FINISHED SPACES, COLOR TO MATCH DEVICE.
   b. GALVANIZED STEEL WALL PLATES: ROUNDED CORNERS AND EDGES, WITH CORROSION RESISTANT SCREWS. TO BE USED IN ALL MECHANICAL ROOMS, ELECTRICAL ROOMS, ETC.
2. WEATHERPROOF COVERS FOR WET OR DAMP LOCATIONS.
   a. GASKETED, CAST ALUMINUM, WITH HINGED LOCKABLE COVER AND CORROSION-RESISTANT SCREWS; LISTED AS SUITABLE FOR USE IN WET LOCATIONS WHILE IN USE WITH ATTACHMENT PLUGS CONNECTED AND IDENTIFIED AS EXTRA-DUTY TYPE.

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SPECIFICATIONS

description

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RELAY-BASED LIGHTING CONTROLS

A. LIGHTING CONTROL PANELS USING MECHANICALLY HELD RELAYS FOR SWITCHING.

1. LIGHTING CONTROL PANEL:

a. A SINGLE ENCLOSURE WITH INCOMING LIGHTING BRANCH CIRCUITS, CONTROL CIRCUITS, SWITCHING RELAYS, AND ON-BOARD TIMING AND CONTROL UNIT.

b. A VERTICAL BARRIER SEPARATING BRANCH CIRCUITS FROM CONTROL WIRING.

2. CONTROL UNIT: CONTAIN THE POWER SUPPLY AND ELECTRONIC CONTROL FOR OPERATING AND MONITORING INDIVIDUAL RELAYS.

a. TIMING UNIT: 365-DAY CALENDAR, ASTRONOMICAL CLOCK, AND AUTOMATIC ADJUSTMENTS FOR DAYLIGHT SAVINGS AND LEAP YEAR. CLOCK CONFIGURABLE FOR 12-HOUR (A.M./P.M.) OR 24-HOUR FORMAT. FOUR INDEPENDENT SCHEDULES, EACH HAVING 24 TIME PERIODS. SCHEDULE PERIODS SETTABLE TO THE MINUTE. DAY-OF-WEEK, DAY-OF-MONTH, DAY-OF-YEAR WITH ONE-TIME OR REPEATING CAPABILITY. 10 SPECIAL DATE PERIODS.

b. SEQUENCING CONTROL WITH OVERRIDE: AUTOMATIC SEQUENCED ON AND OFF SWITCHING OF SELECTED RELAYS AT TIMES SET AT THE TIMING UNIT, ALLOWING TIMED OVERRIDES FROM EXTERNAL SWITCHES. SEQUENCING CONTROL SHALL OPERATE RELAYS ONE AT A TIME, COMPLETING THE OPERATION OF ALL CONNECTED RELAYS IN NOT MORE THAN 10 SECONDS. OVERRIDE CONTROL SHALL ALLOW ANY RELAY CONNECTED TO IT TO BE SWITCHED ON OR OFF BY A FIELD-DEPLOYED MANUAL SWITCH OR BY AN AUTOMATIC SWITCH, SUCH AS AN OCCUPANCY SENSOR. OVERRIDE CONTROL "BLINK WARNING" SHALL WARN OCCUPANTS APPROXIMATELY FIVE MINUTES BEFORE ACTUATING THE OFF SEQUENCE.

3. NONVOLATILE MEMORY SHALL RETAIN ALL SETUP CONFIGURATIONS. AFTER A POWER FAILURE, THE CONTROLLER SHALL AUTOMATICALLY REBOOT AND RETURN TO NORMAL SYSTEM OPERATION, INCLUDING ACCURATE TIME OF DAY AND DATE.

4. RELAYS: ELECTRICALLY OPERATED, MECHANICALLY HELD SINGLE-POLE SWITCH, RATED AT 20 A AT 120 V TUNGSTEN, 30 A AT 277 V BALLAST, 1.5 HP AT 120 V, AND 3 HP AT 277 V. SHORT-CIRCUIT CURRENT RATING SHALL BE NOT LESS THAN 14 KA. CONTROL SHALL BE THREE-WIRE, 24 V AC.

5. POWER SUPPLY: NFPA 70, CLASS 2, SIZED FOR CONNECTED EQUIPMENT, PLUS 20 PERCENT SPARE CAPACITY. POWERED FROM A DEDICATED BRANCH CIRCUIT OF THE PANELBOARD THAT SUPPLIES POWER TO THE LINE SIDE OF THE RELAYS, SIZED TO PROVIDE CONTROL POWER FOR THE LOCAL PANEL-MOUNTED RELAYS, BUS SYSTEM, LOW-VOLTAGE INPUTS, FIELD-INSTALLED OCCUPANCY SENSORS, AND PHOTO SENSORS.

6. OPERATOR INTERFACE:

a. INTEGRAL ALPHANUMERIC KEYPAD AND DIGITAL DISPLAY, AND INTUITIVE DROP-DOWN MENUS TO ASSIST IN PROGRAMMING.

b. LOG AND DISPLAY RELAY ON-TIME.

c. CONNECT RELAYS TO ONE OR MORE TIME SEQUENCING SCHEMES.

B. MANUAL SWITCHES AND PLATES

1. PUSH-BUTTON SWITCHES: MODULAR, MOMENTARY CONTACT, THREE WIRE, FOR OPERATING ONE OR MORE RELAYS AND TO OVERRIDE AUTOMATIC CONTROLS.

a. MATCH COLOR AND STYLE SPECIFIED IN "WIRING DEVICES."

b. INTEGRAL LED PILOT LIGHT TO INDICATE WHEN CIRCUIT IS ON.

c. INTERNAL WHITE LED LOCATOR LIGHT TO ILLUMINATE WHEN CIRCUIT IS OFF.

2. WALL PLATES: SINGLE AND MULTI-GANG PLATES AS SPECIFIED IN "WIRING DEVICES."

C. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING:

1. ACUITY BRANDS, INC., LIGHTING CONTROL & DESIGN, INC
2. GENERAL ELECTRIC COMPANY, GE CONSUMER & INDUSTRIAL - ELECTRICAL DISTRIBUTION
3. LIGHTOLIER CONTROLS, A PHILIPS GROUP BRAND
4. SIEMENS ENERGY & AUTOMATION, INC.
5. EATON CONTROLS
6. WATTSTOPPER, A LEGRAND GROUP BRAND

GROUNDING AND BONDING

A. ELECTRICAL INSTALLATION SHALL BE A COMPLETELY GROUNDED SYSTEM. ALL ELECTRICAL EQUIPMENT, SUPPORTS, CABINETS, ENCLOSURES, ETC. SHALL BE GROUNDED IN ACCORDANCE WITH THE NEC, AS SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS.

B. ALL ELECTRICAL EQUIPMENT SHALL BE GROUNDED USING A GREEN INSULATED, COPPER, EQUIPMENT GROUNDING CONDUCTOR. CONDUIT SHALL NOT BE USED AS AN EQUIPMENT GROUNDING CONDUCTOR. EQUIPMENT GROUNDING CONDUCTOR SHALL BE SIZED AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THE NEC AS A MINIMUM.

C. ELECTRICAL SERVICE SHALL BE GROUNDED AS SPECIFIED HEREIN, AS SHOWN ON THE DRAWINGS, AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY COMPANY AND NEC.

D. THE GROUNDED CONDUCTOR OF THE ELECTRICAL SYSTEM SHALL BE GROUNDED AT THE SERVICE DISCONNECT. PROVIDE GROUNDING ELECTRODE CONDUCTOR IN 3/4" CONDUIT FROM SERVICE DISCONNECT TO TEN FEET (10'-0") LONG, 5/8" DIAMETER, COPPERCLAD GROUND ROD. EXOTHERMIC WELD CONDUCTOR TO GROUND ROD. ADDITIONAL GROUND RODS SHALL BE PROVIDED AT 16 FOOT SPACINGS AS NEEDED TO COMPLY WITH THE MAXIMUM RESISTANCE ALLOWED (SEE TESTING). GROUNDING ELECTRODE CONDUCTOR SHALL BE SIZED AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THE NEC AS A MINIMUM.

PANELBOARDS

A. COMPLETE ASSEMBLY INCLUDING ENCLOSURE, CIRCUIT BREAKERS, NEUTRAL BUS AND EQUIPMENT GROUND BUS.

B. DEAD FRONT CONSTRUCTION AND ENCLOSED IN A STEEL CABINET AS SPECIFIED IN U.L. 50 AND NEC SECTION 384-18.

C. CIRCUIT BREAKERS SHALL BE THE BOLT-ON TYPE. WHEN USED AS SERVICE EQUIPMENT, PANELBOARD ASSEMBLY SHALL BE U.L. LISTED AND LABELED 'SUITABLE FOR SERVICE EQUIPMENT'.

D. NEUTRAL BUS SHALL HAVE PROVISIONS FOR THE MAIN NEUTRAL CONDUCTOR AND HAVE BRANCH LUGS OF SUFFICIENT SIZE AND QUANTITY FOR THE NUMBER OF CIRCUITS IN THE PANELBOARD. NEUTRAL BUS SHALL BE ISOLATED TYPE EXCEPT WHEN PANELBOARD IS USED AS SERVICE EQUIPMENT, NEUTRAL BUS SHALL BE BONDED TO THE ENCLOSURE AND TO THE GROUNDING ELECTRODE CONDUCTOR.

E. GROUND BUS SHALL HAVE PROVISIONS FOR THE MAIN GROUND CONDUCTOR AND HAVE BRANCH LUGS OF SUFFICIENT SIZE AND QUANTITY FOR THE NUMBER OF CIRCUITS IN THE PANELBOARD. GROUND BUS SHALL BE BONDED TO THE ENCLOSURE.

F. WHERE WIRE SIZE SHOWN ON DRAWINGS IS TOO LARGE FOR CIRCUIT BREAKER LUG, PROVIDE WATERTIGHT COMPRESSION TYPE CONNECTION WITHIN PANELBOARD AND PROVIDE PIGTAIL TO CIRCUIT BREAKER. PIGTAIL SHALL BE LARGEST WIRE SIZE ACCEPTED BY CIRCUIT BREAKER LUG.

G. ENCLOSURE SHALL BE PROPER NEMA TYPE AS REQUIRED BY LOCAL OR AS NOTED ON DRAWINGS AND SHALL BE UL LISTED.

H. PANELBOARD SHALL HAVE FULLY RATED COPPER BUS.

I. ACCEPTABLE MANUFACTURERS:

1. SQUARE D CLASS 1630 TYPE NQOD
2. GENERAL ELECTRIC 'APPROVED EQUAL'
3. EATON 'APPROVED EQUAL'
4. SIEMENS 'APPROVED EQUAL'

DISTRIBUTION PANELBOARDS

A. POWER DISTRIBUTION PANELBOARD - FURNISH AND INSTALL DISTRIBUTION PANELBOARD(S) AS SPECIFIED HEREIN AND WHERE SHOWN ON THE ELECTRICAL DRAWINGS.

B. INTERIOR

1. SHALL BE RATED 600 VAC OR 250 VDC MAXIMUM. CONTINUOUS MAIN CURRENT RATINGS AS INDICATED ON ELECTRICAL DRAWINGS. PANELBOARD BUS CURRENT RATINGS SHALL BE DETERMINED BY HEAT-RISE TESTS CONDUCTED IN ACCORDANCE WITH UL 67.
2. PROVIDE UL LISTED SHORT CIRCUIT CURRENT RATINGS (SCCR) AS INDICATED ON THE ELECTRICAL DRAWINGS. PROVIDE UL LISTED SHORT CIRCUIT CURRENT RATINGS (SCCR) AS INDICATED ON THE ELECTRICAL DRAWINGS NOT TO EXCEED THE LOWEST INTERRUPTING CAPACITY RATING OF ANY CIRCUIT BREAKER INSTALLED WITH A MAXIMUM OF 100,000 RMS SYMMETRICAL AMPERES.
3. THE PANELBOARD INTERIOR SHALL HAVE THREE FLAT BUS BARS STACKED AND ALIGNED VERTICALLY WITH GLASS REINFORCED POLYESTER INSULATORS LAMINATED BETWEEN PHASES. THE MOLDED POLYESTER INSULATORS SHALL SUPPORT AND PROVIDE PHASE ISOLATION TO THE ENTIRE LENGTH OF BUS.
4. THE BUSSING SHALL BE FULLY RATED WITH SEQUENTIALLY PHASED BRANCH DISTRIBUTION. PANELBOARD BUSSING RATED AS INDICATED ON THE DRAWINGS SHALL BE PLATED COPPER. BUS BAR PLATING SHALL RUN THE ENTIRE LENGTH OF THE BUS BAR. THE ENITRE INTERLEAVED ASSEMBLY SHALL BE CONTAINED BETWEEN TWO (2) U-SHAPED STEEL CHANNELS, PERMANENTLY SECURED TO GALVANIZED STEEL-MOUNTING PAN BY FASTENERS.
5. INTERIOR TRIM SHALL BE OF DEAD-FRONT CONSTRUCTION TO SHIELD USER FROM ALL ENERGIZED PARTS. INTERIORS SHALL BE FIELD CONVERTIBLE FOR TOP OR BOTTOM INCOMING FEED.
6. A SOLIDLY BONDED COPPER EQUIPMENT GROUND BAR SHALL BE PROVIDED.
7. SOLID NEUTRAL SHALL BE EQUIPPED WITH A FULL CAPACITY BONDING STRAP FOR SERVICE ENTRANCE APPLICATIONS. GUTTER-MOUNTED NEUTRAL WILL NOT BE ACCEPTABLE.

C. GROUP MOUNTED CIRCUIT BREAKERS THROUGH 1200A

1. CIRCUIT BREAKER(S) SHALL BE GROUP MOUNTED BOLT-ON WITH MECHANICAL RESTRAINT ON A COMMON PAN OR RAIL ASSEMBLY.
2. THE INTERIOR SHALL HAVE THREE FLAT BUS BARS STACKED AND ALIGNED VERTICALLY WITH GLASS REINFORCED POLYESTER INSULATORS LAMINATED BETWEEN PHASES. THE MOLDED POLYESTER INSULATORS SHALL SUPPORT AND PROVIDE PHASE ISOLATION TO THE ENTIRE LENGTH OF BUS.
3. CIRCUIT BREAKERS EQUIPPED WITH LINE TERMINAL JAWS SHALL NOT REQUIRE ADDITIONAL EXTERNAL MOUNTING HARDWARE. CIRCUIT BREAKERS SHALL BE HELD IN MOUNTED POSITION BY A SELF-CONTAINED BRACKET SECURED TO THE MOUNTING PAN BY FASTENERS, CIRCUIT BREAKERS OF DIFFERENT FRAME SIZES SHALL BE CAPABLE OF BEING MOUNTED ACROSS FROM EACH OTHER.
4. LINE-SIDE CIRCUIT BREAKER CONNECTIONS ARE TO BE JAW TYPE.
5. ALL UNUSED SPACES PROVIDED, UNLESS OTHERWISE SPECIFIED, SHALL BE FULLY EQUIPPED FOR FUTURE DEVICES, INCLUDING ALL APPROPRIATE CONNECTORS AND MOUNTING HARDWARE.

D. MOLDED CASE CIRCUIT BREAKER CHARACTERISTICS - GENERAL

1. CIRCUIT BREAKERS SHALL BE CONSTRUCTED USING GLASS REINFORCED INSULATING MATERIAL. CURRENT CARRYING COMPONENTS SHALL BE COMPLETELY ISOLATED FROM THE HANDLE AND THE ACCESSORY MOUNTING AREA.
2. CIRCUIT BREAKERS SHALL HAVE AN OVER CENTER, TRIP FREE, TOGGLE OPERATING MECHANISM WHICH WILL PROVIDE QUICK-MAKE, QUICK-BREAK CONTACT ACTION. THE CIRCUIT BREAKER SHALL HAVE COMMON TRIPPING OF ALL POLES.
3. THE CIRCUIT BREAKER HANDLE SHALL RESIDE IN A TRIPPED POSITION BETWEEN ON AND OFF TO PROVIDE LOCAL TRIP INDICATION. CIRCUIT BREAKER ESCUTCHEON SHALL BE CLEARLY MARKED ON AND OFF IN ADDITION TO PROVIDING INTERNATIONAL I/O MARKINGS.
4. THE MAXIMUM AMPERE RATING AND UL CERTIFICATION STANDARD WITH APPLICABLE VOLTAGE SYSTEMS AND CORRESPONDING INTERRUPTING RATINGS SHALL BE CLEARLY MARKED ON FACE OF CIRCUIT BREAKER.
5. EACH CIRCUIT BREAKER SHALL BE EQUIPPED WITH A PUSH-TO-TRIP BUTTON, LOCATED ON THE FACE OF THE CIRCUIT BREAKER TO MECHANICALLY OPERATE THE CIRCUIT BREAKER TRIPPING MECHANISM FOR MAINTENANCE AND TESTING PURPOSES.
6. CIRCUIT BREAKERS SHALL BE FACTORY SEALED WITH A HOLOGRAM QUALITY MARK AND SHALL HAVE DATE CODE ON FACE OF CIRCUIT BREAKER.
7. CIRCUIT BREAKER HANDLE ACCESSORIES SHALL PROVIDE PROVISIONS FOR LOCKING HANDLE IN THE ON AND OFF POSITION.
8. ALL CIRCUIT BREAKERS WITH PERMANENT TRIP UNITS SHALL BE UL LISTED FOR REVERSE CONNECTION WITHOUT RESTRICTIVE LINE AND LOAD MARKINGS AND BE SUITABLE FOR MOUNTING IN ANY POSITION.
9. CIRCUIT BREAKERS SHALL BE I-LINE - UP TO 1200 AMP MAXIMUM CONSTRUCTION WITH FACTORY INSTALLED MECHANICAL LUGS. ALL CIRCUIT BREAKERS SHALL BE UL LISTED TO ACCEPT FIELD INSTALLABLE/REMOVABLE LUGS. ALL LUGS SHALL BE UL LISTED TO ACCEPT SOLID (NOT LARGER THAN #8 AWG) AND/OR STRANDED COPPER CONDUCTORS ONLY. LUGS SHALL BE SUITABLE FOR 75°C RATED WIRE.

E. THERMAL-MAGNETIC CIRCUIT BREAKERS

1. CIRCUIT BREAKERS SHALL HAVE A PERMANENT TRIP UNIT CONTAINING INDIVIDUAL THERMAL AND MAGNETIC TRIP ELEMENTS IN EACH POLE.
2. THERMAL TRIP ELEMENTS SHALL BE FACTORY PRESET AND SEALED, CIRCUIT BREAKERS SHALL BE TRUE RMS SENSING AND THERMALLY RESPONSIVE TO PROTECT CIRCUIT CONDUCTOR(S) IN A 40°C AMBIENT TEMPERATURE.
3. CIRCUIT BREAKER FRAME SIZES ABOVE 150 AMPERES SHALL HAVE A SINGLE MAGNETIC TRIP ADJUSTMENT LOCATED ON THE FRONT OF THE CIRCUIT.

F. ENCLOSURES

1. TYPE 1 BOXES

a. BOXES SHALL BE HOT ZINC DIPPED GALVANIZED STEEL CONSTRUCTED IN ACCORDANCE WITH UL 50 REQUIREMENTS. UNPAINTED GALVANIZED STEEL IS NOT ACCEPTABLE.

b. BOXES SHALL HAVE REMOVABLE BLANK END WALLS AND INTERIOR MOUNTING STUDS. INTERIOR SUPPORT BRACKET SHALL BE PROVIDED FOR EASE OF INTERIOR INSTALLATION.

G. TYPE 1 TRIM FRONTS

1. TRIM FRONT SHALL MEET STRENGTH AND RIGIDITY REQUIREMENTS PER UL 50 STANDARDS. SHALL HAVE AN ANSI 49 MEDIUM GRAY ENAMEL ELECTRODEPOSITED OVER CLEANED PHOSPHATIZED STEEL.
2. TRIM FRONT SHALL BE 4-PIECE SURFACE, HINGED 1-PIECE WITH DOORS SURFACE MOUNTED. TRIM FRONT DOOR SHALL HAVE ROUNDED CORNERS AND EDGES FREE OF BURRS. A CLEAR PLASTIC DIRECTORY CARDHOLDER SHALL BE MOUNTED ON THE INSIDE OF THE DOOR.
3. LOCKS SHALL BE CYLINDRICAL TUMBLER TYPE WITH LARGER ENCLOSURES REQUIRING SLIDING VAULT LOCKS WITH 3-POINT LATCHING. ALL LOCK ASSEMBLIES SHALL BE KEYED ALIKE. ONE (1) KEY SHALL BE PROVIDED WITH EACH LOCK.

H. ACCEPTABLE MANUFACTURERS

1. SQUARE D "I-LINE"
2. GENERAL ELECTRIC "ENTELLEON"
3. EATON "POW-R-LINE P4B"
4. SIEMENS "P5"

CT CABINETS

A. SHALL BE SIZED AS SHOWN ON DRAWING.

B. MUST BE PROVIDED FROM ONE OF THE APPROVED UTILITY SOURCES.

FUSES

A. SHALL BE U.L. LISTED FOR ITS SPECIFIC APPLICATION.

B. ACCEPTABLE MANUFACTURERS:

1. BUSSMANN
2. LITTELFUSE

SAFETY SWITCHES

A. SWITCHES SHALL BE PROPER NEMA ENCLOSURE AS REQUIRED BY LOCATION OR NOTED ON THE DRAWINGS.

B. SWITCHES SHALL BE HORSEPOWER RATED, HEAVY DUTY, QUICK-MAKE AND QUICK-BREAK TYPE.

C. ACCEPTABLE MANUFACTURERS:

1. SQUARE D CLASS 3110 'HEAVY DUTY'
2. GENERAL ELECTRIC 'APPROVED EQUAL'
3. EATON 'APPROVED EQUAL'
4. SIEMENS 'APPROVED EQUAL'

LIGHTING

A. LUMINAIRES SHALL BE:

1. FURNISHED WITH PROPER OUTLET BOXES, HANGERS, HARDWARE, SUPPORTS, CANOPY EXTENSIONS, PLUGS.
2. FURNISHED WITH 6'-0" OF FLEXIBLE CONDUIT PREWIRED (DROP IN ONLY). BE U.L. LISTED IN ACCORDANCE WITH THE NEC.

B. SEE LUMINAIRE SCHEDULE ON DRAWINGS FOR DESCRIPTION.

FIRE ALARM

A. THE ENTIRE FIRE ALARM INSTALLATION SHALL BE A CLASS B SYSTEM, AND ALL EQUIPMENT SHALL BE U.L. LISTED AND SHALL CONFORM TO NFPA 72, 90A, AND 101 AS WELL AS APPLICABLE BUILDING CODES.

B. ALL WIRING SHALL BE VERIFIED WITH FIRE ALARM EQUIPMENT SUPPLIER AS TO QUANTITY, SIZE, ROUTING, CONDUIT, JUNCTION BOX REQUIREMENTS, ETC.

C. THE CONTRACTOR SHALL BE RESPONSIBLE TO SUBMIT TO THE LOCAL FIRE SAFETY DEPARTMENT AND FIRE MARSHALL A COMPLETE SET OF INSTALLATION SHOP DRAWINGS TO SECURE APPROVAL AND TO ARRANGE PERTINENT FIELD OBSERVATIONS DURING CONSTRUCTION AS REQUIRED.

D. THE ANNUNCIATOR SHALL BE CAPABLE OF INDICATING SAME DISPLAY FORMAT THAT THE MAIN FIRE ALARM CONTROL PANEL IS CAPABLE OF ACTIVATING.

E. FIRE ALARM SYSTEM. EQUIPMENT SHALL BE MANUFACTURED BY NOTIFIER OR FUNCTIONAL EQUIVALENT.

EDIT THE LIST BELOW FOR YOUR JOB SPECIFICS THEN DELETE THIS LINE

1. HONEYWELL SECURITY & FIRE SOLUTIONS/GAMEWELL-FCI
2. HONEYWELL SECURITY & FIRE SOLUTIONS/FIRE-LITE
3. HONEYWELL SECURITY & FIRE SOLUTIONS/NOTIFIER
4. HONEYWELL SECURITY & FIRE SOLUTIONS/SILENT KNIGHT
5. HONEYWELL SECURITY & FIRE SOLUTIONS/VISTA
6. JOHNSON CONTROLS/SIMPLEX-GRINNEL
7. UNITED TECHNOLOGIES/EDWARDS
8. SIEMENS BUILDING TECHNOLOGIES, INC

F. SOURCE LIMITAITON FOR FIRE ALARM SYSTEMS AND COMPONENTS:

COMPONENTS SHALL BE COMPATIBLE WITH THE AND OPERATE AS AN COMPLETE SYSTEM WITH THE FIRE ALARM CONTROL PANEL.

G. COMPONENTS OF THE COMPLETE SYSTEM SHALL INCLUDE BUT NOT BE LIMITED TO:

1. FIRE ALARM CONTROL PANEL
2. REMOTE POWER SUPPLIES (AS REQUIRED)
3. MANUAL PULL STATIONS
4. HEAT DETECTORS
5. SMOKE DETECTORS
6. DUCT DETECTORS
7. MONITOR MODULES
8. CONTROL MODULE
9. RELAY MODULE
10. DIGITAL COMMUNICATION TRANSMITTER
11. CELLULAR TRANSMITTER
12. AUDIBLE VISUAL ALARM DEVICES (AKA: HORN STROBES)
13. VISUAL ALARM DEVICES (AKA: STROBES)
14. DOOR HOLD OPEN DEVICES
15. REMOTE ANNUNCIATORS
16. FIRE ALARM DOCUMENT STORAGE CABINET (MOUNTED ADJACENT TO FIRE ALARM CONTROL CABINET)

H. FIRE ALARM LAYOUT AND DESIGN SHALL BE COMPLETED BY A NICET LEVEL 4 TECHNICIAN, INSTALLATION SHALL BE BY COMPELTED BY A NICET LEVEL 3 TECHNICIAN.

