APPLICATION
ARTICLE 85
DEMOLITION DELAY REVIEW

Mailing Address:
Environment Dept
Boston City Hall, Rm 709
Boston, MA 02201

For Office Use Only

APPLICATION #_____

COMPLETE ON_____

SIGNIFICANT_____

HEARING DATE_____

PLEASE PRINT LEGIBLY. SCAN AND EMAIL TO BLC@BOSTON.GOV

I. PROPERTY ADDRESS 254 Paris ST. East Boston. MA. 02128
ZIP CODE

NAME of PROPERTY

The names, phone numbers, postal and email addresses requested below will be used for all subsequent communications relating to this application. Environment Department personnel cannot be responsible for illegible, incomplete or inaccurate contact information provided by applicant.

II. APPLICANT Nicholas Tan

Nicholas Tan — CONTACT NAME
Owner — RELATIONSHIP TO PROPERTY

101 Access Rd · Ste 201 — MAILING ADDRESS
Norwood — CITY
MA — STATE
02062 — ZIP CODE

617-888-9666 — PHONE
nick@nt-builder.com — EMAIL

254 Paris NT LLC. — **PROPERTY OWNER**
Nicholas Tan — CONTACT NAME

101 Access Rd. Ste 201 — MAILING ADDRESS
Norwood — CITY
MA — STATE
02062 — ZIP CODE

617-888-9666 — PHONE
nick@nt-builder.com — EMAIL

III. DOES THIS PROPOSED PROJECT REQUIRE **ZONING RELIEF**? Yes

IF YES, PLEASE INDICATE STATUS OF ZBA PROCESS ZBA Approved
(If necessary, attach additional pages to provide more information.)

IV. DESCRIPTION OF PROPOSED DEMOLITION: (REQUIRED)

A BRIEF OUTLINE OF THE PROPOSED WORK ***MUST*** BE GIVEN IN THE SPACE PROVIDED BELOW. Describe the structure(s) to be demolished, including the number of existing housing units, and the number of new housing units to be constructed. Attachments are required to show details about the proposed project.

· The structure to be demolished is a single-family house with one story and a basement. The existing structure also has a front porch attached to the house. Please see attached picture for reference.

· The new construction is a 4-story multi-family condominumn, which includes six units and a five-car parking garage on the first floor. Please see attached floor plan for reference.

V. REQUIRED DOCUMENTATION: The following is a list of documents that **MUST** be submitted with this application. Failure to include adequate documentation will cause a delay in the review process.

1. **PHOTOGRAPHS:** ***Current,*** **clear, high-quality color photographs of the property, properties affected by the proposed demolition, and surrounding areas must be labeled with addresses and dates.** Major elevations of the building(s) and any deterioration or reason for demolition should be documented. Photographs of the subject property seen from a distance with neighboring properties are required. All photographs must be keyed to a map (see below) to provide a thorough location description. **Images from the internet are not acceptable. There are no file size limits in the application, but a file size less than or equal to 20MB per photograph is preferred.**

2. **MAP:** A *current* and *clear* map showing the location of the property affected by the proposed demolition must be submitted with this application. The map must be a full-page-sized street map, such as from a BPDA locus map or an internet mapping site.

3. **PLOT PLAN:** A plot plan showing the existing building footprint and those of buildings in the immediate vicinity must be submitted with this application. Assessing parcel maps will be accepted, if the footprint of the relevant structure(s) is illustrated.

4. **PLANS and ELEVATIONS:** If a new structure is being planned, a site plan, building plans and elevations of the new structure(s) must be submitted. If no new building is planned, submit plans for site improvements and a written narrative describing the proposed use and treatment of parcel. (Parking, landscaping, clear debris, fill excavations, etc.)

5. **PROOF OF OWNERSHIP:** Proof of ownership must be submitted with the application. A copy of a property deed, property tax assessment bill, or other official documentation of property ownership is required.

NOTE: Copies of all documentation submitted with this application (photographs, maps, plot plans, etc.) should be retained by the applicant should additional copies be necessary for a commission hearing. Additional materials will be requested if a hearing is required.

VI. NOTARIZED* SIGNATURES: **Both** the applicant's and the legal property owner's signatures must be notarized. In cases of multiple ownership, the chair of the condominium or cooperative association or authorized representative (such as a property manager) shall sign as owner; in cases of institutional ownership, an authorized representative of the organization shall sign as owner.

The facts set forth above in this application and accompanying documents are a true statement made under penalty of perjury.

APPLICANT Nicholas Tan OWNER* Nicholas Tan

***(If building is a condominium or cooperative, the chairman must sign.)**

PRINT 3/17/2022 Nicholas Tan PRINT 3/17/2022 Nicholas Tan

On this 17th *day of* March *20*22*, before me, the undersigned Notary Public, personally** appeared* Nicholas TAN *(name of document signer), proved to me through satisfactory evidence of identification, which were* MA Driver's License *to be the person whose name is signed on the preceding or attached document in my presence.*

(official signature and seal of Notary)

My Commission expires:

MOHAMAD CHEBBO
Notary Public
Commonwealth of Massachusetts
My Commission Expires Nov. 30, 2023

On this 17th *day of* March *20*22*, before me, the undersigned Notary Public, personally** appeared* Nicholas TAN *(name of document signer), proved to me through satisfactory evidence of identification, which were* MA Driver's License *to be the person whose name is signed on the preceding or attached document in my presence.*

(official signature and seal of Notary)

My Commission expires:

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Notary Public
Commonwealth of Massachusetts
My Commission Expires Nov. 30, 2023

**During the declared state of emergency due to COVID-19, digital notarization is allowed.

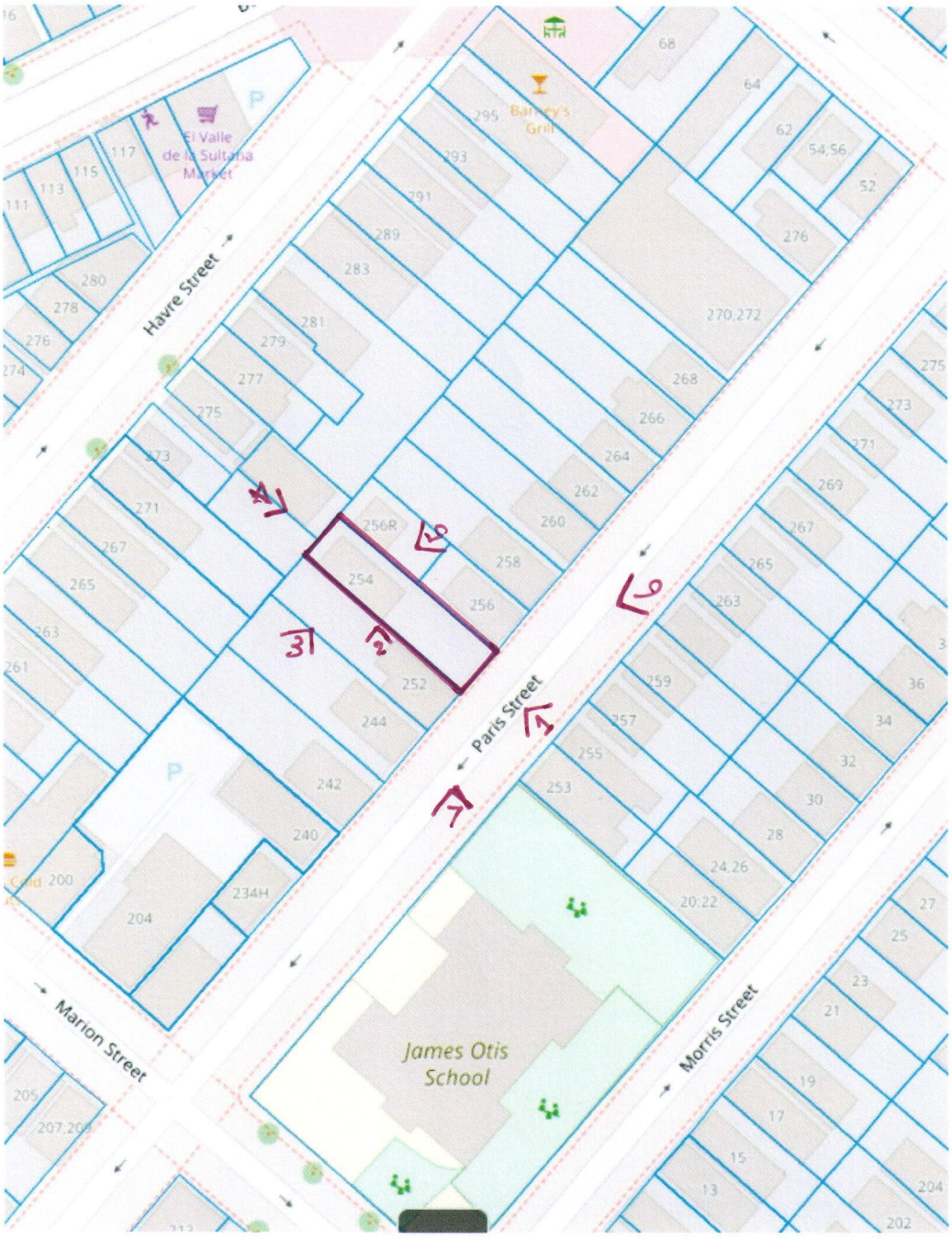
Environment Department personnel cannot be responsible for verifying the authority of the above individuals to sign this application. Misrepresentation of signatory authority may result in the invalidation of the application.

Please review all instructions and documentation requirements carefully before submitting your application. It is your responsibility to ensure the application is complete before submittal. **Incomplete applications will not be accepted.**

Once you have submitted the application, staff will review for completeness and will be in touch about next steps.

Map showing the location of the property:

254 Paris St East Boston, MA 02128



1) Front of 254 Paris St East Boston, MA 02128

2) Left side of 254 Paris St East Boston, MA 02128

3) Left side of 254 Paris St East Boston, MA 02128

4) Back of 254 Paris St East Boston, MA 02128

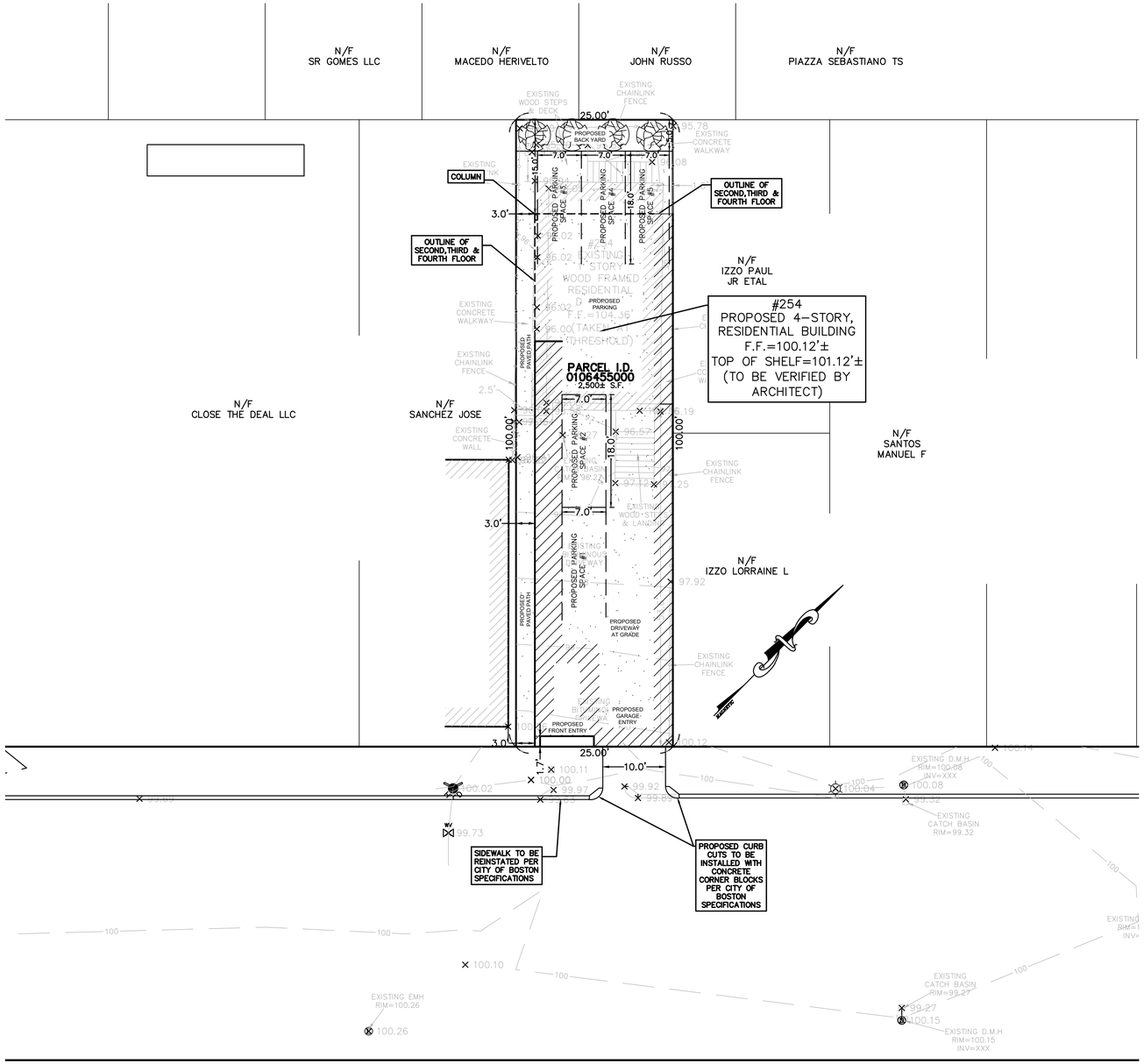
5) Right side of 254 Paris St East Boston, MA 02128

6) View of 254 Paris St East Boston, MA 02128 from the right

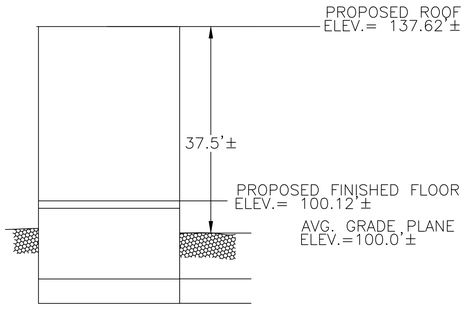
7) View of 254 Paris St East Boston, MA 02128 from the left

EXISTING LEGEND

SS	SEWER LINE
S	SEWER MANHOLE
W	WATER LINE
G	GAS LINE
	UTILITY POLE
GV	GAS VALVE
E	OVERHEAD ELECTRIC SERVICE
WV	WATER VALVE
	CATCH BASIN
	FENCE
205	CONTOUR LINE (MJR)
195	CONTOUR LINE (MNR)
X	SPOT GRADE
D	DRAIN MANHOLE
	HYDRANT
	TREE



PARIS STREET
(PUBLIC WAY–50' WIDE)



PROPOSED PROFILE
NOT TO SCALE

NOTES:

1. INFORMATION SHOWN ON THIS PLAN IS THE RESULT OF A FIELD SURVEY PERFORMED BY PETER NOLAN & ASSOCIATES LLC AS OF 7/18/2019.

2. DEED REFERENCE BOOK 57170 PAGE 45, PLAN REFERENCE END OF BOOK 406, SUFFOLK COUNTY REGISTRY OF DEEDS.

3. THIS PLAN IS NOT INTENDED TO BE RECORDED.

4. I CERTIFY THAT THE DWELLING SHOWN IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD ZONE. IT IS LOCATED IN ZONE X, ON FLOOD HAZARD BOUNDARY MAP NUMBER 25025C0018J, PANEL NUMBER 0018J, COMMUNITY NUMBER: 250286, DATED MARCH 16, 2016.

5. THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST. A REASONABLE AND DILIGENT ATTEMPT HAS BEEN MADE TO OBSERVE ANY APPARENT USES OF THE LAND; HOWEVER THIS NOT CONSTITUTE A GUARANTEE THAN NO SUCH EASEMENTS EXIST.

6. FIRST FLOOR ELEVATIONS ARE TAKEN AT THRESHOLD.

7. NO RESPONSIBILITY IS TAKEN FOR ZONING TABLE AS PETER NOLAN & ASSOCIATES LLC ARE NOT ZONING EXPERTS. TABLE IS TAKEN FROM TABLE PROVIDED BY LOCAL ZONING ORDINANCE. CLIENT AND/OR ARCHITECT TO VERIFY THE ACCURACY OF ZONING ANALYSIS.

8. ZONING DISTRICT = 3F–2000 EAST BOSTON NEIGHBORHOOD

9. ELEVATIONS ARE BASED ON AN ASSUMED DATUM.

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

SCALE 1"=10'					
DATE 03/15/2022	REV	DATE	REVISION	BY	
SHEET 1	254 PARIS STREET BOSTON MASSACHUSETTS				
PLAN NO. 1 OF 1					
CLIENT:	PROPOSED PLOT PLAN				SHEET NO. 1
DRAWN BY LP					
CHKD BY PJN					
APPD BY PJN					

PETER NOLAN & ASSOCIATES LLC
LAND SURVEYORS/CIVIL ENGINEERING CONSULTANTS
80 JEWETT ST, SUIT 2 NEWTON MA 02458
PHONE: 857 891 7478/617 782 1533 FAX: 617 202 5691
EMAIL: pnolan@pnasurveyors.com

Suffolk County Registry of Deeds

Electronically Recorded Document

This is the first page of the document - Do not remove

Recording Information

Document Number	: 117936
Document Type	: DED
Recorded Date	: October 27, 2021
Recorded Time	: 02:22:06 PM
Recorded Book and Page	: 66553 / 181
Number of Pages(including cover sheet)	: 3
Receipt Number	: 934315
Recording Fee (including excise)	: $5,444.60

****
MASSACHUSETTS EXCISE TAX
Suffolk County District ROD # 001
Date: 10/27/2021 02:22 PM
Ctrl# 215915 29598 Doc# 00117936
Fee: $5,289.60 Cons: $1,160,000.00
****

Suffolk County Registry of Deeds
Stephen J. Murphy, Register
24 New Chardon Street
Boston, MA 02114
617-788-8575
Suffolkdeeds.com

QUITCLAIM DEED

SG PARIS DEVELOPMENT LLC, a Massachusetts Limited Liability Company, with a principal place of business of 233 Harvard Street, Suite 306, Brookline, MA 02446

In Consideration paid of One Million One Hundred Sixty Thousand and 00/100 Dollars ($1,160,000.00)

Grants to **254 PARIS NT LLC,** a Massachusetts Limited Liability Company with a principal place of business of 883 Greendale Ave, Needham, MA 02492

With QUITCLAIM COVENANTS

The land with the buildings thereon in that part of said Boston called East Boston, Suffolk County, Massachusetts, with all the buildings thereon and being a part of Lot numbered 232 on plan of East Boston Company's land, Section 2, recorded with Suffolk Deeds at the end of Book 406 and bounded and described as follows:

Beginning at a point in the northwesterly line of Paris Street distant about forty-one (41) feet Northeasterly from the division line between Lots 231 and 232 on said plan of, one hundred (100) feet; thence running Southwesterly on Lot 237 on said plan, twenty five (25) feet; thence running Southeasterly parallel with said division line, one hundred (100) feet to said Paris Street; and thence running Northeasterly on the said line of Paris Street, twenty five (25) feet, to the point of beginning.

Grantors duly release and relinquishes any and all rights of Homestead that may exist, and hereby states that no other parties are entitled to the protections of the Homestead statute in the premises.

Meaning and intending to convey all the grantor's right, title and interest in and to all the same premises conveyed by deed dated **August 4, 2020** and recorded at **the Suffolk Registry of Deeds at** Book 63644, Page 235

SIGNATURE AND NOTARY PAGE TO FOLLOW

Property Address: 254 Paris Street, Boston MA 02128

EXECUTED as a sealed instrument this 25th day of October, 2021.

SG PARIS DEVELOPMENT LLC

Stan Klebaner, Manager

COMMONWEALTH OF MASSACHUSETTS

County: Norfolk , 2021

On this 25 day of October 2021, before me, the undersigned notary public, personally appeared **Stan Klebaner, Manager** proved to me through satisfactory evidence of identification, which was ID to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he/she/they signed it voluntarily for its stated purpose under the pains and penalties of perjury.

Notary Public

My Commission Expires: 4/27/23

AVI LEVI, ESQ.
Notary Public
COMMONWEALTH OF MASSACHUSETTS
My Commission Expires
April 27, 2023

Corporations Division

Business Entity Summary

ID Number: 001538461

Request certificate | New search

Summary for: 254 PARIS NT LLC

The exact name of the Domestic Limited Liability Company (LLC): 254 PARIS NT LLC

Entity type: Domestic Limited Liability Company (LLC)

Identification Number: 001538461

Date of Organization in Massachusetts:
10-18-2021

Last date certain:

The location or address where the records are maintained (A PO box is not a valid location or address):

Address: 883 GREENDALE AVE

City or town, State, Zip code, Country: NEEDHAM, MA 02492 USA

The name and address of the Resident Agent:

Name: NICHOLAS TAN

Address: 883 GREENDALE AVE

City or town, State, Zip code, Country: NEEDHAM, MA 02492 USA

The name and business address of each Manager:

Title	Individual name	Address
MANAGER	NICHOLAS TAN	883 GREENDALE AVE NEEDHAM, MA 02492 USA

In addition to the manager(s), the name and business address of the person(s) authorized to execute documents to be filed with the Corporations Division:

Title	Individual name	Address
SOC SIGNATORY	NICHOLAS TAN	883 GREENDALE AVE NEEDHAM, MA 02492 USA

The name and business address of the person(s) authorized to execute, acknowledge, deliver, and record any recordable instrument purporting to affect an interest in real property:

Title	Individual name	Address
REAL PROPERTY	NICHOLAS TAN	883 GREENDALE AVE NEEDHAM, MA 02492 USA

☐ **Consent** ☐ **Confidential Data** ☐ **Merger Allowed** ☐ **Manufacturing**

View filings for this business entity:

ALL FILINGS
Annual Report
Annual Report - Professional
Articles of Entity Conversion
Certificate of Amendment
Certificate of Cancellation

View filings

Comments or notes associated with this business entity:

New search

254 Paris Street

East Boston, Massachusetts

Owner: 254 Paris NT LLC - **Issued for BPDA Revision: 12/22/2021**

Modifications from the original set dated 5/11/2021 included in this drawing set:
1. Extensive refinement of exterior materials and window configurations.
2. Exensive refinement of interior unit and stair layouts

Modifications from the BPDA set dated 11/16/2021 included in this drawing set:
1. Refinement of site plan materials and planting specifications
2. New fence along property line and security gate to pathway entry
3. Garage door moved back from front property line 7'-6"

3

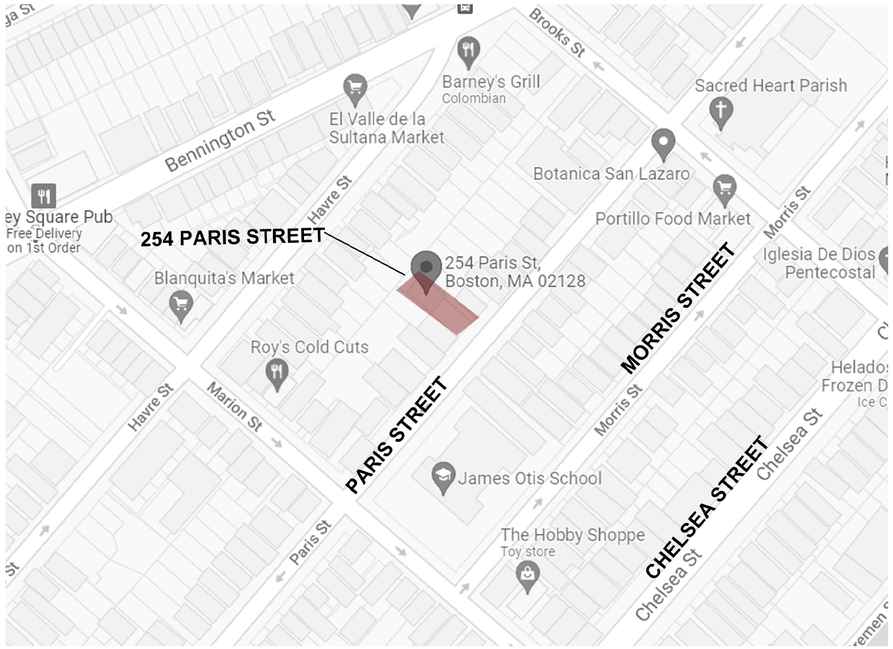
ELEVATION TARGET
3 / EV2 — DETAIL NUMBER / SHEET NUMBER

INTERIOR ELEVATION TARGET
2 / EV2 / A30 — DETAIL NUMBER / SHEET NUMBER

DETAIL TARGET
5 / A40 — DETAIL NUMBER / SHEET NUMBER

WINDOW TARGET
A — WINDOW TYPE

GENERAL NOTES:
1. ALL WORK SHALL COMPLY WITH STATE, NATIONAL CODES, REGULATIONS AND RESTRICTIONS WHICH APPLY TO THIS PROJECT.
2. THE CONTRACTOR SHALL VISIT THE SITE AND BE KNOWLEDGEABLE OF CONDITIONS THEREON. THE CONTRACTOR SHALL INVESTIGATE, VERIFY AND BE RESPONSIBLE FOR ALL CONDITIONS OF THE PROJECT AND SHALL NOTIFY THE ARCHITECT OF ANY CONDITIONS REQUIRING MODIFICATION BEFORE PROCEEDING WITH THE WORK.
3. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND POSTING ALL NECESSARY VALID CONSTRUCTION PERMITS FROM ALL LOCAL, STATE AND FEDERAL AUTHORITIES HAVING JURISDICTION PRIOR TO THE START OF ON-SITE CONSTRUCTION.
4. THE CONTRACTOR SHALL KEEP ALL BUILDING MEANS OF EGRESS CLEAR OF ANY OBSTRUCTIONS AT ALL TIMES.
5. THE GENERAL CONTRACTOR MUST COORDINATE WITH THE BUILDING FACILITIES MANAGER ALL ACTIVITIES INCLUDING, BUT NOT LIMITED TO WORK WHICH WILL GENERATE EXCESSIVE NOISE NOISE AND MODIFICATION TO UTILITIES. WORK MUST NOT INTERFERE WITH EXISTING SMOKE DETECTORS, ALARMS OR BUILDING SYSTEM MANAGEMENT
   5.1. THE GENERAL CONTRACTOR SHALL REVIEW AND BE FAMILIAR WITH ANY TENANT DESIGN AND CONSTRUCTION MANUAL AND ANY OTHER BUILDING OWNER OR BUILDING STANDARDS.
6. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION ACTIVITIES, MATERIALS, MEANS AND METHODS. THE CONTRACTOR IS TO COORDINATE ALL SUBCONTRACTORS TO COMPLETE THE FULL SCOPE OF WORK AS INDICATED IN THE CONSTRUCTION DOCUMENTS.
   6.1. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROPERLY LAYING OUT THE WORK AND FOR ALL LINES AND MEASUREMENTS FOR THE WORK.
   6.2. BUILDING OR SITE COMPONENTS WHICH ARE AFFECTED OR DAMAGED BY THE WORK SHALL BE REPLACED OR RESTORED TO ORIGINAL CONDITION AND COLOR, OR AS APPROVED BY THE OWNER.
   6.3. WHERE THE DESIGN INTENT CANNOT BE DETERMINED FROM THE DRAWINGS, CONSULT THE ARCHITECT BEFORE PROCEEDING WITH THE WORK. (312) 780-9456
7. THE CONTRACTOR SHALL VERIFY THE DIMENSIONS SHOWN ON THE DRAWINGS BEFORE LAYING OUT THE WORK, AND SHALL BE HELD RESPONSIBLE FOR ANY ERRORS OR INACCURACIES RESULTING FROM FAILURE TO DO SO.
   7.1. DETAILS SHOWN ARE INDICATIVE OF THE CHARACTER, PROFILES, MATERIALS AND SYSTEMS REQUIRED FOR THE WORK INCLUDING THOSE CONDITIONS NOT COVERED BY SPECIFIC DETAILS.
   7.2. DIMENSIONS SHALL GOVERN, DO NOT SCALE THE DRAWINGS. WHERE THERE APPEARS TO BE A CONFLICT OR WHERE DIMENSIONS CANNOT BE DETERMINED, CONSULT THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
   7.3. ALL DIMENSIONS ARE TO INSIDE FACE OF WALLS.
   7.4. UNLESS SHOWN OTHERWISE, ALL DOORS SHALL BE LOCATED SUCH THAT THERE IS A 2 INCH WALL RETURN BETWEEN THE JAMB FRAME AND THE ADJACENT PERPENDICULAR WALL.
8. CONSULT WITH THE ARCHITECT OR ENGINEER BEFORE PENETRATING ANY JOISTS, BEAMS, OR OTHER STRUCTURAL MEMBERS
9. ALL CONSTRUCTION MATERIALS AND EQUIPMENT ARE TO BE STORED NEATLY WITHIN THE SCOPE OF WORK AREA ONLY.
10. ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS
    10.1. SUBMIT SHOP DRAWINGS AND SAMPLES FOR ALL STEEL, MILLWORK, SIGNAGE, HARDWARE AND INTERIOR FINISHES
    10.2. SUBMIT PRODUCT DATA FOR FIXTURES AND HARDWARE
    10.3. ALL INTERIOR AND EXTERIOR FINISHES, COLORS AND MATERIALS ARE TO BE SELECTED AND APPROVED BY THE OWNER PRIOR TO CONSTRUCTION
    10.4. ALL INTERIOR FINISHES AND FURNISHINGS ARE TO BE CLASS 'A' FIRE RATED AND ARE TO COMPLY WITH MASSACHUSETTS BUILDING CODE AND THE BOSTON FIRE CODE
    10.5. ALL WOOD COMPONENTS SHALL BE FIRE TREATED
    10.6. CONFIRM THAT ALL MATERIALS AND FINISHES, INCLUDING THEIR FABRICATION AND INSTALLATION WILL NOT RELEASE FUMES OR AROMAS WHICH MAY BE A HAZARD OR NUISANCE TO PERSONNEL
11. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PANEL CONTROL AND CIRCUIT DESIGN AND FOR COMPLIANCE WITH ALL BUILDING, LIFE SAFETY, AND STATE AND NATIONAL ELECTRICAL CODES WHICH MAY APPLY
    11.1. ALL EXPOSED UTILITY WIRES AND PIPES SHALL BE INSTALLED IN A WAY THAT DOES NOT OBSTRUCT OR PREVENT THE CLEANING OF FLOORS, WALLS AND CEILINGS; THEY SHALL BE INSTALLED A MINIMUM OF 6" OFF OF FLOORS AND 1' OFF OF WALLS, CEILINGS OR ADJACENT PIPES OR WIRES
12. WHERE APPROPRIATE, EXISTING SPRINKLER HEADS ALARM SYSTEM AND DETECTORS ARE TO REMAIN. MODIFY LOCATIONS ONLY WHERE CEILING IS ALTERED OR AS INDICATED ON FIRE PROTECTION DRAWINGS.
13. EQUIPMENT INFORMATION AND SPECIFICATIONS, INCLUDING EQUIPMENT SUPPLIED BY THE OWNER, ARE TO BE THE MOST CURRENT AT THE TIME OF DOCUMENTATION PREPARATION.
    13.1. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXACT DIMENSIONS AND EQUIPMENT CONNECTION REQUIREMENTS.
    13.2. MAKE ALL FINAL CONNECTIONS, INSTALL THE SET UP IN WORKING ORDER, CHECK WARRANTIES, TEST AND NOTE VOID WARRANTIES.
    13.3. COORDINATE WITH THE OWNER DELIVERY, STORAGE AND INSTALLATION OF ALL EQUIPMENT, INCLUDING THAT SUPPLIED BY THE OWNER.
14. PROVIDE ALL TEMPORARY FACILITIES AND SERVICES, CONSTRUCTION AND SUPPORT FACILITIES AND SECURITY AND PROTECTION AS NEEDED TO PROTECT NEW AND EXISTING CONSTRUCTION FOR THE DURATION OF THE WORK
15. ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE UNLESS OTHERWISE SPECIFIED FOR A LONGER PERIOD OF TIME FOR A CERTAIN ITEM
16. SEAL AND CAULK AROUND ALL PENETRATIONS, CRACKS AND CREVICES AND ANY OPENINGS CAPABLE OF HARBORING INSECTS OR RODENTS
17. EMPLOY EXPERIENCED WORKERS FOR FINAL CLEANING, CLEAN TO COMMERCIAL BUILDING PROGRAM STANDARDS
    17.1. DISPOSE OF ALL WASTE AND DEBRIS OFF THE PREMISES



1 LOCATION PLAN
SCALE: NOT TO SCALE

APPLICABLE CODES:
1. BUILDING CODE: CMR 780 MASSACHUSETTS STATE BUILDING CODE, 9TH EDITION (AMENDED INTERNATIONAL BUILDING CODE 2015, INTERNATIONAL RESIDENTIAL CODE 2015 AND THE 2015 INTERNATIONAL EXISTING BUILDING CODE W/ MASSACHUSETTS AMENDMENTS)
2. ACCESSIBILITY: MASSACHUSETTS ARCHITECTURAL ACCESS BOARD CMR 521 AND UNIFORM FEDERAL ACCESSIBILITY STANDARDS
3. FIRE PROTECTION: MASSACHUSETTS COMPREHENSIVE FIRE SAFETY CODE CMR 527 1.00 - 2012 NFPA 1: FIRE CODE WITH AMENDMENTS
4. ELECTRICAL: 527 CMR 12.00 MASSACHUSETTS ELECTRICAL CODE - 2014 NFPA 70 NATIONAL ELECTRICAL CODE WITH AMENDMENTS
5. MECHANICAL: INTERNATIONAL MECHANICAL CODE 2015 W/ AMENDMENTS
6. PLUMBING: 248 CMR BOARD OF STATE EXAMINERS OF PLUMBERS AND GAS FITTERS - UNIFORM STATE PLUMBING CODE
7. ENERGY: INTERNATIONAL ENERGY CONSERVATION CODE 2015 (IECC)
8. AMERICANS WITH DISABILITIES ACT
9. BOSTON ZONING CODE
10. MGL CH. 148 SECTION 26G

BUILDING DESCRIPTION:
THIS NEW 4 STORY BUILDING CONTAINS 6 DWELLING UNITS. THERE ARE 2 UNITS PER FLOOR ON LEVELS 2-4. THE SURFACE PARKING LOT UNDER THE BUILDING HAS SPACE FOR 5 CARS. THE BUILDING CONTAINS AN ELEVATOR.

CODE SUMMARY:
1. PROPOSED USE OR OCCUPANCY: RESIDENTIAL - R-2
   1.1 OCCUPANT LOAD: (200 GROSS SF/PERSON PER 1004.1.1) APPROX. 5752 SF =29 PERSONS
2. CONSTRUCTION TYPE: V.A. - TABLE 504.4
   2.1 PER TABLE 601: STRUCTURAL FRAME, BEARING WALLS, FLOORS AND ROOF ARE TO BE 1 HOUR RATED.
   2.2 MAX. AREA PER FLOOR IS 12,000 SF PER TABLE 506 AND MAXIMUM HEIGHT IS 4 STORIES ABOVE GRADE - 504.4
3. PER TABLE 1006.3.2(1) FOR USE GROUP R-2 - TWO EXITS ARE REQUIRED WHEN THERE ARE FOUR STORIES OR MORE AND TRAVEL DISTANCE IS LIMITED TO 125'
4. MINIMUM WIDTH OF EGRESS STAIR: 36 INCHES PER SECTION 1011.2
5. MAXIMUM LENGTH OF EXIT TRAVEL: 250 FEET PER 1017.2
6. FIRE RATED CONSTRUCTION:
   6.1 PER TABLE 602, EXTERIOR WALLS MORE THAN 30' FROM PROPERTY LINE ARE NOT REQUIRED TO BE RATED, 30' OR LESS MUST BE 1 HOUR RATED.
   6.2 DEMISING PARTITIONS/CORRIDORS MUST BE 1 HOUR RATED IN A TYPE V.A. BUILDING 420.1, 708.3.
   6.3 HORIZONTAL SEPARATION BETWEEN DWELLING UNITS: 1 HOUR IN A TYPE V.A. BUILDING PER 420 AND 711.2.4.3 - REFER TO DETAIL ON A-20
   6.4 STAIRWAYS CONNECTING 4 OR MORE STORIES ARE TO BE 2 HOUR RATED, STAIRS CONNECTING LESS THAN 4 STORIES ARE TO BE 1 HOUR RATED PER 1023.2
   6.5 PER TABLE 716.5:1 HOUR ENCLOSURES AND EXIT ACCESS SHALL HAVE 1 HOUR DOORS. 1 HOUR AND ½ HOUR CORRIDORS SHALL HAVE A MINIMUM 20 MIN. RATED DOOR. 2 HOUR ENCLOSURES AND EXIT ACCESS SHALL HAVE 90 MIN. DOORS.
7. DEMISING PARTITION MINIMUM: STC 50 PER SECTION 1207.2
8. ACCESSIBILITY REQUIREMENTS:
   8.1 CMR 521 9.3 - BUILDING CONTAINS AN ELEVATOR BETWEEN GROUND AND FIRST LEVEL - UNITS ON 2ND LEVEL MUST BE CONSTRUCTED AS GROUP 1 DWELLING UNITS, COMPLY WITH 9.5, 42.00, 43.00 AND 46.00
   8.2 CMR 521 9.4 BUILDING DOES NOT CONTAIN 20 OR MORE UNITS

ENERGY REQUIREMENTS:
MASSACHUSETTS ENERGY STRETCH CODE, CHAPTER 4 - RESIDENTIAL ENERGY EFFICIENCY - RESIDENTIAL BUILDINGS, INTERNATIONAL ENERGY CONSERVATION CODE (IECC) 2018
1. CLIMATE ZONE 5H PER TABLE 301.1
2. EXISTING WALLS AND CEILINGS: FILL EXISTING WALL AND CEILING CAVITIES WITH INSULATION PER IECC 503.1.1
3. PER IECC TABLES 402.1.2 AND R402.1.4, FENESTRATION SHALL HAVE A U-FACTOR OF 0.30 OR BETTER.
4. SKYLIGHTS SHALL HAVE A U-FACTOR OF 0.55 OR BETTER PER 402.1.2 AND 402.1.4.
5. VAPOR RETARDER IS REQUIRED TO COMPLY WITH R402.1.1 OF THE IECC AND R702.7 OF THE INTERNATIONAL RESIDENTIAL CODE. VAPOR RETARDER IS NOT REQUIRED IN BASEMENT OR BELOW GRADE WALLS.
6. R402.1.2 - CEILING: R=49; WOOD FRAME WALL: R-20 (CAVITY)+ 3.8 (CONTINUOUS); FLOOR R=30; BASEMENT WALLS AND CRAWL SPACES: R=15 CONTINUOUS OR R=19 IN CAVITY OR R=13 IN CAVITY WITH R=5 CONTINUOUS; SLAB R=10
7. DEMAND RECIRCULATION WATER SYSTEMS SHALL HAVE CONTROLS THAT COMPLY WITH REQUIRED CODES
8. HOT WATER PIPES IN UNCONDITIONED SPACES SHALL ALL BE INSULATED TO AT LEAST R-3, AND HOT WATER PIPES IN CONDITIONED SPACES ¾" AND LARGER SHALL BE INSULATED TO AT LEAST R-3.