FIELD QUALITY CONTROL

A. SEE SECTION 01 4000 - QUALITY REQUIREMENTS FOR ADDITIONAL REQUIREMENTS.

B. INSPECT EACH PRODUCT FOR DAMAGE AND DEFECTS.

C. OPERATE EACH LUMINAIRE AFTER INSTALLATION AND CONNECTION TO VERIFY PROPER OPERATION.

D. TEST SELF-POWERED EXIT SIGNS, EMERGENCY LIGHTING UNITS, AND REMOTE EMERGENCY POWER SUPPLY UNITS TO VERIFY PROPER OPERATION UPON LOSS OF NORMAL POWER SUPPLY.

E. CORRECT WIRING DEFICIENCIES AND REPAIR OR REPLACE DAMAGED OR DEFECTIVE PRODUCTS. REPAIR OR REPLACE EXCESSIVELY NOISY BALLASTS AS DETERMINED BY ARCHITECT.

F. PROVIDE "BLACK-OUT" TEST OF EMERGENCY LUMINAIRES UPON PROJECT COMPLETION IN THE PRESENCE OF THE AUTHORITY HAVING JURISDICTION.

TESTING

A. PERFORM COMPLETE OPERATIONAL TEST OF ELECTRICAL INSTALLATION BEFORE ACCEPTANCE BY OWNER. TEST SHALL BE PERFORMED IN PRESENCE OF OWNER'S REPRESENTATIVE.

B. 600 VOLT CABLE SHALL BE TESTED FOR PROPER PHASING AND CONTINUITY. CABLE SHALL BE GIVEN A MEGGER TEST USING A 1000 VOLT MOTOR DRIVEN MEGGER. MINIMUM ACCEPTABLE MEGGER READINGS SHALL BE 50 MEGAOHMS.

C. MOTORS SHALL BE INSPECTED FOR DAMAGE, MOISTURE, ALIGNMENT, LUBRICATION, OIL LEAKS, AND PHASE IDENTIFICATION. MOTORS SHALL BE GIVEN OPERATING LOAD TESTS AND THE INDIVIDUAL PHASE CURRENT READINGS SHALL BE RECORDED. MOTORS SHALL BE RUN LONG ENOUGH TO PROVE SATISFACTORY PERFORMANCE.

D. THE RESISTANCE BETWEEN GROUND AND ABSOLUTE EARTH SHALL BE LESS THAN TEN (10) OHMS. MEASUREMENT SHALL BE FALL OF POTENTIAL TEST METHOD BEFORE CONNECTION OF GROUNDING CONDUCTORS TO MAIN DISCONNECTS. ADDITIONAL GROUND RODS SHALL BE DRIVEN AS NEEDED TO ACHIEVE READING.

E. CONTRACTOR SHALL MAKE COMPLETE AND ACCURATE RECORDS OF ALL TESTS. TEST RESULTS SHALL BE SUBMITTED TO OWNER'S REPRESENTATIVE UPON REQUEST.

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issue / revision — date:
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Design Development 09/09/2022

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job #: 0220173.00

drawn: GP

chkd: BAI

description
SPECIFICATIONS

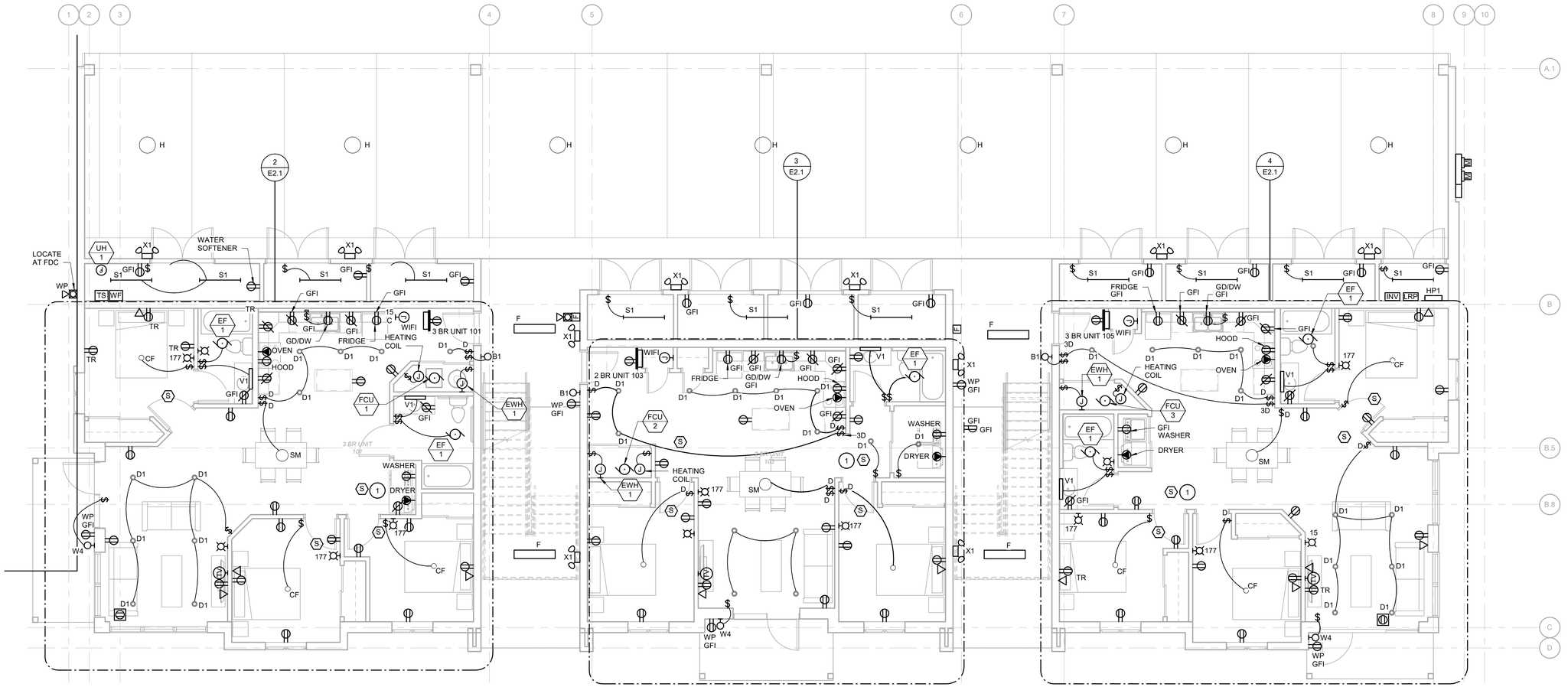
number
E0.4

GENERAL NOTES

A. NOT USED

KEYNOTES (#)

1 COMBINATION SMOKE/CARBON MONOXIDE DETECTOR.



FIRST FLOOR ELECTRICAL PLAN

SCALE: 3/16" = 1'-0"

0 4 8 16

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description: FIRST FLOOR ELECTRICAL PLAN

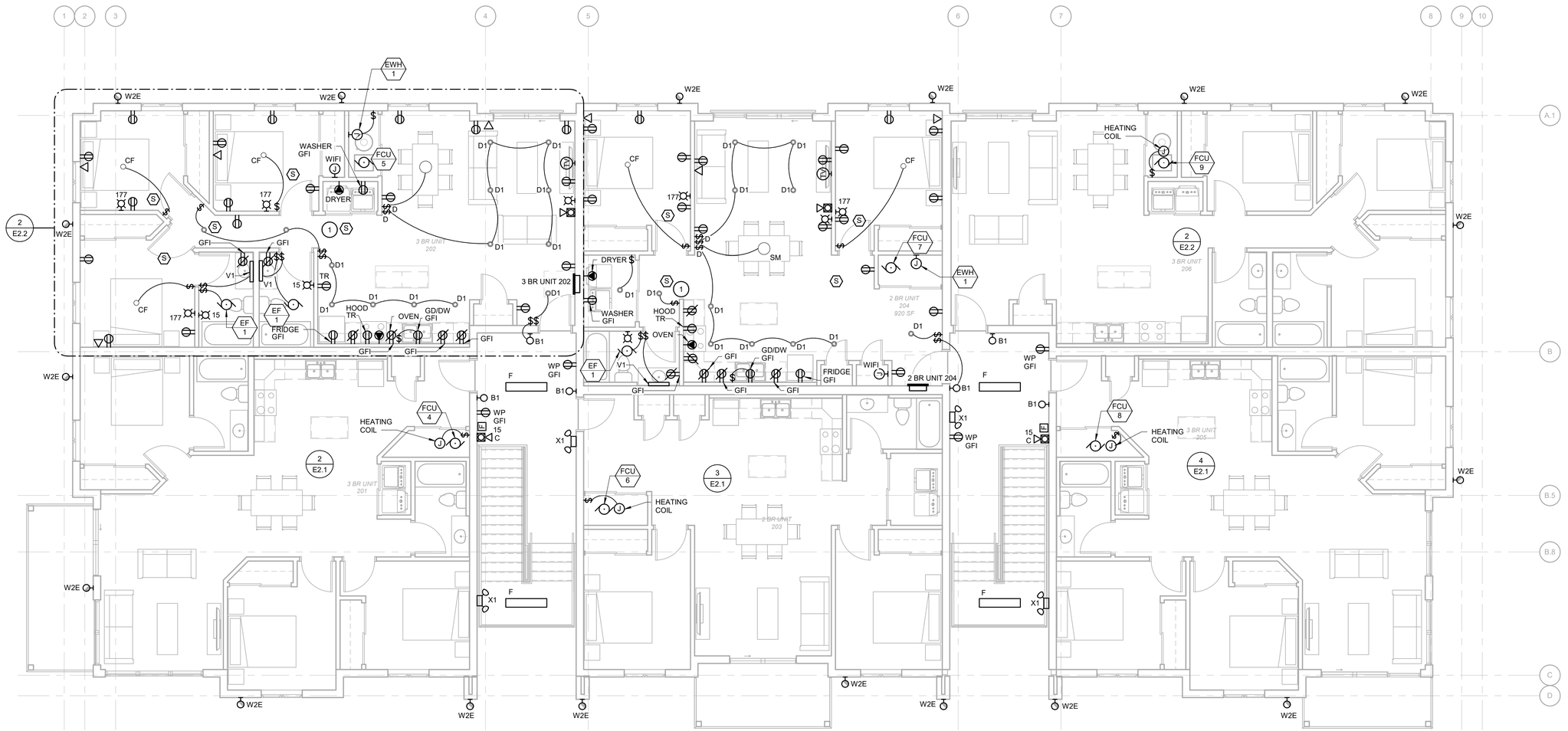
number: E2.1

GENERAL NOTES

A. NOT USED

KEYNOTES (#)

1 COMBINATION SMOKE/CARBON MONOXIDE DETECTOR.



1 SECOND FLOOR POWER PLAN

SCALE: 3/16" = 1'-0"

0 4 8 16

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chkd BAI

description

SECOND FLOOR ELECTRICAL PLAN

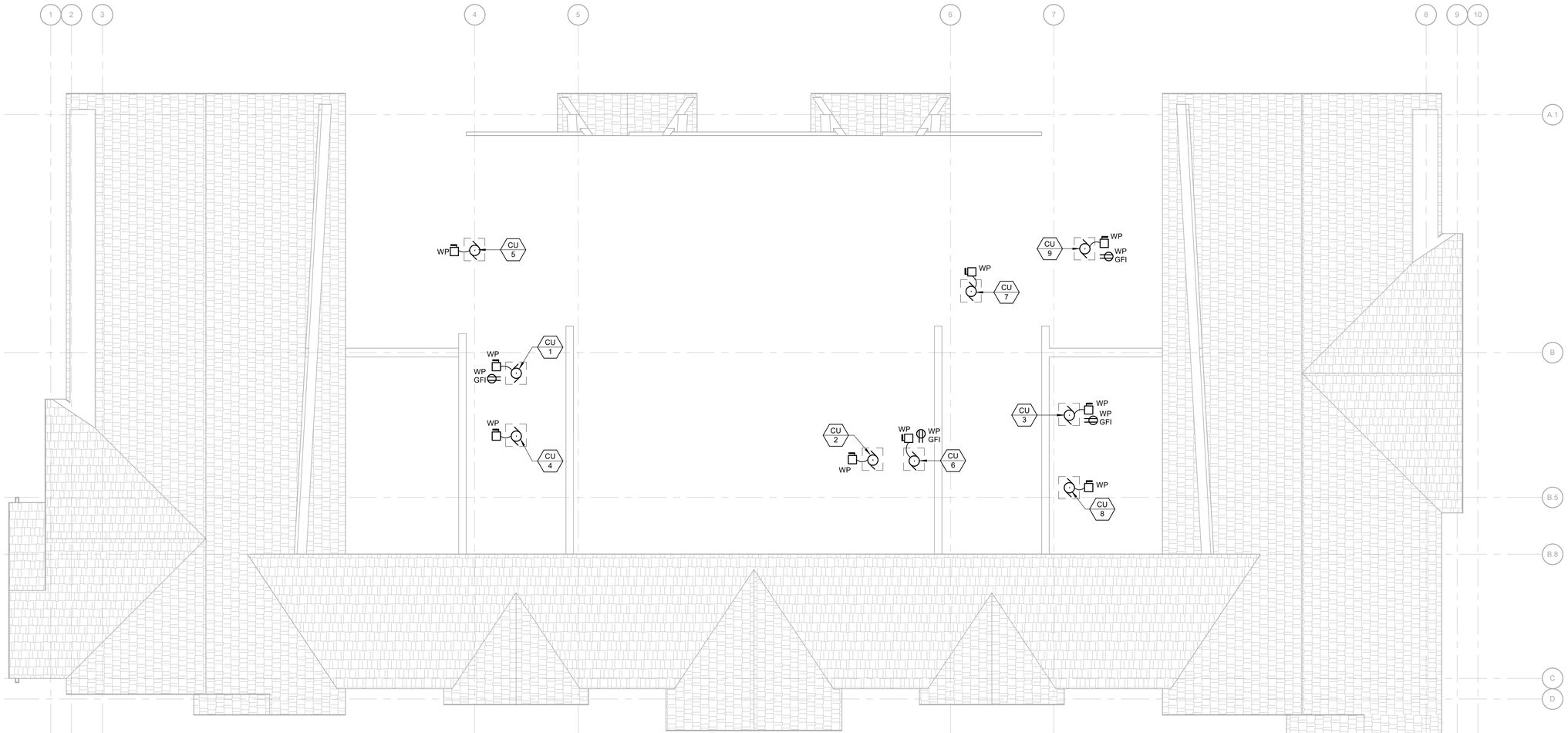
number

E2.2

GENERAL NOTES

A. NOT USED

KEYNOTES (#)



1 ELECTRICAL ROOF PLAN
SCALE: 3/16" = 1'-0"

0 4 8 16

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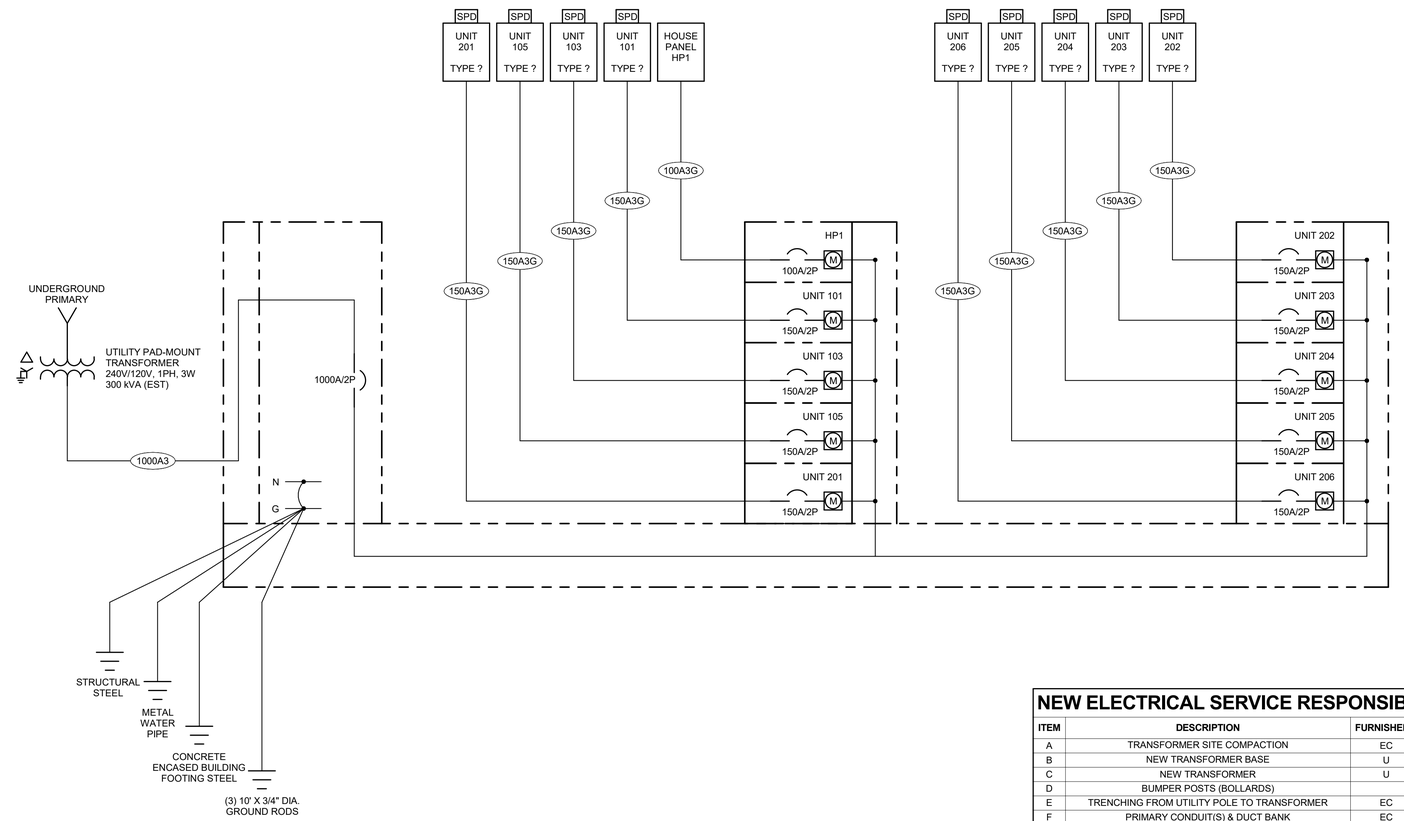
ELECTRICAL ROOF PLAN

number

E2.4



ONE-LINE DIAGRAM

SCALE: NOT TO SCALE

WITH REGARDS TO SPECIFICATION FOR POWER SYSTEMS STUDIES (260573), THE FOLLOWING TIMELINE OF SHOP DRAWINGS MUST BE STRICTLY ADHERED TO:

A. BEFORE ANY ELECTRICAL DISTRIBUTION EQUIPMENT IS SUBMITTED FOR REVIEW, THE POWER SYSTEMS STUDY MUST BE SUBMITTED, REVIEWED, AND FULLY APPROVED.

B. ELECTRICAL DISTRIBUTION EQUIPMENT IS DEFINED AS ANY EQUIPMENT THAT HAS AN AIC RATING THAT MAY BE AFFECTED BY THE POWER SYSTEMS STUDY, EQUIPMENT WITH DEVICES THAT HAVE ADJUSTABLE SETTINGS OR MAY NEED TO HAVE ADJUSTABILITY ADDED AS PART OF THE POWER SYSTEMS STUDY, AND EQUIPMENT THAT WILL HAVE AN ARC FLASH LABEL APPLIED.

C. THE VENDOR(S) PROVIDING THE ELECTRICAL DISTRIBUTION EQUIPMENT WILL COORDINATE WITH THE PERSON COMPLETING THE POWER SYSTEMS STUDY SO THAT ELECTRICAL DISTRIBUTION EQUIPMENT IS IN STRICT ADHERENCE TO THE REQUIREMENTS OF THE POWER SYSTEMS STUDY.

FEEDER SCHEDULE

MARK	CONDUIT & CONDUCTORS (SEE NOTE 1)	REMARKS
100A3G	3#1, 1#8G, 1-1/2"C	
150A3G	3#1/0, 1#6G, 1-1/2"C	
1000A3	3 SETS (3#400, 3"C)	

REMARKS:

1. THIS FEEDER SCHEDULE IS BASED ON 60 DEGREE CENTIGRADE (TYPE TW) WIRE AND TERMINATIONS FOR SIZES #12 TO #1, AND 75 DEGREE CENTIGRADE (TYPE THHN/THWN) WIRE AND TERMINATIONS FOR SIZES #1/0 AND LARGER. UNLESS NOTED OTHERWISE, CONDUIT IS SIZED BASED ON TYPE EMT CONDUIT. USE OF OTHER CONDUIT TYPES REQUIRES RESIZING OF CONDUIT.
2. FEEDERS MARKED WITH A "BJ" HAVE AN EQUIPMENT BONDING JUMPER. PROVIDE PROPERLY SIZED TERMINATIONS.
3. DUE TO HARMONIC CURRENTS CARRIED BY THE NEUTRAL, THE NEUTRAL OF THE INDICATED FEEDER CONSISTS OF TWO CONDUCTORS IN EACH RACEWAY TERMINATED TO THE SAME LUG, AND IS 200% OF THE AMPACITY OF THE INDIVIDUAL PHASE CONDUCTORS. THE FEEDER SIZES ARE BASED ON 75 DEGREE CENTIGRADE TEMPERATURE RATINGS (TYPE THHN CONDUCTORS, AND TERMINATIONS).
4. FEEDERS MARKED WITH AN "IG" HAVE AN EQUIPMENT GROUNDING CONDUCTOR AND AN ISOLATED EQUIPMENT GROUNDING CONDUCTOR. PROVIDE PROPERLY SIZED TERMINATIONS.
5. FEEDERS MARKED WITH AN "A5" HAVE A FULL SIZE GROUND CONDUCTOR. PROVIDE PROPERLY SIZED TERMINATIONS.
6. FEEDERS MARKED WITH A "GM" ARE FOR SINGLE MOTOR BRANCH CIRCUITS. FEEDERS SERVING MOTOR CIRCUITS EQUIPPED WITH ADJUSTABLE SPEED DRIVES SHALL BE PROVIDED WITH STRANDED CONDUCTORS.
7. FEEDERS MARKED WITH A "P" ARE SIZED BASED ON THE SCHEDULE 40 PVC CONDUIT. USE OF OTHER CONDUIT TYPES REQUIRES RESIZING OF CONDUIT.
8. FEEDERS MARKED WITH A "GH" ARE SIZED BASED ON THE NEUTRAL BEING COUNTED AS A CURRENT CARRYING CONDUCTOR.
9. FEEDERS MARKED WITH AN "AL" ARE ALUMINUM CONDUCTORS.
10. FEEDERS MARKED WITH A "V" ARE SIZED LARGER TO PREVENT EXCESSIVE VOLTAGE DROP, IF THE INSTALLED CONDUIT TYPE AND CONDUCTOR TYPE ARE DIFFERENT THAN THE INDICATED TYPES, RE-EVALUATE CONDUCTOR AND CONDUIT SIZE FOR VOLTAGE DROP AND RESIZE IF REQUIRED. EVALUATE VOLTAGE DROP AT THE FARTHEST OUTLET OF POWER, HEATING AND LIGHTING LOADS, OR COMBINATIONS OF SUCH LOADS; SIZE CONDUCTORS FOR FEEDERS TO PREVENT A VOLTAGE DROP EXCEEDING 2 PERCENT; SIZE CONDUCTORS FOR BRANCH CIRCUITS TO PREVENT A VOLTAGE DROP EXCEEDING 3 PERCENT. THE MAXIMUM TOTAL VOLTAGE DROP ON BOTH FEEDERS AND BRANCH CIRCUITS TO THE FARTHEST OUTLET SHALL NOT EXCEED 5 PERCENT.

NEW ELECTRICAL SERVICE RESPONSIBILITY SCHEDULE

ITEM	DESCRIPTION	FURNISHED...	INSTALLED BY	REMARKS
A	TRANSFORMER SITE COMPACTION	EC	EC	-
B	NEW TRANSFORMER BASE	U	U	-
C	NEW TRANSFORMER	U	U	-
D	BUMPER POSTS (BOLLARDS)			-
E	TRENCHING FROM UTILITY POLE TO TRANSFORMER	EC	EC	-
F	PRIMARY CONDUIT(S) & DUCT BANK	EC	EC	-
G	MANHOLES	EC	EC	-
H	PRIMARY CONDUCTORS	U	U	-
I	SECONDARY CONDUIT(S) TO MAIN SWITCHBOARD	EC	EC	-
J	SECONDARY CONDUCTORS TO MAIN SWITCHBOARD	EC	EC	-
K	C.T.'S	U	U	-
L	C.T. CABINETS	EC	EC	-
M	METERS	U	U	-
N	METER SOCKETS	EC	EC	-
O	CONDUIT FROM TRANSFORMER TO METER	EC	EC	-
P	WIRING TERMINATIONS AT METERING EQUIPMENT	EC	EC	-
Q	EUSERC CABINET	N/A	N/A	-
R	MAIN SWITCHBOARD	EC	EC	-

REMARKS:

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ONE-LINE DIAGRAM

description

E4.1

number

LUMINAIRE SCHEDULE

TYPE	MANUFACTURER	CATALOG NUMBER	LAMP DESCRIPTION	VOLTAGE	LOAD (VA)	FINISH	MOUNTING	DESCRIPTION
B1	KITCHLER	10795NILED	910 LUMEN LED 3000K 90CRI	120 V	18	WHITE /BRUSHED NICKLE	SURFACE/WALL	ADA LED WALL SCONCE WITH WHITE FROSTED SHADE
CF	MONTE CARLO FANS	VISION 52 SERIES (3VNR52OZD-V1)	20W INTEGRATED LED	120 V	44	OIL RUBBED BRONZE	PENDANT/ CEILING	52" 3-BLADE CEILING FAN WITH LED LIGHT KIT
D1	HALO	SLDSL6 SERIES	600 LUMEN LED 3000K 90CRI	120 V	18	WHITE	SEMI-RECESS	LED SURFACE MOUNTED FLUSH DOWN LIGHT WITH WHITE METAL TRIM RING, WHITE FROSTED LENS, ADJUSTABLE COLOR TEMPERATURE, DAMP AND WET LOCATION LISTED
F	LUMINAIRE LED	THE STAIR LIGHTER SERIES	LED	120 V	50	GRAY	SURFACE	4' WRAP AROUND VANDAL RESISTANT STAIRWELL LUMINAIRE
H	FAILSAFE	HVSL8 SERIES	1441 LED LED 3000K 90CRI	120 V	11.5	WHITE	SURFACE	2' LED VANDEL RESISTANT LED LUMINAIRE WITH WHITE FINISH, POLYCARBONATE LENS
S1	METALUX	SLSTP SERIES	2700 LUMEN LED 3000K 80CRI	120 V	23	WHITE	SURFACE	4' LED STRIP LIGHTING WITH CURVED FROSTED WHITE LENS, WHITE FINISH
SM	HALO	SMD14 SERIES	2000 LUMEN LED 3000K 90CRI	277 V	26	WHITE	SURFACE	14" ROUND SURFACE MOUNT LED PANEL WITH TUSCAN BRONZE ALUMINUM FRAME, FROSTED WHITE ACRYLIC LENS
V1	KICHLER	625-NI SERIES	(5) 60W MAX E26	120 V	300	BRUSHED NICKEL	SURFACE/WALL	5-LAMP INCANDESCENT VANITY LUMINAIRE WITH BRUSHED NICKEL BACK PLATE
W2E	MCGRAW EDISON	ISW-SA1 SERIES	4578 LUMEN 4000K 70CRI	120 V	34	BLACK	SURFACE/WALL	TRAPAZOIDAL LED WALL PACK WITH CAST ALUMINUM HOUSING, IMPACT RESISTANT LENS, TYPE III DISTRIBUTION, 90-MINUTE EMERGENCY BATTERY BACK-U, TAMPER RESISTANTP
W4	KITCHLER	RYO SERIES	50 LUMEN LED 3000K 90CRI	120 V		BLACK	SURFACE/WALL	WET LOCATION LISTED 16" LED WALL SCONCE WITH RIBBED GLASS AND BLACK FINISH
X1	SURELITES	SELW SERIES	LED (INCLUDED)	120 V	3	WHITE	SURFACE	LED EMERGENCY LIGHTING UNIT WITH THERMOPLASTIC HOUSING, DUAL LED ADJUSTABLE HEADS, 90-MINUTE EMERGENCY BATTERY BACK-UP

NOTES:

A. FOR CONTINUOUS FIXTURES, COORDINATE WITH SUPPLIER ON LENGTH AND REQUIRED FITTINGS, AND INSTALL WITH UNIFORM ILLUMINATION ALONG FIXTURE INCLUDING CORNERS.

B. REMOVE ALL FINGER PRINTS FROM LENSES, REFLECTORS, AND LOUVERS FOLLOWING LIGHT FIXTURE INSTALLATION.

C. FOR APPROVAL OF FIXTURES FROM MANUFACTURERS OTHER THAN THOSE LISTED, PROPOSED FIXTURES SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER TEN BUSINESS DAYS PRIOR TO BID FOR REVIEW. FINAL DETERMINATION OF 'EQUAL' STATUS FOR BIDDING SHALL BE THE SOLE DETERMINATION OF THE ARCHITECT/ENGINEER.

EQUIPMENT DATA SCHEDULE

	DESCRIPTION				LOAD DATA			DISCONNECT AT EQUIP.					
MARK	EQUIPMENT	FURNISHED BY	INSTALLED BY	LOCATION	LOAD	VOLTAGE	PHASE	DISC. TYPE	DISC. SIZE	FURNISHED BY	INSTALLED BY	WIRE & CONDUIT	REMARKS
CU 1	FAN COIL	MC	MC	ON ROOF	800W	240	1	NF	30 A	EC	EC	2#10, 1#10G	
CU 2	FAN COIL	MC	MC	ON ROOF	800W	240	1	NF	30 A	EC	EC	2#10, 1#10G	
CU 3	FAN COIL	MC	MC	ON ROOF	800W	240	1	NF	30 A	EC	EC	2#10, 1#10G	
CU 4	FAN COIL	MC	MC	ON ROOF	800W	240	1	NF	30 A	EC	EC	2#10, 1#10G	
CU 5	FAN COIL	MC	MC	ON ROOF	800W	240	1	NF	30 A	EC	EC	2#10, 1#10G	
CU 6	FAN COIL	MC	MC	ON ROOF	800W	240	1	NF	30 A	EC	EC	2#10, 1#10G	
CU 7	FAN COIL	MC	MC	ON ROOF	800W	240	1	NF	30 A	EC	EC	2#10, 1#10G	
CU 8	FAN COIL	MC	MC	ON ROOF	800W	240	1	NF	30 A	EC	EC	2#10, 1#10G	
CU 9	FAN COIL	MC	MC	ON ROOF	800W	240	1	NF	30 A	EC	EC	2#10, 1#10G	
EF 1	EXHAUST FAN	MC	MC	RESTROOMS	30W	120	1			MC	MC	2#14, 1#14G	SINGLE POINT CONNECTION WITH CORD AND PLUG MOTOR
EWH 1	ELECTRIC WATER HEATER	MC	MC	LOCATION OF EQUIPMENT	4100	240	1	SW	30 A	EC	EC	2#10, 1#10G	
FCU 1	FAN COIL	MC	MC	101 MECH RM.	800W	240	1			MC	MC	2#10, 1#10G	INDOOR UNIT FED FROM ASSOCIATED OUTDOOR UNIT
FCU 2	FAN COIL	MC	MC	103 MECH RM.	600W	240	1			MC	MC	2#10, 1#10G	INDOOR UNIT FED FROM ASSOCIATED OUTDOOR UNIT
FCU 3	FAN COIL	MC	MC	105 MECH RM.	800W	240	1			MC	MC	2#10, 1#10G	INDOOR UNIT FED FROM ASSOCIATED OUTDOOR UNIT
FCU 4	FAN COIL	MC	MC	204 MECH RM.	800W	240	1			MC	MC	2#10, 1#10G	INDOOR UNIT FED FROM ASSOCIATED OUTDOOR UNIT
FCU 5	FAN COIL	MC	MC	201 MECH RM.	800W	240	1			MC	MC	2#10, 1#10G	INDOOR UNIT FED FROM ASSOCIATED OUTDOOR UNIT
FCU 6	FAN COIL	MC	MC	205 MECH RM.	600W	240	1			MC	MC	2#10, 1#10G	INDOOR UNIT FED FROM ASSOCIATED OUTDOOR UNIT
FCU 7	FAN COIL	MC	MC	202 MECH RM.	800W	240	1			MC	MC	2#10, 1#10G	INDOOR UNIT FED FROM ASSOCIATED OUTDOOR UNIT
FCU 8	FAN COIL	MC	MC	206 MECH RM.	800W	240	1			MC	MC	2#10, 1#10G	INDOOR UNIT FED FROM ASSOCIATED OUTDOOR UNIT
FCU 9	FAN COIL	MC	MC	203 MECH RM.	800W	240	1			MC	MC	2#10, 1#10G	INDOOR UNIT FED FROM ASSOCIATED OUTDOOR UNIT
UH 1	UNIT HEATER	MC	MC	WATER ENTRY	5000W	208	1			MC	MC	2#10, 1#10G	INDOOR UNIT FED FROM ASSOCIATED OUTDOOR UNIT

EQUIPMENT DATA NOTES:

GENERAL NOTES:

A.

REMARKS:

1. INSTALL DISCONNECT SWITCH ON THE SIDE OF THE EQUIPMENT HOUSING.
2. PROVIDE DISCONNECT LOCKABLE IN ACCORDANCE WITH NEC 110.25.

NOTE: SEE MECHANICAL AND PLUMBING PLANS FOR ADDITIONAL INFORMATION AND A FULL LIST OF MECHANICAL AND PLUMBING EQUIPMENT

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project
WILLOUGHBY CORNER - FLATS
N. 120th St. and E. Emma St.
Lafayette, Colorado 80026

seal

issue / revision date:
Schematic Design 06/10/2022
Design Development 09/09/2022

issue / revision

job # 0220173.00

drawn GP

chkd BAI

description
SCHEDULES

number
E5.1

PANELBOARD 2 BR UNIT 204

VOLTAGE:	240/120V			CONNECTED LOAD PER PHASE				ISOLATED GROUND BUS (Y/N):	N				
PHASE/WIRE:	1Ø / 3W							BUSSING:	SEE SPEC				
RATED AMPERAGE:	150 A			A	B			MOUNTING:	RECESSED				
MAIN:	150 A MCB							MCB GROUND FAULT PROTECTION (Y/N):	N				
SCC RATING (SYM):	SEE ONE-LINE			0 VA	0 VA			MCB SHUNT TRIP (Y/N):	N				
				0 A	0 A			MCB 100% RATED (Y/N):	N				

CKT	IDENTIFICATION	TYPE (*)	BKR SIZE	POLES	A		B		POLES	BKR SIZE	TYPE (*)	IDENTIFICATION	CKT
1	OVEN		50 A	2	0	0			1	20 A		DISPOSAL/DISH WASHER	2
3							0	0	1	20 A		KITCHEN COUNTER RCPT	4
5	KITCHEN COUNTER RCPT		20 A	1	0	0			1	15 A		BATHROOM RCPT	6
7	LIVING ROOM RCPT		15 A	1			0	0	1	15 A		BEDROOM RCPT	8
9	KITCHEN RCPT		15 A	1	0	0			1	20 A		REFRIGERATOR	10
11	SMOKE DETECTORS		15 A	1			0	0	1	15 A		LIVING ROOM RCPT	12
13	LIGHTING		15 A	1	0	0			1	15 A		LIGHTING	14
15	WATER HEATER		30 A	2			0	0	2	30 A		DRYER	16
17					0	0							18
19	WASHER		20 A	1			0	0	1	20 A		BEDROOM RCPT	20
21	8 KW HEATING COIL		50 A	2	0	0			2	30 A		FAN COIL UNIT	22
23							0	0					24
25	SPARE		20 A	1	0	0			1	20 A		SPARE	26
27	SPARE		20 A	1			0	0	1	20 A		SPARE	28
29	SPARE		20 A	1	0	0			1	20 A		SPARE	30

Load Classification	Connected Load	Demand Factor	Demand Load	PANEL TOTALS	
				TOTAL CONNECTED LOAD:	0 VA
				TOTAL DEMAND:	0 VA
				TOTAL CONNECTED CURRENT:	0 A
				TOTAL DEMAND CURRENT:	0 A

NOTES:
1. ALL BREAKERS ARE STANDARD UNLESS OTHERWISE NOTED
2. (*) NUMBER INDICATES BREAKER TYPE: 1 = AFCI, 2 = CLASS A 5mA GFCI, 3 = 30mA GFPE, 4 = SHUNT TRIP ACTIVATED, 5 = PANELBOARD FEEDER SERVING UNIT SHALL BE LOCKABLE USING A PADLOCK, IN ACCORDANCE WITH OSHA LOCK-OUT-TAG RULES, 6 = LSI, 7 = LSIG.

PANELBOARD HP1

VOLTAGE:	240/120V			CONNECTED LOAD PER PHASE				ISOLATED GROUND BUS (Y/N):	N				
PHASE/WIRE:	1Ø / 3W							BUSSING:	SEE SPEC				
RATED AMPERAGE:	100 A			A	B			MOUNTING:	SURFACE				
MAIN:	100 A MLO							MCB GROUND FAULT PROTECTION (Y/N):	N				
SCC RATING (SYM):	-			0 VA	0 VA			MCB SHUNT TRIP (Y/N):	N				
				0 A	0 A			MCB 100% RATED (Y/N):	N				

CKT	IDENTIFICATION	TYPE (*)	BKR SIZE	POLES	A		B		POLES	BKR SIZE	TYPE (*)	IDENTIFICATION	CKT
1													2
3													4
5													6
7													8
9													10
11													12
13													14
15													16
17													18
19													20
21													22
23													24
25													26
27													28
29													30

Load Classification	Connected Load	Demand Factor	Demand Load	PANEL TOTALS	
				TOTAL CONNECTED LOAD:	0 VA
				TOTAL DEMAND:	0 VA
				TOTAL CONNECTED CURRENT:	0 A
				TOTAL DEMAND CURRENT:	0 A

NOTES:
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PANELBOARD 3 BR UNIT 101

VOLTAGE:	240/120V			CONNECTED LOAD PER PHASE				ISOLATED GROUND BUS (Y/N):	N				
PHASE/WIRE:	1Ø / 3W							BUSSING:	SEE SPEC				
RATED AMPERAGE:	150 A			A	B			MOUNTING:	RECESSED				
MAIN:	150 A MCB							MCB GROUND FAULT PROTECTION (Y/N):	N				
SCC RATING (SYM):	SEE ONE-LINE			0 VA	0 VA			MCB SHUNT TRIP (Y/N):	N				
				0 A	0 A			MCB 100% RATED (Y/N):	N				

CKT	IDENTIFICATION	TYPE (*)	BKR SIZE	POLES	A		B		POLES	BKR SIZE	TYPE (*)	IDENTIFICATION	CKT
1	OVEN		50 A	2	0	0			1	20 A		DISPOSAL/DISH WASHER	2
3							0	0	1	20 A		KITCHEN COUNTER RCPT	4
5	KITCHEN COUNTER RCPT		20 A	1	0	0			1	15 A		BATHROOM RCPT	6
7	LIVING ROOM RCPT		15 A	1			0	0	1	15 A		BEDROOM RCPT	8
9	KITCHEN RCPT		15 A	1	0	0			1	20 A		REFRIGERATOR	10
11	SMOKE DETECTORS		15 A	1			0	0	1	15 A		LIVING ROOM RCPT	12
13	LIGHTING		15 A	1	0	0			1	15 A		LIGHTING	14
15	WATER HEATER		30 A	2			0	0	2	30 A		DRYER	16
17					0	0							18
19	WASHER		20 A	1			0	0	1	15 A		BEDROOM RCPT	20
21	10 KW HEATING COIL		50 A	2	0	0			2	30 A		FAN COIL UNIT	22
23							0	0					24
25	SPARE		20 A	1	0	0			1	20 A		SPARE	26
27	SPARE		20 A	1			0	0	1	20 A		SPARE	28
29	SPARE		20 A	1	0	0			1	20 A		SPARE	30

Load Classification	Connected Load	Demand Factor	Demand Load	PANEL TOTALS	
				TOTAL CONNECTED LOAD:	0 VA
				TOTAL DEMAND:	0 VA
				TOTAL CONNECTED CURRENT:	0 A
				TOTAL DEMAND CURRENT:	0 A

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PANELBOARD 2 BR UNIT 103

VOLTAGE:	240/120V			CONNECTED LOAD PER PHASE				ISOLATED GROUND BUS (Y/N):	N				
PHASE/WIRE:	1Ø / 3W							BUSSING:	SEE SPEC				
RATED AMPERAGE:	150 A			A	B			MOUNTING:	RECESSED				
MAIN:	150 A MCB							MCB GROUND FAULT PROTECTION (Y/N):	N				
SCC RATING (SYM):	SEE ONE-LINE			0 VA	0 VA			MCB SHUNT TRIP (Y/N):	N				
				0 A	0 A			MCB 100% RATED (Y/N):	N				

CKT	IDENTIFICATION	TYPE (*)	BKR SIZE	POLES	A		B		POLES	BKR SIZE	TYPE (*)	IDENTIFICATION	CKT
1	OVEN		50 A	2	0	0			1	20 A		DISPOSAL/DISH WASHER	2
3							0	0	1	20 A		KITCHEN COUNTER RCPT	4
5	KITCHEN COUNTER RCPT		20 A	1	0	0			1	15 A		BATHROOM RCPT	6
7	LIVING ROOM RCPT		15 A	1			0	0	1	15 A		BEDROOM RCPT	8
9	KITCHEN RCPT		15 A	1	0	0			1	20 A		REFRIGERATOR	10
11	SMOKE DETECTORS		15 A	1			0	0	1	15 A		LIVING ROOM RCPT	12
13	LIGHTING		15 A	1	0	0			1	15 A		LIGHTING	14
15	WATER HEATER		30 A	2			0	0	2	30 A		DRYER	16
17					0	0							18
19	WASHER		20 A	1			0	0	1	15 A		BEDROOM RCPT	20
21	8KW HEATING COIL		50 A	2	0	0			2	30 A		FAN COIL UNIT	22
23							0	0					24
25	SPARE		20 A	1	0	0			1	20 A		SPARE	26
27	SPARE		20 A	1			0	0	1	20 A		SPARE	28
29	SPARE		20 A	1	0	0			1	20 A		SPARE	30

Load Classification	Connected Load	Demand Factor	Demand Load	PANEL TOTALS	
				TOTAL CONNECTED LOAD:	0 VA
				TOTAL DEMAND:	0 VA
				TOTAL CONNECTED CURRENT:	0 A
				TOTAL DEMAND CURRENT:	0 A

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PANELBOARD 3 BR UNIT 105

VOLTAGE:	240/120V			CONNECTED LOAD PER PHASE				ISOLATED GROUND BUS (Y/N):	N				
PHASE/WIRE:	1Ø / 3W							BUSSING:	SEE SPEC				
RATED AMPERAGE:	150 A			A	B			MOUNTING:	RECESSED				
MAIN:	150 A MCB							MCB GROUND FAULT PROTECTION (Y/N):	N				
SCC RATING (SYM):	SEE ONE-LINE			0 VA	0 VA			MCB SHUNT TRIP (Y/N):	N				
				0 A	0 A			MCB 100% RATED (Y/N):	N				

CKT	IDENTIFICATION	TYPE (*)	BKR SIZE	POLES	A		B		POLES	BKR SIZE	TYPE (*)	IDENTIFICATION	CKT
1	OVEN		50 A	2	0	0			1	20 A		DISPOSAL/DISH WASHER	2
3							0	0	1	20 A		KITCHEN COUNTER RCPT	4
5	KITCHEN COUNTER RCPT		20 A	1	0	0			1	15 A		BATHROOM RCPT	6
7	LIVING ROOM RCPT		15 A	1			0	0	1	15 A		BEDROOM RCPT	8
9	KITCHEN RCPT		15 A	1	0	0			1	20 A		REFRIGERATOR	10
11	SMOKE DETECTORS		15 A	1			0	0	1	15 A		LIVING ROOM RCPT	12
13	LIGHTING		20 A	1	0	0			1	15 A		LIGHTING	14
15	WATER HEATER		30 A	2			0	0	2	30 A		DRYER	16
17					0	0							18
19	WASHER		20 A	1			0	0	1	15 A		BEDROOM RCPT	20
21	BEDROOM RCPT		15 A	1	0	0			2	30 A		FAN COIL UNIT	22
23	10 KW HEATING COIL		50 A	2			0	0					24
25					0	0			1	20 A		SPARE	26
27	SPARE		20 A	1			0	0	1	20 A		SPARE	28
29	SPARE		20 A	1	0	0			1	20 A		SPARE	30

Load Classification	Connected Load	Demand Factor	Demand Load	PANEL TOTALS	
				TOTAL CONNECTED LOAD:	0 VA
				TOTAL DEMAND:	0 VA
				TOTAL CONNECTED CURRENT:	0 A
				TOTAL DEMAND CURRENT:	0 A

NOTES:
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PANELBOARD 3 BR UNIT 202

VOLTAGE:	240/120V			CONNECTED LOAD PER PHASE				ISOLATED GROUND BUS (Y/N):	N				
PHASE/WIRE:	1Ø / 3W							BUSSING:	SEE SPEC				
RATED AMPERAGE:	150 A			A	B			MOUNTING:	RECESSED				
MAIN:	150 A MCB							MCB GROUND FAULT PROTECTION (Y/N):	N				
SCC RATING (SYM):	SEE ONE-LINE			0 VA	0 VA			MCB SHUNT TRIP (Y/N):	N				
				0 A	0 A			MCB 100% RATED (Y/N):	N				

CKT	IDENTIFICATION	TYPE (*)	BKR SIZE	POLES	A		B		POLES	BKR SIZE	TYPE (*)	IDENTIFICATION	CKT
1	OVEN		50 A	2	0	0			1	20 A		DISPOSAL/DISH WASHER	2
3							0	0	1	20 A		KITCHEN COUNTER RCPT	4
5	KITCHEN COUNTER RCPT		20 A	1	0	0			1	15 A		BATHROOM RCPT	6
7	LIVING ROOM RCPT		15 A	1			0	0	1	15 A		BEDROOM RCPT	8
9	KITCHEN RCPT		15 A	1	0	0			1	20 A		REFRIGERATOR	10
11	SMOKE DETECTORS		15 A	1			0	0	1	15 A		LIVING ROOM RCPT	12
13	LIGHTING		15 A	1	0	0			1	15 A		LIGHTING	14
15	WATER HEATER		30 A	2			0	0	2	30 A		DRYER	16
17					0	0							18
19	BEDROOM RCPT		15 A	1			0	0	1	15 A		BEDROOM RCPT	20
21	WASHER		20 A	1	0	0			1	20 A		SPARE	22
23	10 KW HEATING COIL		50 A	2			0	0	2	30 A		FAN COIL UNIT	24
25					0	0							26
27	SPARE		20 A	1			0	0	1	20 A		SPARE	28
29	SPARE		20 A	1	0	0			1	20 A		SPARE	30

Load Classification	Connected Load	Demand Factor	Demand Load	PANEL TOTALS	
				TOTAL CONNECTED LOAD:	0 VA
				TOTAL DEMAND:	0 VA
				TOTAL CONNECTED CURRENT:	0 A
				TOTAL DEMAND CURRENT:	0 A

NOTES:
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Engineers | Architects | Surveyors | Scientists
associated with

project
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2 BR UNIT 203

STANDARD SERVICE/FEEDER LOAD CALCULATION

UNIT SQ. FT. = 922

GENERAL USE LIGHTING	922 SQ. FT. x 3VA	=	2,766	VA
SMALL APPLIANCE	2 CIRCUITS x 1,500 VA	=	3,000	VA
RANGE		=	8,100	VA
LAUNDRY CIRCUIT		=	1,500	VA
ELECTRIC WATER HEATER		=	3,000	VA
ELECTRIC DRYER		=	4,500	VA
DISHWASHER		=	1,200	VA
CONDENSING UNIT (NON-COINCIDENTAL LOAD)		=	0	VA
TOTAL CONNECTED LOAD		=	24,066	VA
1ST 10 KVA @ 100%		=	10,000	VA
REMAINDER KVA @ 40%		=	5,626	VA
ELECTRICL HEATING COIL		=	8,000	VA
TOTAL DEMAND LOAD		=	23,626	VA
TOTAL DEMAND AMPS @ 120/240V, 1-PH		=	98.4	AMPS

2 BR UNIT 204

STANDARD SERVICE/FEEDER LOAD CALCULATION

UNIT SQ. FT. = 925

GENERAL USE LIGHTING	925 SQ. FT. x 3VA	=	2,775	VA
SMALL APPLIANCE	2 CIRCUITS x 1,500 VA	=	3,000	VA
RANGE		=	8,100	VA
LAUNDRY CIRCUIT		=	1,500	VA
ELECTRIC WATER HEATER		=	3,000	VA
ELECTRIC DRYER		=	4,500	VA
DISHWASHER		=	1,200	VA
CONDENSING UNIT (NON-COINCIDENTAL LOAD)		=	0	VA
TOTAL CONNECTED LOAD		=	24,075	VA
1ST 10 KVA @ 100%		=	10,000	VA
REMAINDER KVA @ 40%		=	5,630	VA
ELECTRIC HEATING COIL		=	8,000	VA
TOTAL DEMAND LOAD		=	23,630	VA
TOTAL DEMAND AMPS @ 120/240V, 1 PH		=	98.5	AMPS

3 BR UNIT 205

STANDARD SERVICE/FEEDER LOAD CALCULATION

UNIT SQ. FT. = 1,104

GENERAL USE LIGHTING	1,104 SQ. FT. x 3VA	=	3,312	VA
SMALL APPLIANCE	2 CIRCUITS x 1,500 VA	=	3,000	VA
RANGE		=	8,100	VA
ELECTRIC WATER HEATER		=	3,000	VA
LAUDRY CIRCUIT		=	1,500	VA
ELECTRIC DRYER		=	4,500	VA
DISHWASHER		=	1,200	VA
CONDENSING UNIT (NON-COINCIDENTAL LOAD)		=	0	VA
TOTAL CONNECTED LOAD		=	24,612	VA
1ST 10 KVA @ 100%		=	10,000	VA
REMAINDER KVA @ 40%		=	5,845	VA
ELECTRIC HEATING COIL		=	10,000	VA
TOTAL DEMAND LOAD		=	25,845	VA
TOTAL DEMAND AMPS @ 120/240V, 1 PH		=	107.7	AMPS

3 BR UNIT 206

STANDARD SERVICE/FEEDER LOAD CALCULATION

UNIT SQ. FT. = 1,073

GENERAL USE LIGHTING	1,073 SQ. FT. x 3VA	=	3,219	VA
SMALL APPLIANCE	2 CIRCUITS x 1,500 VA	=	3,000	VA
LAUNDRY CIRCUIT		=	1,500	VA
RANGE		=	8,100	VA
ELECTRIC WATER HEATER		=	3,000	VA
ELECTRIC DRYER		=	4,500	VA
DISHWASHER		=	1,200	VA
CONDENSING UNIT (NON-COINCIDENTAL LOAD)		=	0	VA
TOTAL CONNECTED LOAD		=	24,519	VA
1ST 10 KVA @ 100%		=	10,000	VA
REMAINDER KVA @ 40%		=	5,808	VA
ELECTRIC HEATING COIL		=	10,000	VA
TOTAL DEMAND LOAD		=	25,808	VA
TOTAL DEMAND AMPS @ 120/240V, 1 PH		=	107.5	AMPS