ZONING ANALYSIS:	3F-2000	PROPOSED	COMMENTS
LOT AREA MIN.	1,000 SF/UNIT	2,500 SF	*VARIANCE REQUIRED
MIN. LOT WIDTH	20'-0"	25'-0"	
MIN. LOT FRONTAGE	20'-0"	25'-0"	
MAX. BUILDING HEIGHT (STORIES/HEIGHT)	3 / 35'-0"	4 / 37'-6"	*VARIANCE REQUIRED
MAX. BLDG AREA	30%	UNCHANGED	*VARIANCE REQUIRED
MIN. FRONT YARD SETBACK	5'-0"	0'-0"	*VARIANCE REQUIRED
MIN. SIDE YARD SETBACK	2'-6"	0'-0"	*VARIANCE REQUIRED
MIN. REAR YARD SETBACK	30'-0"	15'-0"	*VARIANCE REQUIRED
OPEN SPACE REQUIREMENT	300 SF/UNIT	39 SF/UNIT	*VARIANCE REQUIRED
UNIT COUNT	3 UNITS	6 UNITS	*VARIANCE REQUIRED
PARKING REQUIREMENT	1.0/ UNIT	5 SPACES	*VARIANCE REQUIRED

LIST OF DRAWINGS

REGISTERED ARCHITECT ERIC ZACHRISON No. 32214 BOSTON, MA COMMONWEALTH OF MASSACHUSETTS

254 Paris Street

254 Paris NT LLC

context
a collaborative design workshop

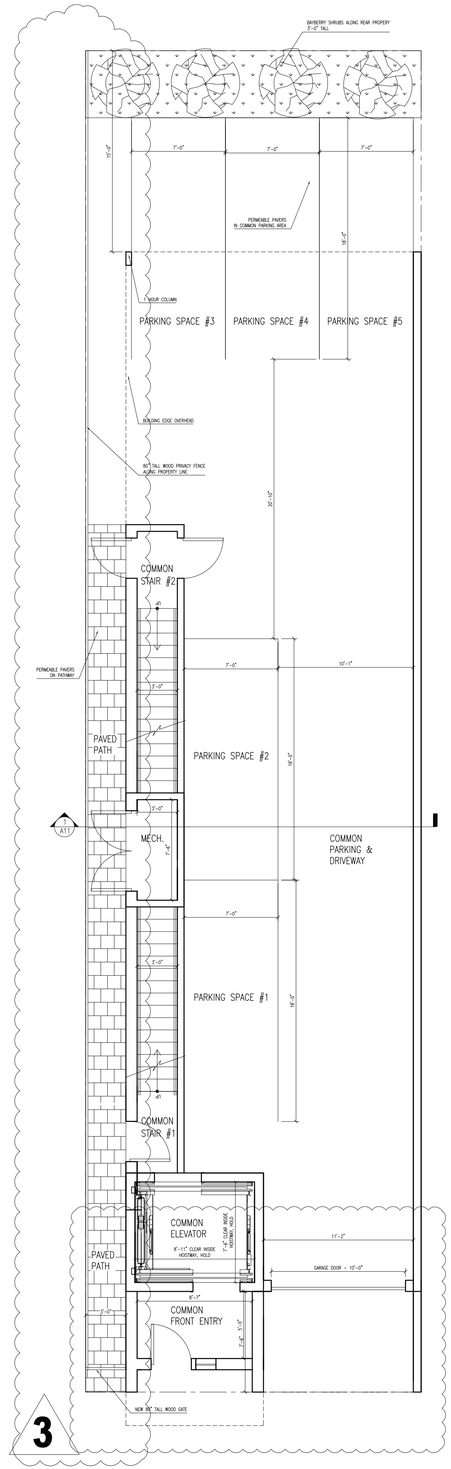
East Boston,
Massachusetts

No.	Description	Date
01	Issued for Permit	05/11/2021
02	Issued for BPDA Review	11/16/2021
03	Issued for BPDA Revision	12/22/2021

Drawing Title: ANALYSIS, DWG LIST, NOTES

Project No.: 0417 **Checked by: EZ**

A-01



S SITE PLAN
SCALE: 3/16" = 1'-0"

12/22/2021

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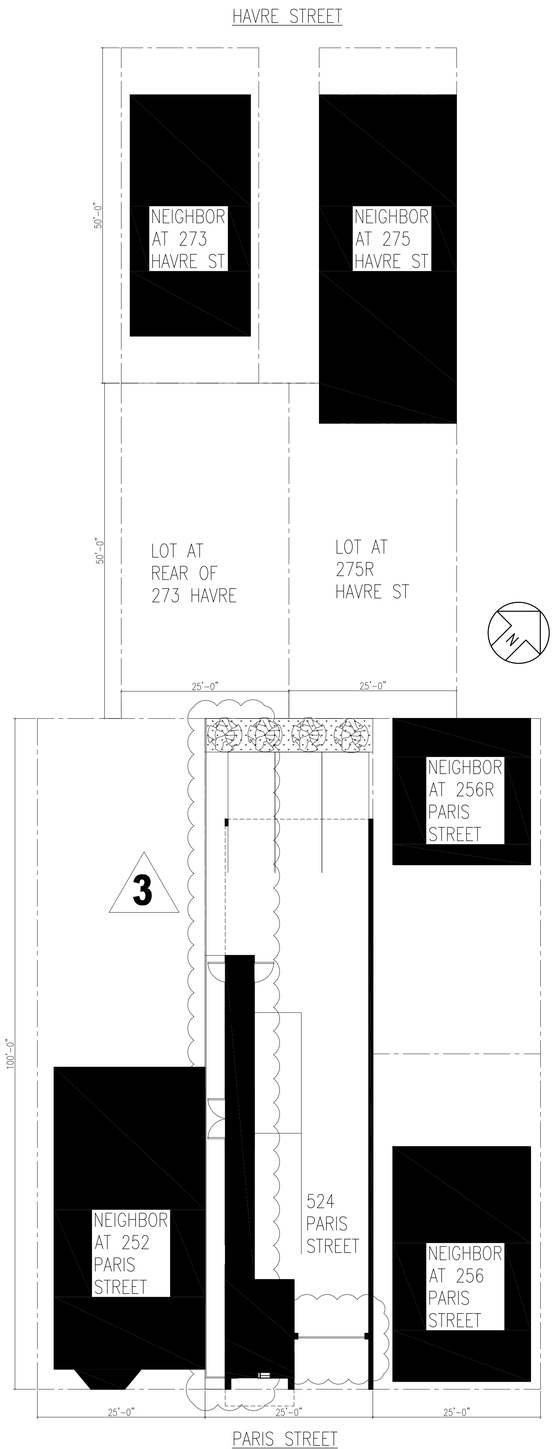
Drawing Title: Proposed Plans

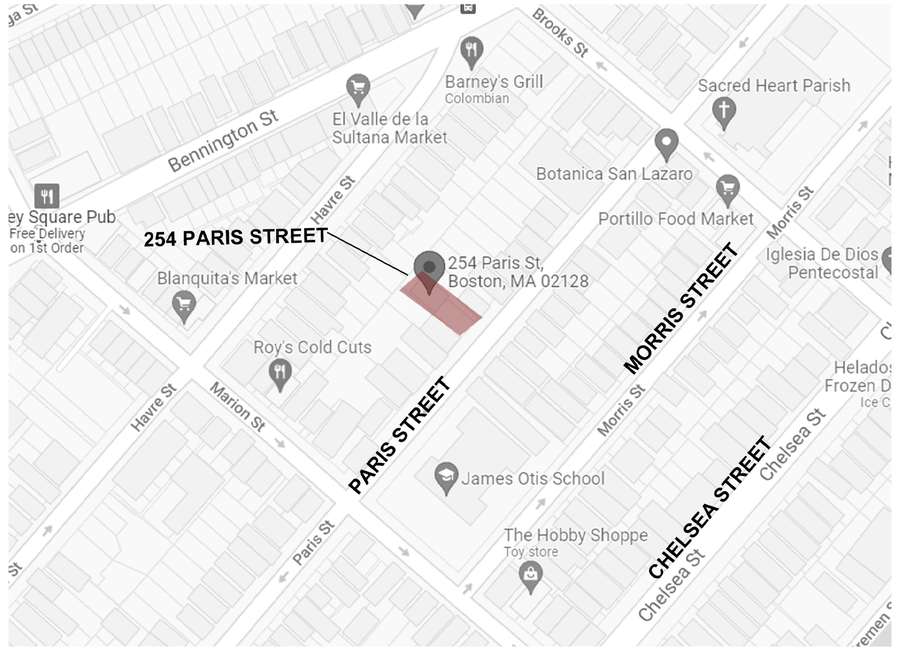
Project No.: 0417 **Checked by: EZ**

A-02



REFER TO SHEET A-02 FOR MATERIALS AND PLANTING SPECIFICATIONS

S SITE PLAN
SCALE: 3/32" = 1'-0"



1 LOCATION PLAN
SCALE: NOT TO SCALE

2 EXISTING VIEW OF SITE FROM PARIS STREET BETWEEN NEIGHTBORS AT 252 AND 256
SCALE: NOT TO SCALE

12/22/2021

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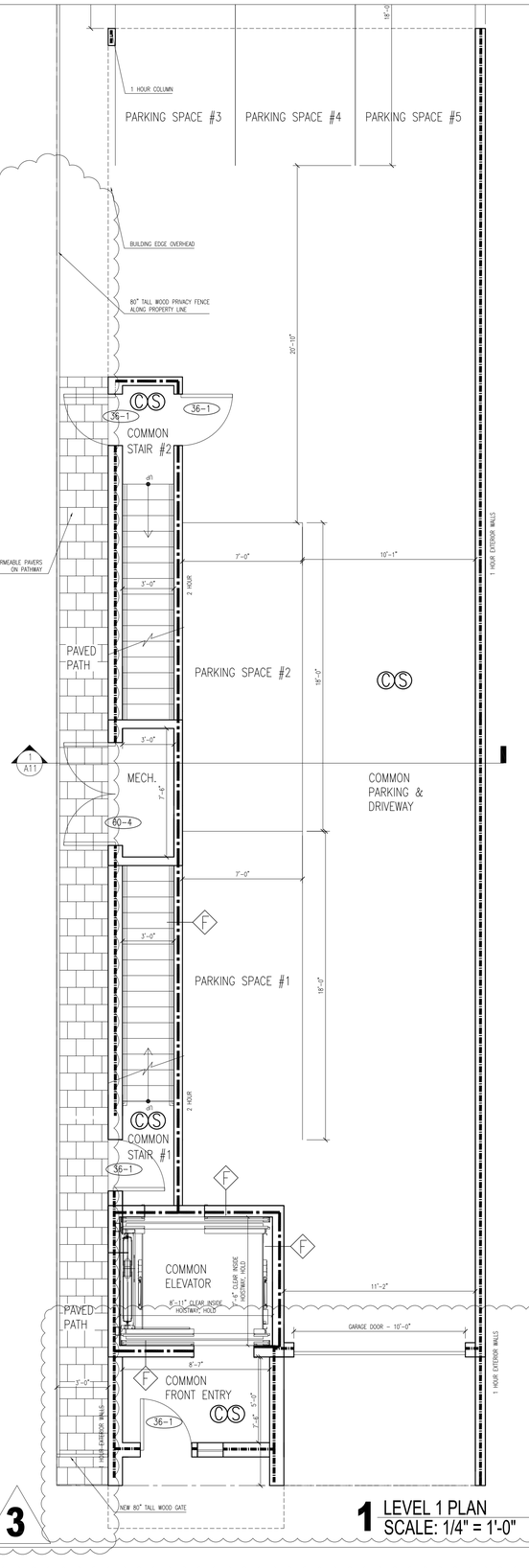
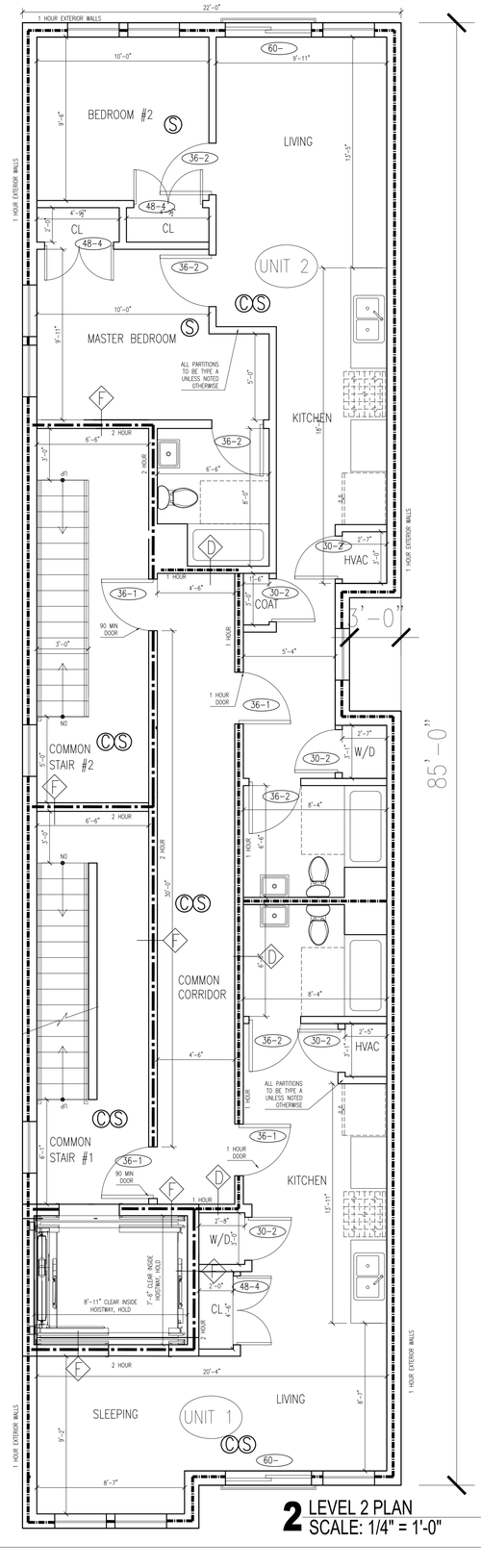
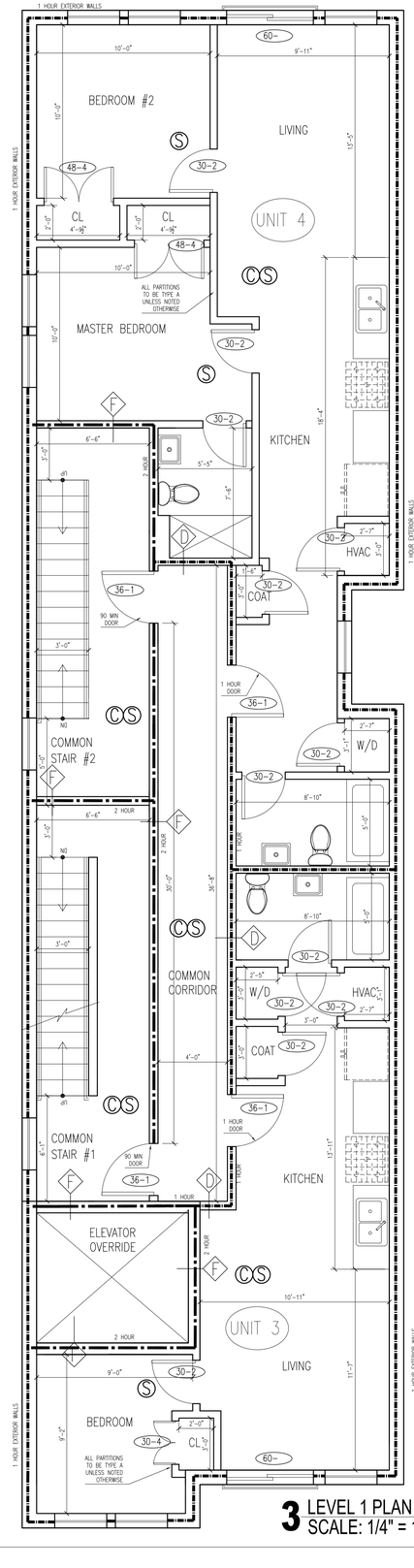
Drawing Title: Site Plan & Context

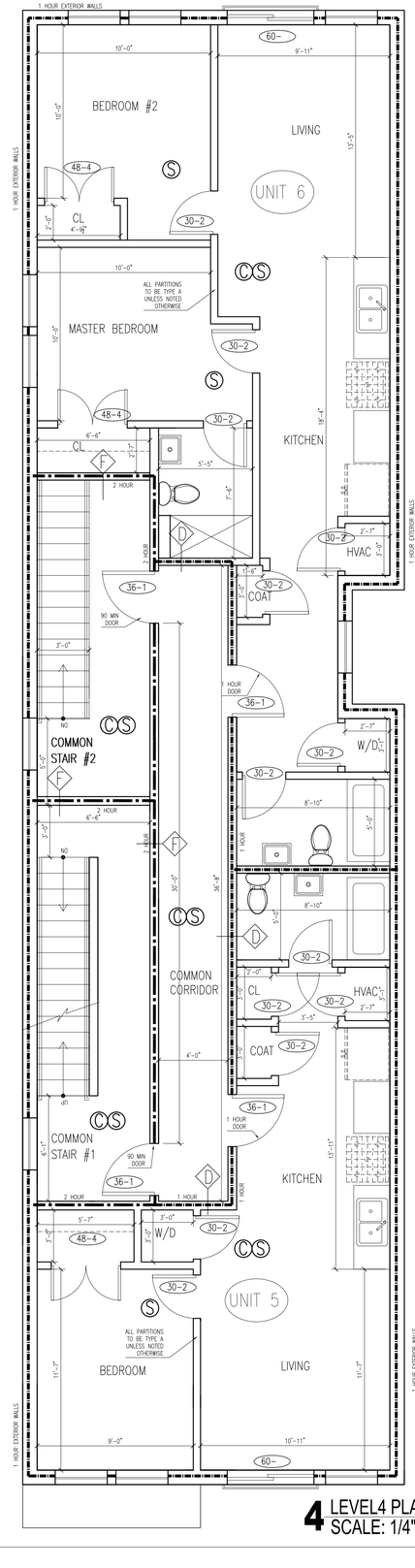
Project No.: 0417 **Checked by: EZ**

A-03









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

2 LEVEL 2 PLAN
SCALE: 1/4" = 1'-0"

3 LEVEL 1 PLAN
SCALE: 1/4" = 1'-0"

4 LEVEL4 PLAN
SCALE: 1/4" = 1'-0"

LEGEND

- NEW PARTITION
- 1/2 HR — 1/2 HOUR RATED PARTITION (PARTITION RATING)
- 1 HR — 1 HOUR RATED PARTITION
- 2 HR — 2 HOUR RATED PARTITION
- NEW DOOR (4" BETWEEN ADJACENT WALL AND OPENING, UNLESS NOTED OTHERWISE)
- (S) SMOKE DETECTOR, HARDWIRED AND INTERCONNECTED
- (C) CARBON MONOXIDE DETECTOR, HARDWIRED & INTERCONNECTED
- (H) HEAT DETECTOR, HARDWIRED AND INTERCONNECTED
- (A) WALL TYPE, REFER TO DRAWING A-01

0 1' 2' 5' 10'

REGISTERED ARCHITECT COMMONWEALTH OF MASSACHUSETTS No. 32214 BOSTON, MA

12/22/2021

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East Boston, Massachusetts

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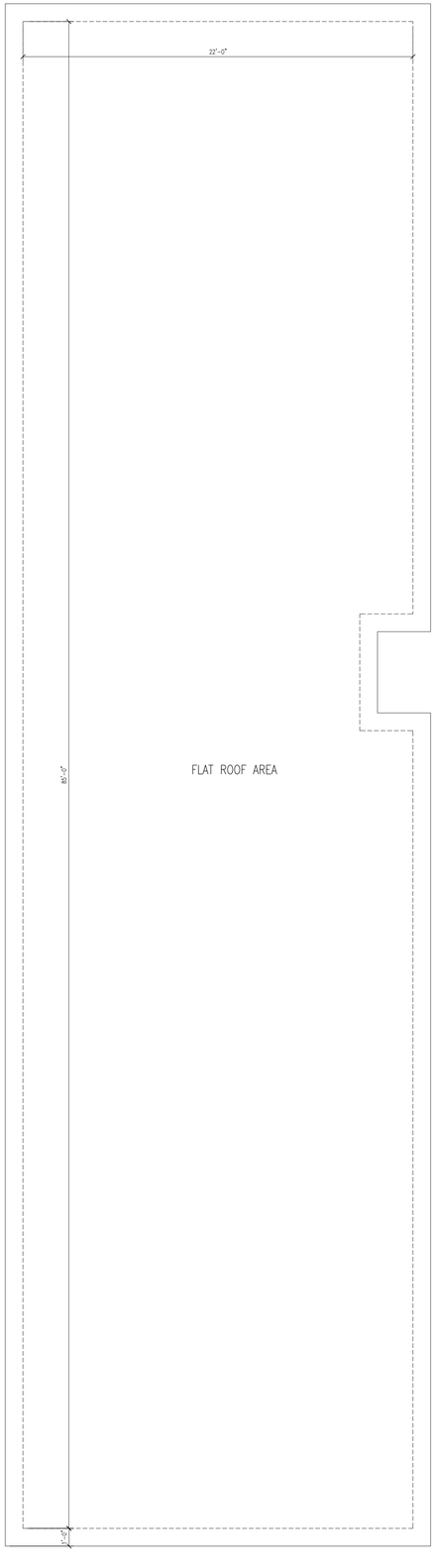
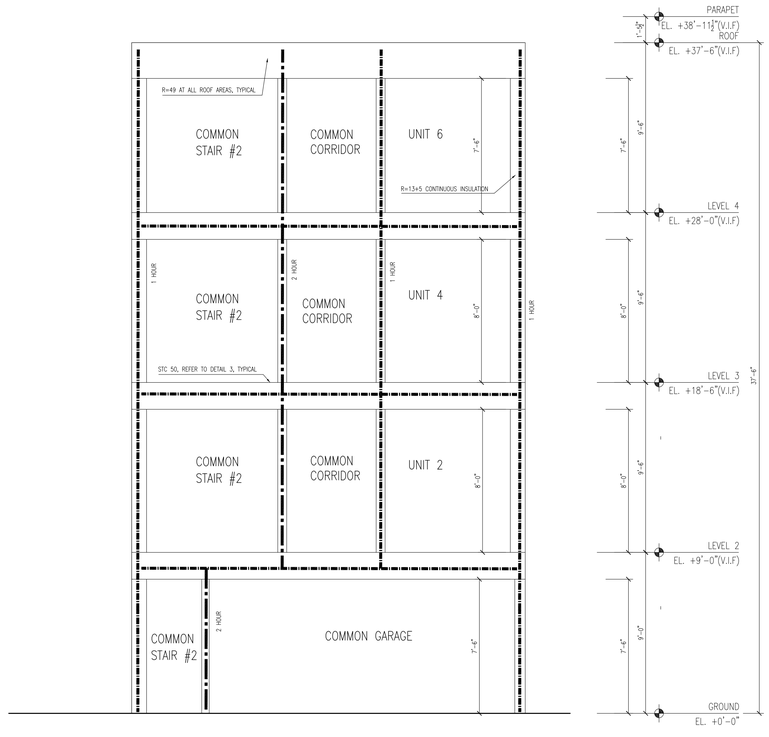
Drawing Title: Proposed Plans

Project No.: 0417 **Checked by: EZ**

A-10





1 PROPOSED BUILDING SECTION
SCALE: 1/4" = 1'-0"

R ROOF PLAN
SCALE: 1/4" = 1'-0"

REGISTERED ARCHITECT
COMMONWEALTH OF MASSACHUSETTS
No. 32214
BOSTON, MA

12/22/2021

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Drawing Title: Proposed Plans & Elevations

Project No.: 0417 **Checked by: EZ**

A-11

1 PROPOSED PARIS STREET ELEVATION
SCALE: 1/4" = 1'-0"

2 PROPOSED REAR ELEVATION
SCALE: 1/4" = 1'-0"

3

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Drawing Title: Proposed Elevations

Project No.: 0417 **Checked by: EZ**

A-30

3 PROPOSED LEFT SIDE ELEVATION
SCALE: 1/4" = 1'-0"

3

4 PROPOSED RIGHT SIDE ELEVATION
SCALE: 1/4" = 1'-0"

REGISTERED ARCHITECT
COMMONWEALTH OF MASSACHUSETTS
No. 32214
BOSTON, MA

12/22/2021

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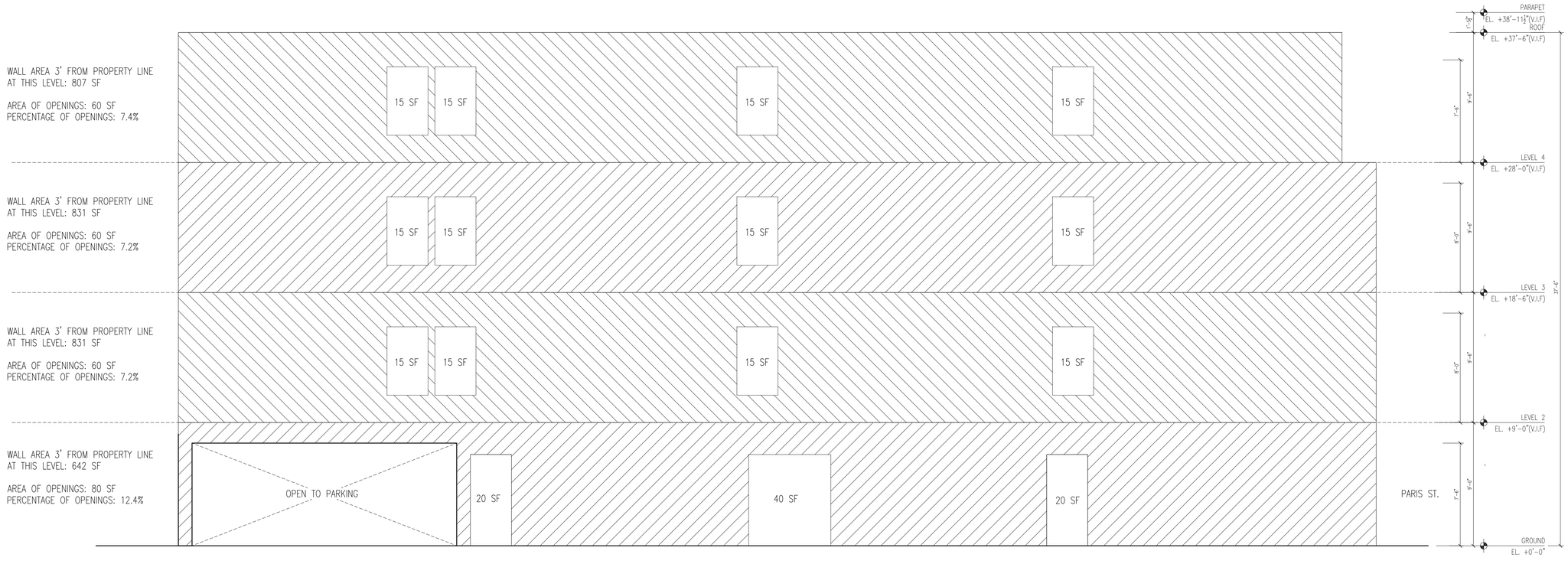
Drawing Title: Proposed Elevations

Project No.: 0417 **Checked by: EZ**

A-31



D 3'-0" PENETRATION DIAGRAM
SCALE: 1/4" = 1'-0"

REGISTERED ARCHITECT
ERIC ZACHRISON
No. 32214
BOSTON, MA
COMMONWEALTH of MASSACHUSETTS

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Drawing Title: Proposed Elevations

Project No.: 0417 **Checked by: EZ**

A-32

1 PROPOSED RIGHT SIDE ELEVATION - GREATER CONTEXT
SCALE: 1/4" = 1'-0"

2 PROPOSED PARIS STREET ELEVATION - GREATER CONTEXT
SCALE: 1/4" = 1'-0"

REGISTERED ARCHITECT
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No. 32214
BOSTON, MA
COMMONWEALTH OF MASSACHUSETTS

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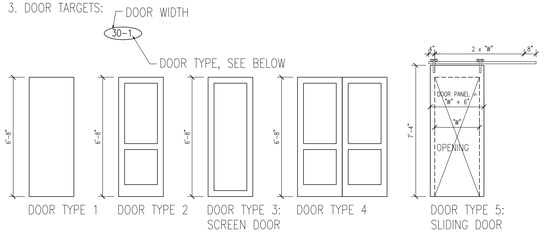
Drawing Title: Proposed Elevations

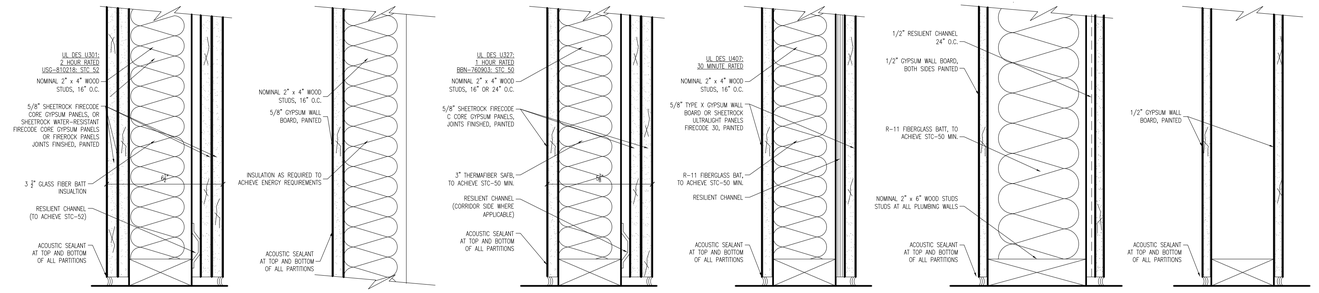
Project No.: 0417 **Checked by: EZ**

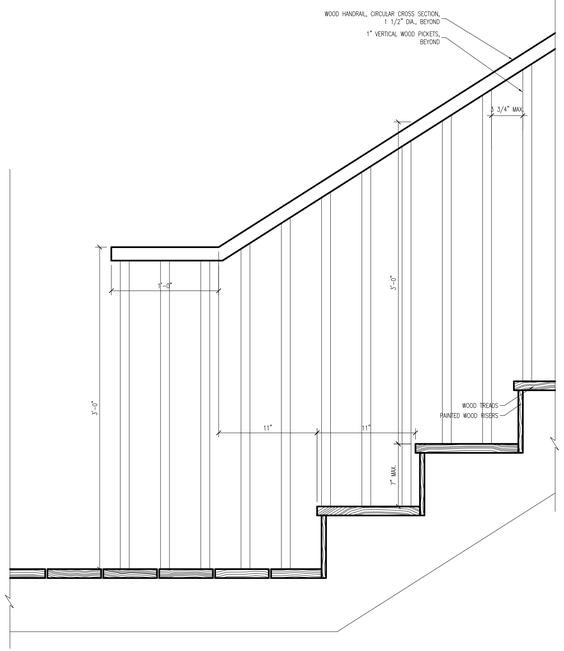
A-33

FINISH NOTES:
1. ALL WALLS TO BE PAINTED GWB, (WHITE TO MATCH ARCHITECT'S SAMPLE)
2. FLOORS TO BE HARDWOOD UNLESS NOTED OTHERWISE.

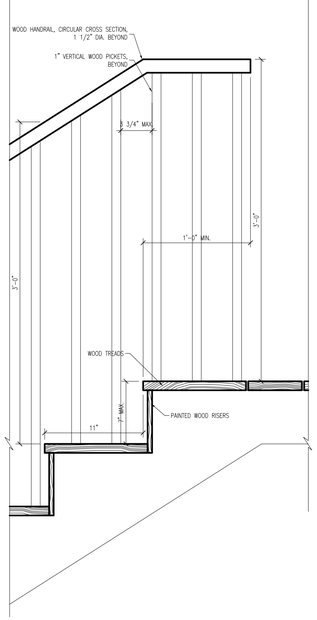
DOOR NOTES:
1. ALL NEW DOORS TO BE 6'-8" HIGH, 1 3/4" THICK SOLID CORE WOOD DOORS WITH WOOD FRAMES.
2. INTERIOR DOORS ARE TO BE PAINTED WHITE, CONFIRM EXTERIOR DOOR COLOR AND FINISH WITH OWNER AND ARCHITECT
3. DOOR TARGETS:



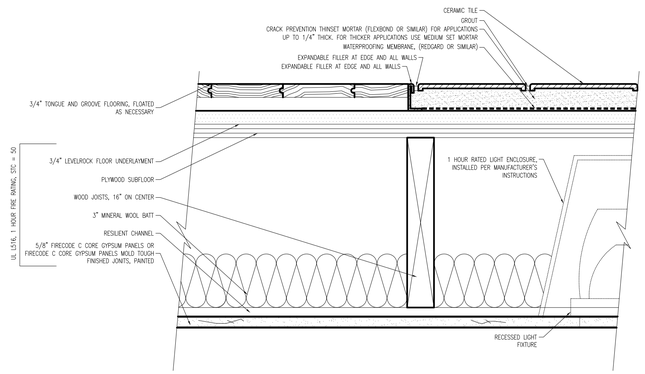




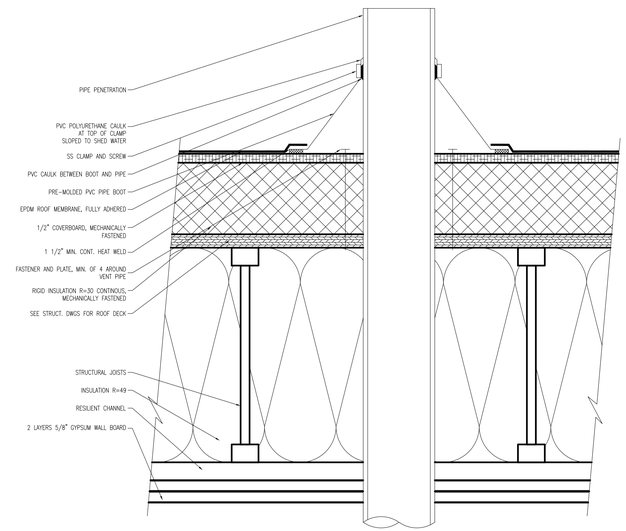
5 SECTION AT BASE OF COMMON STAIR
SCALE: 1 1/2" = 1'-0"



6 SECTION AT TOP OF COMMON STAIR
SCALE: 1 1/2" = 1'-0"



3 CEILING SANDWICH SECTION DETAIL
SCALE: 3" = 1'-0"



4 ROOF PENETRATION SECTION DETAIL
SCALE: 3" = 1'-0"

11/16/2021

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Drawing Title: Proposed Details

Project No.: 0417 **Checked by: EZ**

A-40

STRUCTURAL NOTES

GENERAL NOTES

1. THE STRUCTURAL PLANS AND SPECIFICATIONS, TO THE BEST OF OUR KNOWLEDGE, COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE 2017 WITH MASSACHUSETTS AMENDMENTS.

2. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE 2017 WITH MASSACHUSETTS

AMENDMENTS AND ALL APPLICABLE FEDERAL AND SATE CODES, STANDARDS, REGULATIONS AND LAWS.

3. ALL REFERENCED STANDARDS REFER TO THE EDITION IN FORCE AT THE TIME THESE PLANS AND SPECIFICATIONS ARE ISSUED FOR PERMIT.

4. WORK NOT INDICATED ON A PART OF THE DRAWINGS BUT REASONABLY IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING PLACES SHALL BE REPEATED.

5. IN ANY CASE OF CONFLICT BETWEEN THE NOTES, DETAILS AND SPECIFICATIONS, THE MOST RIGID REQUIREMENTS SHALL GOVERN. CONTRACTOR SHALL MAKE NO DEVIATION FROM CONTRACT DOCUMENTS WITHOUT WRITTEN APPROVAL OF THE ENGINEER.

6. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AND COORDINATE WITH ARCHITECTURAL DRAWINGS, DRAWINGS FROM OTHER CONSULTANTS, PROJECT SHOP DRAWINGS AND FIELD CONDITIONS.

7. THE CONTRACTOR SHALL PROTECT EXISTING FACILITIES, STRUCTURES AND UTILITY LINES FROM ALL DAMAGE.

8. JOB SAFETY AND CONSTRUCTION PROCEDURES ARE THE RESPONSIBILITY OF THE CONTRACTOR.

9. THE STRUCTURES ARE DESIGNED FOR THE FOLLOWING UNIFORMLY DISTRIBUTED LIVE LOADS:

PUBLIC ROOMS, STAIRS & CORRIDORS	100 LBS./SQ.FT.
KITCHENS	150 LBS./SQ.FT.
PARTITIONS	6 LBS./SQ.FT.
GATHERING ROOM	100 LBS./SQ.FT.
ROOF	30 LBS./SQ. FT. + DRIFTING

SEISMIC LOADS

1. THE BUILDING STRUCTURAL FRAMES/ WALLS ARE DESIGNED USING THE EQUIVALENT LATERAL FORCE METHOD IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE 2003 W/ CONNECTICUT AMENDMENTS.

2. SEISMIC PARAMETERS:
A. SPECTRAL ACCELERATIONS — Ss = 0.279, S1 = 0.064

IMPORTANCE FACTOR — I =1.00
B. SEISMIC DESIGN CATEGORY — "B"

SEISMIC RESISTING SYSTEM
C. STEEL NOT SPECIFICALLY DETAILED FOR SEISMIC — "R=3"

LIGHT FRAMED WALLS SHEATHED WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR RESISTANCE — "R=6"

CONTROLING RESPONSE FACTOR USED FOR ENTIRE BUILDING STRUCTURE (PER ASCE–7 SECTION 9.5.2) — "R=3"

WIND LOADS
BASIC WIND SPEED (3 SECOND GUST) = 105 MPH.
EXPOSURE = "C"

SNOW LOADS
GROUND SNOW LOAD = 45 PSF & DRIFTING, PER ASCE 7–02.

NOTES:

1. TOP OF 1ST FLOOR DECK AT ELEV. [+12'–0"].

2. PROVIDE MID–SPAN BRIDGING FOR ALL FLOOR JOISTS. BRIDGING SHALL CONSIST OF 1X3 LUMBER DOUBLE NAILED AT EACH END.

3. SW DENOTES SHEAR WALL LOCATION. PROVIDE 15/32 DOUG FIR STRUCTURAL | RATED PLYWOOD SHEATHING WITH EXTERIOR GLUE ON ONE SIDE OF WALL STUDS. FASTEN PLYWOOD TO STUDS WITH 10d COMMON NAILS AT 4 O.C. AT ALL PANEL EDGES (BLOCKING AT EDGES |S REQUIRED) AND 12 O.C. IN FIELD. PROVIDE 1 %% NAIL PENETRATION INTO ALL FRAMING MEMBERS AND BLOCKING.

SEE TYPICAL HOLD DOWN ANCHOR DETAIL.

4. PA/PB DENOTES POST ABOVE/BELOW.

SEE SCHEDULE OF POST TYPES.

5. PLYWOOD FLOOR SHEATHING SHALL BE 3/4ϕ NOMINAL TONGUE AND GROOVE PLYWOOD (APA STRUCTURAL | RATED SHEATHING 48/24 SPAN RATING WITH EXTERIOR GLUE). PROVIDE (1) ROW OF 10d COMMON NAILS AT 4" O.C. AT ALL PANEL EDGES. PROVIDE 10d COMMON NAILS AT 12° O.C. IN FIELD. PROVIDE 1 16" NAIL PENETRATION INTO ALL FRAMING MEMBERS.

FOUNDATION NOTES

1. FOUNDATIONS SHALL BE DESIGNED FOR 4,000 PSF STATIC BEARING CAPACITY.

2. CONTRACTOR SHALL BE FAMILIAR WITH THE SUBSURFACE CONDITIONS AND GEOTECHNICAL REPORT BEFORE COMMENCING EXCAVATION.

3. DOWELS FROM FOOTINGS INTO PIERS AND WALLS ABOVE SHALL BE THE SAME SIZE AND NUMBER AS VERTICAL REBAR IN PIERS AND WALLS, AND SHALL BE EXTENDED "LTE" INTO FOOTINGS AND "LTS" INTO PIERS AND WALLS UNLESS OTHERWISE SHOWN.

4. DROP BOTTOM OF WALLS AND PIERS TO TOP OF FOOTINGS TO OBTAIN FULL EXTENT OF CONTACT, UNLESS OTHERWISE SHOWN.

5. CENTERLINE OF FOOTINGS SHALL BE CENTERLINE OF WALLS, PIERS AND COLUMNS, UNLESS OTHERWISE SHOWN.

6. NO BACKFILLING SHALL BE DONE AGAINST FOUNDATION AND RETAINING WALLS UNTIL CONCRETE HAS ATTAINED AT LEAST 75% OF ITS DESIGN STRENGTH. BEFORE BACKFILLING, PROVIDE BRACING FOR WALLS SUSTAINING MORE THAN 3 FEET OF EARTH PRESSURE. THIS BRACING SHALL REMAIN IN PLACE UNTIL ALL SLABS AND BEAMS FRAMING INTO WALL HAVE BEEN PLACED AND SET.

7. IN NO CASE SHALL BULLDOZERS OR OTHER HEAVY EQUIPMENT BE PERMITTED CLOSER THAN 5 FEET FROM ANY FOUNDATION WALL. IF IT IS NECESSARY TO OPERATE SUCH EQUIPMENT CLOSER THAN 8 FEET TO THE WALL, THE CONTRACTOR SHALL BE THE SOLE RESPONSIBLE PARTY AND AT THEIR OWN EXPENSE SHALL PROVIDE ADEQUATE SUPPORTS OR BRACE THE WALL TO WITHSTAND THE ADDITIONAL LOADS SUPERIMPOSED FROM SUCH EQUIPMENT.

8. CONTRACTOR SHALL BE RESPONSIBLE TO ADEQUATELY PROTECT ALL EXCAVATION SLOPES. WHERE NECESSARY, SHEETING AND SHORING OF EXCAVATION SHALL BE PROVIDED WITH ALL REQUIRED TIEBACKS AND BRACING.

9. METHODS EMPLOYED IN ALL SHEETING AND SHORING SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT.

10. MATERIAL FOR CONTROLLED FILL SHALL MEET THE FOLLOWING CRITERIA: SELECT EXCAVATED GRAVEL OR STONE MATERIALS FREE OF ORGANIC MATERIAL, LOAM, TRASH, SNOW, ICE, FROZEN SOIL, AND OTHER OBJECTIONABLE MATERIAL, CONFORMING TO THE GRADATION REQUIREMENTS AS FOLLOWS:

SIEVE SIZE %	PASSING (BY WEIGHT)
3–1/2"	100%
3/4"	50–100%
#4	25–75%

THE FRACTION PASSING THE NO. 200 SIEVE SHALL BE LESS THAN 15% OF THE FRACTION PASSING THE NO. 4 SIEVE.

11. ON–SITE EXCAVATED MATERIAL MAY ONLY BE SUITABLE FOR USE AS GRANULAR FILL IF IT CONFORMS TO THE SPECIFICATIONS NOTED AND IS APPROVED FOR USE BY THE GEOTECHNICAL ENGINEER. REFER TO GEOTECHNICAL REPORT FOR MORE INFORMATION.

12. STRUCTURAL FILL MATERIAL SHOULD BE PLACED IN UNIFORM 12" THICK LOOSE LIFTS AND COMPACTED TO 95% OF ITS MAXIMUM DRY DENSITY, AT OPTIMUM MOISTURE CONTENT, IN ACCORDANCE WITH ASTM D1557–93. IN RESTRICTED AREAS WHERE ONLY HAND–OPERATED EQUIPMENT IS PERMITTED, THE MAXIMUM LOOSE LIFT SHALL BE 8".

13. SOIL COMPACTION SHALL BE CONTROLLED BY A QUALIFIED TESTING LABORATORY OR GEOTECHNICAL ENGINEER. TAKE A MINIMUM OF ONE FIELD DENSITY TEST FOR EACH LAYER. LOCATION OF TEST SHALL BE DETERMINED BY THE TESTING AGENCY

FORMWORK AND SHORING NOTES

1. SHORES SHALL BE DESIGNED AND DETAILED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT. DRAWINGS ILLUSTRATING THE SHORING SYSTEM AND SEQUENCING SHALL BE SIGNED AND SEALED BY SAID ENGINEER.

2. DESIGN AND ERECT FORMS AND SHORES IN ACCORDANCE WITH ACI–347. DESIGN FORMS AND SHORES FOR HORIZONTAL CONCRETE MEMBERS FOR NOT LESS THAN DEAD LOAD PLUS 50 PSF CONSTRUCTION LOAD AND FOR THE CUMULATIVE LOADS OF SUPPORTING FLOOR SLABS. DESIGN SHORES WITH A MIN. FACTOR OF SAFETY OF 3.

3. PROVIDE TEMPORARY BRACING AS NEEDED TO ENSURE STABILITY OF STRUCTURE DURING CONSTRUCTION.

4. FORMING, SHORING AND RE–SHORING SHALL BE INSPECTED BY THE PROFESSIONAL ENGINEER WHO PREPARES THE SAID DRAWINGS. THEY SHALL SUBMIT A STATEMENT TO THE ENGINEER THAT THIS

NOTES:

1. BOTTOM OF FOUNDATIONS SHALL BEAR AT ELEVATION [+5'–0"], UNLESS NOTED AS THUS: B.F.E. [+X'–X"], SEE SITE PLAN FOR EXISTING AND PROPOSED GRADES.

2. TOP OF PIER ELEVATION [+9–5 4], UNLESS NOTED AS THUS: T.O.P. [+X'–X"]. ADJUST PIER HEIGHT AS REQUIRED TO MATCH EXISTING FINISHED FLOOR ELEVATIONS.

3. ALL DEFORMED STEEL REINFORCING BARS SHALL BE EPOXY COATED.

4, ANCHOR BOLTS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION. THE CONTRACTOR SHALL USE TEMPLATES TO SET ANCHOR BOLTS. "WET–SETTING" OF ANCHOR BOLTS WILL NOT BE PERMITTED.

5. PROVIDE PRESERVATIVELY TREATED LUMBER WHERE IN CONTACT WITH CONCRETE FOUNDATIONS, TYPICAL.

6. F– DENOTES FOOTING TYPE. REFER TO FOOTING SCHEDULE = ON THIS SHEET.

7. P— DENOTES CONCRETE PIER TYPE. REFER TO PIER SCHEDULE ON THIS SHEET.

REINFORCED CONCRETE NOTES

1. STRUCTURAL CONCRETE AND CONCRETING PRACTICES SHALL CONFORM WITH ACI–318 AMERICAN CONCRETE INSTITUTE, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE LATEST EDITION. DETAILS SHALL BE IN ACCORDANCE WITH ACI–315, DETAILS AND DETAILING OF CONCRETE REINFORCEMENT UNLESS OTHERWISE NOTED ON THE DRAWINGS. ALL ACI REQUIREMENTS FOR HOT AND COLD WEATHERING CONCRETING MUST BE ADHERED TO.

2. CONCRETE SHALL HAVE A MIN. COMPRESSIVE STRENGTH AT 28 DAYS AS FOLLOWS UNLESS OTHERWISE NOTED ON THE DRAWINGS:

A. FOUNDATIONAL WALLS, BUTTRESSES, SLAB ON GRADE: 4000 PSI, NORMAL WEIGHT

B. FOOTINGS AND PIERS: 4000 PSI, NORMAL WEIGHT

C. CONCRETE ON METAL DECK: 4000 PSI, NORMAL WEIGHT

D. ALL OTHER CONCRETE: 4000 PSI, NORMAL WEIGHT

3. ALL EXPOSED CONCRETE SHALL HAVE AN AIR ENTRAINING AGENT.

4. ALL REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60 UNLESS REQUIRED TO BE WELDED AS SHOWN ON PLANS. ALL REINFORCING BARS REQUIRED TO BE WELDED SHALL CONFORM TO ASTM A706, GRADE 50.

5. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. SUPPORT WIRE FABRIC WITH CHAIRS OR LIFTS, DURING CONCRETE PLACEMENT TO INSURE PROPER POSITION IN SLAB.

6. ALL REINFORCEMENT SHALL BE SECURELY HELD IN PLACE WHILE PLACING CONCRETE. IF REQUIRED, ADDITIONAL BARS OR STIRRUPS SHALL BE PROVIDED BY THE CONTRACTOR TO FURNISH SUPPORT FOR ALL BARS.

7. ALL REINFORCING BARS SHALL BE LAPPED AS SPECIFICALLY DETAILED ON THE DRAWINGS. SPLICING & EMBEDMENTS SHALL BE IN ACCORDANCE W/ ACI 318 WHERE NOT SPECIFICALLY INDICATED ON THE DRAWINGS, ALL REINFORCING BARS SHALL BE LAPPED USING THE TENSION SPLICE LENGTHS IN THE LAP SPLICE SCHEDULE:

A. LAP GRADE BEAM AND WALL TOP HORIZONTAL REINFORCEMENT AT CENTER OF SPAN.

B. LAP GRADE BEAM AND WALL BOTTOM HORIZONTAL REINFORCEMENT AT SUPPORT.

C. LAP INSIDE FACE WALL VERTICAL REINFORCEMENT AT SUPPORT.

D. LAP OUTSIDE FACE VERTICAL WALL REINFORCEMENT AT MID–HEIGHT OF WALL.

E. UNLESS OTHERWISE NOTED, TERMINATE BARS AT DISCONTINUOUS ENDS WITH STANDARDS HOOKS.

F. ALL HOOKED BARS NOT DIMENSIONED SHALL BE STANDARD HOOKS.

8. MINIMUM CONCRETE COVER SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE ON THE DRAWINGS:

A. SLABS: 3/4 INCH

B. WALLS: 1 INCH

C. COLUMNS: 1–1/2 INCHES

D. ALL CONCRETE EXPOSED TO WEATHER OR EARTH: 2 INCHES

E. ALL CONCRETE PLACED AGAINST EARTH: 3 INCHES

9. PROVIDE CONSTRUCTION JOINTS IN ACCORDANCE WITH ACI–318, CHAPTER 6.4. SUBMIT SHOP DRAWINGS SHOWING CONSTRUCTION JOINT DETAILS, LOCATIONS AND THE SEQUENCE OF POURS FOR THE STRUCTURAL ENGINEER'S REVIEW PRIOR TO BEGINNING WORK.

10. WALL AND GRADE BEAM CONSTRUCTION JOINTS SHALL BE LOCATED TO PROVIDE A 60 FOOT MAXIMUM LENGTH OF CONCRETE PLACEMENT.

11. VERTICAL CONSTRUCTION JOINTS IN GRADE BEAMS AND WALLS SHALL BE USED ONLY WITH PRIOR APPROVAL OF THE ENGINEER, SEE NOTE 9 ABOVE, AND SHALL BE LOCATED AS FOLLOWS:

A. FOUNDATION WALLS: MINIMUM 8'–0" FROM ANY COLUMN LINE OR WALL OPENING.

B. GRADE BEAMS: AT CENTERLINES BETWEEN SUPPORTS.

12. NO HORIZONTAL CONSTRUCTION JOINTS WILL BE PERMITTED IN BEAMS, WALLS AND SLABS UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS OR APPROVED IN WRITING PRIOR TO CONSTRUCTION BY THE ENGINEER.

13. NO CONCRETE TEST WILL BE ACCEPTED IF CONCRETE IS TAMPERED WITH IN ANY WAY AFTER SAID TEST IS PERFORMED. REPEAT TEST IF WATER IS ADDED AFTER INITIAL SAMPLING.

14. THE CONTRACTOR SHALL PROVIDE REINFORCING STEEL ERECTOR WITH A SET OF APPROVED SHOP DRAWINGS FOR FIELD USE.

15. ALL ADJOINING SURFACES NOT CAST MONOLITHICALLY SHALL BE ROUGHENED TO 1/4INCH AMPLITUDE FOR THE ENTIRE INTERSECTING SURFACE ACCORDING TO ACI RECOMMENDATIONS AND APPLY A BONDING AGENT AS REQUIRED. TO ACI RECOMMENDATIONS AND APPLY A BONDING AGENT AS REQUIRED.

16. CONTRACTOR SHALL FIELD VERIFY DIMENSIONS AND LOCATIONS OF ALL OPENINGS, PIPE SLEEVES, CURBS, ETC., AS REQUIRED BY OTHER TRADES BEFORE CONCRETE IS PLACED.

17. CONTRACTOR SHALL COORDINATE SLAB DEPRESSIONS FOR FLOOR FINISHES WITH THE ARCHITECTURAL DRAWINGS.

18. CONTRACTOR SHALL COORDINATE LOCATION OF FLOOR DRAINS, CURBS, CONCRETE PADS AND FLOOR DEPRESSIONS, ETC., WITH THE ARCHITECTURAL AND MECHANICAL DRAWINGS.

19. CONTRACTOR SHALL COORDINATE LOCATION OF INSERTS, WELDED PLATES AND OTHER ITEMS TO BE EMBEDDED IN CONCRETE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.

20. HORIZONTAL PIPES OR CONDUITS PLACED IN SLABS SHALL NOT BE SPACED CLOSER THAN 3 X THE DIAMETER OF CENTER. PIPE AND CONDUITS PLACED IN SLABS SHALL NOT HAVE AN OUTSIDE DIAMETER LARGER THAN 1/3 OF SLAB THICKNESS. ALUMINUM CONDUITS SHALL NOT BE PLACED IN CONCRETE. NO CONDUITS SHALL BE PLACED IN THE SLAB WITHIN 12 INCHES OF ANY COLUMN FACE.

21. CONTRACTOR SHALL USE RIGID STEEL TEMPLATES (SUPPLIED BY THE STEEL FABRICATOR) TO INSTALL ANCHOR RODS.
22. ALL STEEL MEMBERS TO BE ENCASED IN CONCRETE SHALL BE WRAPPED WITH A MINIMUM W.W.F. 6 X 6 – W2.9 X W2.9 REINFORCING, UNLESS OTHERWISE NOTED.

23. ALL SLABS SHALL BE FLAT AND LEVEL PER THE CONCRETE SPECIFICATIONS. THE CONCRETE CONTRACTOR SHALL INCLUDE IN THEIR BID ANY EXCESS CONCRETE REQUIRED DUE TO SUPPORT MEMBER DEFLECTION TO POUR SLABS FLAT AND LEVEL. THE CONCRETE PLACING PROCEDURE SHALL BE CONTROLLED TO MINIMIZE SUPPORT MEMBER DEFLECTION.

STRUCTURAL STEEL NOTES

1. FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION, MANUAL OF STEEL CONSTRUCTION, ASD (LATEST EDITION).

2. ALL STEEL DETAILS AND CONNECTIONS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE AISC, SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, LATEST EDITION

3. STEEL MATERIALS SHALL CONFORM TO THE FOLLOWING UNLESS OTHERWISE NOTED ON THE DRAWINGS:

A. ALL ROLLED SHAPES AND CHANNELS: ASTM A–572 OR A–992, MIN. YIELD STRENGTH OF 50 KSI

B. MISCELLANEOUS ANGLES: ASTM A–36, MIN YIELD STRENGTH OF 36 KSI

C. HOLLOW STRUCTURAL STEEL SECTIONS, (TUBES AND PIPES): ASTM A500 GRADE B, MIN YIELD STRENGTH OF 42 KSI FOR PIPES AND 46 KSI FOR TUBES.

4. ALL CONNECTION MATERIAL AND BASE PLATES SHALL CONFORM TO ASTM STANDARD A–36 (36KSI), WITH 50–KSI STEEL PLATE WHERE NOTED.

5. ALL BOLTS SHALL CONFORM TO ASTM A325 OR A490, NUTS SHALL CONFORM TO ASTM A563 AND WASHERS SHALL CONFORM TO ASTM A–F436.

6. ALL ANCHOR BOLTS/RODS SHALL CONFORM TO ASTM F–1554 GRADE 36 WITH WELD ABILITY SUPPLEMENT S1, UNLESS OTHERWISE NOTED. SUBMIT GRADE CERTIFICATIONS FOR RECORD. STEEL SUPPLIER SHALL SUPPLY RIGID STEEL TEMPLATES FOR ANCHOR ROD INSTALLATION.

7. ALL SHOP OR FIELD BOLTED CONNECTIONS, SHALL BE BOLTED CONNECTIONS USING 3/4 INCH DIAMETER A325 N BOLTS IN STANDARD HOLES, UNLESS SPECIFICALLY NOTED OTHERWISE.

8. OVERSIZED OR SLOTTED HOLES SHALL NOT BE USED FOR ANY CONNECTIONS UNLESS SPECIFICALLY INDICATED ON THE DRAWINGS OR APPROVED IN WRITING BY THE ENGINEER.

9. ALL BUTT AND FULL PENETRATION WELDS SHALL BE MADE USING RUN OFF TABS WHICH SHALL BE REMOVED AND GROUND SMOOTH AFTER WELD IS COMPLETED.

10. ALL WELD BACK UP BARS SHALL BE REMOVED AND GROUND SMOOTH AFTER WELD IS COMPLETED, UNLESS NOTED OTHERWISE.

11. ALL WELDS INDICATED SHALL MEET THE MINIMUM WELD SIDE SPECIFIED BY THE AISC MANUAL OF STEEL DESIGN. (SINGLE PASS AS REQUIRED)

12. ALL WELDS SHALL BE PERFORMED BY QUALIFIED WELDERS IN ACCORDANCE WITH A.W.S. SPECIFICATIONS, LATEST EDITIONS. ALL WELDING ELECTRODES SHALL CONFORM TO A.W.S. A5.1 GRADE E–70. BARE ELECTRODES AND GRANULAR FLUX SHALL CONFORM TO A.W.S. A5.17, F70 A.W.S. FLUX CLASSIFICATION.

13. ALTERNATE CONNECTIONS WILL BE ACCEPTED ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER. HOWEVER, THE ENGINEER SHALL BE THE SOLE JUDGE OF THE ACCEPTABILITY AND THE CONTRACTOR'S BID SHALL ANTICIPATE THE USE OF THOSE SPECIFIC DETAILS SHOWN ON THE DRAWINGS. IN ANY EVENT THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF SUCH ALTERNATE DETAILS WHICH THEY PROPOSE.

14. SHOP AND FIELD CONNECTIONS NOT SPECIFICALLY DETAILED ON THE DRAWINGS SHALL BE BOLTED OR WELDED.

15. WHEN NOT SPECIFICALLY DETAILED ELSEWHERE ON THE DRAWINGS, ALL BEAM TO BEAM AND BEAM TO COLUMN CONNECTIONS SHALL BE DETAILED AS SHOWN IN THE TYPICAL BEAM CONNECTION DETAILS.

16. ALL BEAM AND GIRDERS SHALL BE CONNECTED FOR 115% OF THE REACTION DENOTED BY THE SYMBOL V ON THE PLAN. PROVIDE A MINIMUM 2 BOLT CONNECTION. IF NO REACTION IS GIVEN PROVIDE CONNECTION FOLLOWING NOTE 17 BELOW.

17. ALL BEAM AND GIRDER CONNECTIONS SHALL BE AT LEAST CAPABLE OF DEVELOPING THE UNIFORMLY DISTRIBUTED LOAD CAPACITY OF THE MEMBER USING THE REACTION FROM THE ALLOWABLE LOAD OF BEAM AS TABULATED IN THE AISC MANUAL OF STEEL CONSTRUCTION LATEST EDITION UNLESS NOTED OTHERWISE. FOR COMPOSITE BEAMS MULTIPLY THE REACTION BY THE RATIO Str/S WHERE Str = SECTION MODULUS OF THE TRANSFORMED COMPOSITE CROSS SECTION WITH RESPECT TO THE BOTTOM FLANGE, AND S= SECTION MODULUS OF THE STRUCTURAL STEEL ALONE.

18. FILLER BEAMS SHOULD BE SPACED EQUALLY BETWEEN THE SUPPORTS UNLESS OTHERWISE NOTED ON THE DRAWINGS.

19. ALL HOLES AND CUTS SHALL BE SHOWN ON THE SHOP DRAWINGS AND MADE IN THE SHOP. CUTS OR BURNING OF HOLES IN STRUCTURAL STEEL MEMBERS IN THE FIELD WILL NOT BE PERMITTED.

20. STEEL MEMBERS INDICATED ON THE DRAWINGS TO BE ENCASED IN CONCRETE SHALL BE UNPAINTED ON THE CONTACT SURFACES AND SHALL BE WRAPPED WITH A MINIMUM W.W.F. 6 X 6 – W2.9 X W2.9 REINFORCING UNLESS OTHERWISE NOTED.

21. THE STRUCTURAL STEEL CONTRACTOR SHALL COORDINATE THE BOTTOM OF BASE PLATE ELEVATION WITH THE TOP OF CONCRETE ELEVATION.

22. THE MAXIMUM LOAD HUNG FROM ANY BEAM FOR MEP DUCTWORK, PIPING ETC SHALL BE DISTRIBUTED TO THE BEAM'S TRIBUTARY AREA IN A WAY THAT THE ALLOWABLE DESIGN LOADS LISTED IN THE GENERAL NOTES ARE NOT EXCEEDED. THE CONTRACTOR SHALL COORDINATE THE LOADS OF ALL TRADES AND PROVIDE ADDITIONAL SUPPORT OR DISTRIBUTION FRAMING AS REQUIRED TO ACHIEVE THESE LOADS.

23. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS, MECHANICAL DRAWINGS AND DRAWINGS RELATED TO OTHER TRADES. THE GENERAL CONTRACTOR IS RESPONSIBLE TO CHECK AND COORDINATE DIMENSIONS, CLEARANCES, ETC., WITH THE WORK OF THE OTHER TRADES.

24. PROVIDE ANY TEMPORARY BRACING OR GUYS TO PROVIDE LATERAL SUPPORT OF THE STRUCTURES AND INDIVIDUAL ELEMENTS UNTIL PERMANENT FRAME IS COMPLETELY INSTALLED.

25. ALL STRUCTURAL STEEL EXPOSED TO WEATHER SHALL BE GALVANIZED.

26. ALL TUBE & PIPE SECTIONS EXPOSED TO WEATHER SHALL HAVE OPEN ENDS CAPPED WITH 1/4" PLATE.

27. ALL STRUCTURAL STEEL TO RECEIVE SPRAY APPLIED FIRE PROTECTION SHALL BE LEFT UNCOATED.

28. FOR EXPOSED INTERIOR STRUCTURAL STEEL, REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR SURFACE PREPARATION AND FINISH REQUIREMENTS.

29. STEEL FABRICATOR SHALL COORDINATE ALL HOLE LOCATIONS FOR SIMPSON TIE DOWN ANCHORS. ALL HOLES SHALL BE SHOP DRILLED THROUGH BEAM FLANGES.

CONTRACTORS DESIGN RESPONSIBILITY

1. THE LISTED BELOW PROJECT ITEMS ASSOCIATED WITH FABRICATION, ERECTION AND CONTRACTORS MEANS AND METHODS AND REQUIRING STRUCTURAL DESIGN ARE THE RESPONSIBILITY OF THE CONTRACTOR.

2. THE CONTRACTOR SHALL RETAIN THE SERVICES OF STRUCTURAL PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF CONNECTICUT TO PERFORM THE DESIGN OF THESE ITEMS.

3. CALCULATIONS FOR ITEMS MARKED THUS (*) SHALL BE SUBMITTED FOR REVIEW AND APPROVAL TO THE ENGINEER OF RECORD, OTHERWISE THE ITEMS SHALL ONLY BE SUBMITTED FOR THE OWNERS RECORD:

A. ERECTION: GUIDING, BRACING, CONSTRUCTION LOADS, SCAFFOLDING, RIGGING CONSTRUCTION HOISTS AND CRANES, TEMPORARY SUPPORTS AND THEIR CONNECTIONS.

SPECIAL INSPECTIONS

THE FOLLOWING CONTROLLED INSPECTIONS ARE REQUIRED TO BE PERFORMED IN ACCORDANCE THE BUILDING CODE OF COMMONWEALTH OF MASSACHUSETTS, LATEST EDITION:

ITEM:
- CONCRETE CONSTRUCTION
- REINFORCED MASONRY CONSTRUCTION
- STEEL CONSTRUCTION
- SOILS
- SPRAYED FIRE RESISTANT MATERIALS
- TIMBER CONSTRUCTION

TIMBER FRAMING NOTES

1. ALL TIMBER FRAME CONSTRUCTION SHALL BE DONE IN STRICT CONFORMANCE WITH THE AITC TIMBER CONSTRUCTION MANUAL, LATEST EDITION.

2. ALL TIMBER SHALL BE KILN–DRIED, #2 OR BETTER, DOUGLAS FIR WITH A MINIMUM ALLOWABLE BENDING STRESS OF 1000 PSI OR AN APPROVED EQUIVALENT. ALL WOOD IN CONTACT WITH SOIL, WEATHER OR CONCRETE SURFACES SHALL BE PRESERVATIVELY TREATED. (P.T.)

3. ALL PLYWOOD DECKING OR SHEATHING SHALL BE APA RATED C–D GRADE STRESS LEVEL S–2 WITH EXTERIOR GLUE.

4. EXTERIOR PLYWOOD WALL SHEATHING SHALL BE FASTENED WITH 10d COMMON NAILS SPACED AT 4" O.C. AT PANEL EDGES AND 12" O.C. INTERMEDIATE. EXTERIOR PLYWOOD ROOF SHEATHING SHALL BE FASTENED WITH 10d COMMON NAILS SPACED AS FOLLOWS: AT AT THE PERIMETER OF THE ROOF 4" O.C., AT PANEL EDGES AND 12" O.C. INTERMEDIATE. (BLOCKING IS REQUIRED).

5. ALL LAG BOLT CONNECTIONS SHALL BE PRE–DRILLED WITH THE PROPER SIZE LEAD HOLE DIAMETER IN ACCORDANCE WITH THE AITC TIMBER MANUAL.

6. ALL TIMBER FRAMING CLIPS AND FASTENERS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION. ALL SIMPSON STRONG TIE CONNECTORS SHALL HAVE ZMAX G185 GALVANIZED COATINGS.

7. ALL STRUCTURAL COMPOSITE LUMBER (SCL) SHALL BE MICROLAM LVL's WITH A MINIMUM MODULUS OF ELASTICITY OF 1900 KSI, AS MANUFACTURED BY THE TRUS JOIST CO. OR AN APPROVED EQUIVALENT.

8. ALL PARALLAM POST (PSL) SHALL HAVE A MINIMUM MODULUS OF ELASTICITY OF 1800 KSI, AS MANUFACTURED BY THE TRUS JOIST CO. OR AN APPORVED EQUIVALENT.

9. INSTALLATION OF LVL's SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDED PROCEDURES. DO NOT DRILL OR CUT ANY STRUCTURAL HEADER OR BEAM WITHOUT APPROVAL OF ARCHITECT/ENGINEER. LAMINATE MULITPLE–PLY LVL'S WITH 3/8" DIAMETER CARRIAGE BOLTS, TWO ROWS 16" ON CENTER.

10. ENGINEERED METAL–PLATE–CONNECTED WOOD TRUSSES SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER. THE CONTRACTOR SHALL SUBMIT ENGINEERED TRUSS SHOP DRAWINGS TO THE STRUCTURAL ENGINEER OF RECORD FOR REVIEW AND APPROVAL. TRUSS SHOP DRAWINGS SHALL BEAR THE SEAL AND SIGNATURE OF A LICENSED DESIGN PROFESSIONAL CURRENTLY REGISTERED FOR PRACTICE IN THE STATE OF CT. SHOP DRAWINGS SHALL INDICATE ALL LOADING CASES CONSIDERED, MAXIMUM DEFLECTIONS AND MAXIMUM END REACTIONS FOR EACH TYPICAL TRUSS CONFIGURATION. TRUSS SHOP DRAWINGS SHALL INDICATE COMPRESSION MEMBERS REQUIRING ADDITIONAL FIELD–INSTALLED LATERAL BRACING. REFER TO DRAWINGS S–002 AND S–003 FOR LOAD DIAGRAMS. TRUSS DEFLECTIONS SHALL BE LIMITED TO 1 360 OF SPAN.