THE FLATS - TOTAL LOAD CALCULATION (NEC 220.84)

SERVICE LOAD CALCULATION (W/HOUSE PANEL)
(9) UNITS, (1) HOUSE PANEL

3 BR UNIT 101	1	x	24,864	VA	= 24,864	VA
2 BR UNIT 103	1	x	24,066	VA	= 24,066	VA
3 BR UNIT 105	1	x	24,612	VA	= 24,612	VA
3 BR UNIT 202	1	x	24,519	VA	= 24,519	VA
2 BR UNIT 204	1	x	24,075	VA	= 24,075	VA
3 BR UNIT 206	1	x	24,519	VA	= 24,519	VA
3 BR UNIT 201	1	x	24,864	VA	= 24,864	VA
2 BR UNIT 203	1	x	24,066	VA	= 24,066	VA
3 BR UNIT 205	1	x	24,612	VA	= 24,612	VA
TOTAL CONNECTED LOAD					= 220,197	VA
NEC 220-84					= 0.43	
TOTAL UNIT DEMAND LOAD					= 94,685	VA
TOTAL UNIT DEMAND AMPS 120/240V, 1-PHASE, 3W					= 394.52	AMPS
8KW HEATING COILS					= 133	AMPS
10 KW HEATING COILS					= 250	AMPS
ELECTRIC DRYER					= 92.81	AMPS
HOUSE PANEL "HP1"					= 100.00	AMPS
TOTAL AMPS ON 1000A SERVICE 120/240V, 1-PHASE, 3W					= 970.33	AMPS

3 BR UNIT 101

STANDARD SERVICE/FEEDER LOAD CALCULATION

UNIT SQ. FT. = 1,188

GENERAL USE LIGHTING	1,188 SQ. FT. x 3VA	=	3,564	VA
SMALL APPLIANCE	2 CIRCUITS x 1,500 VA	=	3,000	VA
RANGE		=	8,100	VA
LAUNDRY CIRCUIT		=	1,500	VA
ELECTRIC WATER HEATER		=	3,000	VA
ELECTRIC DRYER		=	4,500	VA
DISHWASHER		=	1,200	VA
CONDENSING UNIT (NON-COINCIDENTAL LOAD)		=	0	VA
TOTAL CONNECTED LOAD		=	24,864	VA
1ST 10 KVA @ 100%		=	10,000	VA
REMAINDER KVA @ 40%		=	5,946	VA
ELECTRIC HEATING COIL		=	10,000	VA
TOTAL DEMAND LOAD		=	25,946	VA
TOTAL DEMAND AMPS @ 120/240V, 1 PH		=	108.1	AMPS

2 BR UNIT 103

STANDARD SERVICE/FEEDER LOAD CALCULATION

UNIT SQ. FT. = 922

GENERAL USE LIGHTING	922 SQ. FT. x 3VA	=	2,766	VA
SMALL APPLIANCE	2 CIRCUITS x 1,500 VA	=	3,000	VA
RANGE		=	8,100	VA
LAUNDRY CIRCUIT		=	1,500	VA
ELECTRIC WATER HEATER		=	3,000	VA
ELECTRIC DRYER		=	4,500	VA
DISHWASHER		=	1,200	VA
CONDENSING UNIT (NON-COINCIDENTAL LOAD)		=	0	VA
TOTAL CONNECTED LOAD		=	24,066	VA
1ST 10 KVA @ 100%		=	10,000	VA
REMAINDER KVA @ 40%		=	5,626	VA
ELECTRIC HEATING COIL		=	8,000	VA
TOTAL DEMAND LOAD		=	23,626	VA
TOTAL DEMAND AMPS @ 120/240V, 1 PH		=	98.4	AMPS

3 BR UNIT 105

STANDARD SERVICE/FEEDER LOAD CALCULATION

UNIT SQ. FT. = 1,104

GENERAL USE LIGHTING	1,104 SQ. FT. x 3VA	=	3,312	VA
SMALL APPLIANCE	2 CIRCUITS x 1,500 VA	=	3,000	VA
RANGE		=	8,100	VA
LAUNDRY CIRCUIT		=	1,500	VA
ELECTRIC WATER HEATER		=	3,000	VA
ELECTRIC DRYER		=	4,500	VA
DISHWASHER		=	1,200	VA
CONDENSING UNIT (NON-COINCIDENTAL LOAD)		=	0	VA
TOTAL CONNECTED LOAD		=	24,612	VA
1ST 10 KVA @ 100%		=	10,000	VA
REMAINDER KVA @ 40%		=	5,845	VA
ELECTRIC HEATING COIL		=	10,000	VA
TOTAL DEMAND LOAD		=	25,845	VA
TOTAL DEMAND AMPS @ 120/240V, 1 PH		=	107.7	AMPS

3 BR UNIT 201

STANDARD SERVICE/FEEDER LOAD CALCULATION

UNIT SQ. FT. = 1,188

GENERAL USE LIGHTING	1,188 SQ. FT. x 3VA	=	3,564	VA
SMALL APPLIANCE	2 CIRCUITS x 1,500 VA	=	3,000	VA
RANGE		=	8,100	VA
LAUNDRY CIRCUIT		=	1,500	VA
ELECTRIC WATER HEATER		=	3,000	VA
ELECTRIC DRYER		=	4,500	VA
DISHWASHER		=	1,200	VA
CONDENSING UNIT (NON-COINCIDENTAL LOAD)		=	0	VA
TOTAL CONNECTED LOAD		=	24,864	VA
1ST 10 KVA @ 100%		=	10,000	VA
REMAINDER KVA @ 40%		=	5,946	VA
ELECTRIC HEATING COIL		=	10,000	VA
TOTAL DEMAND LOAD		=	25,946	VA
TOTAL DEMAND AMPS @ 120/240V, 1 PH		=	108.1	AMPS

3 BR UNIT 202

STANDARD SERVICE/FEEDER LOAD CALCULATION

UNIT SQ. FT. = 1,073

GENERAL USE LIGHTING	1,073 SQ. FT. x 3VA	=	3,219	VA
SMALL APPLIANCE	2 CIRCUITS x 1,500 VA	=	3,000	VA
RANGE		=	8,100	VA
ELECTRIC WATER HEATER		=	3,000	VA
LAUNDRY CIRCUIT		=	1,500	VA
ELECRIC DRYER		=	4,500	VA
DISHWASHER		=	1,200	VA
CONDENSING UNIT (NON-COINCIDENTAL LOAD)		=	0	VA
TOTAL CONNECTED LOAD		=	24,519	VA
1ST 10 KVA @ 100%		=	10,000	VA
REMAINDER KVA @ 40%		=	5,808	VA
ELECTRIC HEATING COIL		=	10,000	VA
TOTAL DEMAND LOAD		=	25,808	VA
TOTAL DEMAND AMPS @ 120/240V, 1 PH		=	107.5	AMPS

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project

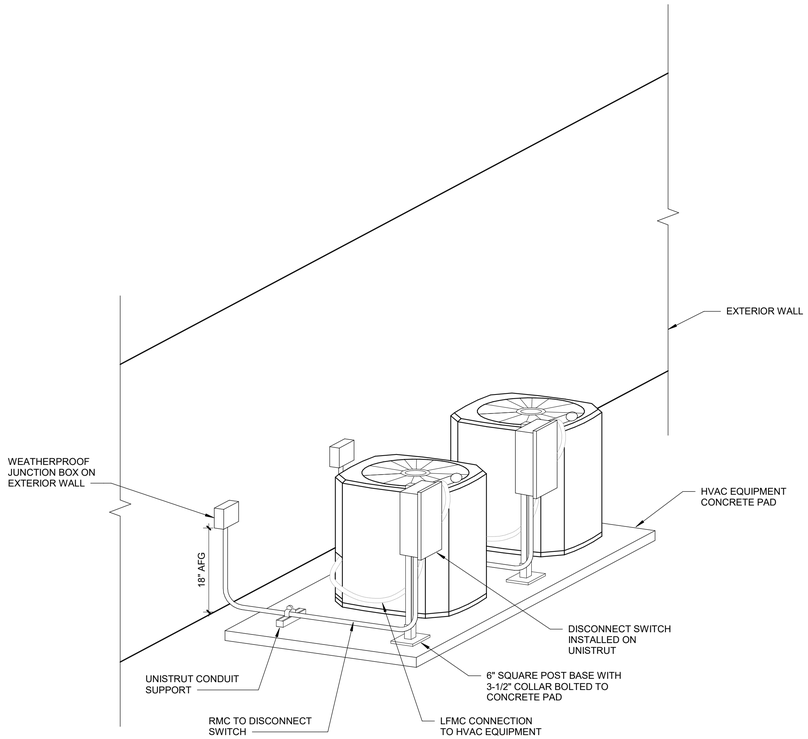
seal

issue / revision date:
Schematic Design 06/10/2022
Design Development 09/09/2022
issue / revision

job # 0220173.00
drawn GP
chkd BAI

SCHEDULES
description

E5.3
number



2 CONDENSING UNIT DISCONNECT INSTALLATION DETAIL
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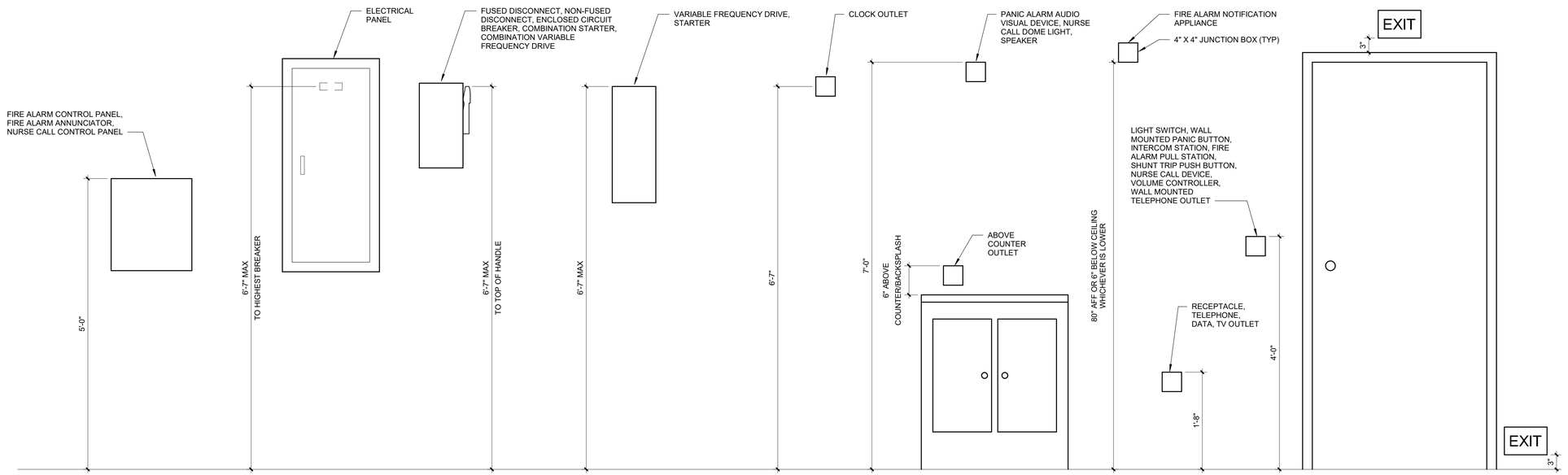

1 TYPICAL MOUNTING HEIGHT DETAIL
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DETAILS

description

E6.1

number

ABBREVIATIONS

AC	ABOVE COUNTER
ADA	AMERICANS WITH DISABILITIES ACT
AFC	ABOVE FINISH CEILING
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
AHJ	AUTHORITY HAVING JURISDICTION
ALT	ALTERNATE
ANSI	AMERICAN NATION STANDARDS INSTITUTE
AV	AUDIOVISUAL
AWG	AMERICAN WIRE GAUGE
BFC	BELOW FINISHED CEILING
BICSI	BUILDING INDUSTRIES CONSULTING SERVICE INTERNATIONAL
C	CONDUIT
CAT X	CATEGORY X
CATV	COMMUNITY ANTENNA TV
CCTV	CLOSED CIRCUIT TELEVISION (ANALOG)
CLG	CEILING
COD	CENTER OF DEVICE
COAX	COAXIAL CABLE
DAS-C	DISTRIBUTED ANTENNA SYSTEM - CELLULAR
DEMARC	DEMARCATION POINT (TELECOMMUNICATIONS)
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
EIA	ELECTRICAL INDUSTRY ASSOCIATION
EMS	EMERGENCY MEDICAL SERVICES
EMT	ELECTRICAL METALLIC TUBING
ERRS	EMERGENCY RESPONDER RADIO SYSTEM
FBO	FURNISHED BY OTHERS
FO	FIBER OPTIC
FT	FOOT, FEET
GC	GENERAL CONTRACTOR
GE	GROUND EQUALIZER
GMP	GUARANTEED MAXIMUM PRICE
HH	HANDHOLE (OSP CABLE ACCESS)
IDF	INTERMEDIATE DISTRIBUTION FACILITY (TELECOMMUNICATIONS)
ISP	INTERNET SERVICE PROVIDER
JBOX	JUNCTION BOX
KW	KILOWATT
LV	LOW VOLTAGE
MDF	MAIN DISTRIBUTION FACILITY (TELECOMMUNICATIONS)
MEP	MECHANICAL, ELECTRICAL, PLUMBING
MFR	MANUFACTURER
MM	MULTIMODE
MPOE	MAIN POINT OF ENTRY
NEC	NATIONAL ELECTRIC CODE (NFPA)
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIS	NOT IN SCOPE
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFE	OWNER FURNISHED EQUIPMENT
OFOI	OWNER FURNISHED OWNER INSTALLED
OSP	OUTSIDE PLANT
PA	PUBLIC ADDRESS
PB	PULL BOX
PBB	PRIMARY BONDING BUSBAR
PDU	POWER DISTRIBUTION UNIT
POE	POWER OVER ETHERNET
PP	PATCH PANEL
PWR	POWER
RCDD	REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER (BICSI)
RCP	REFLECTED CEILING PLAN
REF	REFERENCE
RF	RADIO FREQUENCY
RMC	RIGID METAL CONDUIT
RU	RACK UNIT (1RU=1.75")
SBB	SECONDARY BONDING BUSBAR
SM	SINGLE-MODE
SMH	SPECIAL MOUNTING HEIGHT
SP	SERVICE PROVIDER
SPOE	SECONDARY POINT OF ENTRY
STP	SHIELDED TWISTED BAR
TBB	TELECOMMUNICATIONS BONDING BACKBONE
TBD	TO BE DETERMINED
TDMM	TELECOMMUNICATIONS DISTRIBUTION METHODS MANUAL
TIA	TELECOMMUNICATIONS INDUSTRY ASSOCIATION
TR	TELECOMMUNICATIONS ROOM
TYP	TYPICAL
UC	UNDER COUNTER
UL	UNDERWRITERS LABORATORIES INC
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTP	UNSHIELDED TWISTED PAIR
V	VOLT
W	WATT
WAN	WIDE AREA NETWORK
WAP	WIRELESS ACCESS POINT
WP	WATERPROOF

NOTE: NOT ALL SYMBOLS ARE USED.

GENERAL SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
ROOM NAME 101	ROOM TAG '101' DENOTES ROOM NUMBER	5	SHEET KEYNOTE CALLOUT '5' DENOTES KEYNOTE NUMBER
101	DOOR TAG '101' DENOTES DOOR NUMBER	0	GRID HEAD AND LINE '0' DENOTES GRID LABEL
+XX"	SMH TAG 'XX' DENOTED INCHES AFF	1 / 1 / 1 A101	ELEVATION CALLOUT '1' DENOTES VIEW NUMBER 'A101' DENOTES SHEET NUMBER
1	REVISION DELTA AND CLOUD '1' DENOTES SHEET REVISION NUMBER	1 / A101	ENLARGED PLAN / DETAIL CALLOUT '1' DENOTES VIEW NUMBER 'A101' DENOTES SHEET NUMBER

PATHWAY SYMBOLS

SYMBOL	SPEC. REF.	DESCRIPTION	SYMBOL	SPEC. REF.	DESCRIPTION
	27 05 28	CABLE RUNWAY		27 05 28	CONDUIT/SLEEVE PATHWAY EXPOSED, CONCEALED ABOVE CEILING OR WITHIN WALL
	27 05 28	SOLID BOTTOM CABLE TRAY		27 05 28	CONDUIT/SLEEVE PATHWAY EMBEDDED IN SLAB
	27 05 28	WIRE MESH CABLE TRAY		27 05 28	CONDUIT/SLEEVE PATHWAY INSTALLED BELOW GRADE
	27 05 28	CABLING ENCLOSED IN CONDUIT TO DEVICE	PB	27 05 28	PULL BOX
J J	27 05 28	JHOOK PATHWAY	HH	27 05 28	UNDERGROUND HANDHOLE
	27 05 28	CONDUIT/SLEEVE IN PLAN VIEW, UP/DOWN			

STANDARD DATA DEVICE SYMBOLS

SYMBOL	SPEC. REF.	DESCRIPTION	BACKBOX SIZE	CONDUIT SIZE	MOUNTING
	27 05 28	COMMUNICATIONS JUNCTION BOX, CEILING OR WALL MOUNTED.	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	16" COD +AFF/CEILING GRID/HARD LID
	27 05 28	COMMUNICATIONS JUNCTION BOX, WALL MOUNTED SMH.	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	SPECIAL MOUNT HEIGHT. COORD. W/ ARCH.
	27 05 28	COMMUNICATIONS JUNCTION BOX, FLOOR MOUNTED.	FLOOR BOX OR POKE THRU	MIN 1" CONDUIT; SCALE AS REQ'D	FLOOR; ROUTING IN SLAB OR UNDER-FLOOR
	27 05 28	MEDIA CABINET ENCLOSURE	N/A	MIN 1" CONDUIT; SCALE AS REQ'D	36" COD + AFF
	27 15 00	DATA OUTLET, WALL MOUNTED. NUMERIC VALUE INDICATES QTY. OF CABLES.	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	16" COD +AFF
	27 15 00	DATA OUTLET, WALL MOUNTED SMH. NUMERIC VALUE INDICATES QTY. OF CABLES.	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	SPECIAL MOUNT HEIGHT. COORD. W/ ARCH.
	27 15 00	DATA OUTLET, FLOOR MOUNTED. NUMERIC VALUE INDICATES QTY. OF CABLES. COORDINATE WITH ELECTRICAL.	FLOOR BOX OR POKE THRU	MIN 1" CONDUIT; SCALE AS REQ'D	FLOOR; ROUTING IN SLAB OR UNDER-FLOOR
	27 15 00	DATA OUTLET, CEILING MOUNTED. NUMERIC VALUE INDICATES QTY. OF CABLES.	N/A	N/A UNLESS REQ'D BY AHJ	AFC
	27 15 00	WALL PHONE, WALL MOUNTED SMH. 1-PORT 1 GANG FLUSH MOUNT M-TYPE.	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	46" COD (ADA) +AFF
WAP	27 15 00	WIRELESS ACCESS POINT, WALL MOUNTED. NUMERIC VALUE INDICATES QTY. OF CABLES.	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	SPECIAL MOUNT HEIGHT. COORD. W/ ARCH.
WAP	27 15 00	WIRELESS ACCESS POINT, CEILING MOUNTED. NUMERIC VALUE INDICATES QTY. OF CABLES.	WAP ENCLOSURE/CLIP-TO-GRID/HARD-LID KIT	N/A UNLESS REQ'D BY AHJ	CEILING GRID/HARD LID

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chkd: MB

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T-001

SECURITY DEVICE SYMBOLS

SYMBOL	SPEC. REF.	DESCRIPTION	BACKBOX SIZE	CONDUIT SIZE	MOUNTING
CR	28 13 00 27 15 00	SECURITY CARD READER	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	SEE ACCESS CONTROL DOOR DETAILS	46" COD (ADA) +AFF
WR	28 13 00	WIRELESS CARD READER, HARDWARE BY DIV 08	N/A	SEE ACCESS CONTROL DOOR DETAILS	REF. DIV 08
IR	28 13 00	INTEGRATED CARD READER, HARDWARE BY DIV 08	N/A	SEE ACCESS CONTROL DOOR DETAILS	REF. DIV 08
DC	28 13 00	SECURITY DOOR CONTACT	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	SEE ACCESS CONTROL DOOR DETAILS	COORD. W/ DOOR HARDWARE
EL	NA	ELECTRIC LATCH	SEE DIV. 08	SEE ACCESS CONTROL DOOR DETAILS	COORD. W/ DOOR HARDWARE
RX	NA	REQUEST TO EXIT	SEE DIV. 08	SEE ACCESS CONTROL DOOR DETAILS	COORD. W/ DOOR HARDWARE
LR	27 15 00	LONG RANGE READER FOR VEHICLE ACCESS	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	PEDESTAL OR WALL, SMH AFF. COORD. W/ ARCH.
PB	28 13 00	PANIC BUTTON. COORD. EXACT LOC. W/ OWNER AND DIV. 26.	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	DESK OR WALL
ID	28 13 00 27 15 00	INTERCOM DOOR STATION	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	46" COD (ADA) +AFF
ID V	28 13 00 27 15 00	INTERCOM DOOR STATION W/ VIDEO	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	46" COD (ADA) +AFF
ID VR	28 13 00 27 15 00	INTERCOM DOOR STATION W/ VIDEO + DOOR RELEASE	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	46" COD (ADA) +AFF
IM	28 13 00 27 15 00	INTERCOM MASTER STATION	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	WALL, SURFACE MOUNT
IM V	28 13 00 27 15 00	INTERCOM MASTER STATION W/ VIDEO	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	WALL, SURFACE MOUNT
IM VR	28 13 00 27 15 00	INTERCOM MASTER STATION W/ VIDEO + DOOR RELEASE	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	WALL, SURFACE MOUNT
FIX 180 360	28 23 00	SECURITY CCTV CAMERA, CEILING MOUNTED (FIXED, 180° OR 360°)	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING OR CAMERA GRID KIT PER MANUFACTURER	N/A UNLESS REQ'D BY AHJ	CEILING GRID/HARD LID
FIX 180 360	28 23 00	SECURITY CCTV CAMERA, WALL MOUNTED (FIXED, 180° OR 360°)	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	SPECIAL MOUNT HEIGHT. COORD. W/ ARCH.
MD	28 16 00	INTRUSION MOTION DETECTOR, CEILING MOUNTED	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING OR GRID KIT PER MANUFACTURER	N/A UNLESS REQUIRED BY AHJ	CEILING GRID/HARD LID
MD	28 16 00	INTRUSION MOTION DETECTOR, WALL MOUNTED	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	SPECIAL MOUNT HEIGHT. COORD. W/ ARCH.
HS	28 16 00	INTRUSION HORN STROBE, CEILING MOUNTED	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING OR GRID KIT PER MANUFACTURER	N/A UNLESS REQUIRED BY AHJ	CEILING GRID/HARD LID
HS	28 16 00	INTRUSION HORN STROBE, WALL MOUNTED	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	SPECIAL MOUNT HEIGHT. COORD. W/ ARCH.
KPD	28 16 00	INTRUSION KEY PAD, WALL MOUNTED	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	46" COD (ADA) +AFF

AUDIOVISUAL INFRASTRUCTURE REQUIREMENTS

SYMBOL	FACEPLATE CONFIG.	COVER PLATE	QTY.	CABLE TYPE	QTY.
AV 1 AV 1 AV 1		SINGLE-GANG, RJ45 JACK	1	UL LISTED, PLENUM, UTP CATEGORY 6, 4 PAIR	1
		SINGLE-GANG, F-TYPE CONNECTOR	1	PLENUM, RG6 CABLE	1
AV 2 AV 2 AV 2		SINGLE-GANG, RJ45 JACK	1	UL LISTED, PLENUM, UTP CATEGORY 6, 4 PAIR	1
		SINGLE-GANG, F-TYPE CONNECTOR	1	PLENUM, RG6 CABLE	1
		SINGLE-GANG, HDMI CONNECTOR	2	PLENUM, HDMI CABLE	2
AV 3 AV 3 AV 3		SINGLE-GANG, RJ45 JACK	1	UL LISTED, PLENUM, UTP CATEGORY 6, 4 PAIR	1
		SINGLE-GANG, F-TYPE CONNECTOR	1	PLENUM, RG6 CABLE	1
		SINGLE-GANG, HDMI CONNECTOR	1	PLENUM, HDMI CABLE	1
AV 4		POKE THRU FACEPLATE, RJ45 JACK	2	UL LISTED, PLENUM, UTP CATEGORY 6, 4 PAIR	1
		POKE THRU FACEPLATE, HDMI CONNECTOR	1	PLENUM, HDMI CABLE	1
		*NOTE: REFER TO ELECTRICAL DRAWINGS AND DIV. 26 SPECIFICATIONS FOR POKE-THRU DETAILS			
AV 5 AV 5 AV 5		SINGLE-GANG, RJ45 JACK	1	UL LISTED, PLENUM, UTP CATEGORY 6, 4 PAIR	1
		SINGLE-GANG, HDMI CONNECTOR	1	PLENUM, HDMI CABLE	1