11. PROVIDE TORQUE LOCKING NUTS AT ALL BOLTED CONNECTIONS.

12. LAMANITED BEAMS SHALL BE 24FV3 SOUTHERN YELLOW PINE AND SHALL BE PRESERVATIVE TREATED (P.T.).

TIMBER FRAMING FASTENING SCHEDULE

NO.	CONNECTION	FASTENING	LOCATION
1	FLOOR JOIST TO SILL OR WALL PLATE	4 – 8d COMMON	TOENAIL
2	BOTTOM PLATE TO JOIST, RIM, OR BLOCKING	(2) ROWS OF 1 4x 4 1 2 SDS SCREWS @ 12"O.C.	FACE
3	TOP PLATE TO STUD	2 – 16d COMMON	END NAIL
4	STUD TO BOTTOM PLATE	2 – 16d COMMON + SIMPSON SP4 STUD	END NAIL
5	DOUBLE STUD	16d COMMON @ 16" O.C.	FACE NAIL
6	DOUBLE TOP PLATES	16d COMMON @ 16" O.C.	FACE NAIL
7	DOUBLE TOP PLATES – LAP SPLICE	8 – 16d COMMON	FACE NAIL
8	BLOCKING BETWEEN JOIST OR RAFTER TO TOP PLATE	3 – 8d COMMON	TOENAIL
9	RIM JOIST TO TOP PLATE	10d COMMON @ 6" O.C.	TOENAIL
10	FLOOR TRUSS TO RIM JOIST	2 – 10d COMMON	FACE NAIL, ONE EACH TOP AND BOTTOM CHORD
11	CEILING JOIST TO TOP PLATE	3 – 10d COMMON	TOENAIL
12	CEILING JOIST – LAPS OVER PARTITIONS	4 – 16d COMMON	FACE NAIL
13	CEILING JOIST TO PARALLEL RAFTERS	4 – 16d COMMON	FACE NAIL
14	COLLAR TIE TO RAFTER	4 – 16d COMMON	FACE NAIL
15	RAFTER TO PLATE	4 – 8d COMMON	TOENAIL
16	LEDGER TO RIM JOIST	3 – 16d COMMON 24" O.C.	FACE NAIL
17	LEDGER TO WALL STUD	3 – 16d COMMON 24" O.C.	FACE NAIL
18	2X4 GYPSUM NAILER	8d COMMON 16" O.C.	FACE NAIL
19	HEADER TO STUD	4 – 8d COMMON	TOENAIL

EFFICIENCY
ACCURACY
TECHNOLOGY

KRONOS CO. 235 MARGINAL ST CHELSEA MA 02150

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COMMONWEALTH OF MASSACHUSETTS
CARLOS FERREIRA
CIVIL
No. 41423
REGISTERED PROFESSIONAL ENGINEER

CARLOS FERREIRA, PE DATE: JANUARY 12, 2022

PROPOSED 4-STORY
MUTI FAMILY

254 PARIS STREET EAST BOSTON, MA

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS:

CLIENT:

ENGINEER:

SITE: 254 PARIS STREET EAST BOSTON, MA

TITLE: GENERAL NOTE

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
3/16"=1'-0"	1/26/22		

PROJECT NO:	DRAWING NO:	REVISION:
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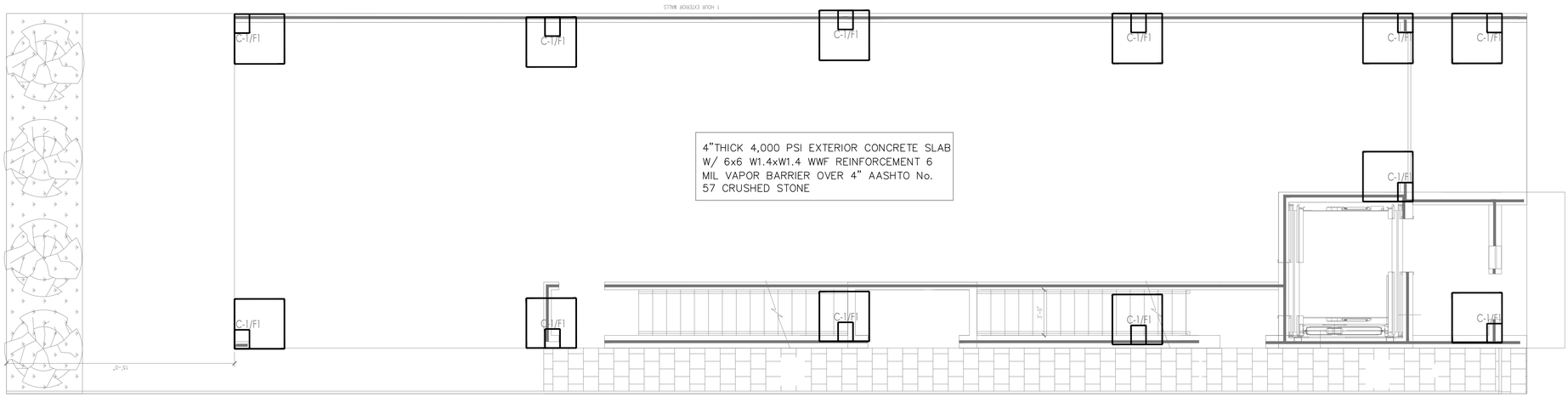
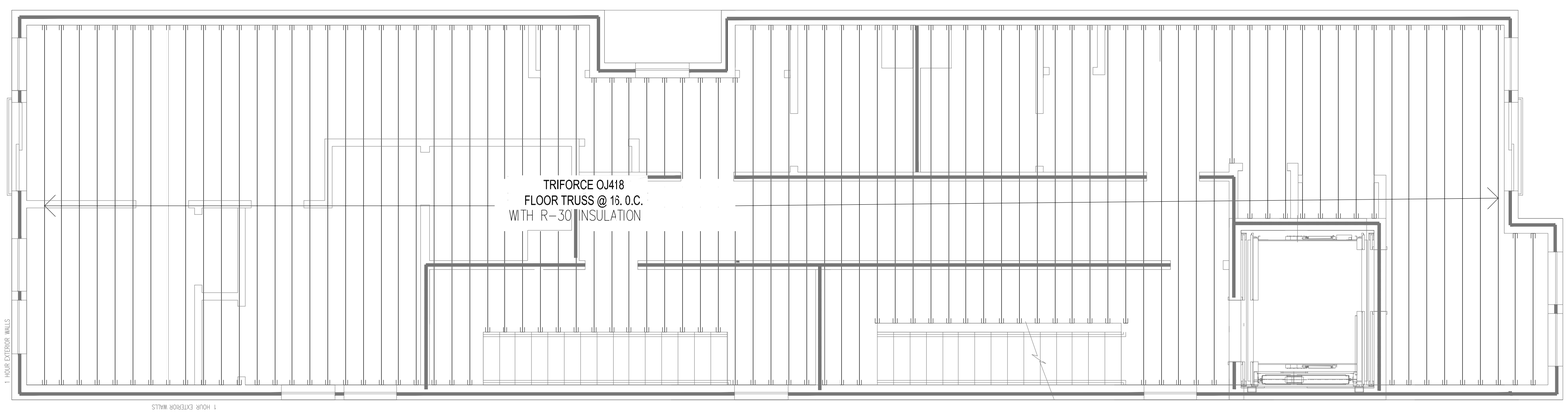


1 FOUNDATION PLAN
1/4" = 1'



2 GROUND FLOOR FRAMING PLAN
1/4" = 1'

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COMMONWEALTH OF MASSACHUSETTS
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PROPOSED 4-STORY MUTI FAMILY

254 PARIS STREET EAST BOSTON, MA

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS:

CLIENT:

ENGINEER:

SITE: 254 PARIS STREET EAST BOSTON, MA

TITLE: FOUNDATION PLAN & GROUND FLOOR FRAMING PLAN

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
1/4"=1'-0"	1/26/22		
PROJECT NO:	DRAWING NO:		REVISION:
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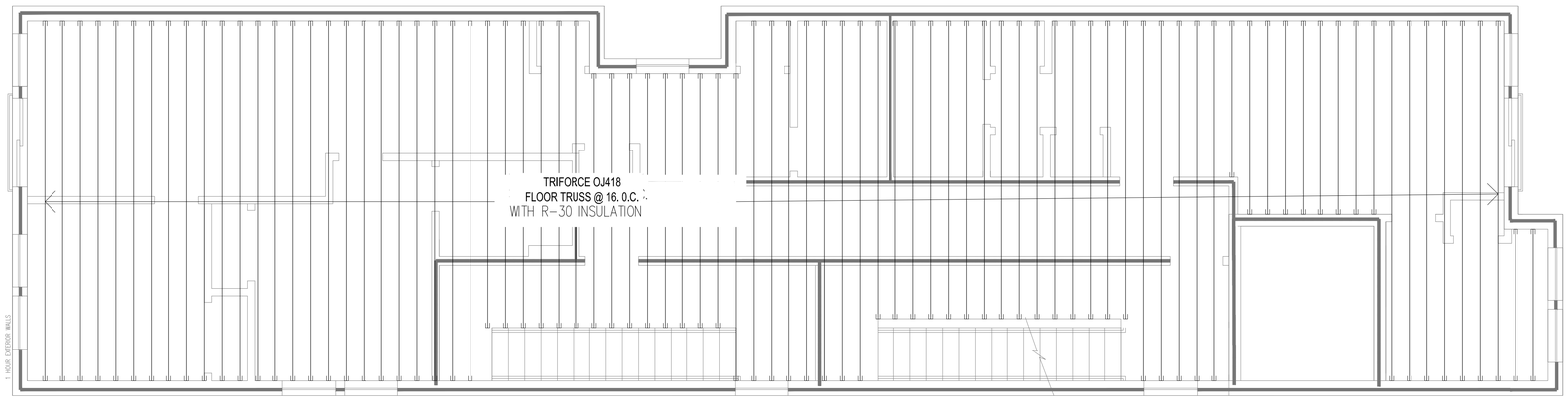
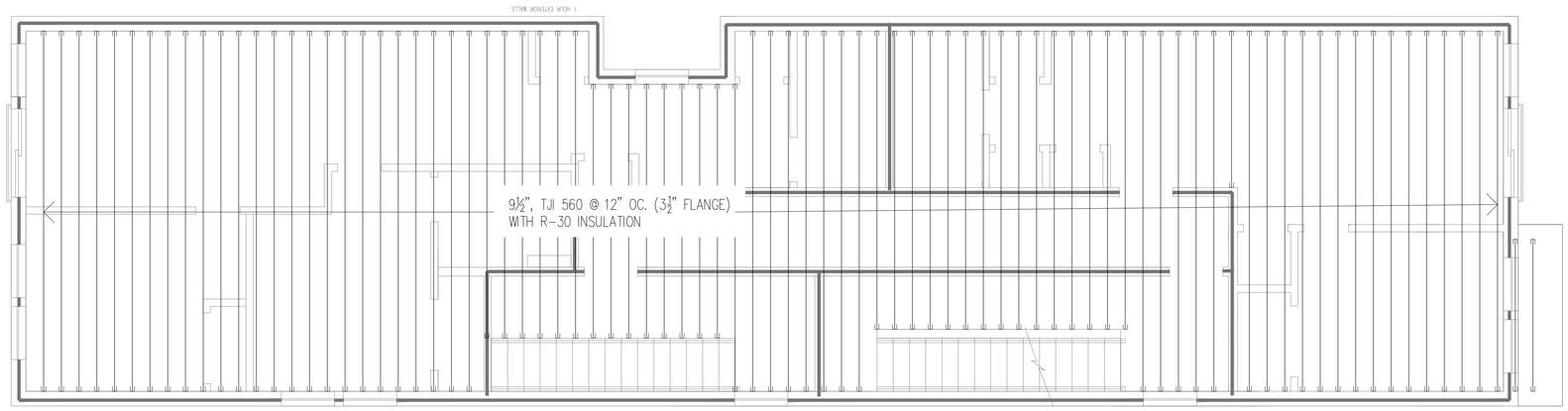


1 SECOND FLOOR FRAMING PLAN
1/4" = 1'



1 THIRD FLOOR FRAMING PLAN
1/4" = 1'

KRONOS COMPANIES

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CARLOS FERREIRA, PE DATE: JANUARY 12, 2022

PROPOSED 4-STORY MUTI FAMILY

254 PARIS STREET EAST BOSTON, MA

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS:

CLIENT:

ENGINEER:

SITE: 254 PARIS STREET EAST BOSTON, MA

TITLE: SECOND FLOOR AND THIRD FLOOR FRAMING PLAN

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
1/4"=1'-0"	1/26/22		
PROJECT NO:	DRAWING NO:		REVISION:
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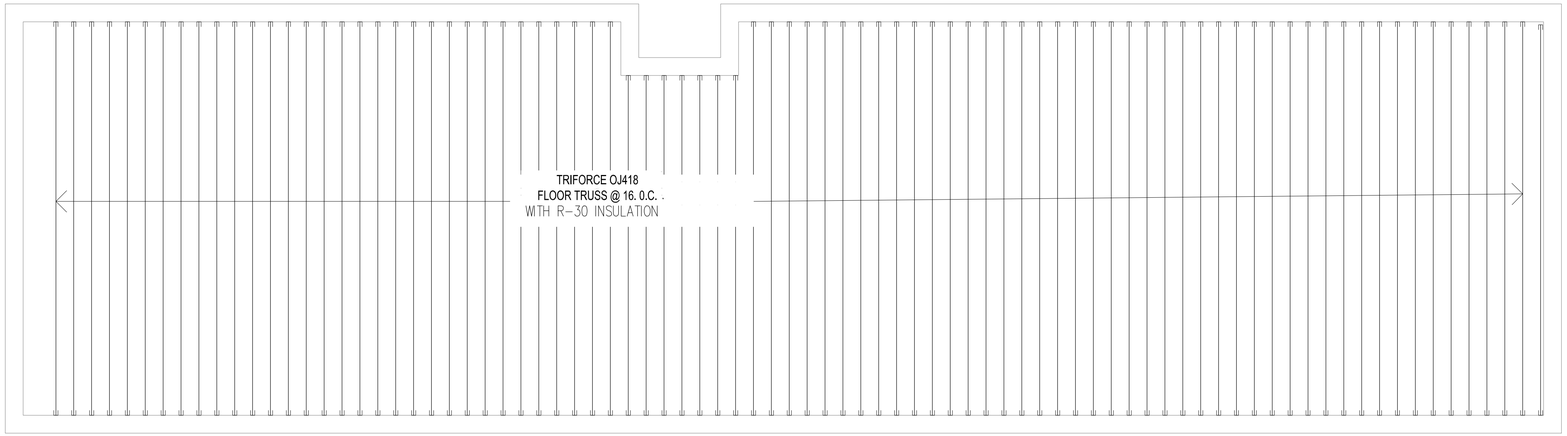


1 ROOF DECK FRAMING PLAN
1/4" = 1'

ROOF DECK FRAMING NOTE

1. DESIGN LIVE LOADS: ROOF SNOW LOAD BASED ON 45 PSF GROUND SNOW LOAD.
2. ROOF CONSTRUCTION: 14/32"APA RATED OSB. WITH EDGE CLIPS. PANEL INDEX 32/16". INTERIOR WITH EXTERIOR GLUE. EXPOSURE 1. INSTALL WITH 10D NAILS AT 6"O.C. AT SUPPORTED PANEL EDGES AND 10D NAILS @ 12"O.C. AT INTERMEDIATE SUPPORTS.
3. TOP OF WALL @ TRUSS BRO ELEVATION 15 114'-10" TYP UNO.
4. SW1 INDICATES SHEAR WALL AT INTERIOR. SHEAR WALL CONSISTS OF 2x4 STUDS @ 16"O.C. w/ GYPSUM ONE SIDE. WALLS ARE UNBLOCKED. INSTALL w/ #6. DRYWALL SCREENS @ 6" O.C. @ SUPPORTED PANEL EDGES 4 #6 DRYWALL SCREENS @ 12" O.C. AT INTERMEDIATE SUPPORTS.
5. SW2 INDICATES WALL AT CORRIDOR. WALL CONSISTS OF 2x6 STUDS @ 16"O.C.
   w/ GYPSUM BOTH SIDES. WALLS ARE UNLOCKED. INSTALL w/ 6" DRYWALL SCREENS @ 6" O.C. AT SUPPORTED PANEL EDGES #6 DRYWALL SCREENS 12"O.C. AT INTERMEDIATE SUPPORTS.
6. SW3 INDICATES WALL AT EXTERIOR 4" AT STAIR. WALL CONSISTS OF 2x6 STUDS 16"O.C. W/" PLYWOOD ONE SIDE MIN. WALLS ARE UNBLOCKED. INSTALL w/ 8d COMMON NAILS @ 6"O.C. AT SUPPORTED PANEL EDGES #8d COMMON NAILS @ 12"O.C. AT INTERMEDIATE SUPPORTS.
7. VERIFY ALL WOOD TRUSS DIMENSIONS AND GEOMETRIES WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS PRIOR TO DESIGNING AND FABRICATING TRUSSES.
8. SPACE WOOD TRUSSES AT 2'-0" ON CENTER. TYPICAL UNLESS NOTED.
9. WOOD TRUSSES SHALL BE DESIGNED FOR THE FOLLOWING LOADS.

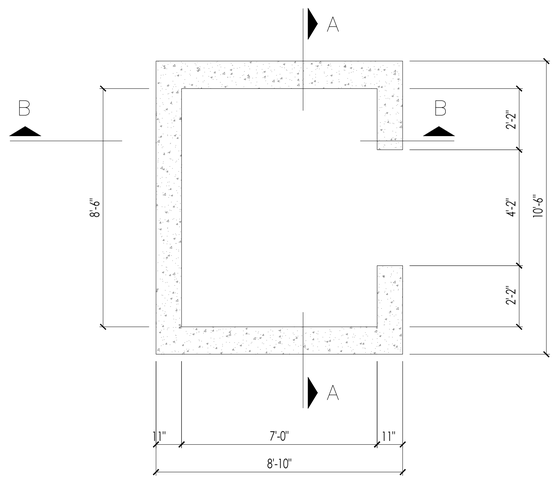
LOAD	BOTTOM CHORD	TOP CHORD
DEAD	10 PSF	10 PSF
LIVE	10 PSF	20 PSF
WIND		105 PSF (NET UPLIFT)
SNOW		45 PSF & DRIFTING

SEE PLAN FOR ADDITIONAL LOADS. TRUSSES SHALL BE DESIGNED FOR UNBALANCED AND DRIFTED SNOW IN ACCORDANCE WITH THE GOVERNING BUILDING CODE LOADS SHALL BE COMBINED USING LOAD COMBINATIONS IN ACCORDANCE WITH THE GOVERNING BUILDING CODE. GIRDER TRUSSES SHALL BE DESIGNED FOR REACTIONS FROM SUPPORTED MEMBERS.

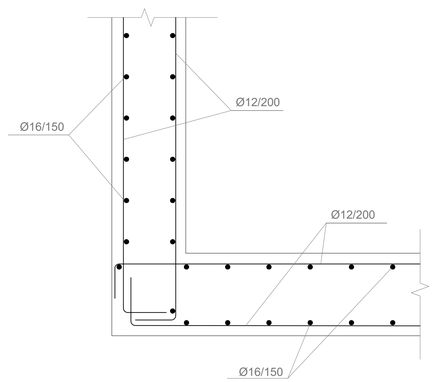
10. WOOD TRUSSES SHALL BE DESIGNED FOR THE FOLLOWING DEFLECTION LIMITS: TOTAL LOAD DEFLECTION SPAN/240; LIVE LOAD DEFLECTION SPAN/ 360.
11. ALL GABLE ROOF GIRDER TRUSSES TO BE SUPPORTED @ EA END BY (3) 2x6 STUDS, EXTEND TO FOUNDATION. INSTALL SOLID BLOCKING AT SECOND FLOOR. ATTACH GIRDER TRUSS TO TOP PL w/ (2) SIMPSON TBE6, TYP UNO.
12. MASONRY @ ELEVATOR TO BE 8" CMU w/ #5V @ 48"O.C., TYP
13. ALL OVERHANGS ARE MEASURED FROM EXTERIOR FACE OF BUILDINGS.
14. REFERENCES: GENERAL STRUCTURAL NOTES – S001.
15. SYMBOL. LEGEND

INDICATES HEADER TYPE. SEE SCHEDULE ON SHEET S002.

INDICATES TOP OF WALL OR BOTTOM OF BEAM



ELEVATOR HOLLOW ARMED. PLANT



DETAIL 1.

EFFICIENCY
ACCURACY
TECHNOLOGY

KRONOS CO. 235 MARGINAL ST CHELSEA MA 02150

Notes:

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2. WORK TO FIGURED DIMENSIONS ONLY.

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MF ENGINEERING & DESIGN
109 HIGHLAND AVE. #203
NEEDHAM, MA 02492
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COMMONWEALTH OF MASSACHUSETTS
CARLOS FERREIRA
CIVIL
No. 41423
REGISTERED PROFESSIONAL ENGINEER

CARLOS FERREIRA, PE DATE: JANUARY 12, 2022

PROPOSED 4-STORY
MUTI FAMILY

254 PARIS STREET EAST BOSTON, MA

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS:

CLIENT:

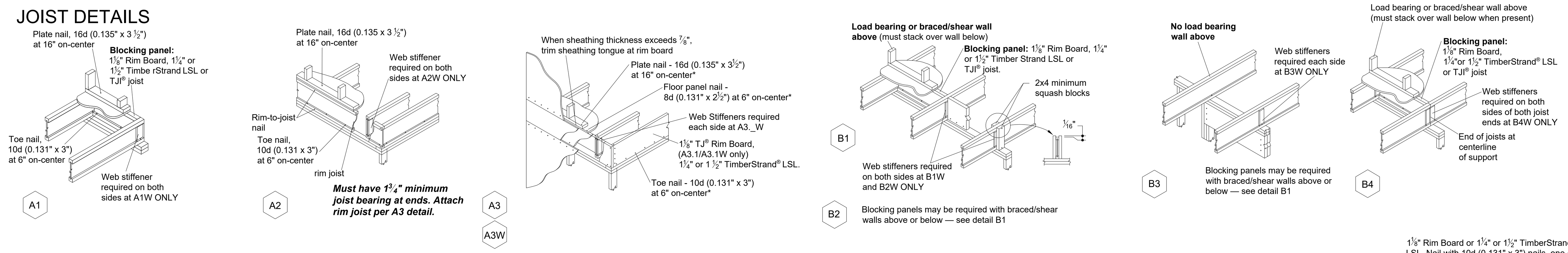
ENGINEER:

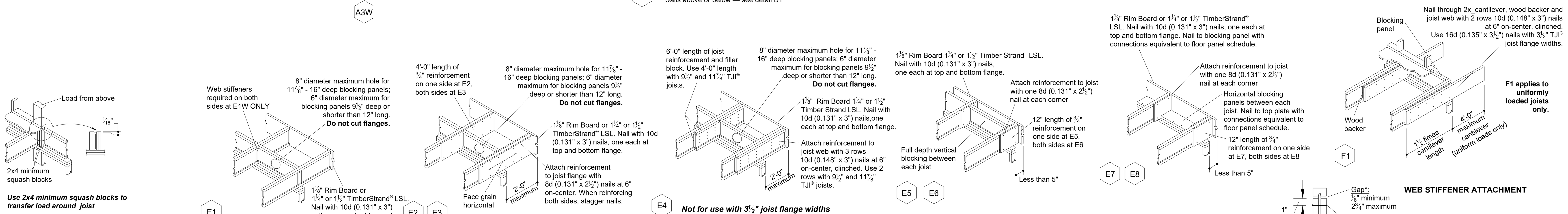
SITE: 254 PARIS STREET EAST
BOSTON, MA

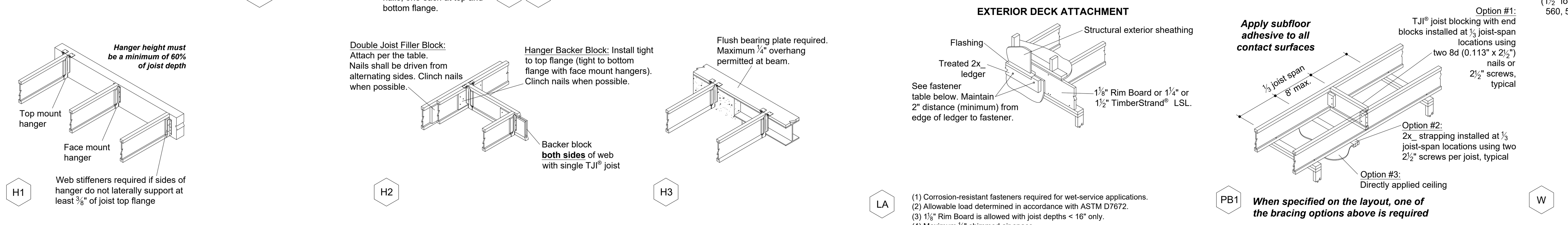
TITLE: ROOF DECK FRAMING, ROOF DECK NOTE

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
1/4"=1'-0"	1/26/22		
PROJECT NO:	DRAWING NO:		REVISION:
---	S4		---

JOIST DETAILS

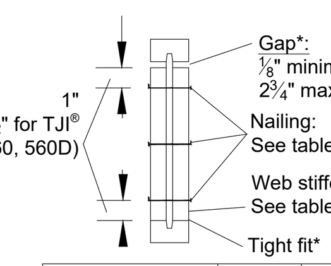






(1) Corrosion-resistant fasteners required for wet-service applications.
(2) Allowable load determined in accordance with ASTM D7672.
(3) 1⅛" Rim Board is allowed with joist depths < 16" only.
(4) Maximum ½" shimmed air space.

WEB STIFFENER ATTACHMENT



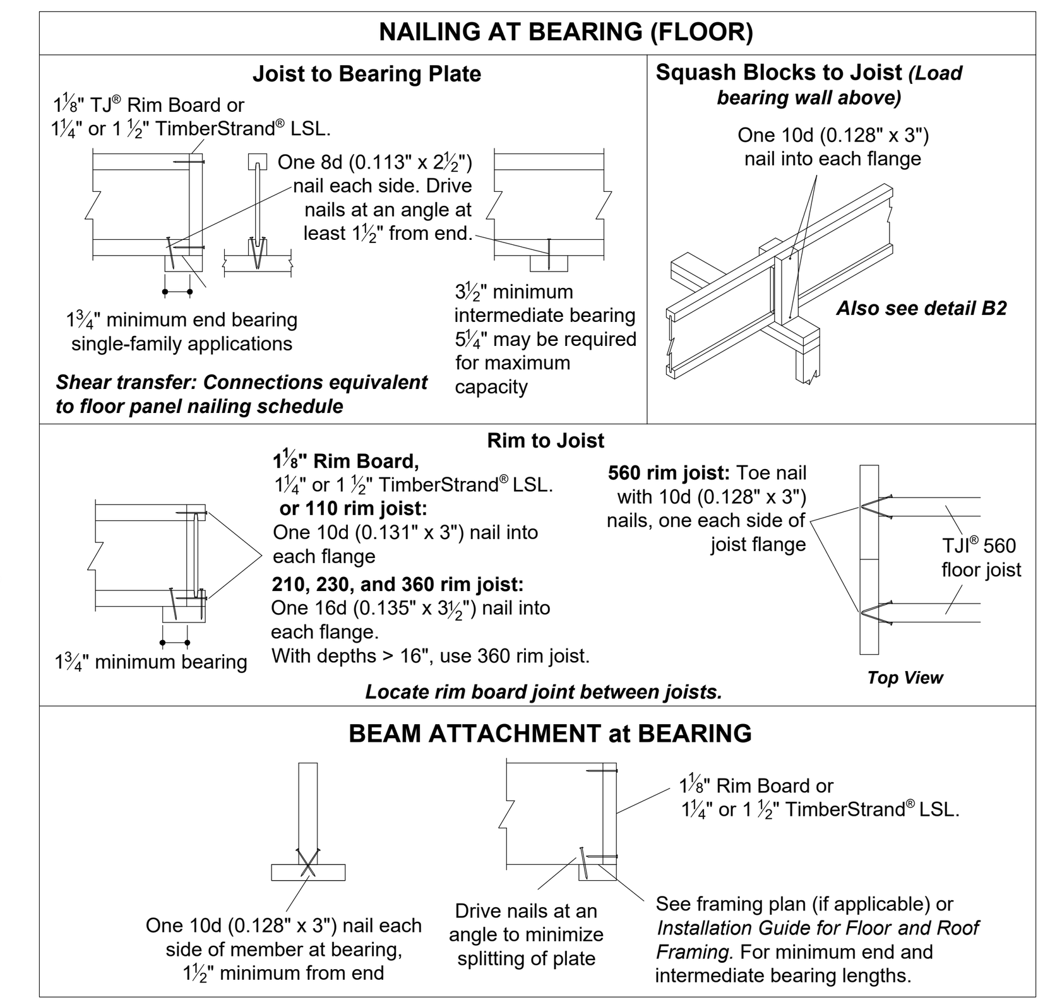
* With point load from above, and no support below, install web stiffener tight to top flange (gap at bottom flange)

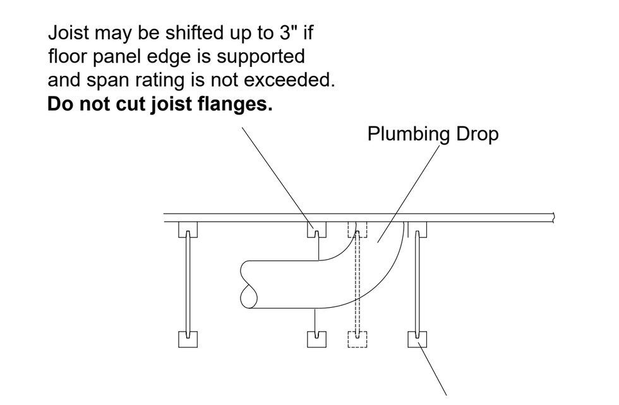
W

TJI® Joist Series	Depth (in.)	Minimum Web Stiffener Size	Nailing Requirements: Type	Number Nails: End	Number Nails: Intermediate
110 210 230 & 360	All All All	⅝" x 2$\frac{5}{16}$"(1) ¾" x 2$\frac{5}{16}$"(1) ⅞" x 2$\frac{5}{16}$"(1)	8d (0.113" x 2½")	3	3
560	All	2x4(2)	16d (0.135" x 3½")		
560D	18" 20" 22"(3) 24"(3)	2x4(2)	16d (0.135" x 3½")	4 5 6 6	4 5 11 13

(1) PS1 or PS2 sheathing, face grain vertical
(2) Construction grade or better
(3) Web stiffeners are always required for 22" and 24" TJI® 560D Joists

NAILING AT BEARING (FLOOR)





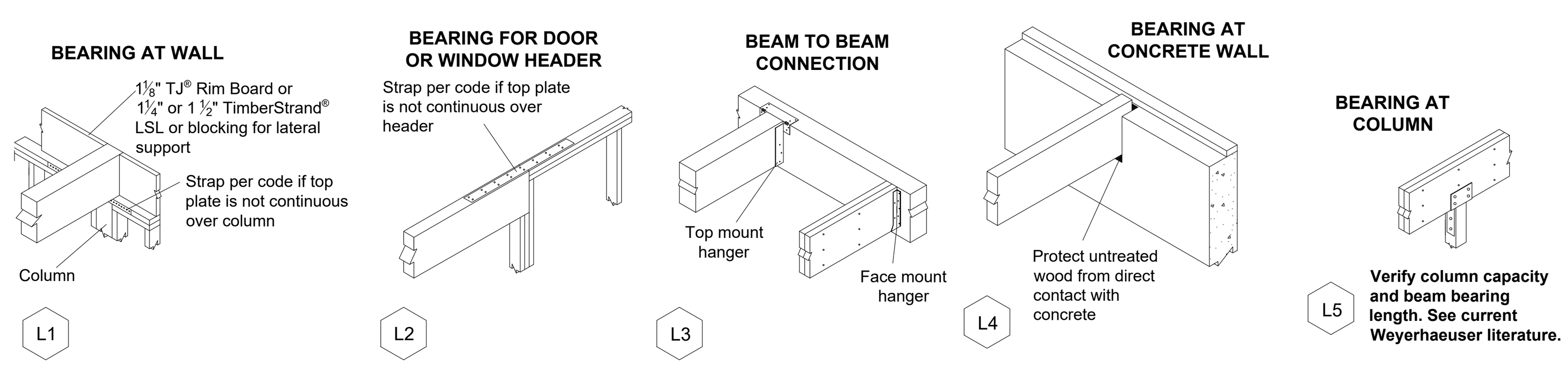
Subfloor adhesive will improve floor performance, but may not be required.

Squash blocks and blocking panels carry stacked vertical loads (details B1 and B2). Packing out the web of a joist (with web stiffeners) is not a substitute for squash blocks or blocking panels.

When joists are doubled at non-load bearing parallel partitions, space joists apart the width of the wall for plumbing or HVAC.

Additional joist at plumbing drop (see detail).

BEAM DETAILS



FASTENING of FLOOR PANELS

Guidelines for Closest On-Center Spacing per Row

Nail Size	TJI®(1)(2): 110, 210, and 230	TJI®(1)(2): 360 and 560	Rim Board: 1⅛" Rim Board	Rim Board: 1¼"	1¾" TimberStrand® LSL or wider	Microllam® LVL	Parallam® PSL
8d (0.113" x 2½"), 8d (0.131" x 2½")	4"	3"	6"	4"	3"	4"	4"
16d (0.162"x 3½")	6"	6"	16"(4)	6"(5)	6"(6)	8"(4)	6"

(1) Stagger nails when using 4" on-center spacing and maintain ⅜" joist and panel edge distance. One row of fasteners is permitted (two at abutting panel edges) for diaphragms. Fastener spacing for Joists in diaphragm applications cannot be less than shown in table. When fastener spacing for blocking is less than spacing shown above, rectangular blocking must be used in lieu of joists.
(2) For non-diaphragm applications, multiple rows of fasteners are permitted if the rows are offset at least ½" and staggered.
(3) With 10d (0.148" x 1½") nails, spacing can be reduced to 3" on-center for light gauge steel straps.
(4) Can be reduced to 5" on-center if nail penetration into the narrow edge is no more than 1¼" (to minimize splitting).
(5) Can be reduced to 4" on-center if nail penetration into the narrow edge is no more than 1¼" (to minimize splitting).
(6) Can be reduced to 3½" on-center if nail penetration into the narrow edge is no more than 1¼" (to minimize splitting).
■ Recommended nailing is 12" on-center in field and 6" on-center along panel edge. Fastening requirements on engineered drawings supersede recommendations listed above.
■ Maximum nail spacing for Joists is 18" on-center.
■ 14 ga. staples may be substituted for 8d (0.113" x 2½") nails if minimum penetration of 1" into the joist or rim board is achieved.
■ To minimize splitting, maintain edge distance and row spacing of 2½ x nail diameter or ⅜", whichever is greater.
■ Nailing rows must be offset at least ½" and staggered.

FILLER and BACKER BLOCK SIZES

Depth	110: 9½"-11⅞"	110: 14"-16"	210: 9½"-11⅞"	210: 14"-16"	230 or 360: 9½"-11⅞"	230 or 360: 14"-16"	18"-20"	560: 11⅞"	560: 14"-16"	560: 18"-20"
Filler Block (1) (Detail H2)	2x6	2x8	2x6 + ⅜" sheathing	2x8 + ⅜" sheathing	2x6 + ½" sheathing	2x8 + ½" sheathing	2x12 + ½" sheathing	Two 2x6	Two 2x8	Two 2x12
Cantilever Filler (Detail E4)	2x6 4'-0" long	2x10 6'-0" long	2x6 + ⅜" sheathing 4'-0" long	2x10 + ⅜" sheathing 6'-0" long	2x6 + ½" sheathing 4'-0" long	2x10 + ½" sheathing 6'-0" long	Not applicable	Not applicable		
Backer Block (1) (Detail F1 or H2)	⅝" or ¾"		¾" or ⅞"		⅞" or 1" Net			2x6	2x8	2x12

(1) If necessary, increase filler and backer block height for face mount hangers and maintain ⅛" gap at top of joist; see detail W. Filler and backer block dimensions should accomodate required nailing without splitting (12" minimum for backer blocks and 24" minimum for filler blocks).
(2) Clinch nails when possible.

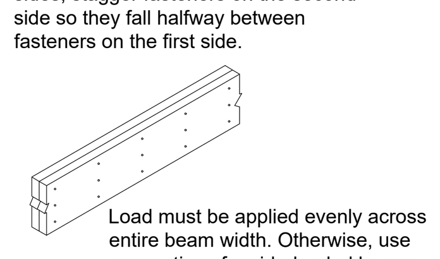
Multiple-Member Connections for Top-Loaded Beams

Fastener Installation Requirements

Piece Width	# of Plies	Fastener: Type(1)	Min. Length	# Rows	O.C. Spacing	Location
1¾"	2	10d nails	3"	3(2)	12"	One side
		12d-16d nails	3 ¼"	2(2)		
		Screws	3⅜" or 3½"	2	24"	
	3	10d nails	3"	3(2)	12"	Both sides
		12d-16d nails	3 ¼"	2(2)		
		Screws	3⅜" or 3½"	2	24"	Both sides
			5"			One side
	4	10d nails(3)	3"	3(2)	12"	One side (per ply)
		12d-16d nails(3)	3 ¼"	2(2)		
		Screws	5" or 6"	2	24"	Both sides
			6 ¾"			One side
3½"	2	Screws	5" or 6"	2	24"	Both sides
			6 ¾"			One side
		½" bolts	8"	2	24"	-

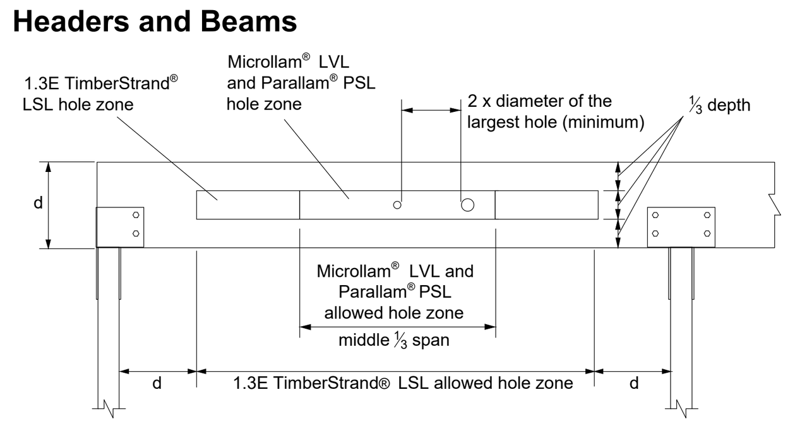
(1) 10d nails are 0.128" diameter; 12d-16d nails are 0.148" - 0.162" diameter; screws are SDS, SDW, USP WS, or TrussLOK®
(2) An additional row of nails is required with depths of 14" or greater.
(3) When connecting 4-ply members, nail each ply to the other and offset nail rows by 2" from the rows in the ply below.

When fasteners are required on both sides, stagger fasteners on the second side so they fall halfway between fasteners on the first side.



L6 Multiple pieces can be nailed or bolted together to form a header or beam of the required size, up to a maximum width of 7"

Headers and Beams



General Notes
- Allowed hole zone suitable for headers and beams with **uniform loads only.**
- Round holes only
- No holes in cantilevers.
- No holes in headers or beams in plank orientation.

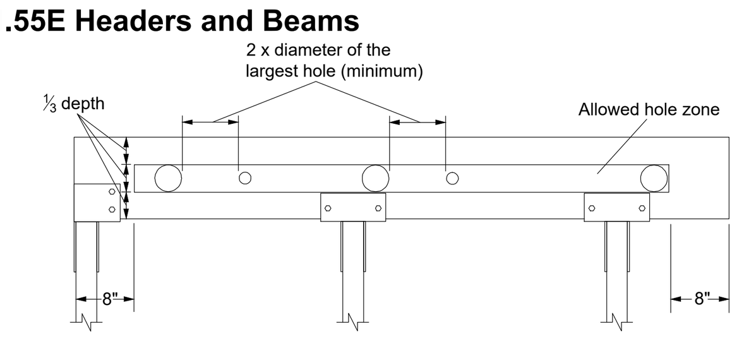
Other Truss Joist Beams

Header or Beam Depth	Maximum Round Hole Size
4⅜"	1"
5½"	1¾"
7¼"- 20"	2"

See illustration for Allowed Hole Zone

ALLOWABLE HOLES - Headers and Beams

1.55E Headers and Beams

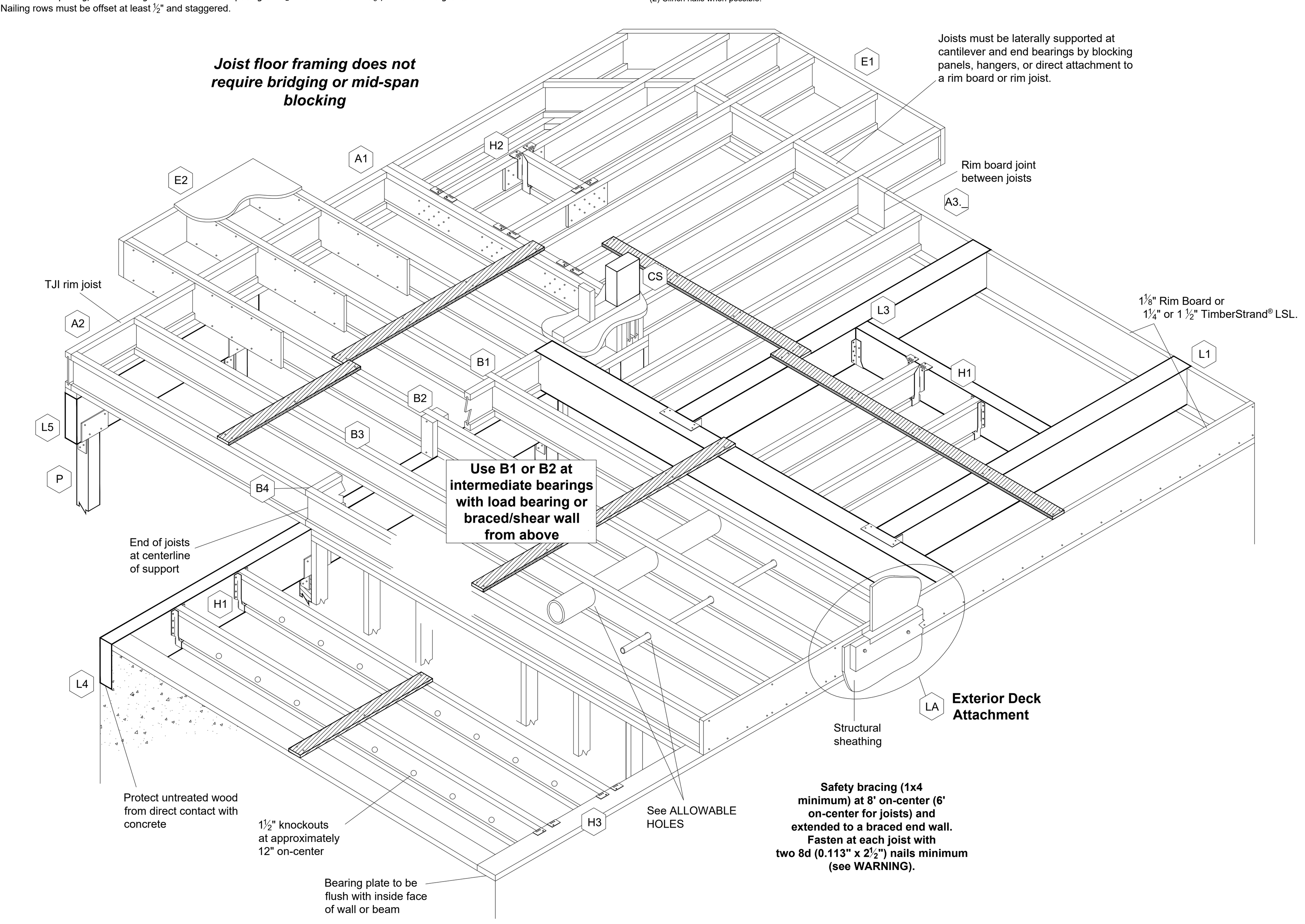


General Notes
- Allowed hole zone suitable for headers and beams with **uniform and/or concentrated loads anywhere along the member.**
- Round holes only
- No holes in headers or beams in plank orientation.

1.55 E Timber Strand LSL

Header or Beam Depth	Maximum Round Hole Size
9¼"-9½"	3"
11¼"-11 ⅞"	3⅝"
14"-16"	4⅝"

See illustration for allowed hole zone



ALLOWABLE HOLES

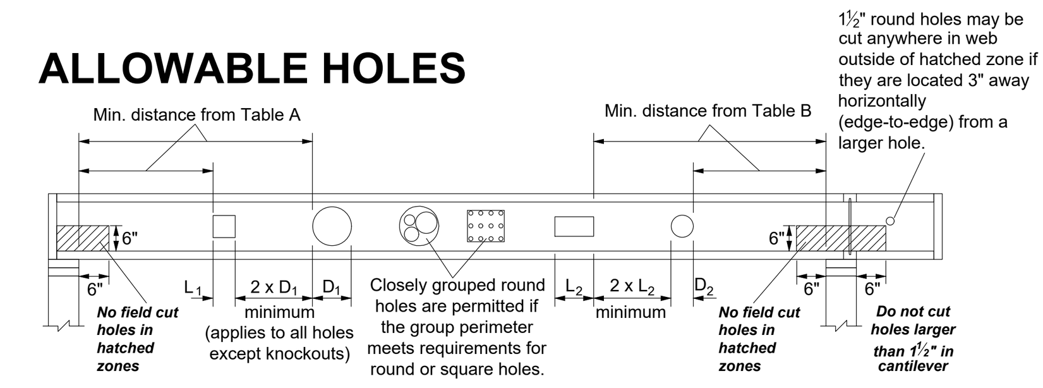


Table A - End Support

Minimum distance from edge of hole to inside face of nearest end support

JOIST DEPTH	TJI®	Round 2"	Round 3"	Round 4"	Round 5"	Round 6½"	Round 7"	Round 8⅞"	Round 11"	Round 13"	Sq/Rect 2"	Sq/Rect 3"	Sq/Rect 4"	Sq/Rect 5"	Sq/Rect 6½"	Sq/Rect 7"	Sq/Rect 8⅞"	Sq/Rect 11"	Sq/Rect 13"
9½"	110	1'-0"	1'-6"	2'-0"	3'-0"	5'-0"					1'-0"	1'-6"	2'-6"	3'-6"	4'-6"				
	210	1'-0"	1'-6"	2'-6"	3'-0"	5'-6"					1'-0"	2'-0"	2'-6"	4'-0"	5'-0"				
	230	1'-6"	2'-0"	2'-6"	3'-6"	5'-6"					1'-0"	2'-0"	3'-0"	4'-6"	5'-0"				
	360	1'-6"	2'-0"	3'-0"	4'-0"	6'-0"					1'-6"	2'-6"	3'-6"	5'-0"	5'-6"				
	560	1'-6"	2'-6"	3'-6"	5'-0"	7'-0"					2'-0"	3'-0"	4'-0"	5'-6"	6'-0"				
11⅞"	110	1'-0"	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	5'-6"			1'-0"	1'-6"	2'-0"	2'-6"	4'-6"	5'-0"	6'-0"		
	210	1'-0"	1'-6"	2'-0"	2'-0"	3'-0"	3'-6"	6'-0"			1'-0"	1'-6"	2'-6"	3'-0"	5'-0"	5'-6"	6'-6"		
	230	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	6'-6"			1'-0"	2'-0"	2'-6"	3'-6"	5'-6"	5'-6"	7'-0"		
	360	1'-6"	2'-0"	3'-0"	3'-6"	4'-6"	5'-0"	7'-0"			1'-6"	2'-6"	3'-6"	4'-6"	6'-6"	6'-6"	7'-6"		
	560	1'-6"	2'-6"	3'-0"	4'-0"	5'-6"	6'-0"	8'-0"			2'-6"	3'-6"	4'-6"	5'-6"	7'-0"	7'-6"	8'-0"		
14"	110	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	2'-0"	3'-0"	5'-6"		1'-0"	1'-0"	1'-6"	2'-0"	3'-6"	4'-0"	6'-0"	8'-0"	
	210	1'-0"	1'-0"	1'-0"	1'-6"	2'-0"	2'-6"	3'-6"	6'-0"		1'-0"	1'-0"	2'-0"	2'-6"	4'-0"	4'-6"	6'-6"	8'-6"	
	230	1'-0"	1'-0"	1'-0"	1'-6"	2'-6"	2'-6"	4'-0"	7'-0"		1'-0"	1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	7'-0"	9'-0"	
	360	1'-0"	1'-0"	1'-6"	2'-6"	3'-6"	4'-0"	5'-6"	8'-0"		1'-0"	1'-6"	2'-6"	4'-0"	6'-0"	6'-6"	8'-0"	9'-6"	
	560	1'-0"	1'-0"	2'-0"	3'-0"	4'-6"	5'-0"	6'-6"	9'-0"		1'-6"	3'-0"	4'-0"	5'-0"	7'-0"	7'-6"	9'-0"	10'-0"	
16"	110	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	2'-0"	3'-0"	5'-0"	1'-0"	1'-0"	1'-0"	1'-6"	3'-0"	3'-0"	5'-6"	7'-6"	10'-0"
	230	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	1'-6"	3'-0"	4'-0"	7'-0"	1'-0"	1'-0"	1'-0"	2'-0"	3'-6"	4'-0"	7'-0"	9'-0"	11'-0"
	360	1'-0"	1'-0"	1'-0"	1'-0"	2'-6"	2'-6"	3'-6"	5'-0"	9'-0"	1'-0"	1'-0"	1'-6"	3'-0"	5'-0"	5'-6"	9'-0"	10'-0"	11'-6"
	560	1'-0"	1'-0"	1'-0"	1'-0"	2'-6"	3'-0"	5'-0"	7'-6"	10'-0"	1'-0"	2'-0"	3'-0"	4'-6"	6'-6"	7'-0"	10'-0"	11'-0"	12'-0"

JOIST DEPTH	TJI®	Round 4"	Round 6"	Round 7"	Round 8"	Round 10"	Round 12"	Round 14¾"	Round 16¾"	Round	Sq/Rect 4"	Sq/Rect 6"	Sq/Rect 7"	Sq/Rect 8"	Sq/Rect 10"	Sq/Rect 12"	Sq/Rect	Sq/Rect	Sq/Rect
18"	360	1'-0"	1'-0"	1'-0"	2'-0"	4'-0"	5'-6"	9'-6"			1'-0"	3'-0"	4'-6"	6'-0"	10'-0"	11'-0"	13'-6"		
	560	1'-0"	1'-0"	1'-0"	2'-0"	4'-6"	7'-0"	10'-6"			2'-0"	5'-0"	6'-6"	8'-0"	11'-0"	12'-0"	14'-0"		
20"	360	1'-0"	1'-0"	1'-0"	1'-0"	2'-0"	4'-0"	7'-0"	10'-0"		1'-0"	1'-6"	3'-0"	4'-6"	8'-0"	11'-6"	13'-6"	15'-6"	
	560	1'-0"	1'-0"	1'-0"	1'-0"	2'-0"	4'-6"	8'-6"	11'-0"		1'-0"	3'-6"	5'-0"	7'-0"	10'-6"	13'-0"	14'-6"	15'-6"	

Table B - Intermediate or Cantilever Support

Minimum distance from edge of hole to inside face of nearest intermediate or cantilever support

JOIST DEPTH	TJI®	Round 2"	Round 3"	Round 4"	Round 5"	Round 6½"	Round 7"	Round 8⅞"	Round 11"	Round 13"	Sq/Rect 2"	Sq/Rect 3"	Sq/Rect 4"	Sq/Rect 5"	Sq/Rect 6½"	Sq/Rect 7"	Sq/Rect 8⅞"	Sq/Rect 11"	Sq/Rect 13"
9½"	110	2'-0"	2'-6"	3'-6"	4'-6"	7'-6"					1'-6"	2'-6"	3'-6"	5'-6"	6'-6"				
	210	2'-0"	2'-6"	3'-6"	5'-0"	8'-0"					2'-0"	3'-0"	4'-0"	6'-6"	7'-6"				
	230	2'-6"	3'-0"	4'-0"	5'-6"	8'-6"					2'-0"	3'-6"	4'-6"	6'-6"	7'-6"				
	360	3'-0"	4'-0"	5'-6"	6'-6"	9'-0"					3'-0"	4'-6"	5'-6"	7'-6"	8'-0"				
	560	3'-6"	5'-0"	6'-0"	7'-6"	10'-0"					4'-0"	5'-6"	6'-6"	8'-0"	9'-0"				
11⅞"	110	1'-0"	1'-0"	1'-6"	2'-6"	4'-0"	4'-6"	8'-6"			1'-0"	1'-6"	2'-6"	4'-0"	7'-0"	7'-0"	9'-6"		
	210	1'-0"	1'-0"	2'-0"	3'-0"	4'-6"	5'-0"	9'-0"			1'-0"	2'-0"	3'-0"	4'-6"	8'-0"	8'-0"	10'-0"		
	230	1'-0"	2'-0"	2'-6"	3'-6"	5'-0"	5'-6"	10'-0"			1'-0"	2'-6"	3'-6"	5'-0"	8'-6"	9'-0"	10'-6"		
	360	2'-0"	3'-0"	4'-0"	5'-6"	7'-0"	7'-6"	11'-0"			2'-0"	3'-6"	5'-0"	7'-0"	9'-6"	9'-6"	11'-0"		
	560	1'-6"	3'-0"	4'-6"	5'-6"	8'-0"	8'-6"	12'-0"			3'-0"	4'-6"	6'-0"	8'-0"	10'-6"	11'-0"	12'-0"		
14"	110	1'-0"	1'-0"	1'-0"	1'-0"	2'-0"	2'-6"	4'-6"	8'-6"		1'-0"	1'-0"	1'-0"	2'-6"	5'-0"	6'-0"	9'-0"	12'-0"	
	210	1'-0"	1'-0"	1'-0"	1'-0"	2'-6"	3'-0"	5'-6"	9'-6"		1'-0"	1'-0"	2'-0"	3'-6"	6'-0"	7'-0"	10'-0"	13'-0"	
	230	1'-0"	1'-0"	1'-0"	2'-0"	3'-6"	4'-0"	6'-0"	10'-6"		1'-0"	1'-0"	2'-6"	4'-0"	6'-6"	7'-6"	11'-0"	13'-6"	
	360	1'-0"	1'-0"	2'-0"	3'-6"	5'-6"	6'-0"	8'-6"	12'-6"		1'-0"	2'-0"	4'-0"	5'-6"	9'-0"	10'-0"	12'-0"	14'-0"	
	560	1'-0"	1'-0"	1'-6"	3'-6"	5'-6"	6'-6"	9'-6"	13'-6"		1'-0"	3'-0"	5'-0"	7'-0"	10'-0"	11'-0"	13'-6"	15'-0"	
16"																			
	210	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	3'-6"	6'-0"	10'-0"	1'-0"	1'-0"	1'-0"	1'-6"	4'-6"	5'-6"	10'-0"	12'-6"	16'-0"
	230	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	2'-0"	4'-0"	6'-6"	11'-0"	1'-0"	1'-0"	1'-0"	2'-6"	5'-0"	6'-0"	10'-6"	13'-6"	16'-6"
	360	1'-0"	1'-0"	1'-0"	1'-0"	3'-0"	4'-0"	6'-6"	10'-0"	13'-6"	1'-0"	1'-0"	2'-0"	4'-0"	7'-6"	8'-6"	13'-0"	14'-6"	17'-0"
	560	1'-0"	1'-0"	1'-0"	1'-0"	2'-6"	3'-6"	7'-0"	11'-0"	15'-0"	1'-0"	1'-0"	3'-6"	5'-6"	9'-0"	10'-0"	14'-6"	16'-0"	18'-0"

JOIST DEPTH	TJI®	Round 4"	Round 6"	Round 7"	Round 8"	Round 10"	Round 12"	Round	Round	Round	Sq/Rect 4"	Sq/Rect 6"	Sq/Rect 7"	Sq/Rect 8"	Sq/Rect 10"	Sq/Rect 12"	Sq/Rect	Sq/Rect	Sq/Rect
18"	360	1'-0"	1'-0"	1'-6"	3'-0"	6'-0"	9'-0"	14'-6"			1'-0"	4'-0"	6'-6"	9'-0"	14'-6"	16'-6"			
	560	1'-0"	1'-0"	1'-0"	2'-0"	6'-0"	10'-0"	15'-6"			1'-0"	6'-0"	8'-6"	11'-6"	16'-6"	18'-0"	19'-6"		
20"	360	1'-0"	1'-0"	1'-0"	1'-0"	3'-0"	6'-0"	11'-0"	15'-0"		1'-0"	1'-6"	4'-0"	7'-0"	12'-6"	16'-6"	19'-0"		
	560	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	5'-6"	11'-6"	15'-6"		1'-0"	3'-0"	6'-0"	8'-6"	14'-0"	17'-6'		20'-6"	

Rectangular holes based on measurement of longest side.
- Leave ⅛" of web (minimum) at top and bottom of hole. **DO NOT cut joist flanges.**
- Tables are based on uniform load tables in current design literature.
- For simple span (5' minimum), uniformly loaded joists used in residential applications, one maximum size round hole may be located at the center of the joist span **provided that no other holes occur in the joist.**

EFFICIENCY
ACCURACY
TECHNOLOGY

KRONOS CO. 235 MARGINAL ST CHELSEA MA 02150

Notes:

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ENGINEERING STAMP:
PREPARED BY
MF ENGINEERING & DESIGN
109 HIGHLAND AVE. #203
NEEDHAM, MA 02492
PHONE:(508)331-7261
COMMONWEALTH OF MASSACHUSETTS CARLOS FERREIRA CIVIL No. 41423 REGISTERED PROFESSIONAL ENGINEER
CARLOS FERREIRA, PE DATE: JANUARY 12, 2022

PROPOSED 4-STORY
MUTI FAMILY

254 PARIS STREET EAST BOSTON, MA

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS:

CLIENT:

ENGINEER:

SITE: 254 PARIS STREET EAST BOSTON, MA

TITLE: DETAIL

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
1/4"=1'-0"	1/26/22		

PROJECT NO:	DRAWING NO:	REVISION:
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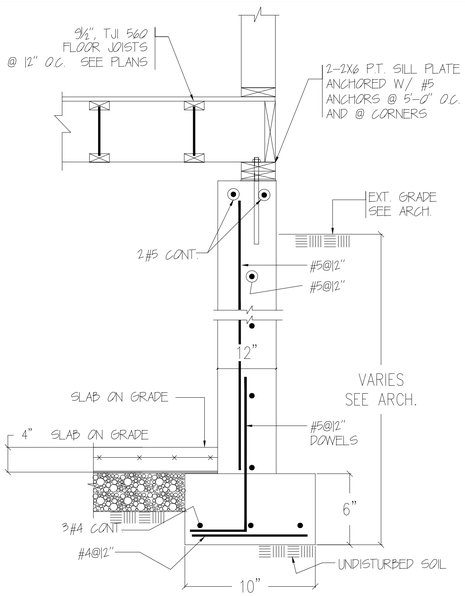
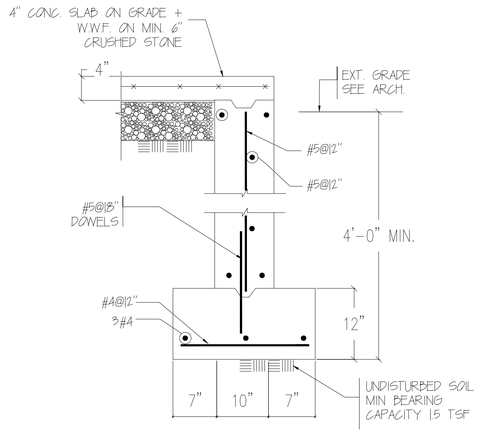
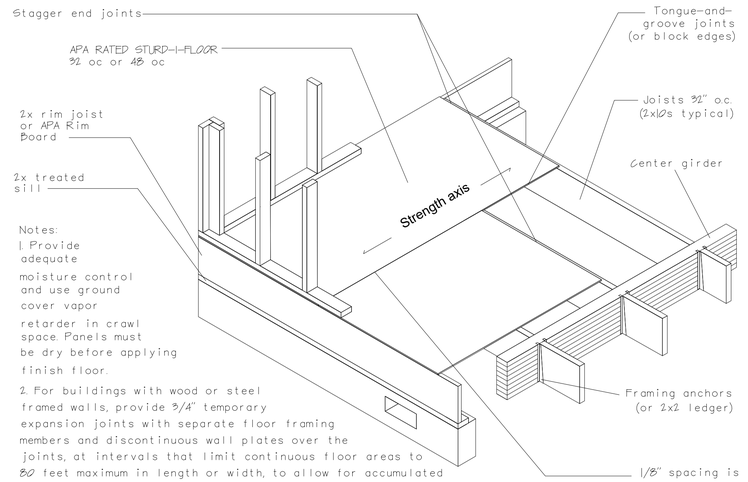


MONOLITHIC MIDDLE FOUNDATION WALL

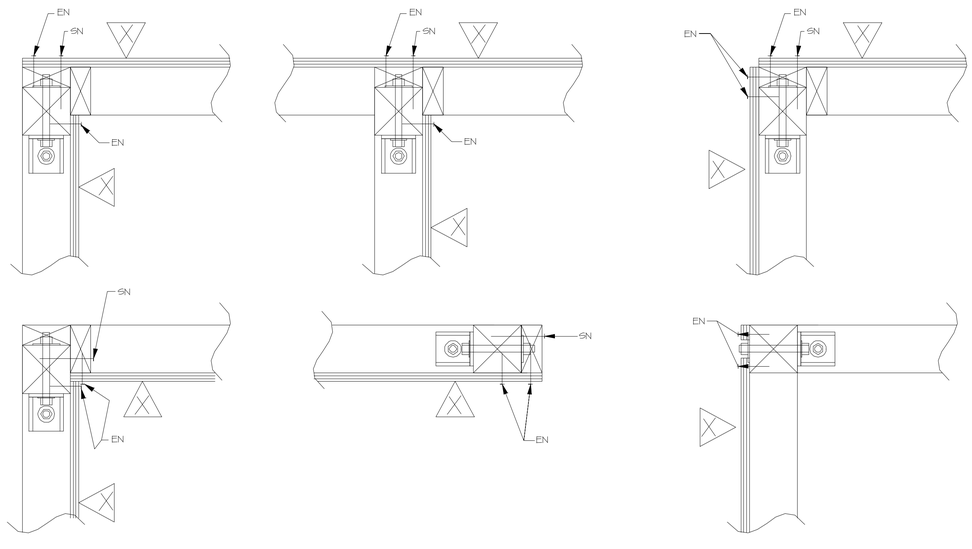


MONOLITHIC FOUNDATION WALL SECTION

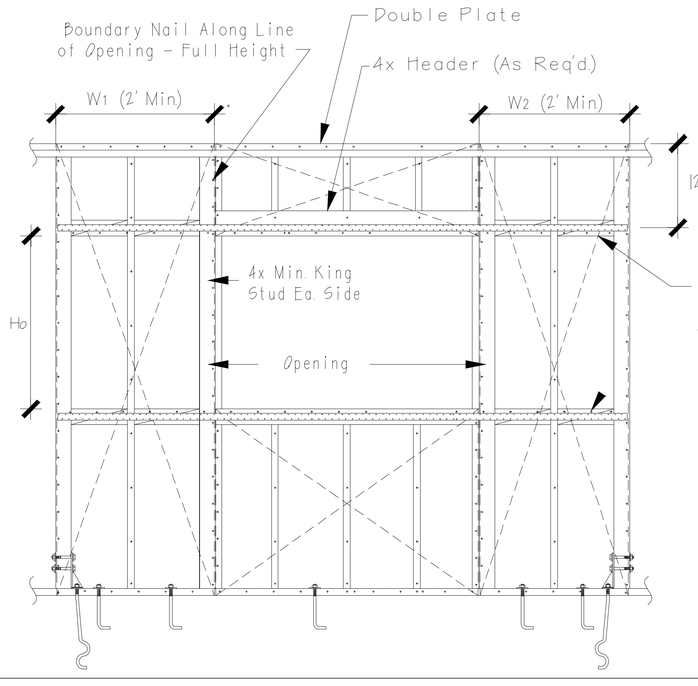
RATED STURD-I-FLOOR 32 oc AND 48 oc
(Over Supports 32" o.c)



TYPICAL NAIL SIZES



TYPICAL SHEAR WALL INTERSECTION



PERFORATED SHEAR WALL

KRONOS COMPANIES
EFFICIENCY ACCURACY TECHNOLOGY

KRONOS CO. 235 MARGINAL ST CHELSEA MA 02150

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COMMONWEALTH OF MASSACHUSETTS
CARLOS FERREIRA
CIVIL
No. 41423
REGISTERED PROFESSIONAL ENGINEER

CARLOS FERREIRA, PE DATE: JANUARY 12, 2022

PROPOSED 4-STORY MUTI FAMILY

254 PARIS STREET EAST BOSTON, MA

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS:

CLIENT:

ENGINEER:

SITE: 254 PARIS STREET EAST BOSTON, MA

TITLE: DETAIL

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
1/4"=1'-0"	1/26/22		
PROJECT NO:	DRAWING NO:		REVISION:
---	S6		---

ELECTRICAL SYMBOLS AND LEGENDS

○	CEILING MOUNTED LIGHT FIXTURE
○	WALL MOUNTED LIGHT FIXTURE
□	2'X2' OR 2'X4' FLUORESCENT LIGHT FIXTURE
▭	2'X4" FLUORESCENT WALL/CEILING MOUNTED LIGHT FIXTURE
⊠	UNIVERSAL MOUNTING EXIT SIGN (DOUBLE FACED), ARROWS AS INDICATED
	EMERGENCY BATTERY UNIT WITH MOUNTING BRACKET AND VOLTMETER
SA	SINGLE POLE LIGHT SWITCH
SAB	TWO POLE LIGHT SWITCH
SABC	THREE POLE LIGHT SWITCH
S3w	THREE-WAY LIGHT SWITCH
S3wABC	THREE-WAY LIGHT SWITCH
S3w	THREE-WAY LIGHT SWITCH
S3wAB	THREE-WAY, TWO POLE LIGHT SWITCH
S3wABC	THREE-WAY, THREE POLE LIGHT SWITCH
	DUPLEX RECEPTACLE, 120V, 18" AFF
GFI	DUPLEX RECEPTACLE, WITH GROUND FAULT INTERRUPTER 8" ABOVE COUNTER TO C_L
	DUPLEX RECEPTACLE ABOVE COUNTER, 8" ABOVE COUNTER TO C_L
	208V/1P/30A DRYER OUTLET
W	TELEPHONE JACK COMPLETE W/ JACK AND COVER, ('W' WALL MOUNTED @ 4'-0" A.F.F.)
	TEL/DATA COMBINATION OUTLET, COMPLETE W/ JACK AND COVER, HEIGHT @18" TO C A.F.F.
	EXHAUST FAN
3R	FUSED DISCONNECT SWITCH, (3R RAIN-PROOF)
	HOMERUN TO PANEL WITH CONDUCTOR (HOT, NEUTRAL, GROUND)
J	JUNCTION BOX
	LIGHTING & POWER PANEL
LC	APARTMENT LOAD CENTER, RECESSED
	RACEWAY CONCEALED IN CEILING, PLENUM OR WALLS
	RACEWAY CONCEALED IN SLAB (FLOOR)

GENERAL POWER DISTRIBUTION NOTES

-BEFORE ORDERING ANY EQUIPMENT AND/OR START ANY CONSTRUCTION OR EXCAVATION ELECTRICAL CONTRACTOR AND/OR GENERAL CONTRACTOR SHALL CONTACT ELECTRIC/TELEPHONE/CATV COMPANIES FOR SERVICE POINT AND ROUTING, SERVICE AVAILABILITY.

THIS ENGINEER HAS MADE APPLICATION TO UTILITY COMPANY BUT YET NO CONFIRMATION HAS BEEN MADE BY THE UTILITY COMPANY. CONTRACTOR SHALL NOT PROCEED WITHOUT SUCH CONFIRMATION.

-FEEDERS ARE SIZED BASED ON %3 VD.
CONTRACTOR SHALL FOLLOW THE FOLLOWING CRITERIA.

50A, UP TO 100FT #6, INCREASE BY ONE SIZE FOR EVERY 30FT.
100A, UP TO 100FT #3, INCREASE BY ONE SIZE FOR EVERY 30FT.
200A, UP TO 150FT #3/0, INCREASE BY ONE SIZE FOR EVERY 50FT.
400A, UP TO 200FT #500, INCREASE BY ONE SIZE FOR EVERY 50FT.

GENERAL POWER DISTRIBUTION NOTES

-FOR SWITCHGEAR SHORT CIRCUIT RATINGS, SEE NOTED UNDER PANEL SCHEDULES.

-PRIOR TO ORDERING ANY SWITCHGEAR, ELECTRICAL CONTRACTOR SHALL CONFIRM CIRCUIT BREAKER SIZES WITH HVAC AND OTHER MECHANICAL EQUIPMENT SHOP DRAWINGS. DUE TO SUBMITTAL TIMING FROM VARIOUS CONTRACTORS, ENGINEERS APPROVAL IS GIVEN FOR QUALITY ONLY.

-CONTRACTOR SHALL COORDINATE WITH OTHER TRADES SO THAT NO OTHER TRADE SHALL PASS THROUGH ELECTRIC ROOM OR ABOVE DEDICATES SPACES. INFORM ARCHITECT/ENGINEER ABOUT ANY INFRINGEMENTS PRIOR SUCH INSTALLATIONS OCCUR.

-ELECTRIC ROOM DIMENSIONS ARE BASED ON CERTAIN MANUFACTURER EQUIPMENT DIMENSIONS, CONTRACTOR SHALL CONFIRM ROOM DIMENSIONS PRIOR TO ORDERING EQUIPMENT.

SWITCHGEAR AND PANELBOARDS SHALL BE MANUFACTURED BY SQUARE D, SIEMENS OR GENERAL ELECTRIC.

PANELBOARDS MAY BE SERIES RATED OR FULLY RATED FOR AVAILABLE SHORT CIRCUIT RATINGS.

IF SERIES RATINGS ARE APPLIED SUPPLIER SHALL BE RESPONSIBLE FOR PROVIDING PROPER SERIES RATED EQUIPMENT AS REQUIRED.

AVAILABLE SHORT CIRCUIT CURRENT FOR THE MAIN SERVICE IS 65KA.
DOWNSTREAM PANELS SHALL BE SERIES RATED ACCORDINGLY.
SEE RISER DIAGRAM FOR CONNECTION DIAGRAM OF THE PANELS. NO LINE IMPEDANCES ARE TO BE CONSIDERED IN SERIES RATING APPLICATIONS.

FOR ALL RESIDENTIAL LOAD CENTERS, 15A AND 20A CIRCUITS SERVING THE UNIT (EXCEPT BATHROOMS CIRCUITS) SHALL BE ARC FAULT INTERRUPTER TYPE AS REQUIRED PER NEC 210-12(B).

CONSTRUCTION NOTES

-LOCAL SMOKE DETECTORS SHALL BE WIRED FROM ARC-FAULT CIRCUITS, VERIFY WITH ELECTRICAL INSPECTOR.

-BACK TO BACK OUTLETS ON FIRE RATED WALLS SHALL BE INSTALLED TO MAINTAIN FIRE RATINGS, IF NECESSARY, USE FIRE RATED OUTLET BOXES.

-ALL FLOOR PENETRATIONS BY CABLES AND CONDUITS SHALL BE SEALED TO MAINTAIN FIRE RATINGS.

-RECESSED LIGHT FIXTURES INSTALLED ON FIRE RATED CEILINGS SHALL HAVE FIRE RATED HOODS ON TOP TO MAINTAIN FIRE RATING.
SEE ARCHITECTURAL DRAWINGS FOR RATED AREAS.

-ALL WIRING WITHIN UNITS SHALL BE ROMEX. WIRING OUTSIDE UNITS SHALL BE METAL CLAD.

ACCESSIBLE UNIT WIRING NOTES

SEE ARCHITECTURAL PLANS FOR NUMBER OF HC UNITS AND LOCATIONS IN EACH.

-HOOD CONTROL SWITCHES (LIGHT/FAN) SHALL BE MOUNTED ON WALL AT COUNTER.

-PROVIDE WALL OVEN AND COOK TOP WIRING ON SAME CIRCUIT, 50A/2P.

-ALL ELECTRICAL OUTLETS AND CONTROL SWITCHES SHALL BE MINIMUM 18" AWAY FROM AN INTERIOR CORNER REGARDLESS OF HOW IT IS SHOWN.

-ALL ELECTRICAL OUTLETS HEIGHTS TO BE A MINIMUM OF 15" TO THE CENTERLINE OF THE LOWEST RECEPTACLE AND MAXIMUM OF 48" TO THE CENTERLINE OF THE HIGHEST RECEPTACLE.

-ALL ELECTRICAL OUTLETS ARE LOCATED OVER COUNTERTOPS, SHALL BE NO HIGHER THAN 44" TO THE CENTERLINE OF THE HIGHEST RECEPTACLE.

-ALL CIRCUIT BREAKER PANELS MUST BE CENTERED ON A 30" BY 48" CLEAR FLOOR SPACE AND IF A PARALLEL APPROACH IS USED, THE HIGHEST CONTROL CAN BE NO HIGHER THAN 54" A.F.F.
IF A FRONT APPROACH IS USED, THE HIGHEST CONTROL CAN BE NO HIGHER THAN 48" A.F.F.

-PROVIDE STROBE FOR INTERCOM OR THE HEARING IMPAIRED.

TELEPHONE SYSTEM

A. FURNISH AND INSTALL A COMPLETE SYSTEM OF CONDUITS AND BACKBOARDS FOR TELEPHONE INSTRUMENTS AS SHOWN ON THE PLANS.

B. TELEPHONE TERMINAL LOCATIONS AS SHOWN ON THE PLANS SHALL BE 30" X 48" X 3/4" PLYWOOD. GROUND CONNECTIONS SHALL BE MADE BY THE TELEPHONE COMPANY. ELECTRICAL CONTRACTOR SHALL PROVIDE PRIMARY ARRESTER WITH FUSE AND #6 CU GROUNDING WIRE AND GROUND BOLT CONNECTED TO SERVICE GROUND.

C. A NYLON FISH WIRE SHALL BE LEFT IN ALL CONDUITS TO FACILITATE PULLING-IN TELEPHONE WIRES. FURNISH AND INSTALL ONE NYLON PULL WIRE FOR PULLING IN TELEPHONE SERVICE IN ALL CONDUITS. SEE SITE PLAN FOR SERVICE ENTRANCE.

D. LOCAL TELEPHONE COMPANY SHALL BE RESPONSIBLE FOR THE TELEPHONE WIRING FROM THEIR OUTDOOR TERMINATION CABINET TO A NETWORK INTERFACE LOCATED IN THE TELEPHONE ROOM.

E. EACH TELEPHONE OUTLET SHALL BE WIRED TO DATA INTERFACE TERMINATION BOARD WITH PLENUM RATED CAT 6, #20/8 TWISTED DATA WIRE TERMINATED IN TESTED AND CERTIFIED CAT 6 TERMINATION STYLE AT BOTH ENDS AND CLEARLY RINGED AND TAGGED.

CONSTRUCTION AND TEST REQUIREMENTS (NEC REQUIREMENTS)

800.50 PREVENTS LAYING TELEPHONE WIRES ON CEILING TILES.

800.50 REQUIRES PRIMARY PROTECTOR FOR MOST UNDERGROUND AND ALL OVERHEAD SERVICES

800.30 (2) REQUIRES FUSED TYPE PRIMARY PROTECTOR AT SERVICE ENTRANCE

800.50 REQUIRED ALL METAL SHIELDS TO BE GROUNDED

800.50 REQUIRES INSULATED GROUNDING CONDUCTOR TO BE MINIMUM #14, NO LONGER THAN 20FT AND CONNECTED TO BUILDING GROUND SYSTEM. WITH MINIMUM #6 BONDING CABLE.

800.50 REQUIRES TYPE CMP FOR PLENUM, CMR FOR RISER APPLICATIONS.

800.51 REQUIRES MINIMUM 2" BETWEEN POWER LINES AND COMMUNICATION LINES, RECOMMENDED PRACTICE 6" FROM BALLASTS AND 6FT FROM LIGHTNING WIRES.
ALSO KEEP DISTANCE FROM HEAT SOURCES.
KEEP MINIMUM 6" FROM 20A/2KW CIRCUITS.
KEEP MINIMUM 12" FROM 30A/5KW CIRCUITS.
KEEP MINIMUM 24" FROM ANY FEEDER.
FOR SHIELDED CABLES THESE VALUES MAY BE TAKEN IN 1/3.

CAT 6 INSTALLATION RECOMMENDATIONS INCLUDE

CAT 6 INSTALLATION REQUIRES MINIMUM 1/2" UNTWISTED
MINIMUM 1" BENDING RADIUS FOR FOUR PAIR OR 4X, FOR 25 PAIR 10XDIA.
PROVIDE MINIMUM TWO LINES AT EACH LOCATION ONE FOR TELEPHONE OTHER FOR DATA
WATCH FOR THAT A KINKED CABLE REDUCES 2.5DB; A SINGLE 1" RADIUS BEND REDUCES 2 DB.

-WIRE MAP TEST (TO IDENTIFY INSTALLATION ERRORS)
-LENGTH TEST(TO VERIFY MAXIMUM OPERATIONAL LENGTH IS 300FT)
-ATTENUATION TEST (TO MEASURE MAXIMUM SIGNAL LOSS AT 100MHZ LESS THAN 22)
-NEXT (TO MEASURE SIGNAL COUPLING BETWEEN THE PAIRS AT 100MHZ LESS THAN 32)
-PROPAGATION TEST (TO MEASURE TIME IT TAKES SIGNAL FROM ONE POINT TO ANOTHER)

CATV INTERNAL UNIT WIRING SPECIFICATIONS

COAXIAL CABLE
ALL COAXIAL CABLE WITHIN THE UNIT, INCLUDING THE DROP CABLES BACK TO THE COMMON DISTRIBUTION ROOM SHOULD MEET OR EXCEED THE FOLLOWING REQUIREMENTS:

RG-6 QUAD SHIELD FOR DROP LENGTHS OF UP TO 150 FEET.

RG-11QUAD SHIELD FOR DROP LENGTHS BETWEEN 151 FEET AND 250 FEET.
(DROP LENGTHS SHOULD NOT EXCEED 250 FEET.)

INTERNAL UNIT WIRING

EACH APARTMENT SHALL HAVE IT'S OWN SEPARATE HOME-RUN WIRE. PROVIDE A DUAL CABLE TO BE USED FOR ALL DROP WIRING.