AUDIOVISUAL DEVICE SYMBOLS

SYMBOL	SPEC. REF.	DESCRIPTION	BACKBOX SIZE	CONDUIT SIZE	MOUNTING
AV x	27 41 00	AUDIO/VISUAL FACEPLATE, WALL OR FLOOR MOUNTED; NUMERIC VALUE INDICATES DETAIL #. REF. INFRASTRUCTURE REQUIREMENTS FOR CONFIGURATION.	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING/ OR FLOOR BOX OR POKE THRU	MIN 1" CONDUIT; SCALE AS REQ'D	16" COD +AFF/OR FLOOR; ROUTING IN SLAB OR UNDER-FLOOR
AV x	27 41 00	AUDIO/VISUAL FACEPLATE, WALL MOUNTED SMH; NUMERIC VALUE INDICATES DETAIL #. REF. INFRASTRUCTURE REQUIREMENTS FOR CONFIGURATION.	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING/ OR FLOOR BOX OR POKE THRU	MIN 1" CONDUIT; SCALE AS REQ'D	SPECIAL MOUNT HEIGHT. COORD. W/ ARCH.
AV x	27 41 00	AUDIO/VISUAL FACEPLATE, CEILING MOUNTED; NUMERIC VALUE INDICATES DETAIL #. REF. INFRASTRUCTURE REQUIREMENTS FOR CONFIGURATION.	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING/ OR FLOOR BOX OR POKE THRU	MIN 1" CONDUIT; SCALE AS REQ'D	CEILING GRID/HARD LID
AS	27 41 00	AUDIO/VISUAL SPEAKER, WALL MOUNTED	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	SPECIAL MOUNT HEIGHT. COORD. W/ ARCH.
AS	27 41 00	AUDIO/VISUAL SPEAKER, CEILING MOUNTED	SPEAKER GRID KIT PER MANUFACTURER	N/A UNLESS REQ'D BY AHJ	CEILING GRID/HARD LID
PS W	27 51 13	OVERHEAD PAGING SPEAKER, WALL MOUNTED	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	SPECIAL MOUNT HEIGHT. COORD. W/ ARCH.
PS H	27 51 13	OVERHEAD PAGING HORN, WALL MOUNTED	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	SPECIAL MOUNT HEIGHT. COORD. W/ ARCH.
8" PS	27 51 13	OVERHEAD PAGING SPEAKER, CEILING MOUNTED, 8" ROUND	SPEAKER GRID KIT PER MANUFACTURER	N/A UNLESS REQ'D BY AHJ	CEILING GRID/HARD LID
LAY PS	27 51 13	OVERHEAD PAGING SPEAKER, CEILING MOUNTED, LAY-IN	SPEAKER GRID KIT PER MANUFACTURER	N/A UNLESS REQ'D BY AHJ	CEILING GRID/HARD LID
P PS	27 51 13	OVERHEAD PAGING SPEAKER, CEILING MOUNTED, PENDANT	SPEAKER GRID KIT PER MANUFACTURER	N/A UNLESS REQ'D BY AHJ	CEILING GRID/HARD LID/EXPOSED STRUCTURE
PCS	27 51 13	PAGING CALL SWITCH, WALL MOUNTED	4-11/16² x 2-1/8 DEEP W/ ONE GANG DEVICE RING	1" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING	46" COD (ADA) +AFF

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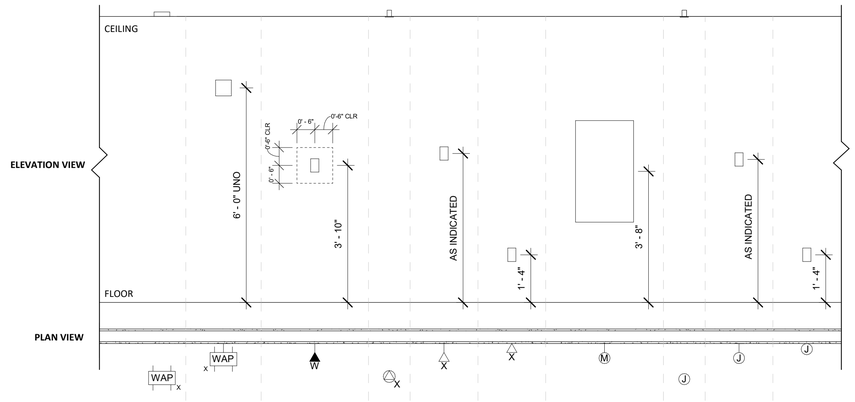
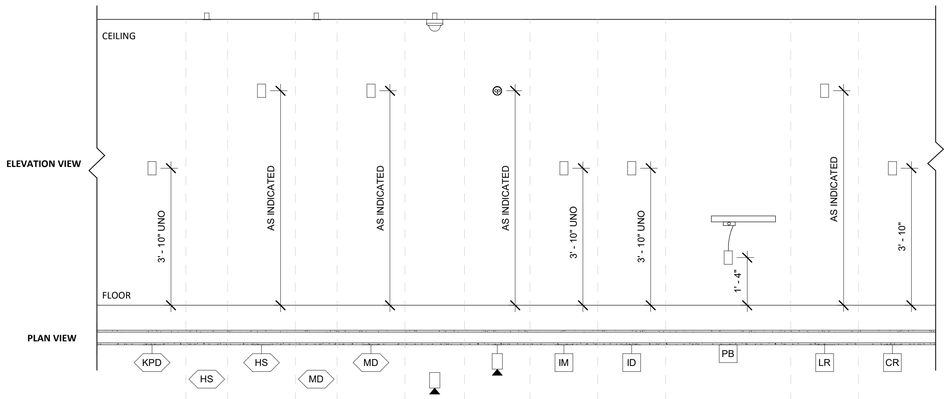
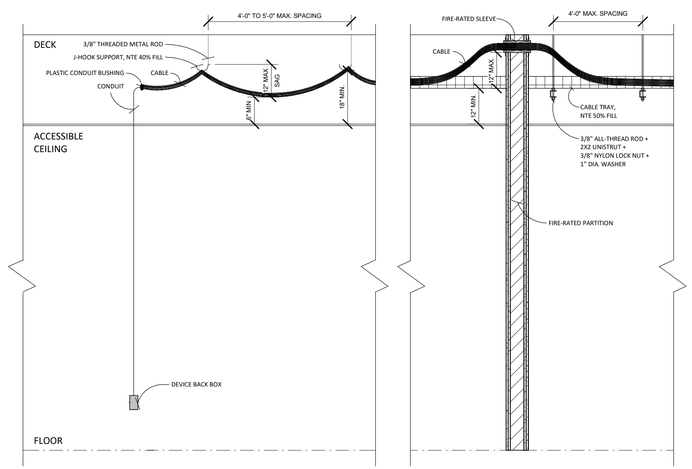
STANDARD DATA DEVICE MOUNTING DETAILS



SECURITY DEVICE MOUNTING DETAILS



CABLE DISTRIBUTION DETAILS



TECHNOLOGY GENERAL NOTES

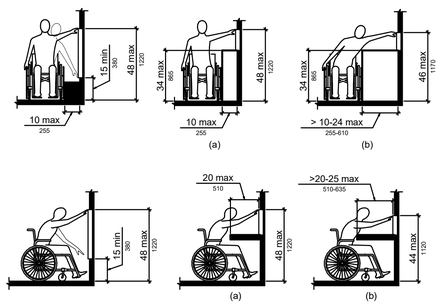
#	NOTE
1	GENERAL CONTRACTOR TO ADHERE TO APPLICABLE NEC, ANSI, TIA/EIA, BICSI, AND CITY AND COUNTY CODES AND STANDARDS.
2	GENERAL CONTRACTOR TO SEEK CLARIFICATIONS WITH LOW-VOLTAGE ENGINEER PRIOR TO AWARDING SUB-CONTRACTORS FOR COMPLETION OF WORK.
3	DRAWINGS ARE DIAGRAMATICAL IN NATURE, EXACT LOCATIONS AND ELEVATIONS SHOULD ALWAYS BE CROSS-REFERENCED WITH ARCHITECTURAL SET.
4	GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO DIRECTLY INQUIRE WITH LOW-VOLTAGE ENGINEER AS TO CLARIFYING COMPONENTS OF THE DRAWING SET.
5	GENERAL CONTRACTOR SHALL REFERENCE ARCHITECTURAL RCP DRAWINGS TO COORDINATE IN-CEILING DEVICES.
6	GENERAL CONTRACTOR AND ELECTRICAL CONTRACTOR SHALL REFERENCE BOTH LOW-VOLTAGE AND POWER DRAWINGS TO COORDINATE GENERALLY REFERENCED AREA OF INSTALL.
7	ELECTRICAL CONTRACTOR TO INQUIRE WITH LOW-VOLTAGE ENGINEER AS TO SPECIFIC ROUTING CONCERNS PRIOR TO INSTALL.
8	DIVISION 27 CONTRACTOR TO LEAVE 30' SERVICE LOOP IN ELEVATOR CONTROL ROOMS. ELEVATOR CONTRACTOR TO TERMINATE CABLE TO ELEVATOR EQUIPMENT.
9	CABLE TRAY FILL RATIOS; NEC = 50%, TIA = 40%. THIS PROJECT WILL RECOGNIZE NEC FILL RATIO.
10	CONDUIT FILL RATIO; NEC = ONE (1) CABLE = 53%, TWO (2) CABLES = 31%, AND THREE (3) CABLES OR MORE MAY NOT EXCEED 40%.
11	DIVISION 26 AND DIVISION 27 CONTRACTORS TO REVIEW ARCHITECTURAL AND FURNITURE DRAWINGS AND SPECIFICATIONS TO DETERMINE EXACT MODELS AND FURNITURE PATHWAY REQUIREMENTS.
12	DIVISION 26 CONTRACTOR TO COORDINATE ARCHITECTURAL CASEWORK ELEVATIONS PRIOR TO ROUGH-IN.
13	ALL TELEVISIONS, MONITORS, INTERACTIVE WHITEBOARDS, SHALL HAVE BACKING SUPPORTING ASSOCIATED BRACKET.
14	THE CONTRACTOR IS REQUIRED TO PROPERLY FIRE-STOP ANY WALL OR FLOOR PENETRATIONS UTILIZED FOR THE PLACEMENT OF COMMUNICATIONS CABLING WITH APPROVED FIRE STOPPING COMPOUND AND ACCORDING TO LOCAL AND NATIONAL CODES
15	A PULL BOX SHALL BE PLACED IN A CONDUIT RUN WHEN ANY OF THE FOLLOWING CONDITIONS EXIST: a) THE LENGTH OF THE CONDUIT RUN IS OVER 100 FEET; b)THERE ARE MORE THAN TWO 90 DEGREE BENDS IN THE CONDUIT RUN; c)THERE IS A REVERSE BEND IN THE CONDUIT.

APPLICABLE CODES + STANDARDS

CODE
2020 NATIONAL ELECTRICAL CODE
2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL FIRE CODE
BICSI STANDARDS
UNDERWRITER LABORATORIES
ANSI TIA/EIA

TECHNOLOGY SHEET INDEX

ADA REQUIREMENTS



TECHNOLOGY RESPONSIBILITY MATRIX

DESCRIPTION	DESIGN	BUDGET	PROVIDE + INSTALL	TESTING + CX
VERTICAL CONDUIT SLEEVES	CEVIAN	GC	DIV26	GC
HORIZONTAL CONDUIT SLEEVES	CEVIAN	GC	DIV26	GC
INTERNAL CABLING PATHWAY	CEVIAN	GC	DIV26	GC
MDF/IDF ROOM CONSTRUCTION	CEVIAN	GC	GC	GC
GROUNDING + BONDING	CEVIAN	GC	DIV26	GC
MDF/IDF ROOM FIT-OUT	CEVIAN	GC	DIV27	GC
LV CABLING (BACKBONE + HORIZ.)	CEVIAN	GC	DIV27	GC
SECURITY (ACCESS CONTROL, VIDEO SURVEILLANCE)	CEVIAN	GC	DIV28	DIV28
AUDIOVISUAL	CEVIAN/AV CONTRACTOR	GC	AV CONTRACTOR	AV CONTRACTOR
WIRELESS ACCESS POINT INFRASTRUCTURE	CEVIAN	GC	DIV27	OWNER
WIRELESS ACCESS POINT ENCLOSURES	CEVIAN	GC	OWNER	OWNER
LOCAL UPS (EACH RACK) 20A OR 30A CONNECTIVITY	OWNER	OWNER	OWNER	OWNER
NETWORK SWITCHES, ROUTERS, WIRELESS ACCESS POINTS, TV'S	OWNER	OWNER	OWNER	OWNER
TV/MONITORS	CEVIAN/OWNER	GC	AV CONTRACTOR	OWNER
PUBLIC SAFETY DAS (ERRS)	GC	GC	GC	GC

LOW-VOLTAGE CABLE SCHEDULE

SYSTEM	CABLE TYPE	CABLE COLOR	MANUFACTURER	CABLE SPECIFICS	PATHWAY
OWNER FIBER CABLING	SM, OR MM OM4	TEAL OR ORANGE	CORNING	PLENUM, RISER, ARMORED	WIRE BASKET/J-HOOK
OWNER IP HORIZONTAL CABLING	CAT6 UTP/STP	BLUE	COMMSCOPE UNIPRISE	PLENUM, RISER	WIRE BASKET/J-HOOK
SECURITY (ACCESS CONTROL)	CAT6 UTP/COMPOSITE	BLUE/YELLOW	COMMSCOPE UNIPRISE/WINDY CITY WIRE	PLENUM, RISER	WIRE BASKET/J-HOOK
AUDIOVISUAL WIRING	CAT6, HDMI, COMPOSITE	WHITE	BELDEN, OTHER	PLENUM	WIRE BASKET/J-HOOK

TECHNOLOGY SUBMITTAL REQUIREMENTS

#	TITLE	PRODUCT INFO	SHOP DRAWINGS	CALCULATIONS	ONE-LINE
27 05 26	GROUNDING + BONDING FOR COMMUNICATIONS SYSTEMS	Yes	Yes		Yes
27 05 28	PATHWAYS FOR COMMUNICATIONS SYSTEMS	Yes	Yes	Yes	
27 11 00	COMMUNICATIONS EQUIPMENT ROOM	Yes	Yes	Yes	
27 13 00	BACKBONE CABLING	Yes	Yes		Yes
27 15 00	HORIZONTAL CABLING	Yes	Yes		Yes
27 41 00	AUDIOVISUAL REQUIREMENTS	Yes	Yes	Yes	Yes
27 41 51	CATV DISTRIBUTION	Yes	Yes		Yes
27 51 13	PUBLIC ADDRESS SYSTEM	Yes	Yes	Yes	Yes
28 13 00	ACCESS CONTROL SYSTEM	Yes	Yes		Yes
28 16 00	INTRUSION DETECTION SYSTEM	Yes	Yes		Yes
28 23 00	VIDEO SURVEILLANCE SYSTEM	Yes	Yes	Yes	Yes

TECHNOLOGY INFRASTRUCTURE REQUIREMENTS

SYMBOL	FACEPLATE CONFIG.	COVER PLATE	QTY.	CABLE TYPE	QTY.
1 / 1		4-PORT COVER PLATE, SINGLE-GANG	1	UL LISTED, PLENUM, CATEGORY 6, 4 PAIR, RJ45 JACK	1
				BLANKS	3
2 / 2		4-PORT COVER PLATE, SINGLE-GANG	1	UL LISTED, PLENUM, CATEGORY 6, 4 PAIR, RJ45 JACK	2
				BLANKS	2
3 / 3		4-PORT COVER PLATE, SINGLE-GANG	1	UL LISTED, PLENUM, CATEGORY 6, 4 PAIR, RJ45 JACK	3
				BLANKS	1
4 / 4		4-PORT COVER PLATE, SINGLE-GANG	1	UL LISTED, PLENUM, CATEGORY 6, 4 PAIR, RJ45 JACK	4
WAP		NO COVER PLATE REQUIRED	0	UL LISTED, PLENUM, CATEGORY 6, 4 PAIR, 2 PORT BISCUIT JACK TERMINATION , 20' SERVICE LOOP WHERE INSTALLED AT ACCESSIBLE CEILING.	PER SYMBOL

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Lafayette, Colorado 80026

seal

issue / revision date:
100 DD 9/9/2022

issue / revision

job # 18102.01
drawn RS
chkd MB

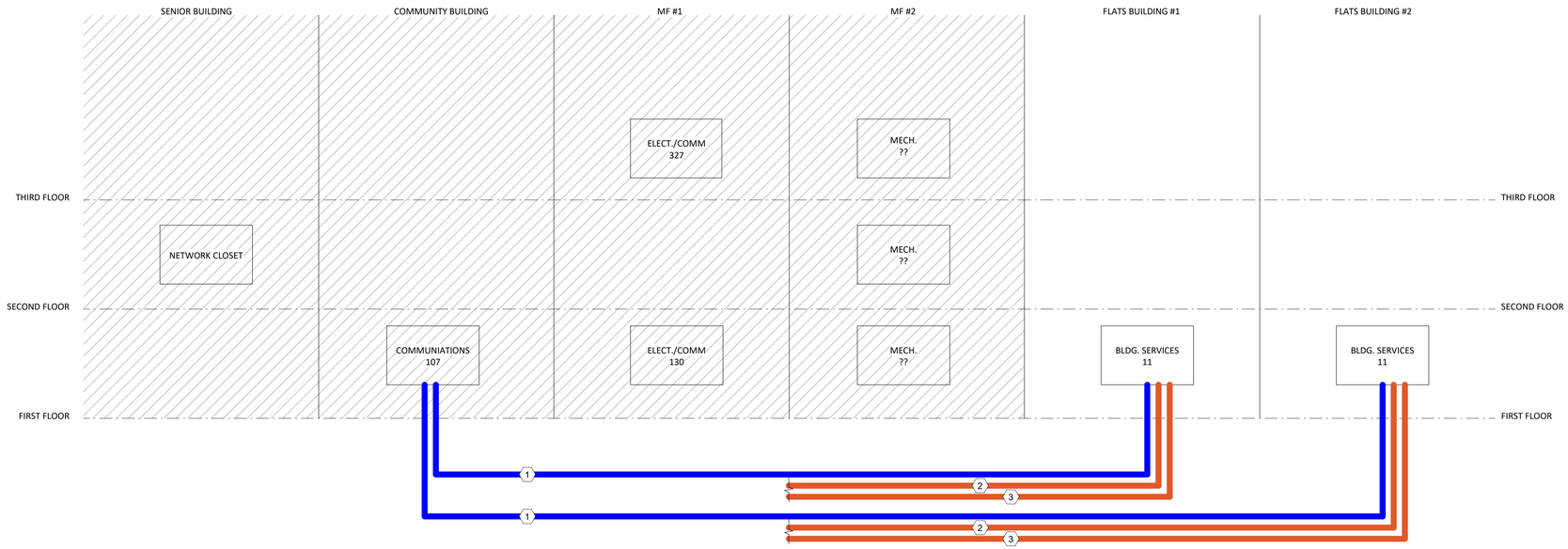
description

TECHNOLOGY INDEX + SCHEDULES

T-003

number

TECHNOLOGY RISER DIAGRAM



TECHNOLOGY KEYNOTES - T-011

#	NOTE
1	DIV 26 CONTRACTOR TO PROVIDE AND INSTALL ONE (1) 2" CONDUIT UNDERGROUND. DIV 27 CONTRACTOR TO PROVIDE AND INSTALL OWNER FIBER.
2	DIV 26 CONTRACTOR TO PROVIDE AND INSTALL ONE (1) 2" CONDUIT UNDERGROUND FROM SITE PEDESTAL. COMCAST TO PROVIDE AND INSTALL COAXIAL BACKBONE CABLE.
3	DIV 26 CONTRACTOR TO PROVIDE AND INSTALL ONE (1) 2" CONDUIT UNDERGROUND FROM SITE PEDESTAL. LUMEN TO PROVIDE AND INSTALL FIBER OPTIC BACKBONE CABLE.

RISER DIAGRAM LEGEND

- LEVEL
- OWNER ISP
- OWNER RISER BACKBONE
- OWNER HORIZ. CABLING
- UTILITY PROVIDER INCOMING
- UTILITY PROVIDER RISER BACKBONE
- UTILITY PROVIDER HORIZ. CABLING
- 0 KEYNOTE WITH DIRECTIONAL LEADER

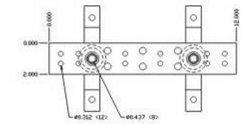
GROUNDING MATRIX

DEVICE	BOD MANUFACTURER	BOD PART #	ROOM #

GROUNDING WIRE GUIDE

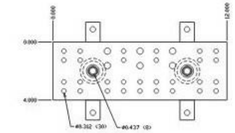
TBB/GE LINEAR LENGTH	TBB/GE SIZE
LESS THAN 13'	6 AWG
14' - 20'	4 AWG
21' - 26'	3 AWG
27' - 33'	2 AWG
34' - 41'	1 AWG
42' - 52'	1/0 AWG
53' - 66'	2/0 AWG
67' - 84'	3/0 AWG
85' - 105'	4/0 AWG
106' - 125'	250 kcmil
126' - 150'	300 kcmil
151' - 175'	350 kcmil
176' - 250'	500 kcmil
251' - 300'	600 kcmil
GREATER THAN 301'	750 kcmil

UL LISTED



13622-012
(6) Lugs, 5/8" hole centers
(3) Lugs, 1" hole centers

UL LISTED



40153-012
(15) Lugs, 5/8" hole centers
(3) Lugs, 1" hole centers

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100 DD | 9/9/2022

issue / revision

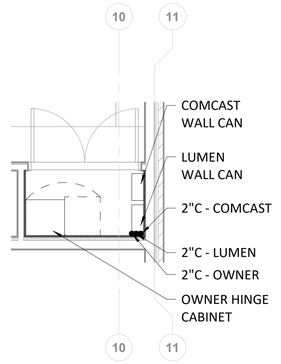
job #: 18102.01
drawn: RS
chkd: MB

description
TECHNOLOGY GROUNDING + RISER DIAGRAM

number
T-011

VIDEO SURVEILLANCE SCHEDULE

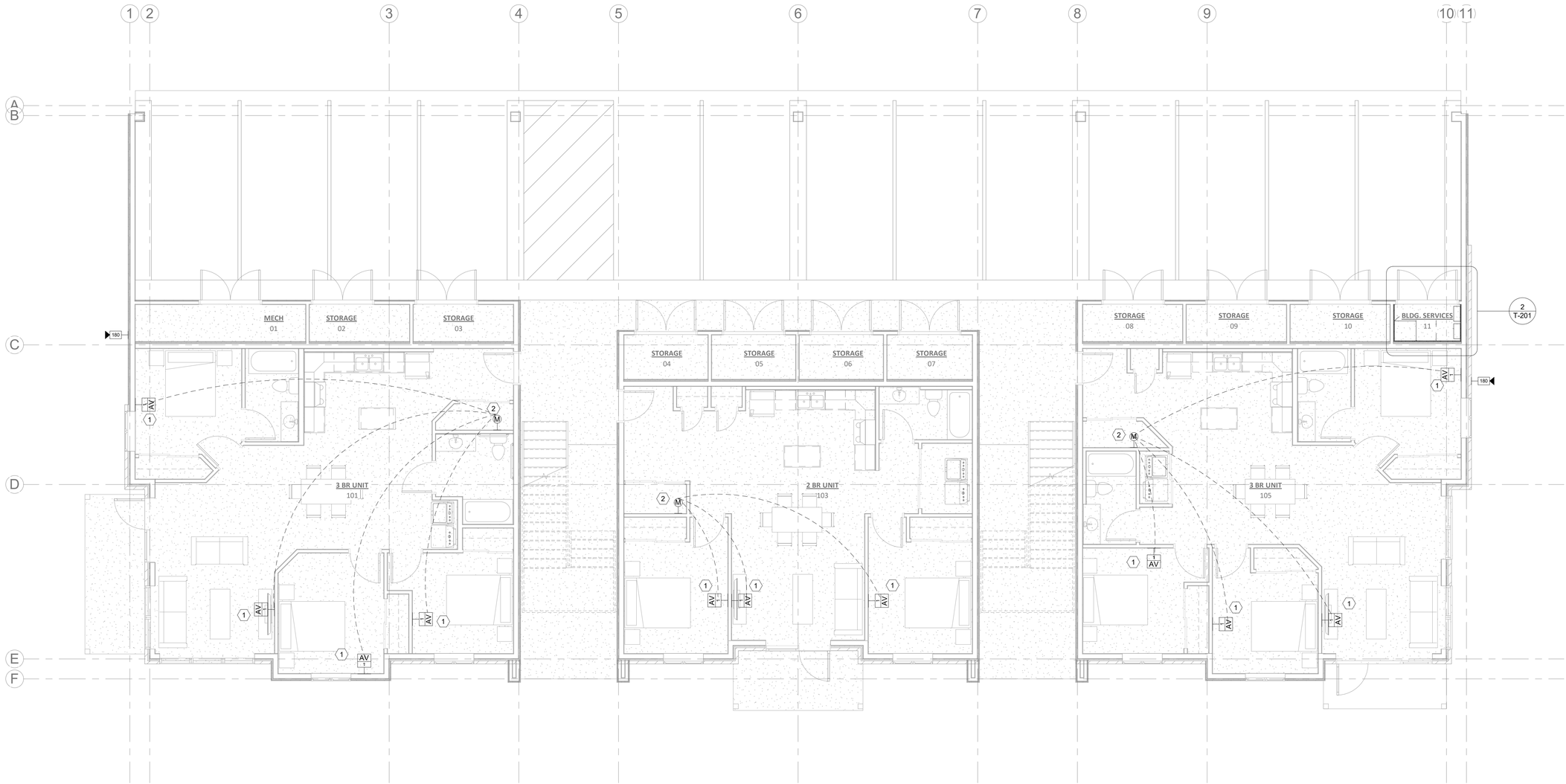
TYPE	COMM ROOM #	INTERIOR/EXTERIOR	NOTES
BLDG. SERVICES 11			
180 - Wall	BLDG. SERVICES 11	EXTERIOR	
180 - Wall	BLDG. SERVICES 11	EXTERIOR	
180 - Wall: 2			



2 **ENLARGED TR - BLDG. SERVICES 11**
1/4" = 1'-0"

TECHNOLOGY KEYNOTES - T-201

#	NOTE
1	DIV 27 TO PROVIDE AND INSTALL ONE (1) CAT6 AND ONE (1) RG6 FROM MEDIA ENCLOSURE TO EACH WALL OUTLET IN EACH UNIT.
2	MEDIA CABINET TO BE HUNG AT 36" TO TOP OF BOX.