EACH APARTMENT THAT HAS MORE THAN ONE OUTLET MUST HAVE AN INTERFACE ENCLOSURE. THE INTERFACE ENCLOSURE SHALL BE PLACED IN A CENTRAL LOCATION IN THE UNIT, TYPICALLY THE CLOSET. THE ENCLOSURE SHOULD BE LOCATED AS CLOSE AS POSSIBLE TO THE PHONE INTERFACE WITHIN THE UNIT.

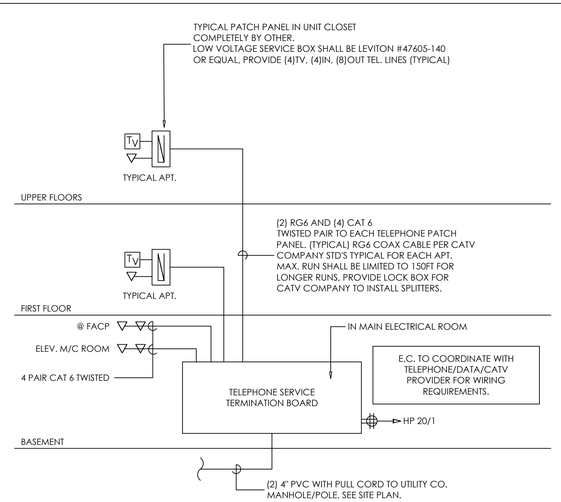
NO OUTLET SHOULD BE LOOP-WIRED (NO DAISY CHAIN WIRING). EVERY OUTLET IN THE UNIT SHOULD BE WIRED BACK TO AN INTERFACE ENCLOSURE WITHIN THE UNIT.

ALL OUTLET LOCATIONS SHOULD HAVE A MINIMUM OF 12" OF EXTRA CABLE BEHIND THE WALL PLATE.

MUD RINGS SHOULD BE USED AS OPPOSED TO CLOSED BOXES.

THE COAXIAL HOME RUN AND TWISTED PAIR HOME RUN SHALL BE WIRED TO THE SAME DISTRIBUTION CLOSET ON EACH FLOOR.

DO NOT KINK, FROM TIGHT NINETY-DEGREE ANGLES, PIERCE THE OUTER JACKET, DAMAGE OR MISHANDLE THE COAXIAL CABLE IN ANY WAY. USE APPROVED COAXIAL FASTENERS ONLY. METAL STUDS REQUIRE THAT PLASTIC BUSHINGS BE INSTALLED PRIOR TO PULLING THE CABLE.



CATV/TELEPHONE RISER DIAGRAM (NTS)

LIGHTING FIXTURE SCHEDULE

IMAGE	SYMBOL	MANUFACTURER & CATALOG NO.	LAMP			BALLAST	REMARKS
			MANUFACTURER	TYPE	WATTS		
	○	GENERATION LIGHTING 14929RD-15	SEA GULL	LED	18	LED DRIVER/120V	SURFACE MOUNTED
	○	MODERN FORMS WS-34119-35-BN	MODERN FORMS	LED	24	LED DRIVER/120V	WALL MOUNTED
	□	MODERN FORMS FM-3718-AL	MODERN FORMS	LED	48	LED DRIVER/120V	SURFACE MOUNTED
	▭	GENERATION LIGHTING 5913605-15	SEA GULL	LED	27	LED	FLUSH MOUNTED
	⊠	EMERGI-LITE TOTAL EDGE SERIES	ABB	LED	2.6	LED	CEILING MOUNTED
		EMERGI-LITE PREMIER COMPACT SERIES	ABB	LED	20	LED	WALL MOUNTED

(CU) WIRE SCHEDULE

AMPS CB	CU	CMIL	MAX LENGTH *)
20	#12	6,530	70 FT
30	#10	10,380	70 FT
40	#8	16,510	90 FT
50	#6	26,240	110 FT
60	#6	26,240	95 FT
70	#4	41,740	120 FT
80	#3	52,620	125 FT
100	#2	66,360	140 FT
125	#1	83,690	145 FT
150	#1/0	105,600	145 FT
200	#3/0	167,800	165 FT
225	#4/0	211,600	175 FT
300	#300	300,000	200 FT
350	#400	400,000	225 FT
400	#500	500,000	250 FT

DISTANCE = CMILX0.17/AMPERE

*) - FEEDERS ARE SIZED BASED ON %3 VD, 208/3 AND 80% LOADING. FOR 480 V MULTIPLY BY 5

CONTRACTOR SHALL FOLLOW THE FOLLOWING CRITERIA.
INCREASE CIRCULAR MILL OF THE WIRE IN PROPORTION TO INCREASE ON LENGTH FROM THE MAXIMUM DISTANCES SHOWN ABOVE
EXAMPLE, #12 WIRE 200 FT, USE (200/70)X6530=18,657 CMIL CABLE

-FOR DECREASED LOADING INCREASE CIRCULAR MILL IN PROPORTION TO DECREASE VALUE
EXAMPLE #12 WIRE FOR 10AMP LOADING AT 200FT, USE (200/70)X6530=11,660 CMIL CABLE

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KRONOS CO. 235 MARGINAL ST CHELSEA MA

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ENGINEERING STAMP:

COMMONWEALTH OF MASSACHUSETTS
JASON M.C KAHAN
No. 48588
REGISTERED PROFESSIONAL ENGINEER

2/02/22

MULTI-UNIT RESIDENCES

254 PARIS ST., EAST BOSTON, MA 02128

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B			
A			

STATUS: PERMIT SET

CLIENT:

ENGINEER: KRONOS COLLABORATIVE
235 MARGINAL ST.,
CHELSEA, MA 02150

SITE: 254 PARIS ST.,
EAST BOSTON, MA 02128

TITLE: ELECTRICAL LEGENDS, NOTES, RISER DIAGRAM & DETAILS

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
NOT TO SCALE	12/20/2021	EMS	JK
PROJECT NO:	DRAWING NO:		REVISION:
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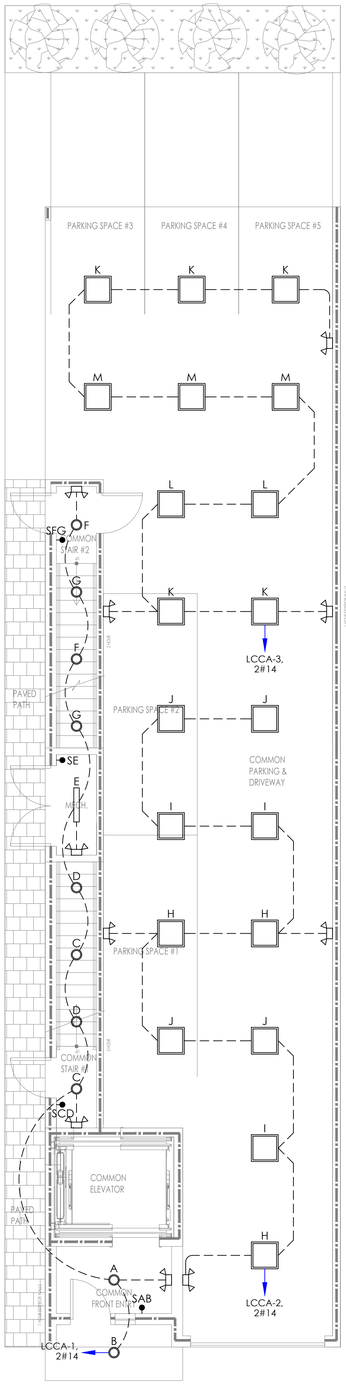
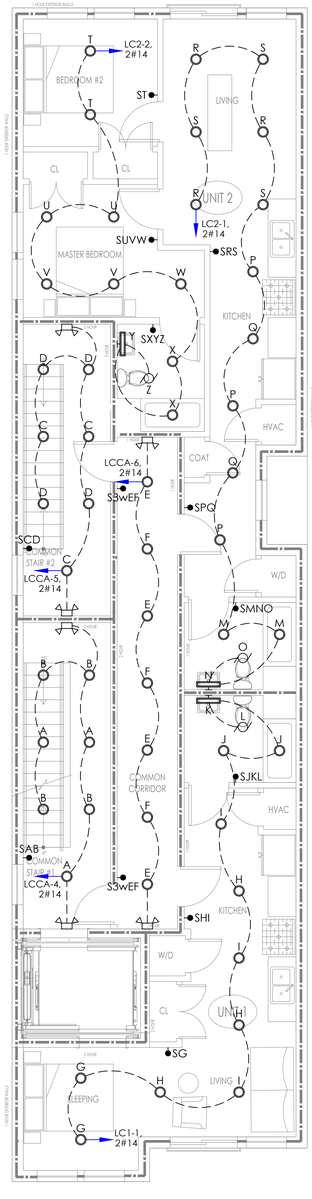
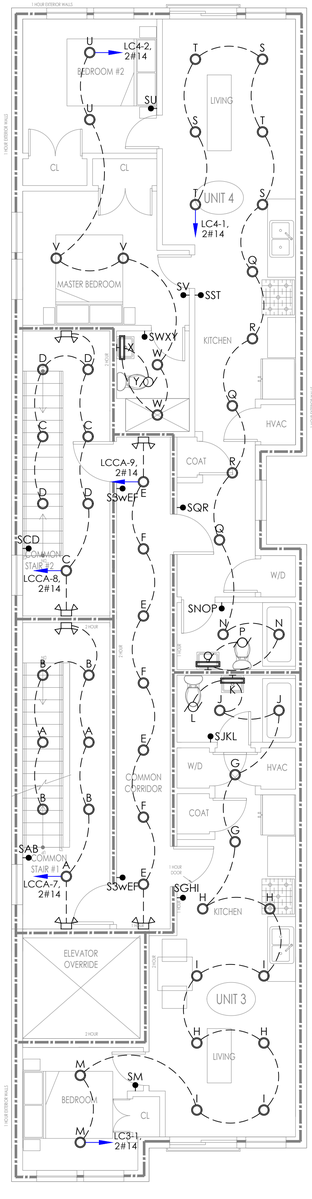


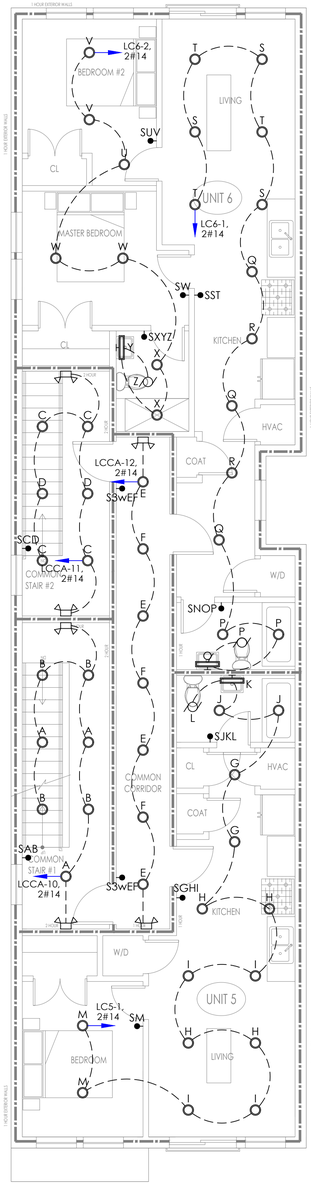
1 GROUND FLOOR LIGHTING PLAN
3/16" = 1'- 0"



2 LEVEL 2 FLOOR LIGHTING PLAN
3/16" = 1'- 0"



3 LEVEL 3 FLOOR LIGHTING PLAN
3/16" = 1'- 0"



4 LEVEL 4 FLOOR FIRE ALARM PLAN
3/16" = 1'- 0"

5 ROOF LIGHTING PLAN
3/16" = 1'- 0"

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ENGINEERING STAMP:

COMMONWEALTH OF MASSACHUSETTS
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No. 48388
REGISTERED PROFESSIONAL ENGINEER

2/02/22

MULTI-UNIT RESIDENCES

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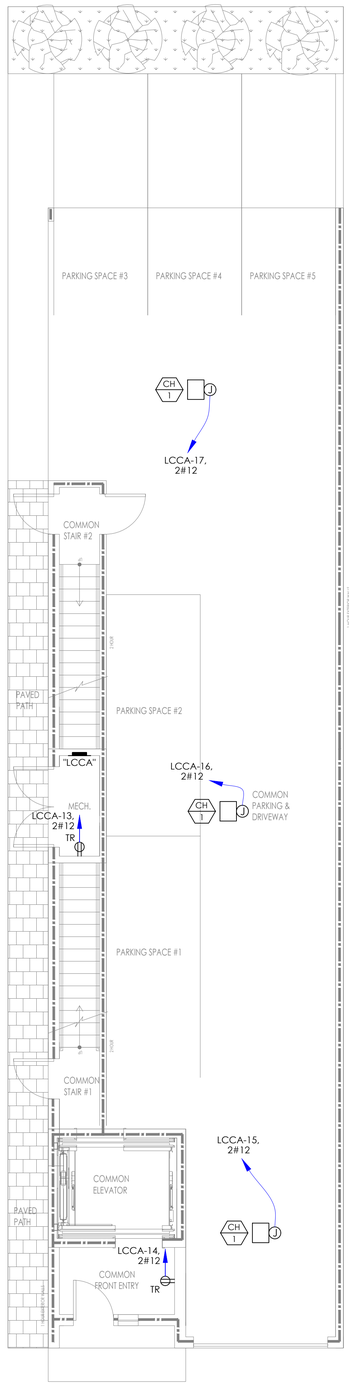
235 MARGINAL ST.,
CHELSEA, MA 02150

SITE: 254 PARIS ST.,
EAST BOSTON, MA 02128

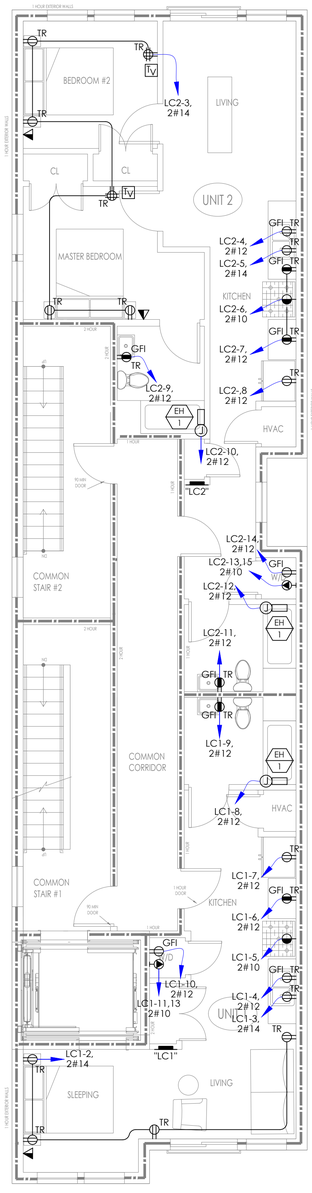
TITLE: GROUND, LEVEL 1, 2, 3, 4 LIGHTING PLAN

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
3/16" = 1'-0"	12/20/2021	EMS	JK

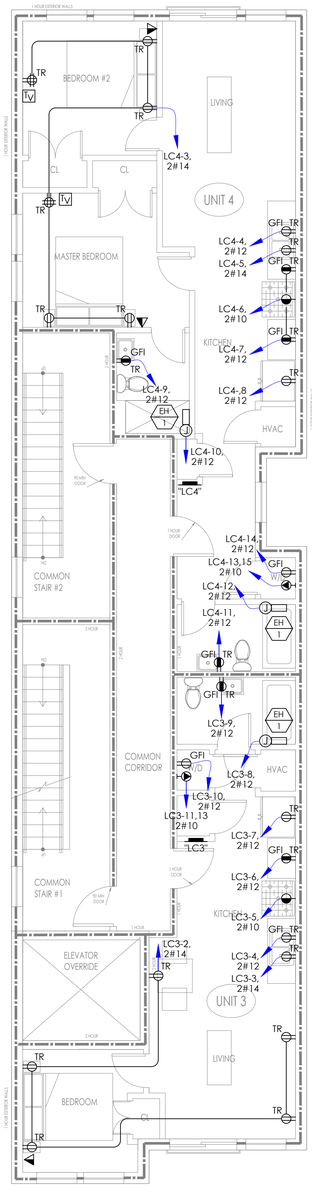
PROJECT NO:	DRAWING NO:	REVISION:
##	E2.0	##



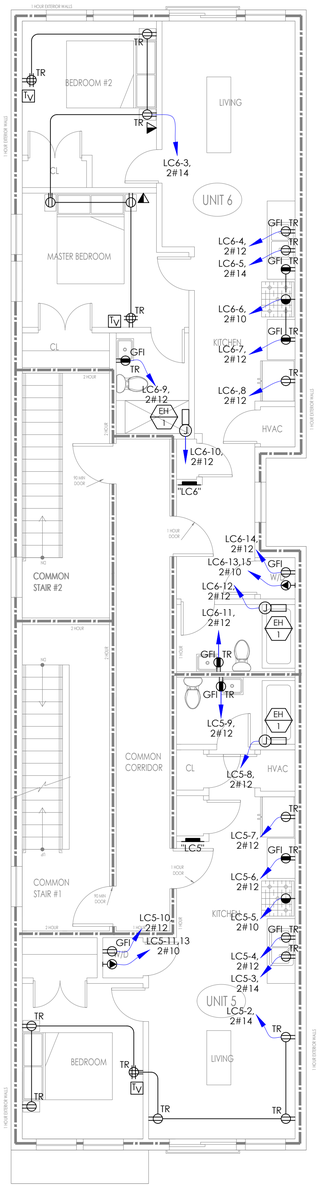
1 GROUND FLOOR POWER PLAN
3/16" = 1'- 0"



2 LEVEL 2 FLOOR POWER PLAN
3/16" = 1'- 0"



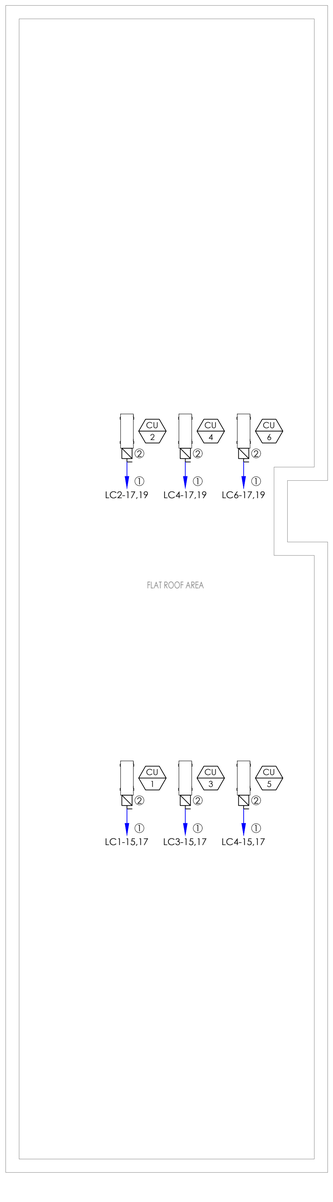
3 LEVEL 3 FLOOR POWER PLAN
3/16" = 1'- 0"



4 LEVEL 4 FLOOR POWER PLAN
3/16" = 1'- 0"

ROOF NOTES:

1. 2#8 & 1#12GRD.-1"C. TO 50A, 2 POLE CIRCUIT BREAKER IN APARTMENT UNIT LOAD CENTER
2. 50A/50A WEATHERPROOF FUSED DISCONNECT SWITCH



5 ROOF POWER PLAN
3/16" = 1'- 0"

EFFICIENCY
ACCURACY
TECHNOLOGY

KRONOS CO. 235 MARGINAL ST CHELSEA MA

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ENGINEERING STAMP:

COMMONWEALTH OF MASSACHUSETTS
JASON M.C KAHAN
No. 48388
REGISTERED PROFESSIONAL ENGINEER

2/02/22

MULTI-UNIT RESIDENCES

254 PARIS ST., EAST BOSTON, MA 02128

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS: PERMIT SET

CLIENT:

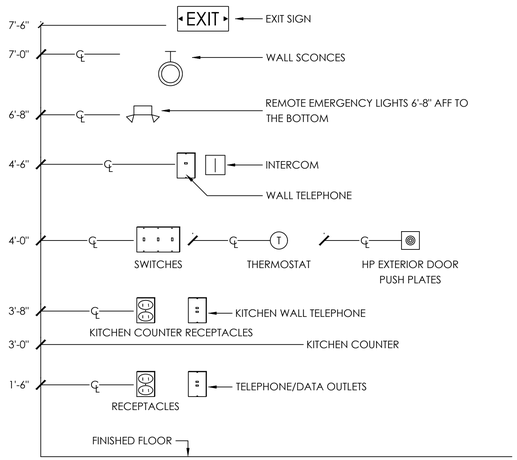
ENGINEER: KRONOS COLLABORATIVE
235 MARGINAL ST.,
CHELSEA, MA 02150

SITE: 254 PARIS ST.,
EAST BOSTON, MA 02128

TITLE: GROUND, LEVEL 1, 2, 3, 4 POWER PLAN

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
3/16" = 1'-0"	12/20/2021	EMS	JK

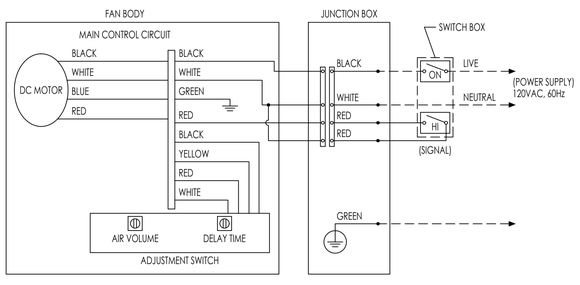
PROJECT NO:	DRAWING NO:	REVISION:
##	E2.1	##



TYPICAL DEVICE MOUNTING HEIGHTS DETAIL

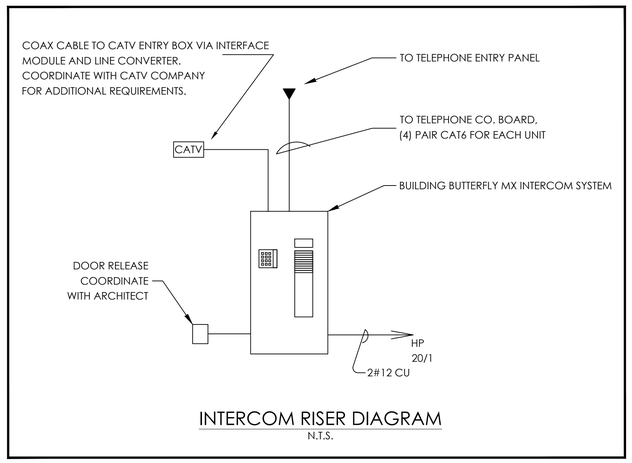
NOTES

1. DEVICES SHALL BE INSTALLED IN A COMMON VERTICAL CENTERLINE WHEREVER POSSIBLE.
2. IN ADA ACCESSIBLE UNITS ANY CONTROL SWITCHES MOUNTING HEIGHT NO HIGHER THAN 48" AFF.
3. ALL DEVICES SHALL BE INSTALLED AT MOUNTING HEIGHTS AS INDICATED ON THIS DETAIL, UNO IN THESE CONTRACT DOCUMENTS, BY ARCHITECT OR BY OWNER.



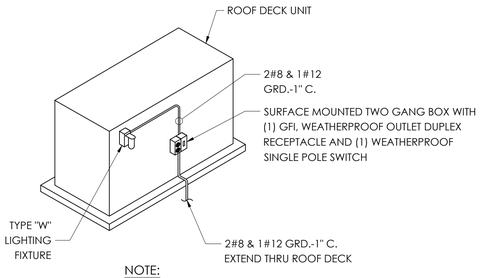
WIRING DIAGRAM - APARTMENT BATHROOM EXHAUST FANS

N.T.S.



INTERCOM RISER DIAGRAM

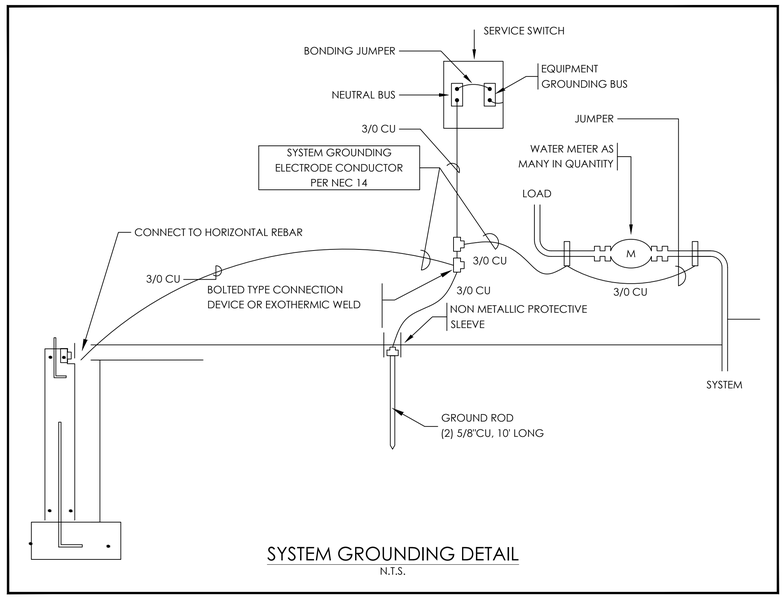
N.T.S.



NOTE:
E.C. SHALL PROVIDE ALL MOUNTING HARDWARE TO SECURELY FASTEN LIGHTING FIXTURE & TWO GANG BOX TO ROOF DECK UNIT.

DETAIL FOR MOUNTING INSTALLATION
LIGHTING FIXTURE, SWITCH AND RECEPTACLE IN ROOF DECK UNITS

N.T.S.



SYSTEM GROUNDING DETAIL

N.T.S.

1 ELECTRICAL MISCELLANEOUS DETAILS
NOT TO SCALE

KRONOS COMPANIES
EFFICIENCY
ACCURACY
TECHNOLOGY

KRONOS CO. 235 MARGINAL ST CHELSEA MA

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ENGINEERING STAMP:

COMMONWEALTH OF MASSACHUSETTS
JASON M.C KAHAN
No. 48308
REGISTERED PROFESSIONAL ENGINEER

2/02/22

MULTI-UNIT RESIDENCES

254 PARIS ST., EAST BOSTON, MA 02128

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS: PERMIT SET

CLIENT:

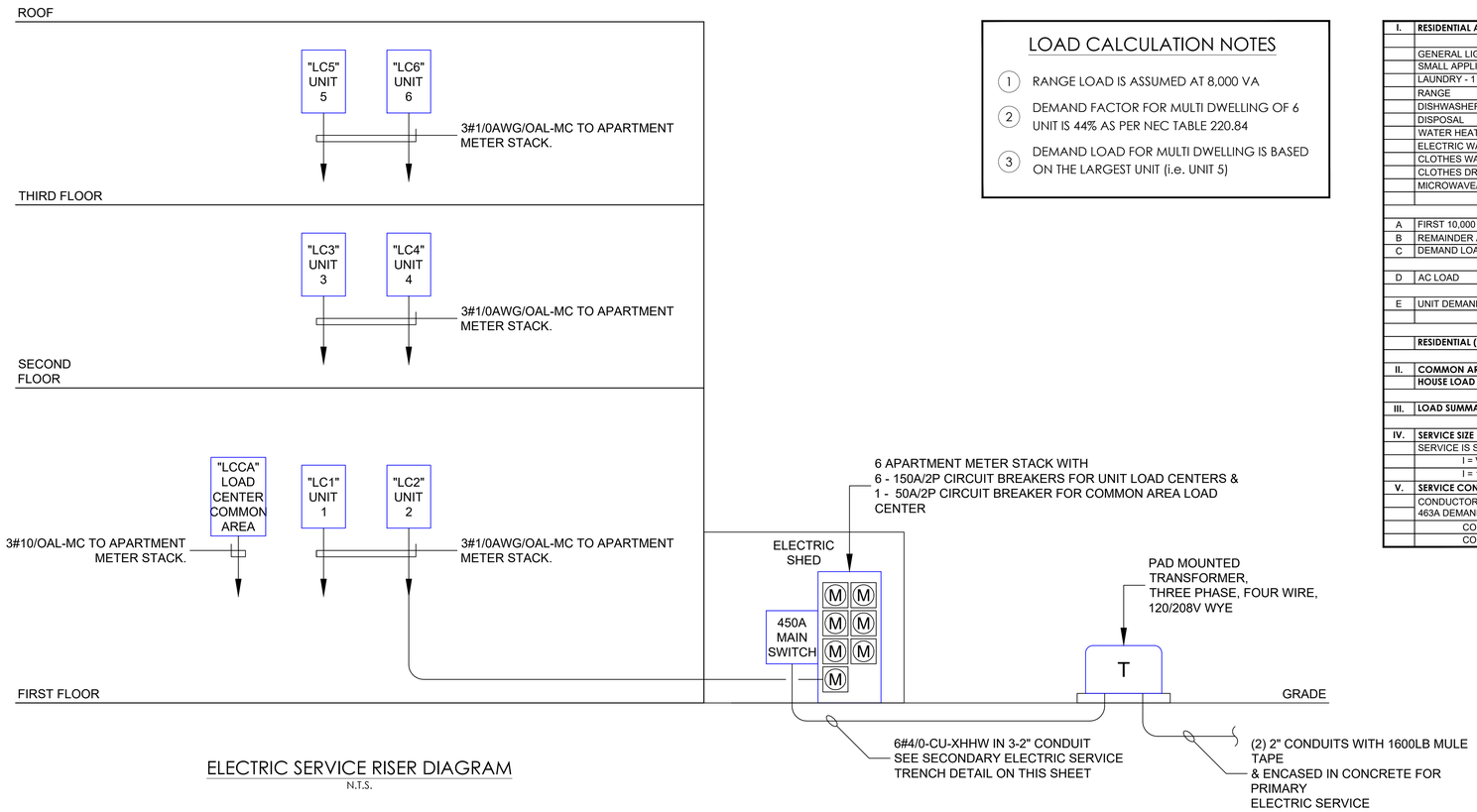
ENGINEER: KRONOS COLLABORATIVE
235 MARGINAL ST.,
CHELSEA, MA 02150

SITE: 254 PARIS ST.,
EAST BOSTON, MA 02128

TITLE: ELECTRICAL MISCELLANEOUS DETAILS

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
3/16" = 1'-0"	12/20/2021	EMS	JK

PROJECT NO:	DRAWING NO:	REVISION:
##	E3.0	##



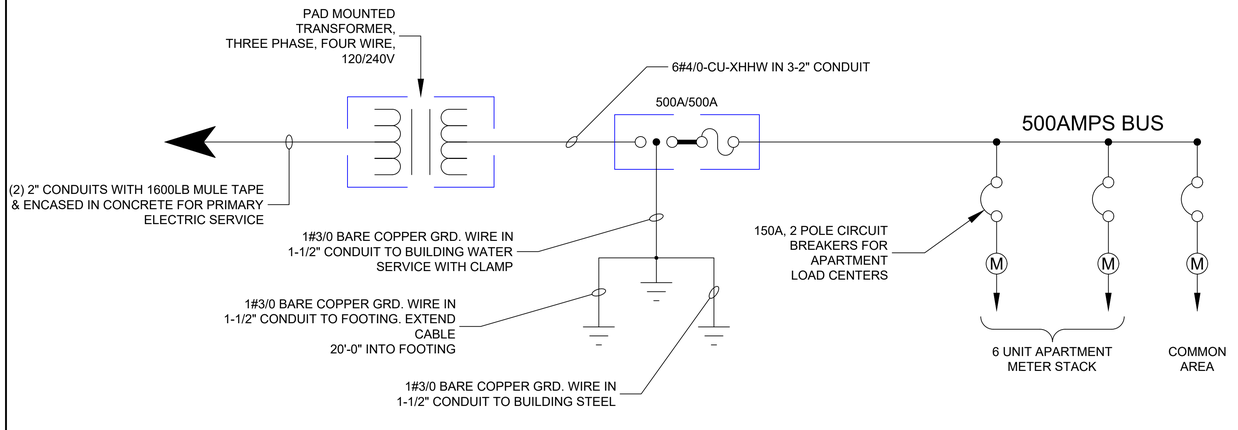
ELECTRIC SERVICE RISER DIAGRAM
N.T.S.

LOAD CALCULATION NOTES

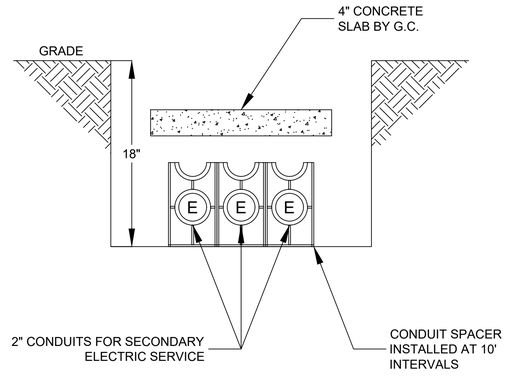
1. RANGE LOAD IS ASSUMED AT 8,000 VA
2. DEMAND FACTOR FOR MULTI DWELLING OF 6 UNIT IS 44% AS PER NEC TABLE 220.84
3. DEMAND LOAD FOR MULTI DWELLING IS BASED ON THE LARGEST UNIT (i.e. UNIT 5)

I.	**RESIDENTIAL AREA**	**UNIT 1**	**UNIT 2**	**UNIT 3**	**UNIT 4**	**UNIT 5**	**UNIT 6**
	FLOOR AREA	397 S.F.	701 S.F.	420 S.F.	698 S.F.	723 S.F.	477 S.F.
	GENERAL LIGHTING AND RECEPTACLE LOAD	1,191	2,103	1,260	2,094	2,169	5,628
	SMALL APPLIANCE - 2 CIRCUITS @ 1500KVA EACH	3,000	3,000	3,000	3,000	3,000	3,000
	LAUNDRY - 1 CIRCUIT @ 1500KVA EACH	1,500	1,500	1,500	1,500	1,500	1,500
	RANGE	8,000	8,000	8,000	8,000	8,000	8,000
	DISHWASHER	1,000	1,000	1,000	1,000	1,000	1,000
	DISPOSAL	1,000	1,000	1,000	1,000	1,000	1,000
	WATER HEATER	240	240	240	240	240	240
	ELECTRIC WALL HEATER	4,000	1,000	1,000	1,000	1,000	1,000
	CLOTHES WASHER	1,200	1,200	1,200	1,200	1,200	1,200
	CLOTHES DRYER	6,000	6,000	6,000	6,000	6,000	6,000
	MICROWAVE/HOOD	1,000	1,000	1,000	1,000	1,000	1,000
	TOTAL WATTAGE	**28,131 W**	**29,043 W**	**28,200 W**	**29,034 W**	**29,109 W**	**28,371 W**
A	FIRST 10,000 VA AT 100%	10,000 VA	10,000 VA	10,000 VA	10,000 VA	10,000 VA	10,000 VA
B	REMAINDER AT 40%	7,252 VA	7,617 VA	7,280 VA	7,614 VA	7,644 VA	7,348 VA
C	DEMAND LOAD [NEC 220.82 (B)] = (A + B)	**17,252 VA**	**17,617 VA**	**17,280 VA**	**17,614 VA**	**17,644 VA**	**17,348 VA**
D	AC LOAD	10,000 VA	10,000 VA	10,000 VA	10,000 VA	10,000 VA	10,000 VA
E	UNIT DEMAND LOAD = C + D	**27,252 VA**	**27,617 VA**	**27,280 VA**	**27,614 VA**	**27,644 VA**	**27,348 VA**
	TOTAL AMPACITY	**131 AMPS**	**133 AMPS**	**131 AMPS**	**133 AMPS**	**133 AMPS**	**131 AMPS**
	RESIDENTIAL (MULTI DWELLING) DEMAND LOAD	**104 KVA**	**(NOTES 2 & 3)**				
II.	**COMMON AREA AND PARKING LOT**						
	HOUSE LOAD (NEC 220, PART III), 2VA/SQ. FT.	**7 KVA**					
III.	**LOAD SUMMARY FOR THE WHOLE BUILDING (I+II)**	**111 KVA**	**TOTAL DEMAND LOAD**				
IV.	**SERVICE SIZE**						
	SERVICE IS SIZED TO THE 111,000 VA DEMAND LOAD:						
	I = VA/(E x 1.732)						
	I = 111,000 VA/(240V x 1.732) = 463 AMPS	**500 AMPS**	**MAIN SWITCH [240.6(A)]**				
V.	**SERVICE CONDUCTOR SIZE**						
	CONDUCTOR PARALLELED IN TWO RACEWAYS SIZED TO 463A DEMAND LOAD						
	CONDUCTOR = 463/2 RACEWAYS						
	CONDUCTOR = 231A, 4/0 AWG RATED 230A	**USE 6#4/0AWG-CU-XHHW IN 3-2"CONDUIT**					

LOAD CALCULATIONS (ALL ELECTRIC UNIT)



ELECTRIC SERVICE ONE LINE DIAGRAM
N.T.S.



NOTE:

EXCAVATION, BACKFILLING & CONCRETE SLAB FOR PRIMARY TRENCH TO BE DONE BY G.C.

SECONDARY ELECTRIC SERVICE TRENCH DETAIL
N.T.S.

KRONOS COMPANIES
EFFICIENCY ACCURACY TECHNOLOGY

KRONOS CO. 235 MARGINAL ST CHELSEA MA

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ENGINEERING STAMP:

COMMONWEALTH OF MASSACHUSETTS
JASON M.C KAHAN
No. 48388
REGISTERED PROFESSIONAL ENGINEER

2/02/22

MULTI-UNIT RESIDENCES

254 PARIS ST., EAST BOSTON, MA 02128

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS: PERMIT SET

CLIENT:

ENGINEER: KRONOS COLLABORATIVE
235 MARGINAL ST.,
CHELSEA, MA 02150

SITE: 254 PARIS ST.,
EAST BOSTON, MA 02128

TITLE: ELECTRICAL RISER DIAGRAM, LOAD CALCULATION & DETAILS

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
3/16" = 1'-0"	12/20/2021	EMS	JK

PROJECT NO:	DRAWING NO:	REVISION:
##	E3.0	##

PROPOSED 4-STORY MULTI-FAMILY

GENERAL NOTES

SHOULD ANY CONTRADICTION, AMBIGUITY, ERROR, INCONSISTENCY, OMISSION OR INCOMPLETE SYSTEM APPEAR IN OR BETWEEN ANY OF CONTRACT DOCUMENTS THE CONTRACTOR SHALL, BEFORE SUBMITTING THE FINAL BID AND SIGNING THE CONTRACT FOR CONSTRUCTION, NOTIFY THE ARCHITECT AND REQUEST A WRITTEN RESOLUTION AS TO WHICH METHODS OR MATERIALS WILL BE REQUIRED, IN THE EVENT OF CONFLICTING REQUIREMENTS OF STANDARDS , DRAWINGS AND SPECIFICATIONS, THE CONTRACTOR SHALL COMPLY WITH THE MORE STRINGENT REQUIREMENTS. BEFORE SUBMITTING THE FINAL BID AND THE SIGNING THE CONTRACT FOR THE CONSTRUCTION THE CONTRACTOR SHALL OBTAIN A WRITTEN INTERPRETATION FROM THE ARCHITECT, IN NO CASE SHALL THE CONTRACTOR PROCEED WITH THE AFFECTED WORK UNTIL ADVISED BY THE ARCHITECT.

IF THE CONTRACTOR FAILS TO MAKE A REQUEST FOR INTERPRETATION OR RESOLUTION NO EXCUSE WILL BE ACCEPTED FOR FAILURE TO CARRY OUT THE WORK IN A SATISFACTORY MANNER, AS INTERPRETED BY THE ARCHITECT. THIS GENERALLY MEANS THE USE OF THE HIGHEST QUALITY MATERIAL, MOST EXPENSIVE WAY OF PERFORMING WORK AND PROVIDING COMPLETE FUNCTIONING SYSTEM FOR PROPER OPERATION.

EACH AND EVERY TRADE OR SUBCONTRACTOR WILL BE DEEMED TO HAVE FAMILIARIZED THEMSELVES WITH ALL THE CONTRACT DOCUMENTS OF THIS PROJECT, INCLUDING ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL AND SITE WORK, AND TO HAVE VISITED THE SITE, SO AS TO AVOID ERROR, OMISSIONS AND MISINTERPRETATIONS. RELATED INFORMATION MAY BE PROVIDED ON CONTRACT DOCUMENTS OTHER THAN THOSE ASSOCIATED WITH THE SUBCONTRACTOR'S TRADE. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING RELATED WORK OF ALL THE CONTRACT DOCUMENTS. NO ADDITIONAL COMPENSATION WILL BE AUTHORIZED FOR ALLEGED ERRORS, OMISSIONS AND MISINTERPRETATIONS WHETHER THEY ARE A RESULT OF FAILURE TO OBSERVE THIS REQUIREMENT OR NOT.

FIRE RATED CEILING NOTES

WHEN DUCT PENETRATE RATED CEILING:

-ALL RECESSED DIFFUSERS AND REGISTERS SHALL HAVE RADIATION DAMPERS.
-ALL UNITS DUCTED TO PLENUM SPACE SHALL HAVE CEILING FIRE DAMPERS TO MEET UL 555C -ALL RETURN DUCTS SHALL BE BELOW THE RATED CEILING, DROPPED CEILING AREAS SHALL NOT BE RATED CEILING UNLESS SHOWN OTHERWISE
-ALL RETURN AIR GRILLES IN RATED CEILING SHALL HAVE CEILING FIRE DAMPERS
-ALL UNIT DISCHARGES SHALL BE OFFSET TO GET INTO PROPER JOIST SPACES, CARRY TRANSITION PIECE AS NEEDED
-ALL DUCTS LARGER THAN 4"Ø DIAMETER SHALL HAVE FIRE DAMPERS AT CEILING PENETRATIONS

INSULATION NOTED

1. HEATING HOT WATER MAINS AND BRANCHES:
   PIPING < 1" REQUIRES 1 1/2" INSULATION
   PIPING > 1½" REQUIRES 2" INSULATION
2. SUPPLY & RETURN DUCTWORK FROM HVAC UNITS:
   1 1/2" INSULATION MIN. R-6
3. REFRIGERANT PIPING ¾" ARAMFLEX

CEILING RADIATION DAMPERS

CEILING RADIATION DAMPERS SHALL BE AS MANUFACTURED BY GREENHECK
MODEL CRD-1WT FOR SIDE INLET
MODEL CRD-2WT FOR TOP INLET

CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE UL LISTED DAMPER WITH THE UL LISTING OF THE CEILING

APPROVED CEILING RATINGS ARE L-528,546,558,562,574,576,581,583,585,592
M-501,503,508
P-533,538,545,547,548,554

DIFFUSER/ REGISTER SCHEDULE

LEGEND:

(N) — TYPE
— CFM

TYPE	DESCRIPTION	MODEL (BASED ON TITUS)
SD1	DOUBLE DEFLECTION REGISTER FOR SHEET ROCK INSTALLATION. PROVIDE ROUND TO SQUARE ADAPTOR.	TITUS 272RS 12x6
SD2	DOUBLE DEFLECTION REGISTER FOR SHEET ROCK INSTALLATION. TOE KICK	TITUS 272RS 12x6
SD3	DOUBLE DEFLECTION REGISTER FOR SHEET ROCK INSTALLATION. PROVIDE ROUND TO SQUARE ADAPTOR.	TITUS 272RS 8x6
SD4	LOUVER FACE CEILING DIFFUSER FOR SHEET ROCK CEILING INSTALLATION. PROVIDE ROUND TO SQUARE ADAPTOR. WITH OPPOSIBLE BLADE DAMPER	TITUS TDCA, BORDER 1 6x6
RG1	DOUBLE DEFLECTION GRILLE FOR SHEET ROCK NSTALLATION. WITH OPPOSIBLE BLADE DAMPER	TITUS 25 RS 20x20
RG2	DOUBLE DEFLECTION GRILLE FOR SHEET ROCK NSTALLATION. WITH OPPOSIBLE BLADE DAMPER	TITUS 25 RS 30x14

MAIN/ BRANCH DUCT SCHEDULE

SIZE	MAX. CFM
6" DIA	100
7" DIA	150
8" DIA	200
9" DIA	300
10" DIA	400
8x6	200
8x8	250
10x8	300
12x8	350
12x8	400
12x8	450
14x8	500
16x8	600
18x8 OR 16x10	700
20x8 OR 18x10	800
24x8 OR 20x10	1000
30x8 OR 24x10	1200

NOTE: MAXIMUM FLEXIBLE DUCT LENGTH SHALL BE 4'
USE INSULATED SEMI RIGID BUCK DUCT.

LEGEND & SYMBOLS

SYMBOLS	DESCRIPTION
	SUPPLY AIR DUCT UP
	SUPPLY AIR DUCT DOWN
	RETURN AIR DUCT UP
	RETURN AIR DUCT DOWN
	VOLUME DAMPER
FD	MOTORIZED DAMPER
	FIRE DAMPER
	1" LINED DUCTWORK
	SUPPLY AIR REGISTER
	RETURN OR EXHAUST AIR REGISTER
	SUPPLY AIR DIFFUSER
	CEILING TRANSFER GRILL
AD	ACCESS DOOR
AV	SELF BALANCING AIR VALVE
CFD	CEILING FIRE DAMPER

EQUIPMENT TAG NUMBERS

EF-#	EXHAUST FAN
CU-#	CONDENSING UNIT
AC-#	SPLIT SYSTEM AC UNIT
HVAC-#	AIR HANDLER UNIT
UH-#	UNIT HEATER UNIT

EQUIPMENT SYMBOLS

- VD — VOLUME DAMPERS
- VERTICAL HVAC UNIT
- ROOF MOUNTED CONDENSING UNIT

CONTROL SYMBOLS

- (T) (TS) — WALL MOUNTED THERMOSTAT/SENSOR
- (H) (HS) — HUMIDISTAT/SENSOR
- LP — LOCAL CONTROL PANEL

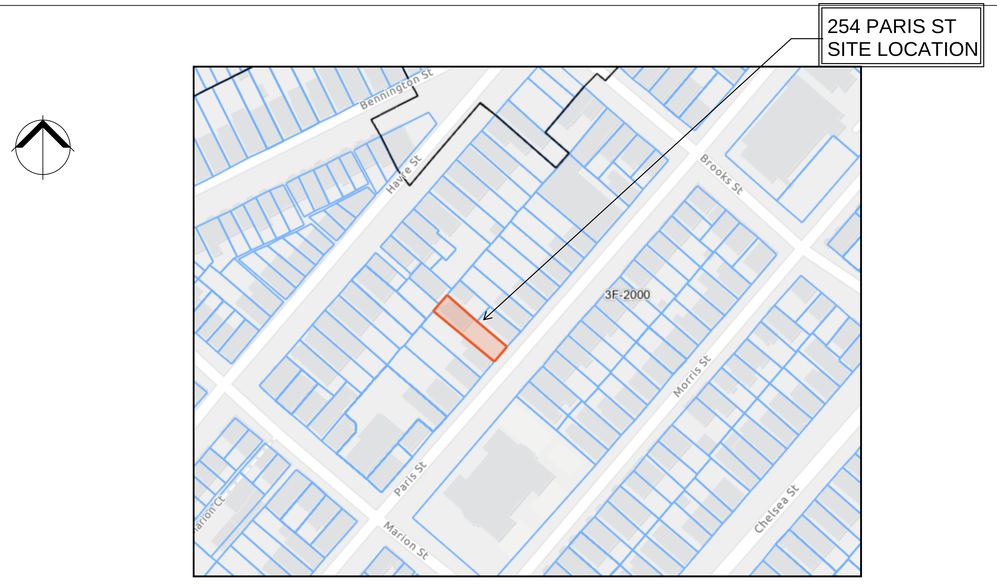
DRAWING INDEX

NUMBER	SHEET NAME	PERMIT SET
MECHANICAL		
M00	TITLE SHEET, GENERAL NOTES AND SPECIFICATION	•
M01	GROUND, 2ND AND 3RD FLOOR MECHANICAL PLANS	•
M02	FOURTH FLOOR AND ROOF MECH. PLANS/ EQUIP. SCHED.	•
M03	DETAILS-1	•
M04	DETAILS-2	•

ABBREVIATIONS

VC	VENT CAP
SAG	SUPPLY AIR GRILLE
AHU	AIR HANDLING UNIT
CDP	CONDENSATE DRAINPIPE
NTS	NOT TO SCALE
ACCU	AIR-COOLED CONDENSING UNIT
CCAC	CEILING CASSETTE AC
BDD	BACK DRAFT DAMPER
EF	EXHAUST FAN
VD	VOLUME DAMPER
SAD	SUPPLY AIR DUCT
RAD	RETURN AIR DUCT
KW	KILOWATT
CFM	CUBIC FEET PER MINUTE
EAG	EXHAUST AIR GRILLE
RH	RANGEHOOD

VICINITY MAP



EFFICIENCY ACCURACY TECHNOLOGY

KRONOS CO. 235 MARGINAL ST CHELSEA MA 02150

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ENGINEERING STAMP:

COMMONWEALTH OF MASSACHUSETTS
JASON M. KAHAN
No. 48388
REGISTERED PROFESSIONAL ENGINEER

1/22/23

PROPOSED 4-STORY MUTI FAMILY

335 CHELSEA STREET, EAST BOSTON, MA

REV.	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS: PROPOSAL

CLIENT:

ENGINEER: KRONOS COLLABORATIVE
235 CHELSEA ST.
CHELSEA, MA
02150

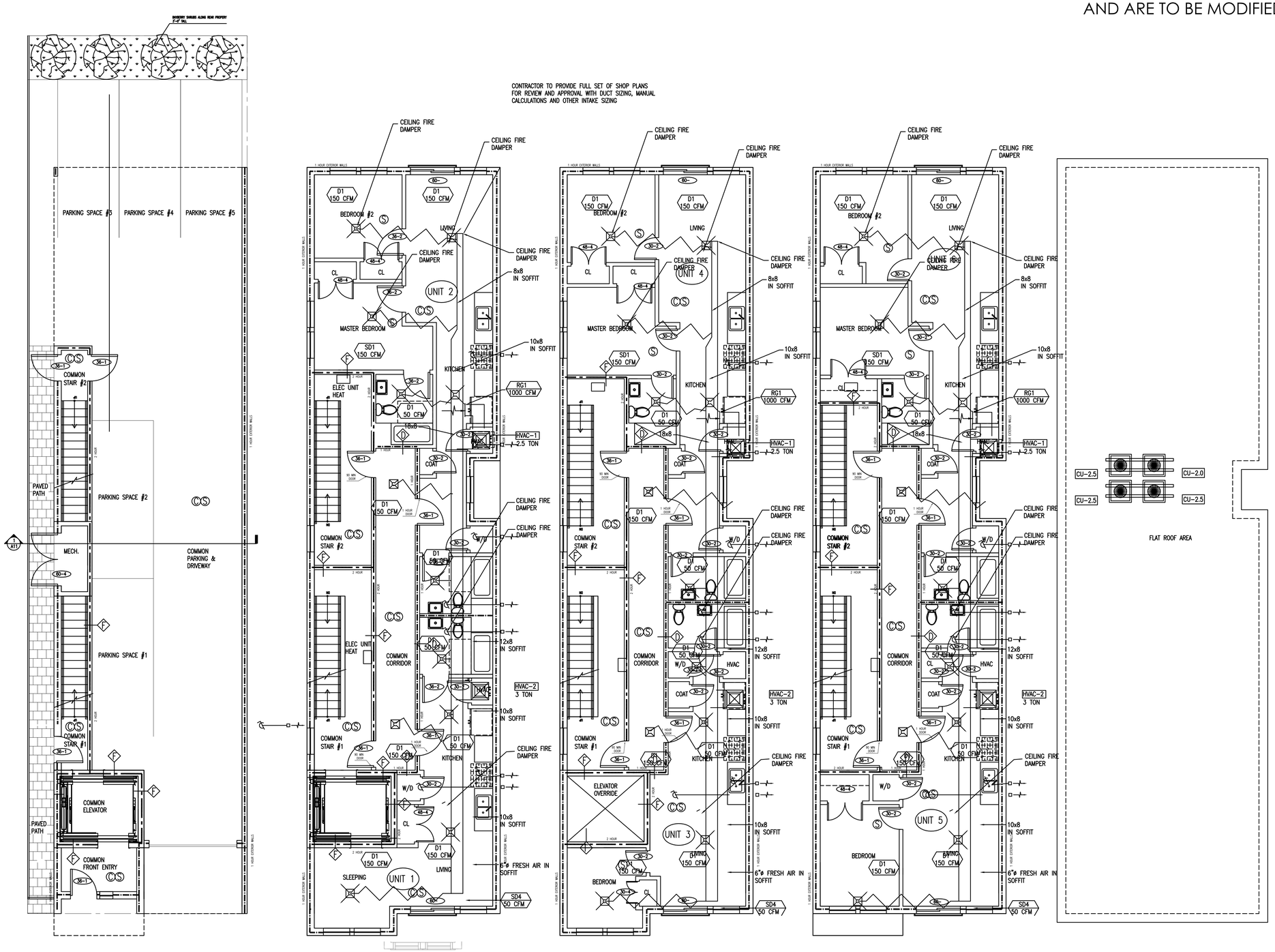
SITE: 335 CHELSEA STREET, EAST BOSTON, MA

TITLE: TITLE SHEET GENERAL NOTES & ABBREV.

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
AS SHOWN	01/04/2022		
PROJECT NO:	DRAWING NO:		REVISION:
	M00		

CONTRACTOR TO SUPPLY SHOP PLANS
PLANS ARE FOR BUILDING PERIT SET
AND ARE TO BE MODIFIED

CONTRACTOR TO PROVIDE FULL SET OF SHOP PLANS FOR REVIEW AND APPROVAL WITH DUCT SIZING, MANUAL CALCULATIONS AND OTHER INTAKE SIZING



1 1st Floor
1/2" = 1'-0"

2 2nd Floor
1/2" = 1'-0"

3 3rd Floor
1/2" = 1'-0"

4 4th Floor
1/2" = 1'-0"

EFFICIENCY
ACCURACY
TECHNOLOGY

KRONOS CO. 235 MARGINAL ST CHELSEA MA

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ENGINEERING STAMP:

COMMONWEALTH OF MASSACHUSETTS
JASON M.C KAHAN
No. 48388
REGISTERED PROFESSIONAL ENGINEER
1/22/23

PROPOSED 4-STORY MUTI FAMILY

254 PARIS ST, EAST BOSTON MA 02128

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS: MECHANICAL

CLIENT:

ENGINEER: KRONOS COLLABORATIVE
235 MARGINAL ST
CHELSEA, MA

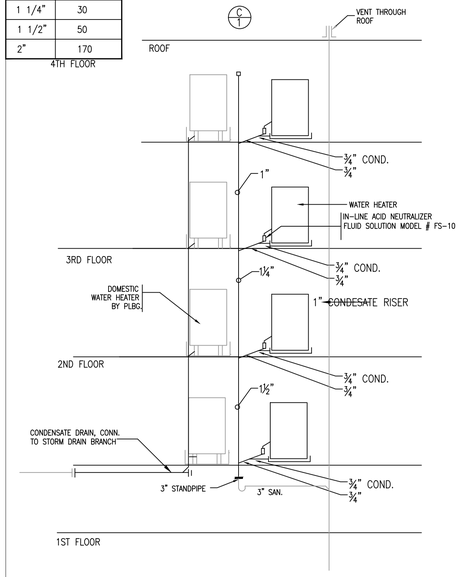
SITE: 254 PARIS ST
EAST BOSTON, MA

TITLE: MECHANICAL PLAN
INFO SHEET

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
3/16"=1'-0"	1/5/22	JK	NB

PROJECT NO:	DRAWING NO:	REVISION:
	M01	

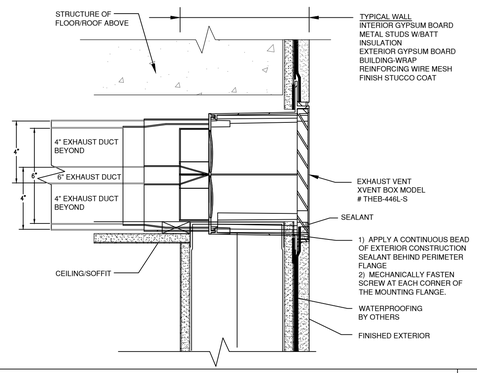
CONDENSATE DRAIN PIPE SIZING GUIDELINES	
PIPE	TON
3/4"	2
1"	5
1 1/4"	30
1 1/2"	50
2"	170



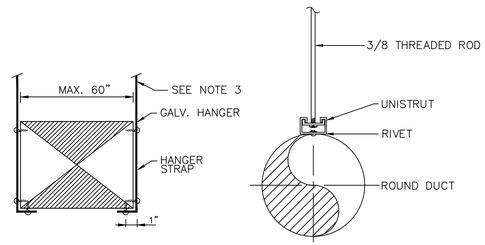
NOTE:
ALL ACID NEUTRALIZERS, DRAIN PIPING FROM FURNACES, AND CONDENSATE DRAIN SHALL BE BY HVAC CONTRACTOR. SANITARY PIPING SHALL BE BY PLUMBING CONTRACTOR.

NOTE:
PROVIDE CONDENSATE RISER IN EACH APARTMENT MECH ROOM AS SHOWN ON THIS DIAGRAM

MECHANICAL ROOM DRAIN RISER DIAGRAM | N.T.S.



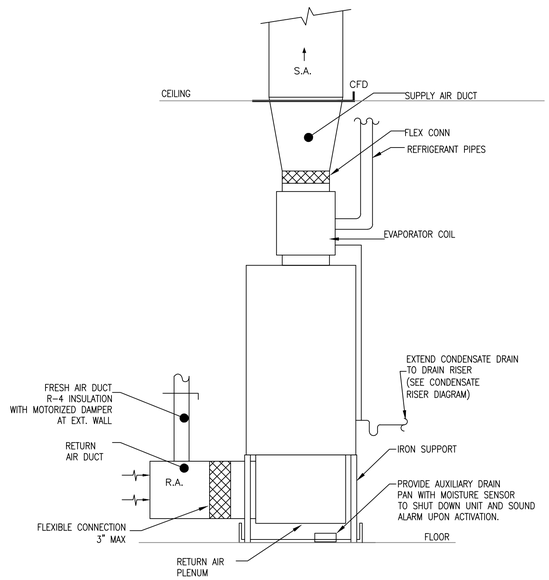
TYPICAL WALL CAP PENETRATION XVENT BOX | NTS



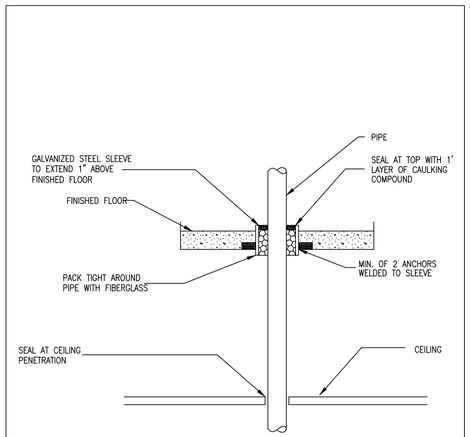
NOTES:
1. ON DUCTS OVER 48" WIDE, BOTTOM SHALL BE BRACED BY ANGLE. FOR CROSS SECTION AREA MORE THAN 8 SQ FT, DUCT SHALL BE BRACED BY ANGLES ON ALL FOUR SIDES.

2. CUTTING AND PATCHING SHALL BE LIMITED TO A MINIMUM AS REQUIRED FOR PROPER INSTALLATION.
3. SUPPORTS SHALL BE SPACED AND SIZED AS PER SMACNA.

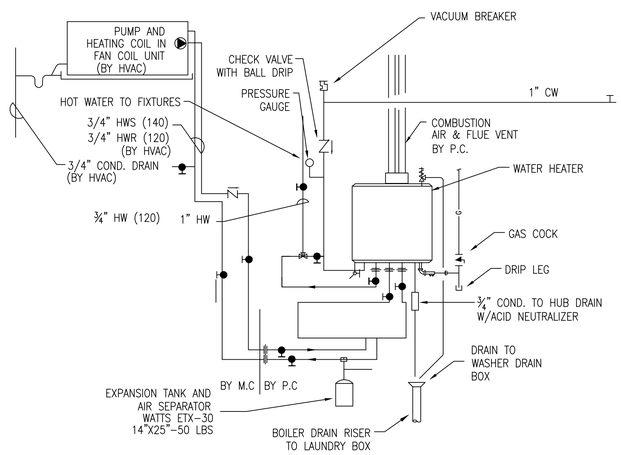
DUCT HANGER SUPPORT | NTS



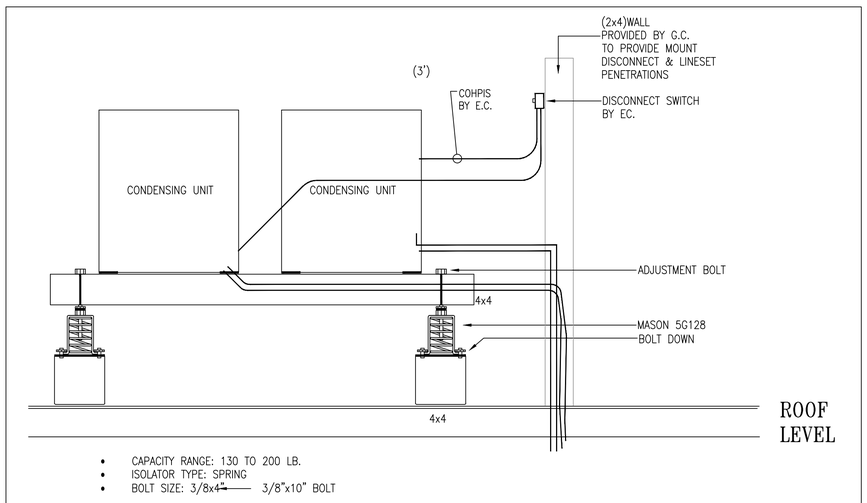
VERTICAL UNIT DETAIL WITH BOTTOM AIR RETURN | N.T.S.



PIPE SLEEVE THRU FLOOR PENTRATION DETAIL | NTS



INSTANTANEOUS WATER HEATER DETAIL | N.T.S.



- CAPACITY RANGE: 130 TO 200 LB.
- ISOLATOR TYPE: SPRING
- BOLT SIZE: 3/8x4" 3/8"x10" BOLT

CONDENSING UNIT MOUNTING DETAIL | N.T.S.

EFFICIENCY ACCURACY TECHNOLOGY

KRONOS CO. 235 MARGINAL ST CHELSEA MA 02150

Notes:

2. WORK TO FIGURED DIMENSIONS ONLY.

3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, SERVICE ENGINEER'S AND KRONOS CO. DRAWINGS AND SPECIFICATIONS.

ENGINEERING STAMP:

COMMONWEALTH OF MASSACHUSETTS
JASON M C KAHAN
No. 48388
REGISTERED PROFESSIONAL ENGINEER

1/22/23

PROPOSED 4-STORY MUTI FAMILY

254 PARIS , EAST BOSTON, MA

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS: PROPOSAL

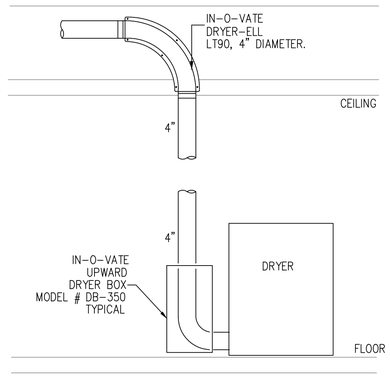
CLIENT:

ENGINEER: KRONOS COLLABORATIVE
235 CHELSEA ST.
CHELSEA, MA
02150

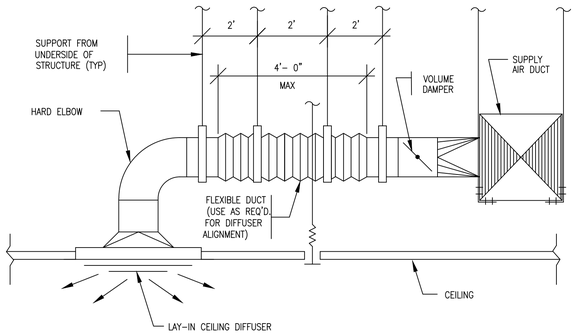
SITE: 254 PARIS STREET, EAST BOSTON, MA

TITLE: DETAILS-1

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
NOT TO SCALE	01/04/2022		
PROJECT NO:	DRAWING NO:		REVISION:
	M03		



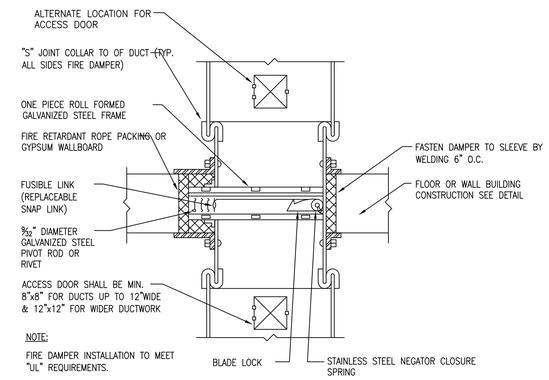
TYPICAL DRYER BOX AND DRYER ELL DETAIL | NTS



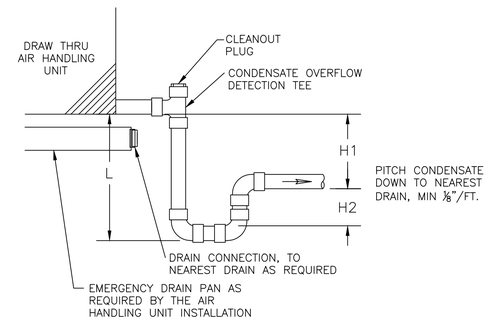
NOTES:

1. MAXIMUM SAG 1/2" PER FOOT.

CEILING DIFFUSER BRANCH DUCTS | N.T.S.

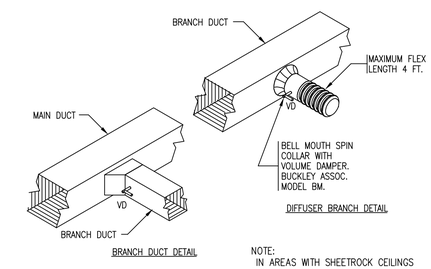


FIRE DAMPER W/BLADES OUTSIDE THE AIR STREAM | N.T.S.



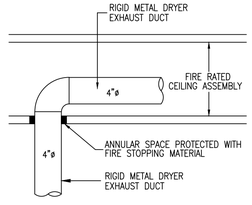
H1 = MAX NEGATIVE STATIC PRESSURE PLUS 1"
H2 = H1/2
L = H1 + H2 + PIPE DIAMETER + INSULATION THICKNESS

CONDENSATE DRAIN DETAIL | NTS



NOTE:
IN AREAS WITH SHEETROCK CEILINGS PROVIDE REMOTELY OPERATED VOLUME DAMPERS.

DUCT DETAILS | NTS



FLOOR/CEILING DUCT PROTECTION DETAIL | NTS

EFFICIENCY
ACCURACY
TECHNOLOGY

KRONOS CO. 235 MARGINAL ST CHELSEA MA 02150

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ENGINEERING STAMP:

COMMONWEALTH OF MASSACHUSETTS
JASON M C KAHAN
No. 48388
REGISTERED PROFESSIONAL ENGINEER

1/22/23

PROPOSED 4-STORY
MUTI FAMILY

335 CHELSEA STREET, EAST BOSTON, MA

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS: PROPOSAL

CLIENT:

ENGINEER: KRONOS COLLABORATIVE
235 CHELSEA ST.
CHELSEA, MA
02150

SITE: 335 CHELSEA STREET,
EAST BOSTON, MA

TITLE: DETAILS-2

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
NOT TO SCALE	01/04/2022		
PROJECT NO:	DRAWING NO:		REVISION:
	M04		

PLUMBING NOTES:

1. REFER TO ARCHITECTURAL DRAWINGS FOR TYPE AND LOCATION OF ALL FIRE WALLS. ANY PENETRATION THROUGH FIRE FLOORS SHALL BE FIRE STOPPED . ANY PENETRATION THROUGH FIRE WALL SHALL BE FIRE CAULKED. REFER TO SECTION 7275 FOR PROCEDURE.

2. WITHOUT LIMITATION PAY ATTENTION TO THE FOLLOWING ITEMS:

   A. CHASES BEHIND BATHROOM (WALL BETWEEN CORRIDOR AND BATHROOM) AND WALLS BETWEEN UNITS ARE FIRE RATED. FIRE CAULK ALL PENETRATIONS.

   B. TOP AND BOTTOM WALL PLATES AT CEILING AND AT FLOOR IS PART OF FIRE SEPARATION. FIRE STOP ALL PENETRATIONS THROUGH PLATES.

GENERAL NOTES:

1. SHOULD ANY CONTRADICTION, AMBIGUITY, ERROR, INCONSISTENCY, OMISSION OR INCOMPLETE SYSTEM APPEAR IN OR BETWEEN ANY OF CONTRACT DOCUMENTS THE CONTRACTOR SHALL, BEFORE SUBMITTING THE FINAL BID AND SIGNING THE CONTRACT FOR CONSTRUCTION, NOTIFY THE ARCHITECT AND REQUEST A WRITTEN RESOLUTION AS TO WHICH METHODS OR MATERIALS WILL BE REQUIRED. IN THE EVENT OF CONFLICTING REQUIREMENTS OF STANDARDS , DRAWINGS AND SPECIFICATIONS, THE CONTRACTOR SHALL COMPLY WITH THE MORE STRINGENT REQUIREMENTS. BEFORE SUBMITTING THE FINAL BID AND THE SIGNING THE CONTRACT FOR THE CONSTRUCTION THE CONTRACTOR SHALL OBTAIN A WRITTEN INTERPRETATION FROM THE ARCHITECT. IN NO CASE SHALL THE CONTRACTOR PROCEED WITH THE AFFECTED WORK UNTIL ADVISED BY THE ARCHITECT.

IF THE CONTRACTOR FAILS TO MAKE A REQUEST FOR INTERPRETATION OR RESOLUTION NO EXCUSE WILL BE ACCEPTED FOR FAILURE TO CARRY OUT THE WORK IN A SATISFACTORY MANNER, AS INTERPRETED BY THE ARCHITECT. THIS GENERALLY MEANS THE USE OF THE HIGHEST QUALITY MATERIAL, MOST EXPENSIVE WAY OF PERFORMING WORK AND PROVIDING COMPLETE FUNCTIONING SYSTEM FOR PROPER OPERATION.

EACH AND EVERY TRADE OR SUBCONTRACTOR WILL BE DEEMED TO HAVE FAMILIARIZED THEMSELVES WITH ALL THE CONTRACT DOCUMENTS OF THIS PROJECT, INCLUDING ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL AND SITE WORK, AND TO HAVE VISITED THE SITE, SO AS TO AVOID ERROR, OMISSIONS AND MISINTERPRETATIONS. RELATED INFORMATION MAY BE PROVIDED ON CONTRACT DOCUMENTS OTHER THAN THOSE ASSOCIATED WITH THE SUBCONTRACTOR'S TRADE. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING RELATED WORK OF ALL THE CONTRACT DOCUMENTS. NO ADDITIONAL COMPENSATION WILL BE AUTHORIZED FOR ALLEGED ERRORS, OMISSIONS AND MISINTERPRETATIONS WHETHER THEY ARE A RESULT OF FAILURE TO OBSERVE THIS REQUIREMENT OR NOT.

2. ALL PENETRATIONS OF ASSEMBLIES EXPOSED TO THE EXTERIOR ENVIRONMENT SHALL BE SEALED WITH FOAM SEALANT OR EQUIVALENT SEALER TO PROVIDE ZERO AIR INFILTRATION. COORDINATE WITH FIRE STOPPING REQUIREMENTS.

3. NO COMPONENT OF ANY SYSTEM SHALL RUN THROUGH THE STAIR ENCLOSURE THAT DOES NOT RELATE TO OR SERVE THE STAIR ENCLOSURE.

	SANITARY ABOVE FLOOR
	SANITARY UNDER FLOOR
	VENT
	VENT BURIED
	COLD WATER
	HOT WATER
	HOT WATER CIRCULATION
	SHUT OFF VALVE
	CHECK VALVE
	FLOOR CLEANOUT
CO	CLEANOUT
WCO	WALL CLEANOUT
VR	VENT RISER
VTR	VENT THRU ROOF
HD	HUB DRAIN
FD	FLOOR DRAIN
FCO	FLOOR CLEANOUT
	UNION
HB	HOSE BIBB
RD	ROOF DRAIN
VS	VENT STACK
WB	WASHER BOX
WC	WATER CLOSET
LAV	LAVATORY SINK
SH	SHOWER
KS	KITCHEN SINK

PLUMBING LEGEND N.T.S.

INSULATION NOTES

THE FOLLOWING SYSTEMS SHALL BE INSULATED.
DUCT LINER SHALL BE CLOSED CELL TYPE, GERM PROOF

ESTAR REQUIREMENTS:

1. DOMESTIC HOT WATER & RECIRCULATION MAINS AND BRANCHES:
   PIPING < 1" REQUIRES 1" INSULATION
   PIPING > 1½" REQUIRES 1½" INSULATION

IECC 2015 REQUIREMENTS:

1. DOMESTIC HOT WATER MAINS AND BRANCHES:
   PIPING < 1" REQUIRES 1" INSULATION
   PIPING > 1½" REQUIRES 2" INSULATION

GENERAL INSUALTION REQUIREMENTS:

CW PIPING: ½" INSULATION
HORIZONTAL STORM: ½" INSULATION

THIS BUILDING WILL SHALL BE QUALIFIED FOR ESTAR, STRETCH CODE, AND LEED SILVER. PROVIDE THE MOST STRINGENT LEVELS OF INSULATION FOR QUALIFICATION

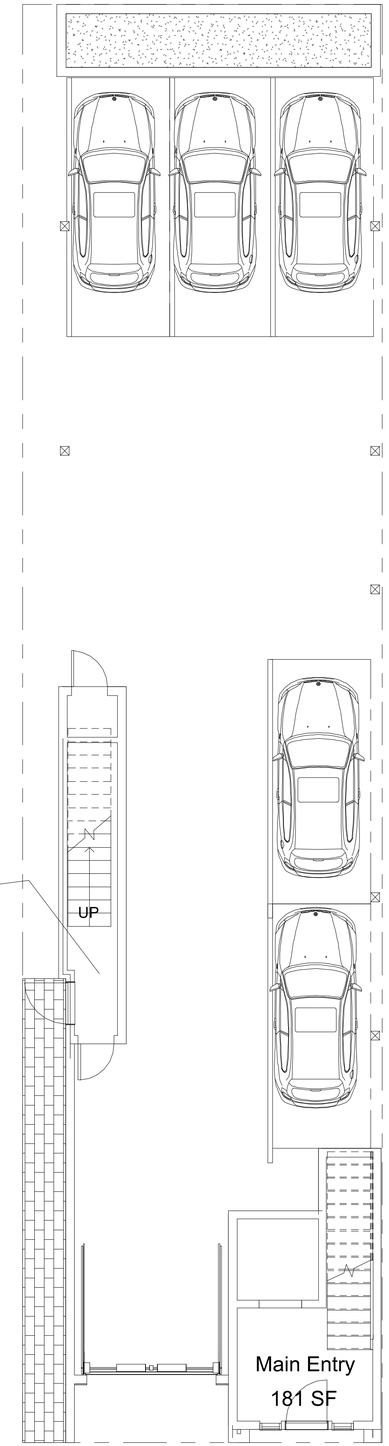
PIPING MATERIAL NOTES

SANITARY AND VENT: BELOW GROUND: SWCI WITH PUSH ON JOINTS.