1 **TECHNOLOGY DEVICE PLAN - FIRST FLOOR**
3/16" = 1'-0"

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job # 18102.01
drawn RS
chkd MB

description

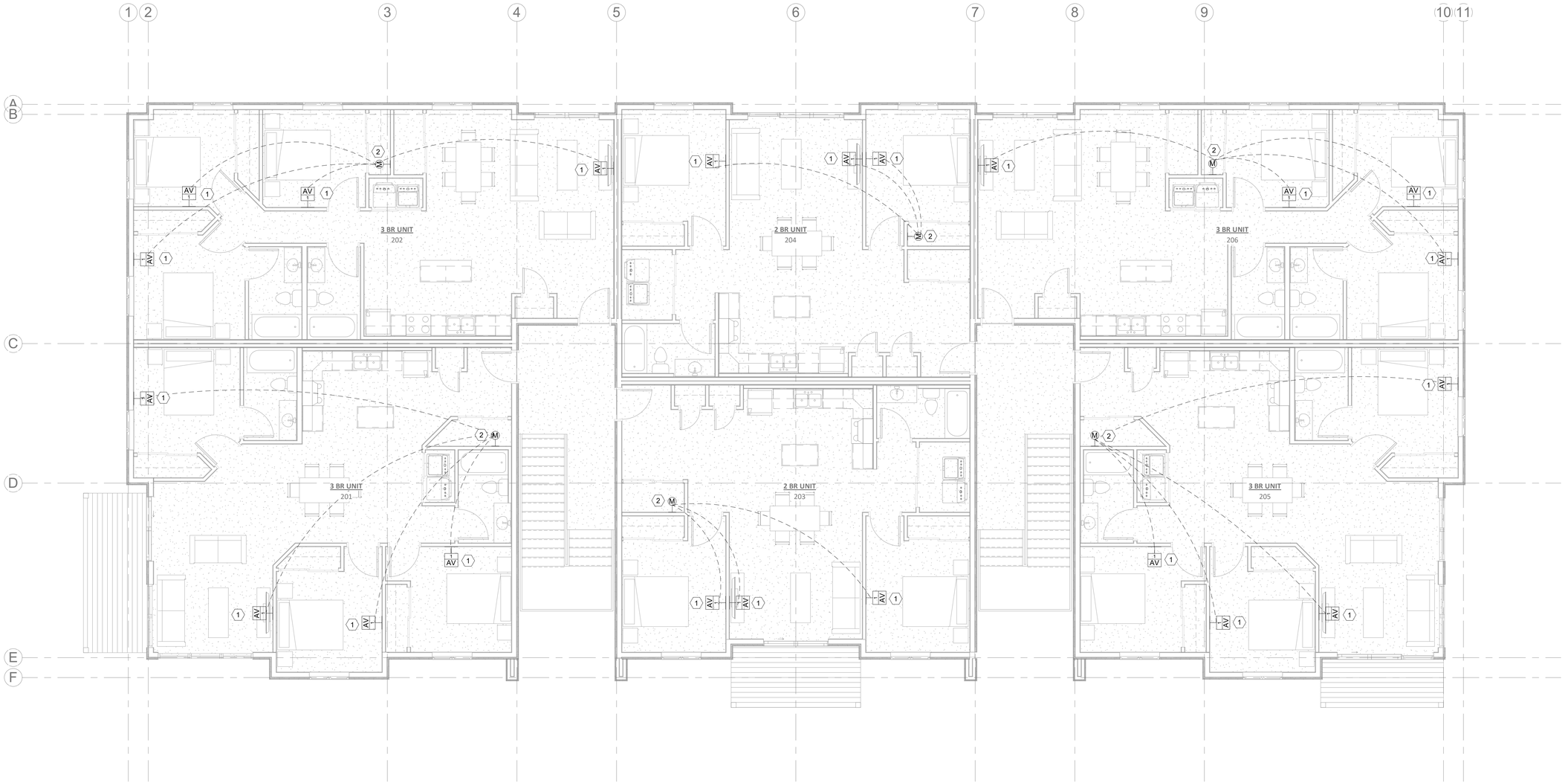
TECHNOLOGY DEVICE PLAN - FIRST FLOOR

T-201

number

TECHNOLOGY KEYNOTES - T-202

#	NOTE



1 **TECHNOLOGY DEVICE PLAN - SECOND FLOOR**
3/16" = 1'-0"

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job # 18102.01
drawn RS
chkd MB

description
TECHNOLOGY DEVICE PLAN - SECOND FLOOR

number
T-202

SPECIAL INSPECTION GENERAL NOTES

1. A statement of special inspections for structural items has been prepared by HCDA Engineering, Inc. for submittal to the Building Official. This is submitted as a condition for permit issuance in accordance with the Structural Testing and Special Inspection requirements of the International Building Code, 2015 edition.
2. The Structural Engineer will perform periodic observations of construction. These observations shall not replace required inspections by the Building Official. These observations also do not serve as "Special Inspections" as required by section 1704 of the International Building Code.
3. Steel Fabricators shall be approved in accordance with IBC section 1704.2.5.1 of the International Building Code, 2015 Edition, or are required to have shop inspections of the fabricated items for the project by the special inspector hired by the Owner as required by section 1704.2.5.
4. Special Inspectors (not third party inspectors) shall be approved individually by the Building Official prior to the issuance of a permit. Please provide the list of specific special inspectors to determine if they have already been approved. Each Special Inspector not already approved by the Building Official must provide a resume and all supporting information related to their qualifications for the specific type of special inspections in accordance with IBC 1704.2.1.

Statement of Special Inspections

Project: Willoughby Corner

Location: N. 120th St. and E. Emma St., Lafayette, Colorado 80026

Owner: Boulder County Housing Authority

This Statement of Special Inspections is submitted as a condition for permit issuance in accordance with the Structural Testing and Special Inspection requirements of the Building Code. It includes a schedule of Special Inspection services applicable to this project. This Statement of Special Inspections encompasses the Structural components of the building.

The Special Inspection Coordinator, Special Inspector and Testing Agency shall be approved by the owner and qualified to perform the services indicated. The Special Inspection Coordinator shall keep records of all inspections and shall furnish interim inspection reports to the Building Official (if requested) and the Project Structural Engineer. Discovered discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Project Structural Engineer. The Special Inspection program does not relieve the Contractor of their responsibilities.

A Final Report of Special Inspections documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy.

Job site safety and means and methods of construction are solely the responsibility of the contractor.

Interim Report Frequency: Weekly or as warranted based on construction performed.

Soils and Foundations

C = Continuous P = Periodic

Item	Scope	Frequency C	Frequency P
1. Shallow Foundations	*Inspect materials below shallow foundations to verify they are adequate to achieve the design bearing capacity.*		X
2. Controlled Structural Fill	*Perform classification and testing of compacted fill material* *Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.* *Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.*	X	X X
3. Excavations	*Verify excavations are extended to proper depth and have reached proper material.*		X

Cast-in-Place Concrete

C = Continuous P = Periodic

Item	Scope	Frequency C	Frequency P
1. Mix Design	*Review concrete batch tickets and verify compliance with approved mix design. Verify that water added at the site does not exceed that allowed by the mix design.*		X
2. Reinforcement Installation	*Inspect size, spacing, cover, positioning and grade of reinforcing steel. Verify that reinforcing bars are free of form oil or other deleterious materials. Inspect bar laps and mechanical splices. Verify that bars are adequately tied and supported on chairs or bolsters.*		X
3. Welding of Reinforcing	*Visually inspect all reinforcing steel welds. Verify weldability of reinforcing steel. Inspect preheating of steel when required.* *Welds > 5/16"*	X	X
4. Cast in Anchors	*Inspect size, positioning and embedment of anchor rods and embedded plates, inspect concrete placement and consolidation around anchors.*		X
5. Concrete Placement	*Inspect placement of concrete. Verify proper application techniques; concrete conveyance and depositing avoids segregation or contamination. Verify that concrete is properly consolidated.*	X	
6. Sampling and Testing	*Test concrete compressive strength (ASTM C13 & C39), slump (ASTM C143), air-content (ASTM C231 or C173) and temperature (ASTM C1064). Fabricate specimens for strength tests.*	X	
7. Curing and Protection	*Inspect curing, cold weather protection and hot weather protection procedures. Verify maintenance of specified curing temperature and techniques.*		X
8. Post-installed Anchors	*Inspect adhesive anchors installed horizontally or upwardly for anchor size, embedment, and installation technique.* *Inspect mechanical anchors for size and embedment.*	X	X
9. Formwork	*Inspect formwork for shape, location and dimensions of the concrete member being formed.*		X

Structural Steel

C = Continuous P = Periodic

Item	Scope	Frequency C	Frequency P
1. Fabricator Certification / Quality Control Procedures ☐ Fabricator Exempt	*Review shop fabrication and quality control procedures.* *To be paid by Fabricator if plant not certified.*		X
2. Material Certification	*Review certified mill test reports and identification markings on wide-flange shapes, high-strength bolts, nuts and welding electrodes.*		X
3. Open Web Steel Joists	*Inspect installation, field welding and bridging of joists.*		X
4. Bolting	*Inspect installation and tightening of high-strength bolts. Verify that splines have separated from tension control bolts.*		X
5. Welding - Single pass fillet welds ≤ 5/16" Single pass fillet welds > 5/16" Multi pass fillet welds Partial & Complete pen welds	*Visually inspect welds. Verify size and length of fillet welds.* *Visually inspect all welds. Inspect pre-heat, post-heat and surface preparation between passes. Verify size and length of fillet welds. Ultrasonic testing of all full-penetration welds.*	X	X
6. Shear Connectors	*Inspect size, number, positioning and welding of shear connectors. Inspect studs for full 360 degree flash. Ring test all shear connectors with a 3 lb hammer. Bend test all questionable studs to 15 degrees.*		X
7. Structural Details	*Inspect steel frame for compliance with structural drawings, including bracing, member configuration and connection details.*		X
8. Metal Deck	*Inspect welding and side-lap fastening of metal roof and floor deck.*		X
9. Quality Assurance	*In addition to items listed above, inspection of structural steel shall be in accordance with requirements indicated in Chapter N of the AISC 360.*		X

Wood Construction

C = Continuous P = Periodic

Item	Scope	Frequency C	Frequency P
1. Fabricator Certification / Quality Control Procedures ☐ Fabricator Exempt	*Inspect shop fabrication and quality control procedures for wood truss plant.*		X
2. Material Grading	*Verify compliance with construction documents and specifications.*		X
3. Connections	*Verify compliance with construction documents and specifications.*		X
4. Framing and Details	*Verify compliance with construction documents and specifications.*		X
5. Diaphragms and Shearwalls	*Inspect size, configuration, blocking and fastening of shearwalls and diaphragms. Verify panel grade and thickness.*		X
6. Prefabricated Wood Trusses	*Inspect the fabrication of wood trusses.*		X
7. Permanent Truss Bracing	*Verify compliance with construction documents and specifications.*		X

Wind Resistance Inspections

C = Continuous P = Periodic

Item	Scope	Frequency C	Frequency P
1. Structural Wood	*Inspect field gluing operations of elements of the main wind force-resisting system.* *Inspect nailing, bolting, anchoring and other fastening of elements of the main wind force-resisting system, including wood shear walls, wood diaphragms, drag struts, braces, and hold-downs. (Inspections of diaphragms where fastener spacing is more than 4"o.c. not required)*	X	X
2. Cold-formed steel Light-Framed Construction	*Inspect welding operations of the main wind force-resisting systems.* *Inspect screw attachments, bolting, anchoring and other fastening of elements of the main wind force-resisting system, including shear walls, braces, diaphragms, collectors (drag struts) and hold-downs. Inspection not required where:* *a. Shear panels and diaphragm fastener spacing is more than 4" o.c. and structural panel provided on only one side of shear wall.* *b. Sheathing is gypsum board or fiberboard.*		X X
3. Wind Resistance Components	*Special inspection for fastening of the following systems and components:* *a. Roof covering, roof deck and roof framing connections.* *b. Exterior wall coverings and wall connections to roof and floor diaphragms and framing.*		X

GENERAL NOTES

1. Materials and workmanship shall be in accordance with the requirements of "The International Building Code", 2015 Edition.
2. Contractor shall check and verify all dimensions shown on structural drawings with those shown on architectural.
3. Contractor shall notify Architect of any discrepancies between architectural and structural drawings and receive written clarification of discrepancies before proceeding with construction.
4. Special inspections shall be performed in accordance with I.B.C. Section 1704 when such inspections are required by the Building Official. Contractor shall coordinate the work schedule with the special inspectors who are selected and paid by the Owner.
5. During construction, the contractor shall be responsible for temporary bracing and shoring to withstand all loads to which the structure may be subjected, including lateral loads, stockpiles of materials and equipment. Temporary bracing shall remain in place until all structural framing and diaphragms are in place with connections completed.
6. Where the Structural Drawings appear to conflict with OSHA requirements, the Structural Drawings represent final conditions only; the contractor shall add all erection framing, bolts, stabilizer plates, etc. as may be necessary to comply with OSHA.
7. Deferred submittals shall be designed by an engineer licensed by the State of Colorado. All submittals shall be reviewed and noted "No Exceptions Taken" by Engineer of Record prior to final submission to the Building Department.

FOUNDATION GENERAL NOTES

1. Recommendations for foundation type and design criteria, including bearing pressures, were provided by " (Title of Geotechnical Report and Report Number)", dated , by _____ (Geotechnical Engineer), a separate consultant to the Owner.
2. Maximum bearing pressure used in footing design: _ psf.
3. Minimum bearing pressure used in footing design (dead load only): psf.
4. Reference geotechnical report for required soil conditions at footing bearing.
5. The geotechnical engineer shall perform open excavation inspection prior to placing foundations to ensure bearing capacity is satisfactory.
6. In case conditions found at the site vary from those indicated on the drawings, the Architect is to be notified so that adjustments to the foundation can be made to meet actual field conditions.
7. All footings shall be the exact size shown on the drawings; no larger, no smaller.
8. No footings or foundation wall shall be placed without adequate notification to allow Engineer to observe reinforcing if they deem necessary.
9. No concrete shall be placed in excavation containing water or on frozen ground.
10. Backfill shall be placed against both sides of walls simultaneously.

CONCRETE GENERAL NOTES

1. Material and workmanship shall be in accordance with the requirements of "Building Code Requirements for Structural Concrete" (ACI 318-14).
2. Concrete mixes shall conform to the following:
   Mix "A" - For Footings and Foundation Elements
   Minimum 28 day compressive strength 4,500 psi
   Maximum Aggregate Size 3/4 inch
   Entrained Air Content 6% ± 1 1/2%
   Slump 4" max.
   Fly ash may be substituted in specified amounts this mix.

   Mix "B" - For Slab-on-Grade (Interior)
   Minimum 28 day compressive strength 4,000 psi
   Maximum Aggregate Size 3/4 inch
   Entrapped Air Content 3% max.
   Water Reducing Admixture per manufacturer recommendations
   Slump 4" max.
   Minimum of 540lbs of cementitious material per cubic yard
   Water / Cement ratio 0.42 max.

   Mix "C" - For Site Concrete
   Minimum 28 day compressive strength 4,000 psi
   Maximum Aggregate Size 3/4 inch
   Entrained Air Content 6% ± 1 1/2%
   Water Reducing Admixture per manufacturer recommendations
   Slump 4" max.
   Water / Cement ratio 0.45 max.
3. All cement used in concrete shall be Type I/II.
4. All concrete shall have a minimum cementitious materials content of 470 lbs. per cubic yard unless otherwise specified.
5. Calcium Chloride shall not be added to concrete.
6. Reinforcing bars shall conform to ASTM A-615, Grade 60 or ASTM A-706.
7. Bar bending details and placing drawings shall be in accordance with the "Manual of Standard Practice for Detailing Reinforced Concrete Structures" (ACI 315, latest edition).
8. Fly ash may be added for up to 20% of cementitious materials by weight where indicated in the mix design.
9. Where welded reinforcement or deformed bar anchors are indicated on the drawings, steel specifications and welding shall conform to "Structural Welding Code - Reinforcing Steel". AWS D1.4 latest edition of The American Welding Society. Use ASTM A-706 where reinforcement is welded.
10. Provide bar supports and spacers to place all bars in proper location, and wire adequately at intersections to hold bars firmly in position while concrete is placed. Vertical dowels shall be supported in place prior to placing concrete.
11. Bar supports and spacers which rest on or against exposed surface shall be hot dipped galvanized or plastic coated.
12. Continuous bars shall lap and dowels shall project adequately to provide a Class B splice but not less than 12" unless shown otherwise on drawings. Do not splice near maximum stress locations.
13. See architectural, mechanical and electrical drawings for additional openings, depressions, curbs, floor finishes, inserts and other embedded items.
14. Welded wire fabric shall conform to ASTM A-185 and shall lap a minimum of one full mesh plus 2" at side and end laps and shall be securely wired together, unless otherwise shown.
15. Stagger lap splices of horizontal bars in concrete walls.
16. Reinforcing bar sizes shown are English designation. The bars may be furnished with the equivalent metric markings:

English	#3	#4	#5	#6	#7	#8	#9	#10	#11
Metric	#10	#13	#16	#19	#22	#25	#29	#32	#36

TYPICAL MINIMUM REINFORCING BAR LAP LENGTHS

- *In inches.*
- *Use for normal weight concrete f'c = 4500 psi, unless noted otherwise.*

BAR SIZE	#3	#4	#5	#6	#7	#8	#9	#10	#11
TOP BARS	24	32	39	46	67	77	86	97	107
OTHER BARS	18	24	30	35	51	59	66	74	82

- *"Top Bars" are any horizontal reinforcing bars so placed that more than 12" of fresh concrete is cast in the member below the splice.*

STRUCTURAL STEEL GENERAL NOTES

1. All steel shall conform to the "Standard Specification for Structural Steel" ASTM Designation A572, Grade 50, or ASTM A992, latest edition, except where noted otherwise. Angles, channels, and plates shall conform to ASTM A36. Round hollow structural steel sections shall conform to ASTM A500, Fy = 42 ksi. Square or rectangular hollow structural sections shall conform to ASTM A500, Grade B, Fy = 46 ksi. Pipe shall conform to ASTM A53, Grade B, Fy = 35 ksi. Threaded rod and anchor rods shall conform to ASTM F1554 Gr. 36
2. All detailing, fabrication and erection shall conform to AISC "Specification for Structural Steel Buildings", and the AISC "Code of Standard Practice for Steel Buildings and Bridges", latest edition, and "Load and Resistance Factor Design Specification for Structural Steel Buildings" when applicable.
3. This structure contains "non-self-supporting steel frames" per AISC definition. The contractor shall coordinate the installation of all necessary temporary bracing which shall remain in place until the lateral support system is constructed and connected to the framing.
4. Shop connections shall be welded unless noted otherwise.
5. Field connections shall be made with 3/4" diameter ASTM A325 High Strength Bolts. Connections shall be bearing-type tightened to a "snug-tight" condition unless noted as "Tension Controlled". Connections utilizing "Tension Controlled" bolts shall be pretensioned but do not require faying surface preparation unless noted otherwise.
6. All welding shall be done by certified welding operators and shall conform to "AWS Structural Welding Code" (AWS D1.1), latest edition.
7. Welding sizes not otherwise shown shall be minimum continuous 1/4 inch fillet welds, or equal to the thickness of the thinner material minimum 1/16th inch, whichever is less.
8. All welding shall be done with AWS A5.1 or A5.5 E70 X8 electrodes except for welding of ASTM A706 rebar, which shall be welded using E80 electrodes.
9. Areas within 2 inches of field welds shall not be painted until after welding. Field welds, bolt heads, nuts and other surfaces not shop painted and surfaces abraded during shipping and erection shall be field painted after erection.
10. All structural steel exposed to view shall conform to the provisions for "Architecturally Exposed Structural Steel" in the AISC Code of Standard Practice.
11. All steel shall receive one shop coat of shop metal primer or equal conforming to Steel Structures Painting Council Specification (SSPC No. 15).

TIMBER GENERAL NOTES

1. All wood framing shall conform to the "National Design Specification for Wood Construction", latest edition, recommended by the "National Forest Products Association".
2. Sawn lumber framing members shall conform to the following species and grades: (Spruce-Pine-Fir #2 or better or Hem-Fir #2 or better).
3. All Plywood Web Joists shall be "TJI" as manufactured by Weyerhaeuser, or "BCI" as manufactured by Boise Cascade. See plan for required joist series.
4. Lumber for all glue laminated bending members ("Glu-Lam Beams") shall be combination 24F-V8 or better and for all glue laminations compression members. ("Glu-Lam Columns") shall be combination A- or better, meeting the allowable stress values given in "Design Values for Wood Construction" published by the American Forest and Paper Association. Glu-lam mebers are to be free of wane.
5. Laminated Veneer Lumber (LVL) prefabricated structural wood beams and joists shall be "Microllam" as manufactured by Weyerhaeuser, or "Versa-Lam" as manufactured by Boise Cascade, Inc. Parallel Strand Lumber (PSL) prefabricated structural wood beams and columns shall be "Parallam" as manufactured by Weyerhauser.
6. Sheathing panels shall be identified with the appropriate trademark of the American Plywood Association, and shall meet the requirements of U.S. Product Standard PS1-07 or APA PRP-108, Performance Standards, latest edition.
7. All roof sheathing shall be 7/16" (optional: Spec Grade C-D) APA rated sheathing (Exposure 1). Minimum panel identification shall be 24/16. Roof sheathing nailing shall be 8d common nails at 6" on center maximum at all edges and boundaries, unless noted otherwise. Nailing along intermediate members shall be 12" on center maximum.
8. All floor sheathing shall be 23/32" tongue-and-groove APA rated (Exposure 1) with panel identification 48/24.
9. Wood floor nailing shall be 10d deformed shank nails at 6" on center maximum at all supported edges unless noted otherwise, nailing along intermediate members shall be at 12" on center maximum.
10. All sheathing for exterior walls and shear walls shall be 7/16" (optional: Spec C-D or Structural I) APA rated sheathing (Exposure 1). Nailing shall be as noted on the drawings. All panel edges shall be backed with 2" nominal framing.
11. Glue floor sheathing to joists per American Plywood Association's Glued Floor System recommendation.
12. Floor and roof sheathing shall be placed with 8'-0" dimension perpendicular to joist framing, stagger joints. Panels to be continuous over two or more spans. Panel end joints shall occur over framing. Allow 1/8 inch spacing at panel ends and 1/8 inch at panel edges unless otherwise recommended by the panel manufacturer.
13. Design of prefabricated wood trusses shall be in accordance with "National Design Standard For Metal Plate Connected Wood Truss Construction", ANSI/TPI-1, and shall be under the direct supervision of a Professional Engineer Registered in Colorado. Trusses shall be installed in strict accordance with the manufacturer's specifications.
14. The Contractor and Truss supplier shall comply with the requirements and recommendations of TPI HIB "Commentary and Recommendations for Handling Installing and Bracing Metal Plate Connected Wood Trusses" and TPI DSB "Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses".
15. All bolts shall be ASTM A-307.
16. Ends of glu-lam members shall be accurately cut to provide uniform bearing.
17. All wood web joists shall be installed per manufacturer's recommendations, and as show on the drawings.
18. Install blocking panels between all wood web joists at all supports. Install per manufacturer's recommendations, and as shown on the drawings.
19. Double and triple built-up solid sawn wood members shall be spiked together with two 16d nails spaced at 12" o.c. on center except where noted otherwise on drawings.
20. Nails for wood sheathing shall be common nails.
21. Minimum nailing for all wood framing shall conform to Table No. 2304.10.1, International Building Code, 2015 Edition, unless noted otherwise.
22. Joists shown on plan are basis of design; if changed, notify engineer.
23. 16d nails shall be common or sinker (0.148" minimum diameter).
24. Bolt holes in glu-lam members shall be field drilled after members are in place to ensure positive uniform bearing.

DESIGN LOADS:

Roof Loads
Dead Load
(includes 3 psf allowance for future Solar panels) 21 psf - top chord
Typical truss bottom chord 7 psf
Attic truss bottom chord 15 psf + mech. unit loading
Snow Load (Uniform) 30 psf
Pg (for drifting) 30 psf

Importance Factor I_S=1.0

Wind Loads - Exposure C, 135 mph (V_{ULT}) 3 second gust

Seismic Information
Importance Factor I_E = 1.0
Building Occupancy Category II
Mapped Spectral Accelerations S_S = 0.208g
S_1 = 0.058g
Site Class D
Design Spectral Accelerations S_{DS} = 0.222g
S_{D1} = 0.093g
Seismic Design Category B
Basic Seismic-Force-Resisting System consists of Wood shear walls

Seismic Response Coefficients C = 0.034
Response Modification Factors: R (ELEMENT) = 6.5

Equivalent Lateral Force Procedure

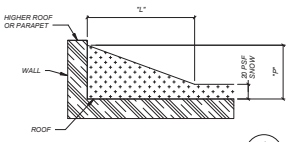
WALL COMPONENT AND CLADDING WIND PRESSURES (LRFD)

EFFECTIVE AREA	INTERIOR PRESSURE	CORNER PRESSURE
sf	psf	psf
10 OR LESS	45.7	56.4
20	43.9	52.8
50	41.4	47.5
100	39.3	44.6
200	37.8	40.3
500 OR ABOVE	35.0	35.0

- *VALUES ABOVE INDICATE MINIMUM DESIGN WIND PRESSURES ONLY. COMPONENTS AND CLADDING DESIGN SHALL BE BASED ON MINIMUM DESIGN PRESSURES FROM ALL APPLICABLE CODE SECTIONS.*

SNOW DRIFT LOAD SCHEDULE

LOCATION	"P" (PSF)	"L"
A	-	_ _ - _ _
B	-	_ _ - _ _
C	-	_ _ - _ _



SNOW DRIFT LOADS

1 S-001

- *JOIST MANUFACTURER TO DESIGN JOISTS TO SUPPORT DRIFTING LOADS GIVEN IN SCHEDULE.*
- *ALL JOISTS SHALL ALSO BE CAPABLE OF SUPPORTING 30 PSF UNIFORM SNOW LOAD WITHOUT DRIFTING.*
- *LIMIT SNOW LOAD DEFLECTION TO L/360 WITH CEILING, L/240 WITHOUT CEILING, UNLESS NOTED OTHERWISE.*

TRUSSES PENDING

Truss engineering must be submitted a minimum of one week prior to frame inspection and cannot be walked through. The truss package must include a signed and dated "Shop Drawing Review" stamped from the design professional of record that verifies conformance with the approved construction design documents. Unless previously shown on the approved structural framing plans, the truss layout must show all necessary truss connection hardware including hangers, uplift connections, and truss bearing enhancers.

NOT FOR CONSTRUCTION

HB&A Architecture AND Planning
102 E. Moreno Avenue
Colorado Springs, CO 80903
719.473.7063
www.hbaa.com

HCDA ENGINEERING, INC.
STRUCTURAL CONSULTANTS
8 SOUTH WIDNER STREET
COLORADO SPRINGS, COLORADO 80903
(719)633-7764 FAX (719)471-3175

WILLOUGHBY CORNER- CB 1
N. 120th St. and E. Emma St.
Lafayette, Colorado 80026

issue / revision	date:
Concept Design	Oct. 2021
Draft Elevations	April 2022
Schematic Design	04/29/22
Design Development	06/24/22

168-09

DJH

CA, SAH

GENERAL NOTES

S-001

SPECIAL INSPECTION GENERAL NOTES

1. A statement of special inspections for structural items has been prepared by HCDA Engineering, Inc. for submittal to the Building Official. This is submitted as a condition for permit issuance in accordance with the Structural Testing and Special Inspection requirements of the International Building Code, 2015 edition.
2. The Structural Engineer will perform periodic observations of construction. These observations shall not replace required inspections by the Building Official. These observations also do not serve as "Special Inspections" as required by section 1704 of the International Building Code.
3. Steel Fabricators shall be approved in accordance with IBC section 1704.2.5.1 of the International Building Code, 2015 Edition, or are required to have shop inspections of the fabricated items for the project by the special inspector hired by the Owner as required by section 1704.2.5.
4. Special Inspectors (not third party inspectors) shall be approved individually by the Building Official prior to the issuance of a permit. Please provide the list of specific special inspectors to determine if they have already been approved. Each Special Inspector not already approved by the Building Official must provide a resume and all supporting information related to their qualifications for the specific type of special inspections in accordance with IBC 1704.2.1.

Statement of Special Inspections

Project: Willoughby Corner

Location: N. 120th St. and E. Emma St., Lafayette, Colorado 80026

Owner: Boulder County Housing Authority

This Statement of Special Inspections is submitted as a condition for permit issuance in accordance with the Structural Testing and Special Inspection requirements of the Building Code. It includes a schedule of Special Inspection services applicable to this project. This Statement of Special Inspections encompasses the Structural components of the building.

The Special Inspection Coordinator, Special Inspector and Testing Agency shall be approved by the owner and qualified to perform the services indicated. The Special Inspection Coordinator shall keep records of all inspections and shall furnish interim inspection reports to the Building Official (if requested) and the Project Structural Engineer. Discovered discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Project Structural Engineer. The Special Inspection program does not relieve the Contractor of their responsibilities.

A Final Report of Special Inspections documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy.

Job site safety and means and methods of construction are solely the responsibility of the contractor.

Interim Report Frequency: Weekly or as warranted based on construction performed.

Soils and Foundations

C = Continuous P = Periodic

Item	Scope	Frequency C	Frequency P
1. Shallow Foundations	*Inspect materials below shallow foundations to verify they are adequate to achieve the design bearing capacity.*		X
2. Controlled Structural Fill	*Perform classification and testing of compacted fill material* *Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.* *Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.*	X	X X
3. Excavations	*Verify excavations are extended to proper depth and have reached proper material.*		X

Cast-in-Place Concrete

C = Continuous P = Periodic

Item	Scope	Frequency C	Frequency P
1. Mix Design	*Review concrete batch tickets and verify compliance with approved mix design. Verify that water added at the site does not exceed that alowed by the mix design.*		X
2. Reinforcement Installation	*Inspect size, spacing, cover, positioning and grade of reinforcing steel. Verify that reinforcing bars are free of form oil or other deleterious materials. Inspect bar laps and mechanical splices. Verify that bars are adequateley tied and supported on chairs or bolsters.*		X
3. Welding of Reinforcing	*Visually inspect all reinforcing steel welds. Verify weldability of reinforcing steel. Inspect preheating of steel when required.* *Welds > 5/16"*	X	X
4. Cast in Anchors	*Inspect size, positioning and embedment of anchor rods and embedded plates, inspect concrete placement and consolidation around anchors.*		X
5. Concrete Placement	*Inspect placement of concrete. Verify proper application techniques; concrete conveyance and depositing avoids segregation or contamination. Verify that concrete is properly consolidated.*	X	
6. Sampling and Testing	*Test concrete compressive strength (ASTM C13 & C39), slump (ASTM C143), air-content (ASTM C231 or C173) and temperature (ASTM C1064). Fabricate specimens for strength tests.*	X	
7. Curing and Protection	*Inspect curing, cold weather protection and hot weather protection procedures. Verify maintenance of specified curing temperature and techniques.*		X
8. Post-installed Anchors	*Inspect adhesive anchors installed horizontally or upwardly for anchor size, embedment, and installation technique.* *Inspect mechanical anchors for size and embedment.*	X	X
9. Formwork	*Inspect formwork for shape, location and dimensions of the concrete member being formed.*		X

Structural Steel

C = Continuous P = Periodic

Item	Scope	Frequency C	Frequency P
1. Fabricator Certification / Quality Control Procedures ☐ Fabricator Exempt	*Review shop fabrication and quality control procedures.* *To be paid by Fabricator if plant not certified.*		X
2. Material Certification	*Review certified mill test reports and identification markings on wide-flange shapes, high-strength bolts, nuts and welding electrodes.*		X
3. Open Web Steel Joists	*Inspect installation, field welding and bridging of joists.*		X
4. Bolting	*Inspect installation and tightening of high-strength bolts. Verify that splines have separated from tension control bolts.*		X
5. Welding - Single pass fillet welds ≤ 5/16" Single pass fillet welds > 5/16" Multi pass fillet welds Partial & Complete pen welds	*Visually inspect welds. Verify size and length of fillet welds.* *Visually inspect all welds. Inspect pre-heat, post-heat and surface preparation between passes. Verify size and length of fillet welds. Ultrasonic testing of all full-penetration welds.*	X	X
6. Shear Connectors	*Inspect size, number, positioning and welding of shear connectors. Inspect studs for full 360 degree flash. Ring test all shear connectors with a 3 lb hammer. Bend test all questionable studs to 15 degrees.*		X
7. Structural Details	*Inspect steel frame for compliance with structural drawings, including bracing, member configuration and connection details.*		X
8. Metal Deck	*Inspect welding and side-lap fastening of metal roof and floor deck.*		X
9. Quality Assurance	*In addition to items listed above, inspection of structural steel shall be in accordance with requirements indicated in Chapter N of the AISC 360.*		X

Wood Construction

C = Continuous P = Periodic

Item	Scope	Frequency C	Frequency P
1. Fabricator Certification / Quality Control Procedures ☐ Fabricator Exempt	*Inspect shop fabrication and quality control procedures for wood truss plant.*		X
2. Material Grading	*Verify compliance with construction documents and specifications.*		X
3. Connections	*Verify compliance with construction documents and specifications.*		X
4. Framing and Details	*Verify compliance with construction documents and specifications.*		X
5. Diaphragms and Shearwalls	*Inspect size, configuration, blocking and fastening of shearwalls and diaphragms. Verify panel grade and thickness.*		X
6. Prefabricated Wood Trusses	*Inspect the fabrication of wood trusses.*		X
7. Permanent Truss Bracing	*Verify compliance with construction documents and specifications.*		X

Wind Resistance Inspections

C = Continuous P = Periodic

Item	Scope	Frequency C	Frequency P
1. Structural Wood	*Inspect field gluing operations of elements of the main wind force-resisting system.* *Inspect nailing, bolting, anchoring and other fastening of elements of the main wind force-resisting system, including wood shear walls, wood diaphragms, drag struts, braces, and hold-downs. (Inspections of diaphragms where fastener spacing is more than 4'o.c. not required)*	X	X
2. Cold-formed steel Light-Framed Construction	*Inspect welding operations of the main wind force-resisting systems.* *Inspect screw attachments, bolting, anchoring and other fastening of elements of the main wind force-resisting system, including shear walls, braces, diaphragms, collectors (drag struts) and hold-downs. Inspections not required where:* *a. Shear panels and diaphragm fastener spacing is more than 4" o.c. and structural panel provided on only one side of shear wall.* *b. Sheathing is gypsum board or fiberboard.*		X X
3. Wind Resistance Components	*Special inspection for fastening of the following systems and components:* *a. Roof covering, roof deck and roof framing connections.* *b. Exterior wall coverings and wall connections to roof and floor diaphragms and framing.*		X

GENERAL NOTES

1. Materials and workmanship shall be in accordance with the requirements of "The International Building Code", 2015 Edition.
2. Contractor shall check and verify all dimensions shown on structural drawings with those shown on architectural.
3. Contractor shall notify Architect of any discrepancies between architectural and structural drawings and receive written clarification of discrepancies before proceeding with construction.
4. Special inspections shall be performed in accordance with I.B.C. Section 1704 when such inspections are required by the Building Official. Contractor shall coordinate the work schedule with the special inspectors who are selected and paid by the Owner.
5. During construction, the contractor shall be responsible for temporary bracing and shoring to withstand all loads to which the structure may be subjected, including lateral loads, stockpiles of materials and equipment. Temporary bracing shall remain in place until all structural framing and diaphragms are in place with connections completed.
6. Where the Structural Drawings appear to conflict with OSHA requirements, the Structural Drawings represent final conditions only; the contractor shall add all erection framing, bolts, stabilizer plates, etc. as may be necessary to comply with OSHA.
7. Deferred submittals shall be designed by an engineer licensed by the State of Colorado. All submittals shall be reviewed and noted "No Exceptions Taken" by Engineer of Record prior to final submission to the Building Department.

FOUNDATION GENERAL NOTES

1. Recommendations for foundation type and design criteria, including bearing pressures, were provided by "_____(Title of Geotechnical Report and Report Number)", dated _____, by _____ (Geotechnical Engineer), a separate consultant to the Owner.
2. Maximum bearing pressure used in footing design:2,000 psf.
3. Minimum bearing pressure used in footing design (dead load only): 700 psf.
4. Reference geotechnical report for required soil conditions at footing bearing.
5. The geotechnical engineer shall perform open excavation inspection prior to placing foundations to ensure bearing capacity is satisfactory.
6. In case conditions found at the site vary from those indicated on the drawings, the Architect is to be notified so that adjustments to the foundation can be made to meet actual field conditions.
7. All footings shall be the exact size shown on the drawings; no larger, no smaller.
8. No footings or foundation wall shall be placed without adequate notification to allow Engineer to observe reinforcing if they deem necessary.
9. No concrete shall be placed in excavation containing water or on frozen ground.
10. Backfill shall be placed against both sides of walls simultaneously.

CONCRETE GENERAL NOTES

1. Material and workmanship shall be in accordance with the requirements of "Building Code Requirements for Structural Concrete" (ACI 318-14).
2. Concrete mixes shall conform to the following:

   Mix "A" - For Footings and Foundation Elements

Minimum 28 day compressive strength	4,500 psi
Maximum Aggregate Size	3/4 inch
Entrained Air Content	6% ± 1 1/2%
Slump	4" max.

   Fly ash may be substituted in specified amounts this mix.

   Mix "B" - For Slab-on-Grade (Interior)

Minimum 28 day compressive strength	4,000 psi
Maximum Aggregate Size	3/4 inch
Entrapped Air Content	3% max.
Water Reducing Admixture per manufacturer recommendations	
Slump	4" max.

   Fly ash may be substituted in specified amounts this mix.
   Minimum of 540lbs of cementitious material per cubic yard
   Water / Cement ratio 0.42 max.

   Mix "C" - For Site Concrete

Minimum 28 day compressive strength	4,000 psi
Maximum Aggregate Size	3/4 inch
Entrained Air Content	6% ± 1 1/2%
Water Reducing Admixture per manufacturer recommendations	
Slump	4" max.
Water / Cement ratio	0.45 max.

3. All cement used in concrete shall be Type I/II.
4. All concrete shall have a minimum cementitious materials content of 470 lbs. per cubic yard unless otherwise specified.
5. Calcium Chloride shall not be added to concrete.
6. Reinforcing bars shall conform to ASTM A-615, Grade 60 or ASTM A-706.
7. Bar bending details and placing drawings shall be in accordance with the "Manual of Standard Practice for Detailing Reinforced Concrete Structures" (ACI 315, latest edition).
8. Fly ash may be added for up to 20% of cementitious materials by weight where indicated in the mix design.
9. Where welded reinforcement or deformed bar anchors are indicated on the drawings, steel specifications and welding shall conform to "Structural Welding Code - Reinforcing Steel". AWS D1.4 latest edition of The American Welding Society. Use ASTM A-706 where reinforcement is welded.
10. Provide bar supports and spacers to place all bars in proper location, and wire adequately at intersections to hold bars firmly in position while concrete is placed. Vertical dowels shall be supported in place prior to placing concrete.
11. Bar supports and spacers which rest on or against exposed surface shall be hot dipped galvanized or plastic coated.
12. Continuous bars shall lap and dowels shall project adequately to provide a Class B splice but not less than 12" unless shown otherwise on drawings. Do not splice near maximum stress locations.
13. See architectural, mechanical and electrical drawings for additional openings, depressions, curbs, floor finishes, inserts and other embedded items.
14. Welded wire fabric shall conform to ASTM A-185 and shall lap a minimum of one full mesh plus 2" at side and end laps and shall be securely wired together, unless otherwise shown.
15. Stagger lap splices of horizontal bars in concrete walls.
16. Reinforcing bar sizes shown are English designation. The bars may be furnished with the equivalent metric markings:

English	#3	#4	#5	#6	#7	#8	#9	#10	#11
Metric	#10	#13	#16	#19	#22	#25	#29	#32	#36

TYPICAL MINIMUM REINFORCING BAR LAP LENGTHS

- *In inches.*
- *Use for normal weight concrete f'c = 4500 psi, unless noted otherwise.*

BAR SIZE	*#3*	*#4*	*#5*	*#6*	*#7*	*#8*	*#9*	*#10*	*#11*
TOP BARS	*24*	*32*	*39*	*46*	*67*	*77*	*86*	*97*	*107*
OTHER BARS	*18*	*24*	*30*	*35*	*51*	*59*	*66*	*74*	*82*

- *"Top Bars" are any horizontal reinforcing bars so placed that more than 12" of fresh concrete is cast in the member below the splice.*

MASONRY GENERAL NOTES

1. Grout shall be proportioned by volume and shall have sufficient water added to produce consistency for pouring without segregation.
   a. Fine grout shall be composed of one part portland cement, to which may be added not more than one-tenth part hydrated lime or lime putty, and two and one fourth to three parts sand.
   b. Coarse grout shall be composed of one part portland cement, to which may be added not more than one-tenth part hydrated lime or lime putty, and two to three parts sand, and not more than two parts gravel.
   c. Transit-Mixed Grout for masonry:
   Minimum 28-day compressive strength : 2000 psi
   Aggregate size: 3/8 inch maximum
   Slump: 7 inch minimum, 10 inch maximum

   Coarse grout may be used in grout spaces in brick masonry 2 inches or more in horizontal dimension, and in grout spaces in filled-cell construction 3 inches or more in both horizontal dimensions.
   1b. Grout shall be proportioned by volume and shall have sufficient water added to produce consistency for pouring without segregation. Grout shall be composed of one part Portland cement to which may be added not more than one-tenth part hydrated lime or lime putty, and two and one fourth to three parts sand.
2. Reinforcing steel shall conform to ASTM A-615, Grade 60 or ASTM A-706.
3. Reinforcing bars shall be lapped 50 bar diameters minimum at #6 bars or less and 60 bar diameters minimum at #7 bars when spliced. All vertical bar lengths to be 4'-8" plus required lap.
4. When a foundation dowel does not line up with the vertical core to be reinforced, it shall not be bent over, but shall be grouted into a core in direct vertical alignment, even though it is in an adjacent cell to the vertical wall reinforcing.
5. Vertical reinforcing bars shall be held in position at top and bottom. All debris and projecting mortar shall be cleaned out before pouring grout.
6. Vertical cells to be filled shall have vertical alignment to maintain a continuous unobstructed cell area not less than 2" x 3".
7. Cells containing reinforcing shall be solidly filled with grout in pours not to exceed 4'-8" and pours shall be stopped 1-1/2" below the top of a course to form a key at pour joints. Grout lifts may exceed 4'-8" if "high-lift" grouting requirements are followed.
8. Grout shall be consolidated by mechanical vibration during placing before loss of plasticity in a manner to fill grout space. Grout pours greater than 12 inches shall be reconsolidated by mechanical vibration to minimize voids due to water loss. Grout pours 12 inches or less in height shall be mechanically vibrated, or puddle.
9. Mortar for all exterior walls and bearing walls shall be Type S.
10. 10a. Specified Compressive Strength, fm, of concrete masonry shall be 1900 psi at the age of 28 days. (FOR IBC 2012)
    10b. Specified compressive strength, fm, of concrete masonry shall be 2000 psi at the age of 28 days. (FOR IBC 2018)
11. Brick masonry units minimum fm shall be 1900 psi.
12. Where other reinforcing is not required by the drawings, provide one #5 bar at all sides of, and adjacent to, every opening which exceeds 24" in either direction. Extend vertical bars full height of wall. Extend horizontal bars 24" beyond each side of opening. Where possible provide U-block immediately below and one course above the opening and grout the reinforcing in place. In double wythe or cavity walls place the reinforcing in the cavity and build solid with mortar.
13. Continue bond beams minimum 2'-0" around corners. Where bond beam steps, lap bond beam courses minimum 2'-0".
14. All concrete block below grade shall be grouted solid.
15. Continue bond beam reinforcing through masonry control joints.
16. See Architectural drawings and specifications for horizontal joint reinforcing and other masonry reinforcing not shown on structural drawings.

STRUCTURAL STEEL GENERAL NOTES

1. All steel shall conform to the "Standard Specification for Structural Steel" ASTM Designation A572, Grade 50, or ASTM A992, latest edition, except where noted otherwise. Angles, channels, and plates shall conform to ASTM A36. Round hollow structural steel sections shall conform to ASTM A500, Fy = 42 ksi. Square or rectangular hollow structural sections shall conform to ASTM A500, Grade B, Fy = 46 ksi. Pipe shall conform to ASTM A53, Grade B, Fy = 35 ksi. Threaded rod and anchor rods shall conform to ASTM F1554 Gr. 36
2. All detailing, fabrication and erection shall conform to AISC "Specification for Structural Steel Buildings", and the AISC "Code of Standard Practice for Steel Buildings and Bridges", latest edition, and "Load and Resistance Factor Design Specification for Structural Steel Buildings" when applicable.
3. This structure contains "non-self-supporting steel frames" per AISC definition. The contractor shall coordinate the installation of all necessary temporary bracing which shall remain in place until the lateral support system is constructed and connected to the framing.
4. Shop connections shall be welded or bolted with 3/4" diameter A325 "Tension Controlled" High Strength Bolts.
5. Field connections shall be made with 3/4" diameter ASTM A325 High Strength Bolts. Connections shall be bearing-type tightened to a "snug-tight" condition unless noted as "Tension Controlled". Connections utilizing "Tension Controlled" bolts shall be pretensioned but do not require faying surface preparation unless noted otherwise.
6. All welding shall be done by certified welding operators and shall conform to "AWS Structural Welding Code" (AWS D1.1), latest edition.
7. Welding sizes not otherwise shown shall be minimum continuous 1/4 inch fillet welds, or equal to the thickness of the thinner material minimum 1/16th inch, whichever is less.
8. All welding shall be done with AWS A5.1 or A5.5 E70 X8 electrodes except for welding of ASTM A706 rebar, which shall be welded using E80 electrodes.
9. Areas within 2 inches of field welds shall not be painted until after welding. Field welds, bolt heads, nuts and other surfaces not shop painted and surfaces abraded during shipping and erection shall be field painted after erection.
10. All structural steel exposed to view shall conform to the provisions for "Architecturally Exposed Structural Steel" in the AISC Code of Standard Practice.

TIMBER GENERAL NOTES

1. All wood framing shall conform to the "National Design Specification for Wood Construction", latest edition, recommended by the "National Forest Products Association".
2. Sawn lumber framing members shall conform to the following species and grades: (Spruce-Pine-Fir #2 or better or Hem-Fir #2 or better).
3. All Plywood Web Joists shall be "TJI" as manufactured by Weyerhaeuser, or "BCI" as manufactured by Boise Cascade. See plan for required joist series.
4. Laminated Veneer Lumber (LVL) prefabricated structural wood beams and joists shall be "Microllam" as manufactured by Weyerhaeuser, or "Versa-Lam" as manufactured by Boise Cascade, Inc. Parallel Strand Lumber (PSL) prefabricated structural wood beams and columns shall be "Parallam" as manufactured by Weyerhauser.
5. Sheathing panels shall be identified with the appropriate trademark of the American Plywood Association, and shall meet the requirements of U.S. Product Standard PS1-07 or APA PRP-108, Performance Standards, latest edition.
6. All roof sheathing shall be 7/16" APA rated sheathing (Exposure 1). Minimum panel identification shall be 24/16. Roof sheathing nailing shall be 8d common nails at 6" on center maximum at all edges and boundaries, unless noted otherwise. Nailing along intermediate members shall be 12" on center maximum.
7. All floor sheathing shall be 23/32" tongue-and-groove APA rated (Exposure 1) with panel identification 48/24.
8. Wood floor nailing shall be 10d deformed shank nails at 6" on center maximum at all supported edges unless noted otherwise, nailing along intermediate members shall be at 12" on center maximum.
9. All sheathing for exterior walls and shear walls shall be 7/16" APA rated sheathing (Exposure 1). Nailing shall be as noted on the drawings. All panel edges shall be backed with 2" nominal framing.
10. Glue floor sheathing to joists per American Plywood Association's Glued Floor System recommendation.
11. Floor and roof sheathing shall be placed with 8'-0" dimension perpendicular to joist framing, stagger joints. Panels to be continuous over two or more spans. Panel end joints shall occur over framing. Allow 1/8 inch spacing at panel ends and 1/8 inch at panel edges unless otherwise recommended by the panel manufacturer.
12. Design of prefabricated wood trusses shall be in accordance with "National Design Standard For Metal Plate Connected Wood Truss Construction", ANSI/TPI-1, and shall be under the direct supervision of a Professional Engineer Registered in Colorado. Trusses shall be installed in strict accordance with the manufacturer's specifications.
13. The Contractor and Truss supplier shall comply with the requirements and recommendations of TPI HIB "Commentary and Recommendations for Handling Installing and Bracing Metal Plate Connected Wood Trusses" and TPI DSB "Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses".
14. All bolts shall be ASTM A-307.
15. All wood web joists shall be installed per manufacturer's recommendations, and as show on the drawings.
16. Install blocking panels between all wood web joists at all supports. Install per manufacturer's recommendations, and as shown on the drawings.
17. Double and triple built-up solid sawn wood members shall be spiked together with two 16d nails spaced at 12" o.c. on center except where noted otherwise on drawings.
18. Nails for wood sheathing shall be common nails.
19. Minimum nailing for all wood framing shall conform to Table No. 2304.10.1, International Building Code, 2015 Edition, unless noted otherwise.
20. Joists shown on plan are basis of design; if changed, notify engineer.
21. 16d nails shall be common or sinker (0.148" minimum diameter).

DESIGN LOADS:

Roof Loads

Dead Load (includes 9 psf allowance for future solar panels)	27 psf TOP CHORD 7 psf BOT. CHORD
Snow Load (Uniform)	30 psf
Pg (for drifting)	30 psf
Importance Factor	$I_S = 1.0$

Floor Loads

Dead Load	
interior	41 psf
deck	15 psf
Live Load	
Living spaces	40 psf
Public spaces	100 psf

Wind Loads - Exposure C, 135 mph (V_{ULT}) 3 second gust

Seismic Information

Importance Factor	$I_E = 1.0$
Building Occupancy Category	II
Mapped Spectral Accelerations	$S_S = 0.208g$ $S_1 = 0.058g$
Site Class	D
Design Spectral Accelerations	$S_{DS} = 0.222g$ $S_{D1} = 0.093g$
Seismic Design Category	B
Basic Seismic-Force-Resisting System consists of Wood shear walls	
Seismic Response Coefficients	C = 0.034
Response Modification Factors: R (ELEMENT)	= 6.5

Equivalent Lateral Force Procedure

WALL COMPONENT AND CLADDING WIND PRESSURES (LRFD)

EFFECTIVE AREA	INTERIOR PRESSURE	CORNER PRESSURE
sf	psf	psf
10 OR LESS	52.8	65.2
20	50.7	61.0
50	47.8	54.9
100	45.4	51.6
200	43.7	46.6
500 OR ABOVE	40.4	40.4

- *VALUES ABOVE INDICATE MINIMUM DESIGN WIND PRESSURES ONLY. COMPONENTS AND CLADDING DESIGN SHALL BE BASED ON MINIMUM DESIGN PRESSURES FROM ALL APPLICABLE CODE SECTIONS.*
- *PRESSURE VALUES PROVIDED IN TABLE ARE ULTIMATE.*

TRUSSES PENDING

Truss engineering must be submitted a minimum of one week prior to frame inspection and cannot be walked through. The truss package must include a signed and dated "Shop Drawing Review" stamped from the design professional of record that verifies conformance with the approved construction design documents. Unless previously shown on the approved structural framing plans, the truss layout must show all necessary truss connection hardware including hangers, uplift connections, and truss bearing enhancers.

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MF-1
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Lafayette, Colorado 80026

project

load

issue / revision	date:
Concept Design	Oct. 2021
Draft Elevations	April 2022
Design Development	08/19/2022

issue / revision

Project Number

drawn JEB, DJH

chkd CA, SAH

description

GENERAL NOTES AND SPECIAL INSPECTIONS

number S-001

SPECIAL INSPECTION GENERAL NOTES

1. A statement of special inspections for structural items has been prepared by HCDA Engineering, Inc. for submittal to the Building Official. This is submitted as a condition for permit issuance in accordance with the Structural Testing and Special Inspection requirements of the International Building Code, 2015 edition.
2. The Structural Engineer will perform periodic observations of construction. These observations shall not replace required inspections by the Building Official. These observations also do not serve as "Special Inspections" as required by section 1704 of the International Building Code.
3. Steel Fabricators shall be approved in accordance with IBC section 1704.2.5.1 of the International Building Code, 2015 Edition, or are required to have shop inspections of the fabricated items for the project by the special inspector hired by the Owner as required by section 1704.2.5.
4. Special Inspectors (not third party inspectors) shall be approved individually by the Building Official prior to the issuance of a permit. Please provide the list of specific special inspectors to determine if they have already been approved. Each Special Inspector not already approved by the Building Official must provide a resume and all supporting information related to their qualifications for the specific type of special inspections in accordance with IBC 1704.2.1.

Statement of Special Inspections

Project: Willoughby Corner

Location: N. 120th St, and E. Emma St., Lafayette, Colorado 80026

Owner: Boulder County Housing Authority

This Statement of Special Inspections is submitted as a condition for permit issuance in accordance with the Structural Testing and Special Inspection requirements of the Building Code. It includes a schedule of Special Inspection services applicable to this project. This Statement of Special Inspections encompasses the Structural components of the building.

The Special Inspection Coordinator, Special Inspector and Testing Agency shall be approved by the owner and qualified to perform the services indicated. The Special Inspection Coordinator shall keep records of all inspections and shall furnish interim inspection reports to the Building Official (if requested) and the Project Structural Engineer. Discovered discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Project Structural Engineer. The Special Inspection program does not relieve the Contractor of their responsibilities.

A Final Report of Special Inspections documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy.

Job site safety and means and methods of construction are solely the responsibility of the contractor.

Interim Report Frequency: Weekly or as warranted based on construction performed.

Soils and Foundations

	C = Continuous P = Periodic	Frequency	
Item	Scope	C	P
1. Shallow Foundations	*Inspect materials below shallow foundations to verify they are adequate to achieve the design bearing capacity.*		X
2. Controlled Structural Fill	*Perform classification and testing of compacted fill material*		X
	Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	X	
	Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.		X
3. Excavations	*Verify excavations are extended to proper depth and have reached proper material.*		X

Cast-in-Place Concrete

	C = Continuous P = Periodic	Frequency	
Item	Scope	C	P
1. Mix Design	*Review concrete batch tickets and verify compliance with approved mix design. Verify that water added at the site does not exceed that alowed by the mix design.*		X
2. Reinforcement Installation	*Inspect size, spacing, cover, positioning and grade of reinforcing steel. Verify that reinforcing bars are free of form oil or other deleterious materials. Inspect bar laps and mechanical splices. Verify that bars are adequateley tied and supported on chairs or bolsters.*		X
3. Welding of Reinforcing	*Visually inspect all reinforcing steel welds. Verify weldability of reinforcing steel. Inspect preheating of steel when required.*		X
	Welds > 5/16"	X	
4. Cast in Anchors	*Inspect size, positioning and embedment of anchor rods and embedded plates, inspect concrete placement and consolidation around anchors.*		X
5. Concrete Placement	*Inspect placement of concrete. Verify proper application techniques; concrete conveyance and depositing avoids segregation or contamination. Verify that concrete is properly consolidated.*	X	
6. Sampling and Testing	*Test concrete compressive strength (ASTM C13 & C39), slump (ASTM C143), air-content (ASTM C231 or C173) and temperature (ASTM C1064). Fabricate specimens for strength tests.*	X	
7. Curing and Protection	*Inspect curing, cold weather protection and hot weather protection procedures. Verify maintenance of specified curing temperature and techniques.*		X
8. Post-installed Anchors	*Inspect adhesive anchors installed horizontally or upwardly for anchor size, embedment, and installation technique.*	X	
	Inspect mechanical anchors for size and embedment.		X
9. Formwork	*Inspect formwork for shape, location and dimensions of the concrete member being formed.*		X

Structural Steel

	C = Continuous P = Periodic	Frequency	
Item	Scope	C	P
1. Fabricator Certification / Quality Control Procedures ☐ Fabricator Exempt	*Review shop fabrication and quality control procedures.* *To be paid by Fabricator if plant not certified.*		X
2. Material Certification	*Review certified mill test reports and identification markings on wide-flange shapes, high-strength bolts, nuts and welding electrodes.*		X
3. Open Web Steel Joists	*Inspect installation, field welding and bridging of joists.*		X
4. Bolting	*Inspect installation and tightening of high-strength bolts. Verify that splines have separated from tension control bolts.*		X
5. Welding - Single pass fillet welds ≤ 5/16"	*Visually inspect welds. Verify size and length of fillet welds.*		X
Single pass fillet welds > 5/16" Multi pass fillet welds Partial & Complete pen welds	*Visually inspect all welds. Inspect pre-heat, post-heat and surface preparation between passes. Verify size and length of fillet welds. Ultrasonic testing of all full-penetration welds.*	X	
6. Shear Connectors	*Inspect size, number, positioning and welding of shear connectors. Inspect studs for full 360 degree flash. Ring test all shear connectors with a 3 lb hammer. Bend test all questionable studs to 15 degrees.*		X
7. Structural Details	*Inspect steel frame for compliance with structural drawings, including bracing, member configuration and connection details.*		X
8. Metal Deck	*Inspect welding and side-lap fastening of metal roof and floor deck.*		X
9. Quality Assurance	*In addition to items listed above, inspection of structural steel shall be in accordance with requirements indicated in Chapter N of the AISC 360.*		X

Wood Construction

	C = Continuous P = Periodic	Frequency	
Item	Scope	C	P
1. Fabricator Certification / Quality Control Procedures ☐ Fabricator Exempt	*Inspect shop fabrication and quality control procedures for wood truss plant.*		X
2. Material Grading	*Verify compliance with construction documents and specifications.*		X
3. Connections	*Verify compliance with construction documents and specifications.*		X
4. Framing and Details	*Verify compliance with construction documents and specifications.*		X
5. Diaphragms and Shearwalls	*Inspect size, configuration, blocking and fastening of shearwalls and diaphragms. Verify panel grade and thickness.*		X
6. Prefabricated Wood Trusses	*Inspect the fabrication of wood trusses.*		X
7. Permanent Truss Bracing	*Verify compliance with construction documents and specifications.*		X

Wind Resistance Inspections

	C = Continuous P = Periodic	Frequency	
Item	Scope	C	P
1. Structural Wood	*Inspect field gluing operations of elements of the main wind force-resisting system.*	X	
	Inspect nailing, bolting, anchoring and other fastening of elements of the main wind force-resisting system, including wood shear walls, wood diaphragms, drag struts, braces, and hold-downs. {Inspections of diaphragms where fastener spacing is more than 4"o.c. not required}		X
2. Cold-formed steel Light-Framed Construction	*Inspect welding operations of the main wind force-resisting systems.*		X
	Inspect screw attachments, bolting, anchoring and other fastening of elements of the main wind force-resisting system, including shear walls, braces, diaphragms, collectors (drag struts) and hold-downs. Inspections not required where: *a. Shear panels and diaphraghm fastener spacing is more than 4" o.c. and structural panel provided on only one side of shear wall.* *b. Sheathing is gypsum board or fiberboard.*		X
3. Wind Resistance Components	*Special inspection for fastening of the following systems and components:* *a. Roof covering, roof deck and roof framing connections.* *b. Exterior wall coverings and wall connections to roof and floor diaphragms and framing.*		X

GENERAL NOTES

1. Materials and workmanship shall be in accordance with the requirements of "The International Building Code", 2015 Edition.
2. Contractor shall check and verify all dimensions shown on structural drawings with those shown on architectural.
3. Contractor shall notify Architect of any discrepancies between architectural and structural drawings and receive written clarification of discrepancies before proceeding with construction.
4. Special inspections shall be performed in accordance with I.B.C. Section 1704 when such inspections are required by the Building Official. Contractor shall coordinate the work schedule with the special inspectors who are selected and paid by the Owner.
5. During construction, the contractor shall be responsible for temporary bracing and shoring to withstand all loads to which the structure may be subjected, including lateral loads, stockpiles of materials and equipment. Temporary bracing shall remain in place until all structural framing and diaphragms are in place with connections completed.
6. Where the Structural Drawings appear to conflict with OSHA requirements, the Structural Drawings represent final conditions only; the contractor shall add all erection framing, bolts, stabilizer plates, etc. as may be necessary to comply with OSHA.
7. Deferred submittals shall be designed by an engineer licensed by the State of Colorado. All submittals shall be reviewed and noted "No Exceptions Taken" by Engineer of Record prior to final submission to the Building Department.

FOUNDATION GENERAL NOTES

1. Recommendations for foundation type and design criteria, including bearing pressures, were provided by "________________________________(Title of Geotechnical Report and Report Number)", dated _____________, by _____________________ (Geotechnical Engineer), a separate consultant to the Owner.
2. Maximum bearing pressure used in footing design:2,000 psf.
3. Minimum bearing pressure used in footing design (dead load only): 700 psf.
4. Reference geotechnical report for required soil conditions at footing bearing.
5. The geotechnical engineer shall perform open excavation inspection prior to placing foundations to ensure bearing capacity is satisfactory.
6. In case conditions found at the site vary from those indicated on the drawings, the Architect is to be notified so that adjustments to the foundation can be made to meet actual field conditions.
7. All footings shall be the exact size shown on the drawings; no larger, no smaller.
8. No footings or foundation wall shall be placed without adequate notification to allow Engineer to observe reinforcing if they deem necessary.
9. No concrete shall be placed in excavation containing water or on frozen ground.
10. Backfill shall be placed against both sides of walls simultaneously.

CONCRETE GENERAL NOTES

1. Material and workmanship shall be in accordance with the requirements of "Building Code Requirements for Structural Concrete" (ACI 318-14).
2. Concrete mixes shall conform to the following:
   - Mix "A" - For Footings and Foundation Elements
     - Minimum 28 day compressive strength 4,500 psi
     - Maximum Aggregate Size 3/4 inch
     - Entrained Air Content 6% ± 1 1/2%
     - Slump 4" max.
     - Fly ash may be substituted in specified amounts this mix.
   - Mix "B" - For Slab-on-Grade (Interior)
     - Minimum 28 day compressive strength 4,000 psi
     - Maximum Aggregate Size 3/4 inch
     - Entrapped Air Content 3% max.
     - Water Reducing Admixture per manufacturer recommendations
     - Slump 4" max.
     - Fly ash may be substituted in specified amounts this mix.
     - Minimum of 540lbs of cementitious material per cubic yard
     - Water / Cement ratio 0.42 max.
   - Mix "C" - For Site Concrete
     - Minimum 28 day compressive strength 4,000 psi
     - Maximum Aggregate Size 3/4 inch
     - Entrained Air Content 6% ± 1 1/2%
     - Water Reducing Admixture per manufacturer recommendations
     - Slump 4" max.
     - Water / Cement ratio 0.45 max.
3. All cement used in concrete shall be Type I/II.
4. All concrete shall have a minimum cementitious materials content of 470 lbs. per cubic yard unless otherwise specified.
5. Calcium Chloride shall not be added to concrete.
6. Reinforcing bars shall conform to ASTM A-615, Grade 60 or ASTM A-706.
7. Bar bending details and placing drawings shall be in accordance with the "Manual of Standard Practice for Detailing Reinforced Concrete Structures" (ACI 315, latest edition).
8. Fly ash may be added for up to 20% of cementitious materials by weight where indicated in the mix design.
9. Where welded reinforcement or deformed bar anchors are indicated on the drawings, steel specifications and welding shall conform to "Structural Welding Code - Reinforcing Steel". AWS D1.4 latest edition of The American Welding Society. Use ASTM A-706 where reinforcement is welded.
10. Provide bar supports and spacers to place all bars in proper location, and wire adequately at intersections to hold bars firmly in position while concrete is placed. Vertical dowels shall be supported in place prior to placing concrete.
11. Bar supports and spacers which rest on or against exposed surface shall be hot dipped galvanized or plastic coated.
12. Continuous bars shall lap and dowels shall project adequately to provide a Class B splice but not less than 12" unless shown otherwise on drawings. Do not splice near maximum stress locations.
13. See architectural, mechanical and electrical drawings for additional openings, depressions, curbs, floor finishes, inserts and other embedded items.
14. Welded wire fabric shall conform to ASTM A-185 and shall lap a minimum of one full mesh plus 2" at side and end laps and shall be securely wired together, unless otherwise shown.
15. Stagger lap splices of horizontal bars in concrete walls.
16. Reinforcing bar sizes shown are English designation. The bars may be furnished with the equivalent metric markings:

English	#3	#4	#5	#6	#7	#8	#9	#10	#11
Metric	#10	#13	#16	#19	#22	#25	#29	#32	#36

TYPICAL MINIMUM REINFORCING BAR LAP LENGTHS

- *In inches.*
- *Use for normal weight concrete f'c = 4500 psi, unless noted otherwise.*

BAR SIZE	*#3*	*#4*	*#5*	*#6*	*#7*	*#8*	*#9*	*#10*	*#11*
TOP BARS	*24*	*32*	*39*	*46*	*67*	*77*	*86*	*97*	*107*
OTHER BARS	*18*	*24*	*30*	*35*	*51*	*59*	*66*	*74*	*82*

- *"Top Bars" are any horizontal reinforcing bars so placed that more than 12" of fresh concrete is cast in the member below the splice.*

MASONRY GENERAL NOTES

1. Grout shall be proportioned by volume and shall have sufficient water added to produce consistency for pouring without segregation.
   a. Fine grout shall be composed of one part portland cement, to which may be added not more than one-tenth part hydrated lime or lime putty, and two and one fourth to three parts sand.
   b. Coarse grout shall be composed of one part portland cement, to which may be added not more than one-tenth part hydrated lime or lime putty, and two to three parts sand, and not more than two parts gravel.
   c. Transit-Mixed Grout for masonry:
      Minimum 28-day compressive strength : 2000 psi
      Aggregate size: 3/8 inch maximum
      Slump: 7 inch minimum, 10 inch maximum

   Coarse grout may be used in grout spaces in brick masonry 2 inches or more in horizontal dimension, and in grout spaces in filled-cell construction 3 inches or more in both horizontal dimensions.
   1b. Grout shall be proportioned by volume and shall have sufficient water added to produce consistency for pouring without segregation. Grout shall be composed of one part Portland cement to which may be added not more than one-tenth part hydrated lime or lime putty, and two and one fourth to three parts sand.
2. Reinforcing steel shall conform to ASTM A-615, Grade 60 or ASTM A-706.
3. Reinforcing bars shall be lapped 50 bar diameters minimum at #6 bars or less and 60 bar diameters minimum at #7 bars when spliced. All vertical bar lengths to be 4'-8" plus required lap.
4. When a foundation dowel does not line up with the vertical core to be reinforced, it shall not be bent over, but shall be grouted into a core in direct vertical alignment, even though it is in an adjacent cell to the vertical wall reinforcing.
5. Vertical reinforcing bars shall be held in position at top and bottom. All debris and projecting mortar shall be cleaned out before pouring grout.
6. Vertical cells to be filled shall have vertical alignment to maintain a continuous unobstructed cell area not less than 2" x 3".
7. Cells containing reinforcing shall be solidly filled with grout in pours not to exceed 4'-8" and pours shall be stopped 1-1/2" below the top of a course to form a key at pour joints. Grout lifts may exceed 4'-8" if "high-lift" grouting requirements are followed.
8. Grout shall be consolidated by mechanical vibration during placing before loss of plasticity in a manner to fill grout space. Grout pours greater than 12 inches shall be reconsolidated by mechanical vibration to minimize voids due to water loss. Grout pours 12 inches or less in height shall be mechanically vibrated, or puddle.
9. Mortar for all exterior walls and bearing walls shall be Type S.
10. 10a. Specified Compressive Strength, fm, of concrete masonry shall be 1900 psi at the age of 28 days. (FOR IBC 2015)
    10b. Specified compressive strength, fm, of concrete masonry shall be 2000 psi at the age of 28 days. (FOR IBC 2018)
11. Brick masonry units minimum f'm shall be 1900 psi.
12. Where other reinforcing is not required by the drawings, provide one #5 bar at all sides of, and adjacent to, every opening which exceeds 24" in either direction. Extend vertical bars full height of wall. Extend horizontal bars 24" beyond each side of opening. Where possible provide U-block immediately below and one course above the opening and grout the reinforcing in place. In double wythe or cavity walls place the reinforcing in the cavity and build solid with mortar.
13. Continue bond beams minimum 2'-0" around corners. Where bond beam steps, lap bond beam courses minimum 2'-0".
14. All concrete block below grade shall be grouted solid.
15. Continue bond beam reinforcing through masonry control joints.
16. See Architectural drawings and specifications for horizontal joint reinforcing and other masonry reinforcing not shown on structural drawings.

STRUCTURAL STEEL GENERAL NOTES

1. All steel shall conform to the "Standard Specification for Structural Steel" ASTM Designation A572, Grade 50, or ASTM A992, latest edition, except where noted otherwise. Angles, channels, and plates shall conform to ASTM A36. Round hollow structural steel sections shall conform to ASTM A500, Fy = 42 ksi. Square or rectangular hollow structural sections shall conform to ASTM A500, Grade B, Fy = 46 ksi. Pipe shall conform to ASTM A53, Grade B, Fy = 35 ksi. Threaded rod and anchor rods shall conform to ASTM F1554 Gr. 36
2. All detailing, fabrication and erection shall conform to AISC "Specification for Structural Steel Buildings", and the AISC "Code of Standard Practice for Steel Buildings and Bridges", latest edition, and "Load and Resistance Factor Design Specification for Structural Steel Buildings" when applicable.
3. This structure contains "non-self-supporting steel frames" per AISC definition. The contractor shall coordinate the installation of all necessary temporary bracing which shall remain in place until the lateral support system is constructed and connected to the framing.
4. Shop connections shall be welded or bolted with 3/4" diameter A325 "Tension Controlled" High Strength Bolts.
5. Field connections shall be made with 3/4" diameter ASTM A325 High Strength Bolts. Connections shall be bearing-type tightened to a "snug-tight" condition unless noted as "Tension Controlled". Connections utilizing "Tension Controlled" bolts shall be pretensioned but do not require faying surface preparation unless noted otherwise.
6. All welding shall be done by certified welding operators and shall conform to "AWS Structural Welding Code" (AWS D1.1), latest edition.
7. Welding sizes not otherwise shown shall be minimum continuous 1/4 inch fillet welds, or equal to the thickness of the thinner material minimum 1/16th inch, whichever is less.
8. All welding shall be done with AWS A5.1 or A5.5 E70 X8 electrodes except for welding of ASTM A706 rebar, which shall be welded using E80 electrodes.
9. Areas within 2 inches of field welds shall not be painted until after welding. Field welds, bolt heads, nuts and other surfaces not shop painted and surfaces abraded during shipping and erection shall be field painted after erection.
10. All structural steel exposed to view shall conform to the provisions for "Architecturally Exposed Structural Steel" in the AISC Code of Standard Practice.

TIMBER GENERAL NOTES

1. All wood framing shall conform to the "National Design Specification for Wood Construction", latest edition, recommended by the "National Forest Products Association".
2. Sawn lumber framing members shall conform to the following species and grades: (Spruce-Pine-Fir #2 or better or Hem-Fir #2 or better).
3. All Plywood Web Joists shall be "TJI" as manufactured by Weyerhaeuser, or "BCI" as manufactured by Boise Cascade. See plan for required joist series.
4. Laminated Veneer Lumber (LVL) prefabricated structural wood beams and joists shall be "Microllam" as manufactured by Weyerhaeuser, or "Versa-Lam" as manufactured by Boise Cascade, Inc. Parallel Strand Lumber (PSL) prefabricated structural wood beams and columns shall be "Parallam" as manufactured by Weyerhauser.
5. Sheathing panels shall be identified with the appropriate trademark of the American Plywood Association, and shall meet the requirements of U.S. Product Standard PS1-07 or APA PRP-108, Performance Standards, latest edition.
6. All roof sheathing shall be 7/16" APA rated sheathing (Exposure 1). Minimum panel identification shall be 24/16. Roof sheathing nailing shall be 8d common nails at 6" on center maximum at all edges and boundaries, unless noted otherwise. Nailing along intermediate members shall be 12" on center maximum.
7. All floor sheathing shall be 23/32" tongue-and-groove APA rated (Exposure 1) with panel identification 48/24.
8. Wood floor nailing shall be 10d deformed shank nails at 6" on center maximum at all supported edges unless noted otherwise, nailing along intermediate members shall be at 12" on center maximum.
9. All sheathing for exterior walls and shear walls shall be 7/16" APA rated sheathing (Exposure 1). Nailing shall be as noted on the drawings. All panel edges shall be backed with 2" nominal framing.
10. Glue floor sheathing to joists per American Plywood Association's Glued Floor System recommendation.
11. Floor and roof sheathing shall be placed with 8'-0" dimension perpendicular to joist framing, stagger joints. Panels to be continuous over two or more spans. Panel end joints shall occur over framing. Allow 1/8 inch spacing at panel ends and 1/8 inch at panel edges unless otherwise recommended by the panel manufacturer.
12. Design of prefabricated wood trusses shall be in accordance with "National Design Standard For Metal Plate Connected Wood Truss Construction", ANSI/TPI-1, and shall be under the direct supervision of a Professional Engineer Registered in Colorado. Trusses shall be installed in strict accordance with the manufacturer's specifications.
13. The Contractor and Truss supplier shall comply with the requirements and recommendations of TPI HIB "Commentary and Recommendations for Handling Installing and Bracing Metal Plate Connected Wood Trusses" and TPI DSB "Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses".
14. All bolts shall be ASTM A-307.
15. All wood web joists shall be installed per manufacturer's recommendations, and as show on the drawings.
16. Install blocking panels between all wood web joists at all supports. Install per manufacturer's recommendations, and as shown on the drawings.
17. Double and triple built-up solid sawn wood members shall be spiked together with two 16d nails spaced at 12" o.c. on center except where noted otherwise on drawings.
18. Nails for wood sheathing shall be common nails.
19. Minimum nailing for all wood framing shall conform to Table No. 2304.10.1, International Building Code, 2015 Edition, unless noted otherwise.
20. Joists shown on plan are basis of design; if changed, notify engineer.
21. 16d nails shall be common or sinker (0.148" minimum diameter).

DESIGN LOADS:

Roof Loads
- Dead Load (includes 9 psf allowance for future solar panals) 27 psf TOP CHORD, 7 psf BOT. CHORD
- Snow Load (Uniform) 30 psf
- Pg (for drifting) 30 psf
- Importance Factor I_S =1.0

Floor Loads
- Dead Load
  - interior 41 psf
  - deck 15 psf
- Live Load
  - Living spaces 40 psf
  - Public spaces 100 psf

Wind Loads - Exposure C, 135 mph (V_{ULT}) 3 second gust

Seismic Information
- Importance Factor I_E = 1.0
- Building Occupancy Category II
- Mapped Spectral Accelerations S_S = 0.208g, S_1 = 0.058g
- Site Class D
- Design Spectral Accelerations S_{DS} = 0.222g, S_{D1} = 0.093g
- Seismic Design Category B
- Basic Seismic-Force-Resisting System consists of Wood shear walls
- Seismic Response Coefficients C = 0.034
- Response Modification Factors: R (ELEMENT) = 6.5
- Equivalent Lateral Force Procedure

WALL COMPONENT AND CLADDING WIND PRESSURES (LRFD)

EFFECTIVE AREA	INTERIOR PRESSURE	CORNER PRESSURE
sf	psf	psf
10 OR LESS	52.8	65.2
20	50.7	61.0
50	47.8	54.9
100	45.4	51.6
200	43.7	46.6
500 OR ABOVE	40.4	40.4

- *VALUES ABOVE INDICATE MINIMUM DESIGN WIND PRESSURES ONLY. COMPONENTS AND CLADDING DESIGN SHALL BE BASED ON MINIMUM DESIGN PRESSURES FROM ALL APPLICABLE CODE SECTIONS.*
- *PRESSURE VALUES PROVIDED IN TABLE ARE ULTIMATE.*

TRUSSES PENDING

Truss engineering must be submitted a minimum of one week prior to frame inspection and cannot be walked through. The truss package must include a signed and dated "Shop Drawing Review" stamped from the design professional of record that verifies conformance with the approved construction design documents. Unless previously shown on the approved structural framing plans, the truss layout must show all necessary truss connection hardware including hangers, uplift connections, and truss bearing enhancers.

architect

HB&A Architecture AND Planning

102 E. Moreno Avenue
Colorado Springs, CO 80903
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associated with

HCDA
HCDA ENGINEERING, INC.
STRUCTURAL CONSULTANTS

project

WILLOUGHBY CORNER - MF 2

N. 120th St. and E. Emma St.
Lafayette, Colorado 80026

seal

issue / revision	date:
Concept Design	Oct. 2021
Draft Elevations	April 2022
Design Development	May 2022

job #: Project Number

drawn: DJH

chkd: SAH

description: GENERAL NOTES AND SPECIAL INSPECTIONS

number: S-001