ABOVE GROUND:
-SCH.40 PVC WITH SOLVENT JOINTS FOR ALL PLUMBING FIXTURES ONLY SERVING RESIDENTIAL FLOORS, IF SANITARY MAIN CONNECTS TO COMMERICAL FIXTURES FROM THAT POINT AND BEYOND SHALL BE CAST IRON. IF ANY CONNECTION FROM RESIDENTIAL TO COMMERCIAL FIXTURES HAPPENS ON FIRST LEVEL TRANSITION TO CAST IRON IN RESIDENTIAL LEVEL.
-SWCI WITH HUSKY 4-BAND CLAMPS FOR ALL PLUMBING IN CONNECTIONS IN COMMERCIAL AND GARAGE LEVELS.

WATER PIPING: TYPE "L" COPPER WITH 95-5 SOLDER JOINTS IN COMMERCIAL AND GARAGE LEVEL, CPVC IN RESIDENTIAL LEVELS ONLY.

GAS PIPING: SCHEDULE 40 ER/ERW BLACK STEEL WITH THREADED JOINTS OR WELDED.



1 1st Floor
1/2" = 1'-0"

EFFICIENCY
ACCURACY
TECHNOLOGY

KRONOS CO. 235 MARGINAL ST CHELSEA MA 02150

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ENGINEERING STAMP:

COMMONWEALTH OF MASSACHUSETTS
JASON M C KAHAN
No. 48388
REGISTERED PROFESSIONAL ENGINEER

1/22/23

PROPOSED 4-STORY
MUTI FAMILY

254 PARIS STREET EAST BOSTON, MA

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS:

CLIENT:

ENGINEER:

SITE: 254 PARIS STREET EAST
BOSTON, MA

TITLE: PLUMBING FLOOR
PLANS

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
3/16"=1'-0"	1/4/22		
PROJECT NO:	DRAWING NO:		REVISION:
---	P 1.01		---

PLUMBING FIXTURE SPECIFICATION SCHEDULE

DESIGNATION	FIXTURE SYMBOL	SYMBOL	MANUFACTURER	FIXTURE			FITTING				CARRIER	LOCATION	REMARKS
				MODEL	TYPE	SIZE	MANUF/MODEL#	TYPE	SUPPLY	TRAP			
REFER TO ARCITECTURAL SPECIFICATION FOR PLUMBING FIXTURES													
TRAP PRIMER	P-6	T.P.	PRECISION PLUMBING PRODUCTS	PR-500	-	-	-	-	½" CW SUPPLY	-	-	AS SHOWN	PROVIDE DU-4 FOR MULTIPLE TRAP PRIMERS

NOTE: ALL WASHER MACHINES TO BE PROVIDED WITH AQUA MANAGERS "FLOODSTOP" (FS 3/4-H) AUTOMATIC FLOOD PROTECTION KIT

BASIC PLUMBING REQUIREMENTS

PART 1. - GENERAL

1.1 RELATED DOCUMENTS

ALL APPLICABLE REQUIREMENTS OF OTHER PORTIONS OF THE CONTRACT DOCUMENTS APPLY TO THE WORK OF THIS SECTION INCLUDING, BUT NOT LIMITED TO, ALL DRAWINGS, ALL SPECIFICATIONS, GENERAL CONDITIONS, AND GENERAL REQUIREMENTS INCLUDING SUBMITTALS.

1.2 APPLICABLE CODES AND STANDARDS

APPLICABLE CODES: ALL LOCAL AND STATE BUILDING CODES, INCLUDING THE INTERNATIONAL PLUMBING CODE MASSACHUSETTS STATE PLUMBING CODE AND THE MASSACHUSETTS STATE BUILDING CODE.
APPLICABILITY OF STANDARDS: EXCEPT WHERE THE CONTRACT DOCUMENTS INCLUDE MORE STRINGENT REQUIREMENTS, APPLICABLE CONSTRUCTION INDUSTRY STANDARDS HAVE THE SAME FORCE AND EFFECT AS IF BOUND OR COPIED DIRECTLY INTO THE CONTRACT DOCUMENTS. SUCH STANDARDS ARE MADE A PART OF THE CONTRACT DOCUMENTS BY REFERENCE.

CONFLICTING REQUIREMENTS: WHERE COMPLIANCE WITH TWO OR MORE STANDARDS IS SPECIFIED, AND THE STANDARDS ESTABLISH DIFFERENT OR CONFLICTING REQUIREMENTS FOR MINIMUM QUANTITIES OR QUALITY LEVELS, REFER REQUIREMENTS THAT ARE DIFFERENT, BUT APPARENTLY EQUAL, AND UNCERTAINTIES TO THE ARCHITECT FOR A DECISION BEFORE PROCEEDING.

PUBLICATION DATES: WHERE THE DATE OF ISSUE OF A REFERENCED STANDARD IS NOT SPECIFIED, COMPLY WITH THE STANDARD IN EFFECT AS OF DATE OF CONTRACT DOCUMENTS.

ABBREVIATIONS AND NAMES: TRADE ASSOCIATION NAMES AND TITLES OF GENERAL STANDARDS ARE FREQUENTLY ABBREVIATED. THE FOLLOWING ACRONYMS OR ABBREVIATIONS AS REFERENCED IN CONTRACT DOCUMENTS ARE DEFINED TO MEAN THE ASSOCIATED NAMES. NAMES AND ADDRESSES ARE SUBJECT TO CHANGE AND ARE BELIEVED TO BE BUT ARE NOT ASSURED TO BE ACCURATE AND UP TO DATE AS OF DATE OF CONTRACT DOCUMENTS.

AGA - AMERICAN GAS ASSOCIATION
ANSI - AMERICAN NATIONAL STANDARDS INSTITUTE
ARI - AIR CONDITIONING AND REFRIGERATION INSTITUTE
ASHRAE - AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR CONDITIONING ENGINEERS
ASME - AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASSE - AMERICAN SOCIETY OF SANITARY ENGINEERING
ASTM - AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS - AMERICAN WELDING SOCIETY
AWWA - AMERICAN WATER WORKS ASSOCIATION
CISPI - CAST IRON SOIL PIPE INSTITUTE
NEC - NATIONAL ELECTRIC CODE
NFPA - NATIONAL FIRE PROTECTION ASSOCIATION
NSF - NATIONAL SANITATION FOUNDATION
PDI - PLUMBING AND DRAINAGE INSTITUTE
UL - UNDERWRITERS LABORATORIES
DOT - DEPARTMENT OF TRANSPORTATION
EPA - ENVIRONMENTAL PROTECTION AGENCY
OSHA - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

1.3 SUBMITTALS

PRIOR TO THE PERFORMANCE OF ANY WORK OR INSTALLATION OF ANY MATERIALS, OBTAIN APPROVAL FROM THE ARCHITECT BY SUBMITTING SHOP DRAWINGS AND DATA SHEETS.

SUBMITTAL OF SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES WILL BE ACCEPTED ONLY WHEN SUBMITTED BY THE GENERAL CONTRACTOR. DATA SUBMITTED FROM SUBCONTRACTORS AND MATERIAL SUPPLIERS DIRECTLY TO THE ARCHITECT WILL NOT BE PROCESSED. CERTIFIED DRAWINGS AND CATALOG DATA SHEETS SHALL SHOW:
1. SPECIFICALLY WHAT ITEMS AND FEATURES ARE TO BE PROVIDED.
2. APPLICABLE SPECIFICATION SECTION NUMBER AND EQUIPMENT TAG NUMBER.
3. PRINCIPAL DIMENSIONS AND DETAILS OF CONSTRUCTION.
4. WEIGHTS: INFORMATION REQUIRED FOR THE DESIGN OF SUPPORTS AND FOUNDATIONS.
5. SIZES AND LOCATIONS OF PIPING AND CONNECTIONS.
6. PERFORMANCE DATA CERTIFIED BY THE MANUFACTURER.
7. SUBMIT SCHEDULE OF PROPOSED PIPING, VALVES, SPECIALTIES, ETC.
8. ANY DEVIATIONS FROM THE CONTRACT DOCUMENTS SHALL BE SEPERATLY IDENTIFIED.

PLUMBING SUBMITTALS SHALL BE PROVIDED FOR THE FOLLOWING ITEMS:
1. PIPING AND FITTING MATERIALS.
2. PLUMBING VALVES AND SPECIALTIES.
3. PIPING HANGER AND ATTACHMENT ASSEMBLIES.
4. PIPING INSULATION.
5. ALL SCHEDULED PLUMBING FIXTURES, DRAINS, AND CLEANOUTS.
6. UTILITY CONNECTION DETAILS REQUIRED BY AUTHORITIES HAVING JURISDICTION.

APPROVAL OF SHOP DRAWINGS DOES NOT RELEASE RESPONSIBILITY OF COORDINATING HIS WORK AT JOBSITE AND TAKING FIELD MEASUREMENTS. IN CASES WHERE INTERFERENCES BECOME APPARENT, NOTIFY ARCHITECT SO THAT SUCH INTERFERENCES MAY BE RESOLVED PRIOR TO PROCEEDING WITH SHOP WORK. NO CLAIM WILL BE ALLOWED FOR WORK THAT MIGHT HAVE TO BE MOVED OR REPLACED BASED ON A CLAIM THAT WORK WAS PLACED IN ACCORDANCE WITH DIMENSIONS INDICATED ON AN APPROVED SHOP DRAWING.

1.4 COORDINATION

COORDINATE WITH THE BUILDING TRADES:
1. STRUCTURAL MEMBERS, PADS, AND BUILDING OPENINGS FOR FIXTURES, EQUIPMENT, PIPING, ETC., FOR USE BY THIS INDICATED ON THE ARCHITECTURAL AND STRUCTURAL PLANS ARE THE COORDINATION RESPONSIBILITY OF THIS INSTALLER. PAY FOR ANY CHANGES IN THE ABOVE REQUIREMENTS AFTER LETTING AND ACCEPTING THE CONTRACT.
2. THE DRAWINGS SHOW THE GENERAL ARRANGEMENT, DIRECTIONS AND SIZES OF EQUIPMENT, PIPING, ETC. IT IS NOT INTENDED TO SHOW EVERY OFFSET AND FITTING OF EVERY SITE DIFFICULTY THAT MAY BE ENCOUNTERED. PROVIDE ALL MATERIALS AND PERFORM ALL LABOR NECESSARY TO MAKE COMPLETE WORKING SYSTEMS, READY FOR USE, WITHOUT EXTRA CHARGE. ALL MEASUREMENTS MUST BE VERIFIED ON THE JOBSITE.
3. EXAMINE THE SITE AND ALL DRAWINGS BEFORE PROCEEDING WITH THE LAYOUT AND INSTALLATION OF THIS TO SUIT ACTUAL CONDITIONS. CONFER AND COOPERATE WITH OTHER TRADES ON THE JOB SO THAT ALL WORK WILL BE INSTALLED IN PROPER RELATIONSHIP. COORDINATE PRECISE LOCATION OF PARTS WITH OTHER WORK. ALL SYSTEMS SHALL BE INSTALLED TO PROVIDE MAXIMUM HEADROOM, EXCEPT WHERE DIMENSIONED OTHERWISE ON THE DRAWINGS.

1.5 RECORD DOCUMENTS

RECORD DRAWINGS: MAINTAIN A CLEAN, UNDAMAGED SET OF PRINTS OF CONTRACT DRAWINGS AND SHOP DRAWINGS. MARK THE SET TO SHOW THE ACTUAL INSTALLATION WHERE THE INSTALLATION VARIES SUBSTANTIALLY FROM THE WORK AS ORIGINALLY SHOWN. MARK WHICHEVER DRAWING IS MOST CAPABLE OF SHOWING CONDITIONS FULLY AND ACCURATELY; WHERE SHOP DRAWINGS ARE USED, RECORD A CROSS-REFERENCE AT THE CORRESPONDING LOCATION ON THE CONTRACT DRAWINGS. GIVE PARTICULAR ATTENTION TO CONCEALED ELEMENTS THAT WOULD BE DIFFICULT TO MEASURE AND RECORD LATER.
1. MARK INFORMATION THAT IS IMPORTANT TO THE OWNER, BUT WAS NOT SHOWN ON CONTRACT DRAWINGS OR SHOP DRAWINGS.
2. ORGANIZE RECORD DRAWING SHEETS INTO MANAGEABLE SETS, BIND WITH DURABLE PAPER COVER SHEETS, AND PRINT SUITABLE TITLES, DATES AND OTHER IDENTIFICATION ON THE COVER OF EACH SET.
3. MAINS AND BRANCHES OF PIPING SYSTEMS, WITH VALVES AND CONTROL DEVICES LOCATED AND NUMBERED, CONCEALED UNIONS LOCATED, AND WITH ITEMS REQUIRING MAINTENANCE LOCATED (I.E., TRAPS, STRAINERS, EXPANSION COMPENSATORS, TANKS, ETC.).
4. EQUIPMENT LOCATIONS (EXPOSED AND CONCEALED), DIMENSIONED FROM AT LEAST TWO PROMINENT BUILDING LINES.
5. APPROVED SUBSTITUTIONS, CONTRACT MODIFICATIONS, AND ACTUAL EQUIPMENT AND MATERIALS INSTALLED.
6. INCLUDE ALL "CORRECTED FOR RECORD" SHOP DRAWINGS TO REFLECT APPROVALS RECEIVED.

1.6 MAINTENANCE MANUALS

ORGANIZE OPERATING AND MAINTENANCE DATA INTO SUITABLE SETS OF MANAGEABLE SIZE. BIND PROPERLY INDEXED DATA IN INDIVIDUAL HEAVY-DUTY 2-INCH, 3-RING VINYL-COVERED BINDERS, WITH POCKET FOLDERS FOR FOLDED SHEET INFORMATION. MARK APPROPRIATE IDENTIFICATION ON FRONT AND SPINE OF EACH BINDER. INCLUDE THE FOLLOWING TYPES OF INFORMATION:
1. COPIES OF WARRANTIES.
2. WIRING DIAGRAMS.
3. INSPECTION PROCEDURES.
4. APPROVED SHOP DRAWINGS AND PRODUCT DATA.
5. DESCRIPTION OF FUNCTION, NORMAL OPERATING CHARACTERISTICS AND LIMITATIONS, PERFORMANCE CURVES, ENGINEERING DATA AND TESTS, AND COMPLETE NOMENCLATURE AND COMMERCIAL NUMBERS OF REPLACEMENT PARTS.
6. MANUFACTURER'S PRINTED OPERATING PROCEDURES TO INCLUDE START-UP, BREAK-IN, AND ROUTINE AND NORMAL OPERATING INSTRUCTIONS; REGULATION, CONTROL, STOPPING, SHUTDOWN, AND EMERGENCY INSTRUCTIONS; AND SUMMER AND WINTER OPERATING INSTRUCTIONS.
7. MAINTENANCE PROCEDURES FOR ROUTINE PREVENTATIVE MAINTENANCE AND TROUBLESHOOTING; DISASSEMBLY, REPAIR, AND REASSEMBLY; ALIGNING AND ADJUSTING INSTRUCTIONS.
8. SERVICING INSTRUCTIONS AND LUBRICATION CHARTS AND SCHEDULES.

1.7 REGULATIONS AND PERMITS
PROVIDE NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES, AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES HAVING JURISDICTION.

PAY FOR AND OBTAIN ALL REQUIRED PERMITS & SCHEDULE INSPECTIONS IN A TIMELY MANNER AS TO NOT DELAY THE PROJECT. OBTAIN ALL NECESSARY PERMITS INCLUDING BUT NOT LIMITED TO ENTERING MANHOLES, USE OF WATER FROM LOW PRESSURE HYDRANTS, DEMOLITION AND NEW WORK, ETC. PRIOR TO COMMENCE OF WORK.

PART 2. - PRODUCTS

2.1 GENERAL PRODUCT REQUIREMENTS

ALL EQUIPMENT AND MATERIALS, EXCEPT AS OTHERWISE SPECIFIED, SHALL BE NEW, OF CURRENT PRODUCTION, FIRST QUALITY AND OF THE BEST OF EACH CLASS SPECIFIED. MATERIALS, PRODUCTS, AND EQUIPMENT SHALL BE DELIVERED TO JOBSITE WITH FACTORY PACKAGING BEARING MANUFACTURER'S NAME OR LABEL, AND UNION LABEL WHENEVER PRACTICAL.

PART 3. - EXECUTION

3.1 PLUMBING INSTALLATIONS
GENERAL: SEQUENCE, COORDINATE, AND INTEGRATE THE VARIOUS ELEMENTS OF PLUMBING SYSTEMS, MATERIALS, AND EQUIPMENT. COMPLY WITH THE FOLLOWING REQUIREMENTS:
1. COORDINATE SYSTEMS, EQUIPMENT, AND MATERIALS INSTALLATION WITH OTHER BUILDING COMPONENTS.
2. VERIFY ALL DIMENSIONS BY FIELD MEASUREMENTS.
3. ARRANGE FOR CHASES, SLOTS, AND OPENINGS IN OTHER BUILDING COMPONENTS DURING PROGRESS OF CONSTRUCTION, TO ALLOW FOR MECHANICAL INSTALLATIONS.
4. COORDINATE THE INSTALLATION OF REQUIRED SUPPORTING DEVICES AND SLEEVES TO BE SET IN POURED-IN-PLACE CONCRETE AND OTHER STRUCTURAL COMPONENTS, AS THEY ARE CONSTRUCTED.
5. INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT LEVEL AND PLUMB, PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS, WHERE INSTALLED EXPOSED IN FINISHED SPACES.
6. INSTALL EQUIPMENT TO FACILITATE SERVICING, MAINTENANCE, AND REPAIR OR REPLACEMENT OF EQUIPMENT COMPONENTS. AS MUCH AS PRACTICAL, CONNECT EQUIPMENT FOR EASE OF DISCONNECTING, WITH MINIMUM OF INTERFERENCE WITH OTHER INSTALLATIONS.
7. PROVIDE ACCESS PANELS OR DOORS WHERE UNITS ARE CONCEALED BEHIND FINISHED SURFACES.
8. COMPLY WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS, TO THE EXTENT THAT THOSE INSTRUCTIONS AND RECOMMENDATIONS ARE MORE EXPLICIT OR STRINGENT THAN REQUIREMENTS CONTAINED IN CONTRACT DOCUMENTS.
9. INSPECT MATERIALS OR EQUIPMENT IMMEDIATELY UPON DELIVERY AND AGAIN PRIOR TO INSTALLATION. REJECT DAMAGED AND DEFECTIVE ITEMS.

3.2 FINAL INSPECTION
PRIOR TO FINAL ACCEPTANCE, ALL SYSTEMS SHALL BE OPERATED TO TEST PERFORMANCE TO THE SATISFACTION OF THE ARCHITECT.
1. WATER SHALL CIRCULATE THROUGHOUT SYSTEMS WITHOUT NOISE, WATER HAMMER, LEAKS, TRAPPING, OR AIR-BINDING.
2. MOTORS AND OTHER EQUIPMENT SHALL OPERATE WITHOUT EXCESSIVE NOISE OR VIBRATION.
3. DRAINS SHALL FLOW FREELY, WITHOUT EXCESSIVE NOISE, LEAKS OR STOPPAGES.

CORRECT DEFECTS DEMONSTRATED BY INSPECTIONS AND TESTS TO THE SATISFACTION OF THE ARCHITECT.

3.3 CLEANING OF SYSTEMS AND PREMISES

ALL EQUIPMENT AND FIXTURES SHALL BE THOROUGHLY CLEANED OF DIRT AND DEBRIS AT THE COMPLETION OF THE PROJECT AND PRIOR TO ACCEPTANCE BY THE OWNER.

3.4 PROTECTION

GUARDS, BARRICADES, LIGHTS, SERVICES, ETC., NECESSARY FOR THE PROTECTION OF PERSONS AND PROPERTY SHALL BE FURNISHED AND MAINTAINED.

EXISTING WORK SUCH AS PAVEMENTS, LAWNS, SIDEWALKS, FLOORS, CURBS, AND OTHER STRUCTURES AND UTILITIES WHICH ARE DAMAGED OR DISTURBED DUE TO MAKING CONNECTIONS OR ANY PHASE OF OPERATIONS SHALL BE RESTORED TO THE SATISFACTION OF THE OWNER AND THE GOVERNING AUTHORITIES.

SCHEDULE OF WATER HEATER

DESIGNATION	NAME	LOCATION	DESCRIPTION
WH-1	HOT WATER HEATER	AS SHOWN	HTP COMBI-GAS FIRED WATER HEATER, MODEL EFTC-199, 95.7 AFUE, 120V/1ø, 4.8 GPM DOMESTIC OUTPUT.

FIRE SAFE THROUGH WOOD FLOORS

TYPE	SIZE	HILTI	MATERIAL	RATING	BOTTOM	TOP	CHASE WALL
STEEL/CAST COPPER/EMT	MAX 4"	FS-ONE	INTUMESCENT SEALANT	2HRS	FIRE STOP	FIRE STOP	REQUIRED
STEEL/CAST 4" EMT/ 2" FLEX	MAX 6" -	FS-ONE	INTUMESCENT SEALANT	2HRS	FIRE STOP	FIRE STOP	NOT REQUIRED
STEEL/CAST COPPER/EMT	MAX 4"	CP-620	FIRE FOAM	1HRS	FIRE STOP	FIRE STOP	REQUIRED
PEX	MAX 1"	CP 645	INTUMESCENT STRIP W/COLLAR	1HRS	BOTH SIDES	BOTH SIDES	NOT REQUIRED
PVC PIPE	MAX 2"	FS-ONE	INTUMESCENT SEALANT	1HRS	FIRE STOP	FIRE STOP	NOT REQUIRED
PVC PIPE	MAX 4"	FS-ONE	INTUMESCENT SEALANT	2HRS	FIRE STOP	FIRE STOP	REQUIRED
PVC PIPE	MAX 4"	CP 645	INTUMESCENT STRIP W/COLLAR	1HRS	COLLAR	FIRE STOP	NOT REQUIRED
REFRIGERANT	-	FS-ONE	INTUMESCENT SEALANT -	1HRS	FIRE STOP	FIRE STOP	NOT REQUIRED
4" DUCT	MAX 4"	FS-ONE	INTUMESCENT SEALANT -	1HRS	FIRE STOP	FIRE STOP	NOT REQUIRED
INSULATED COPPER/STEEL	MAX 2"	FS-ONE	INTUMESCENT SEALANT -	1HRS	FIRE STOP	FIRE STOP	NOT REQUIRED
CABLES	MAX 2"	FS-ONE	INTUMESCENT SEALANT -	1HRS	FIRE STOP	FIRE STOP	NOT REQUIRED

EJECTOR PUMP SCHEDULE

EJECTOR PUMP	EP-1	PROVIDE SIMPLEX SEWAGE EJECTOR SYSTEM. PUMPS SHALL BE ZOELLER N274, 20 GPM @ 20 FT HEAD, 1 HP, 208V/1ø, POWER CORD,18"ø x 30" DEEP POLYPROPYLENE BASIN (3"INLET, (2)2"DISCHARGE, 2"VENT). PROVIDE WITH SIMPLEX PUMP CONTROL WITH NEMA 4X ENCLOSURE, PUMP ALTERNATOR, TWO SENSORS AND ONE ALARM FLOAT, VISUAL AND AUDIBLE ALARM WITH SILENCE SWITCH.

1. GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND GENERAL REQUIREMENTS, APPLY TO WORK SPECIFIED ON THESE DRAWINGS.
2. COORDINATE WORK WITH THAT OF OTHER TRADES AFFECTING OR AFFECTED BY WORK OF THIS SECTION AND COOPERATE WITH SUCH TRADES TO ASSURE THE STEADY PROGRESS OF THE WORK.
3. ALL WORK AND MATERIALS SHALL COMPLY WITH THE MASSACHUSETTS STATE PLUMBING AND GAS CODES AND THE CITY OF BOSTON, MA.
4. FURNISH AND INSTALL A COMPLETE, SANITARY DRAINAGE AND VENT SYSTEM THROUGHOUT THE BUILDING FOR CONNECTION TO EVERY FIXTURE OR PIECE OF EQUIPMENT REQUIRING DRAINAGE. THE NEW WORK SHALL EXTEND AND CONNECT TO THE EXTERIOR SANITARY SYSTEM AS INDICATED.
5. FURNISH AND INSTALL A COMPLETE HOT WATER AND COLD WATER SYSTEM THROUGHOUT THE BUILDING, CONNECTING TO ALL FIXTURES AND EQUIPMENT REQUIRING HOT AND/OR COLD WATER. THE COLD WATER SYSTEM WORK SHALL EXTEND AND CONNECT TO THE EXTERIOR COLD WATER SYSTEM AS INDICATED. THE HOT WATER SYSTEM WORK SHALL BEGIN AT EACH NEW WATER HEATER WHERE INDICATED.
6. FURNISH AND INSTALL A COMPLETE GAS SYSTEM THROUGHOUT THE BUILDING, CONNECTING TO ALL EQUIPMENT REQUIRING GAS. THE GAS SYSTEM WORK SHALL EXTEND AND CONNECT TO THE GAS METERS SUPPLIED BY GAS COMPANY.
7. FURNISH TO OWNER A WRITTEN GUARANTEE OF THE GENERAL CONTRACTOR AND THIS SUBCONTRACTOR JOINTLY AND SEVERALLY, AGAINST ANY DEFECTS IN MATERIALS AND WORKMANSHIP IN WORK OF THIS SECTION FOR A PERIOD OF ONE YEAR FROM DATE OF SUBSTANTIAL COMPLETION.
8. SUBMIT SHOP DRAWINGS ON PLUMBING FIXTURES AND VALVES SPECIFIED.
9. FURNISH AND INSTALL ALL PIPE OPENINGS, PIPE HANGERS AND HANGER RODS, AND FIXTURE SUPPORTS. PROPERLY SECURE HANGER RODS TO BUILDING STRUCTURE. SEAL ALL PIPE OPENINGS THROUGH FLOORS AND ROOF WATER TIGHT.
10. BURIED STORM, SANITARY AND VENT PIPING SHALL BE CAST IRON PIPE AND DRAINAGE FITTINGS. ABOVE GROUND SANITARY AND VENT PIPING SHALL BE CAST IRON PIPE AND DRAINAGE FITTINGS/PVC SCHED. 40 SOLID. PROVIDE FIRE STOPPING AND SHEET METAL SLEEVES AS REQUIRED BY CODE WHERE ALL PVC PIPING PASSES THROUGH FIRE RATED WALLS AND FLOORS.
11. HOT AND COLD WATER PIPING SHALL BE TYPE L SEAMLESS COPPER TUBING AND FITTINGS WITH 95-5 SOLDER JOINTS, FLOWGUARD PIPING SYSTEM, SEEK APPROVAL FROM ARCHITECT AND BUILDING OWNER REPRESENTATIVE BEFORE SUBMITTING FOR APPROVAL TO ENGINEER. ALL PIPING SHALL BE INSULATED AND MARKED AS HOT WATER (HW) OR COLD WATER (CW)
12. GAS PIPING SHALL BE SCHEDULE 40 STEEL WITH MALLEABLE IRON FITTINGS AND THREADED JOINTS.
13. VALVES FOR HOT AND COLD WATER SHALL BE GATE VALVE, BRONZE BODY AND TRIM, NON-RISING STEM, 200 PSIG, SOLDER END, SIMILAR TO JENKINS 1240 OR APPROVED EQUAL. VALVES FOR GAS SHALL BE IRON BODY, PLUG TYPE, WITH SQUARE KEY AND THREADED ENDS.
14. COLD WATER AND HOT WATER PIPING INSULATION SHALL BE 1/2" THICK, WITH FACTORY APPLIED FIBERGLASS CLOTH WITH INTEGRAL VAPOR BARRIER AND SELF-SEALING LAP. FITTINGS AND VALVES SHALL BE COVERERD WITH PRE-CUT FIBERGLASS INSERTS AND FITTED WITH MOULDED PVC COVERS, SECURED WITH GLASS FABRIC TAPE WITH MASTIC. INSULATION SHALL BE FIBERGLASS 25 ASJ OR EQUAL, AND SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS TO CONFORM TO THE AUL NON-COMBUSTIBLE RATING.
15. PLUMBING FIXTURES: (TO BE APPROVED BY BUILDING OWNER REPRESENTATIVE BEFORE SUBMISSION FOR APPROVAL TO ENGINEER)
16. WH - WALL HYDRANT - WOODFORD MODEL 25 FREEZE RESISTANT, WITH INTEGRAL VACUUM BREAKER. (PROVIDE EVERY 150', WHERE DIRECTED BY BUILDING OWNER)
17. WATER HEATERS - FURNISH AND INSTALL WATER HEATERS WHERE INDICATED. (TO BE APPROVED BY BUILDING OWNER REPRESENTATIVE BEFORE SUBMISSION FOR APPROVAL TO ENGINEER)
18. TEST ALL NEW PLUMBING WORK IN ACCORDANCE WITH PLUMBING CODE REQUIREMENTS.
19. PROVIDE HEAT TRACE ON ALL TRAPS LOCATED IN GARAGE, COLD WATER PIPING LOCATED IN GARAGE, AND ANY PIPING SUBJECT TO FREEZING.

GENERAL NOTES | NTS

GENERAL NOTES

1) FOR EXACT LOCATION OF PLUMBING FIXTURES SEE ARCHITECTURAL DRAWINGS.
2) EXAMINE ALL CONTRACT DRAWINGS, GERNERAL CONDITIONS AND SPECIFICATIONS WHICH MAY AFFECT THE WORK.
3) ALL PLUMBING WORK MUST BE COORDINATED WITH ALL OTHER TRADES BEFORE PROCEEDING WITH INSTALLATION.
4) CHECK INVERT ELEVATIONS AND EXACT LOCATIONS OF ALL OUTSIDE UTILITIES BEFORE INSTALLING ANY UNDERGROUND.
5) NO CHANGES ARE TO BE MADE IN PLUMBING LAYOUT WITHOUT WRITTEN PERMISSION OF THE ARCHITECT.
6) NO PIPING SHALL RUN EXPOSED IN FINISHED AREAS.
7) ALL PLUMBING SYSTEM SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE LOCAL AND STATE PLUMBING CODES.
8) ROUGHING DIMENSIONS OF TOILET FIXTURES MUST BE COORDINATED WITH GENERAL CONTRACTOR.
9) INSTALL ALL HOT AND COLD WATER PIPING AS PER SPECIFICATIONS.
10) INSTALL SHUTOFF GATE VALVES ON ALL BRANCH SUPPLY LINES AND AT THE BASE OF HOT AND COLD WATER RISERS.
11) PLUMBING CONTRACT SHALL REQUIRES PANELS TO ACCESS THE CONCEALED PLUMBING CLEANOUTS, DRAINS, DEVICES AND CONTROLS. ACCESS PANELS SHALL BE FIRE RATED TO MATCH THE PENETRATING PARTITION OR CEILING TYPE. GENERAL CONTRACTOR SHALL INSTALL THE ACCESS PANELS.
12) INSTALL ALL FLOOR CLEANOUTS TO CLEAR EQUIPMENT.
13) PLUMBING CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES AND CHARGES IN CONNECTION WITH THE WORK.
14) PLUMBING CONTRACTOR SHALL PROVIDE WATERTIGHT SLEEVES FOR ALL PIPES PASSING THRU BASEMENT WALLS.
15) INSTALL CLEANOUTS AT THE BASE OF ALL SANITARY STACKS.
16) INSTALL ALL HORIZONTAL RUNS OF PIPING AS HIGH AS POSSIBLE, PITCH ALL WATER PIPING TO DRAIN, DRAW OFFS AT ALL POINTS.
17) PLUMBING CONTRACTOR SHALL MAKE ALL FINAL CONNECTIONS TO OUTSIDE UTILITIES.
18) FOR PIPE SIZES NOT SHOWN ON PLANS SEE DETAILS & RISER DIAGRAMS.

GENERAL NOTES

NOTE FOLLOWING LINE ITEMS ARE LISTED FOR QUALITY PURPOSES AND APPLICABLE WHERE COMPONENTS PRESENT IN THE PROJECT.

REGARDLESS HOW THE DETAILS ARE SHOWN, CONTRACTOR SHALL FOLLOW MANUFACTURER'S INSTALLATION RECOMMENDATIONS.

CONTRACTOR SHALL PAY ATTENTION TO GAS FIRED EQUIPMENT DISCHARGE LOCATIONS RELATIVE TO AIR INTAKES BEFORE ANY INSTALLATION AND MAINTAIN CODE REQUIRED OR MANUFACTURER REQUIRED CLEARANCES.

1-ALL HOT WATER PIPING IN RECIRCULATION TYPE SYSTEMS SHALL BE INSULATED, INCLUDING TAKE OFFS FROM RE-CIRCULATION LINE.
ALL HORIZONTAL COLD WATER MAINS OR BRANCH LINES ABOVE CEILINGS SHALL BE INSULATED.
ALL HORIZONTAL STORM DRAINS SHALL BE INSULATED. INSULATE 3 FT PIPING ABOVE AND BELOW THE OFFSET. INSULATE ROOF DRAIN BODIES UNDER DECK AND 3 FT PIPING IF NO OFFSET.

2-HOT WATER PIPING IN SYSTEMS WITHOUT RECIRCULATION SHALL BE FULLY INSULATED TO MAINTAIN TEMPERATURE (IECC 2014)

3-ALL TRAPS SHALL HAVE CLEAN OUTS

4-ALL COMMON AREA FAUCETS SHALL HAVE POINT OF USE MIXING VALVES, ZURN LEAD FREE SERIES LFUSG-B OR EQUAL

5-ALL ADA SINKS AND LAVATORIES SHALL HAVE LAVGUARD PROTECTION COVERS, COMPLETE

6-ALL FIXTURES SHALL HAVE MULTI TURN LEAD FREE WATER STOPS AS MANUFACTURED BY ZURN LF SERIES.

7-ALL PREFABRICATED SHOWERS AND TUB SURROUNDS SHALL HAVE BUILT IN GRAB BAR RE-INFORCEMENTS, OR

8-WALLS BEHIND THE WATER CLOSETS, TUBS, SHOWERS SHALL BE RE-INFORCED FOR FUTURE GRAB BAR INSTALLATION

9-ALL KITCHEN SINKS SHALL HAVE 30" CLEAR KNEE SPACE UNDER

10-IN ALL ELEVATOR BUILDINGS OR GROUP 2 UNITS, SINKS SHALL BE NO DEEPER THAN 6 ½"

11-WATER CLOSET CONTROLS FOR ADA UNITS SHALL BE ON THE ACCESSIBLE SIDE

12-GROUP 2 TUBS SHALL BE 60" LONG WITH RIM 16-18" AFF.

13-FOR GROUP 2 APARTMENTS, ALL TUBS AND SHOWERS SHALL HAVE HOT/COLD WATER PIPING CAPPED BEHIND TO LONGER DIMENSION OF THE STALL

14-A HAND HELD SHOWER HEAD WITH FLOW REGULATOR ATTACHED TO 60" LONG FLEXIBLE HOSE AND AN ADJUSTABLE MOUNTING BAR SHALL BE PROVIDED OR BE CAPABLE OF BEING INSTALLED ON THE LONG WALL OF THE TUB.

15-ALL VENT THROUGH THE ROOF LOCATIONS SHALL BE FIELD COORDINATED WITH HVAC EQUIPMENT INTAKES AND IF NECESSARY SHALL BE EXTENDED 3FT ABOVE THE EQUIPMENT WITHIN 10FT OF THE VENT.

16-ALL FLOOR DRAINS SHALL HAVE TRAP PRIMERS.

17-ALL PUBLIC TOILETS SHALL HAVE HOSE BIBS AND FLOOR DRAINS, FLOOR DRAINS SHALL BE WITHIN 3FT OF THE URINALS.

18-ALL FLOOR PENETRATIONS SHALL BE FIRE RATED WITH FIRE STOP MATERIAL OR INTUMESCENT TYPE COLLARS AS REQUIRED.

19-UNLESS NOTED OTHERWISE PVC MAY BE USED FOR RESIDENTIAL TYPE BUILDINGS UP TO TEN FLOORS FOR DRAINAGE. CPVC MAY BE USED FOR DOMESTIC HOT/COLD WATER IN RESIDENTIAL TYPE BUILDINGS UP TO 60 FT, OR 6 STORY BUILDINGS. PROVIDE SOUND INSULATION ON ALL PVC VERTICAL DRAIN LINES

20-PROVIDE DRAIN PAN FOR ALL STORAGE TYPE WATER HEATERS AND WASHING MACHINES W/DRAINS CONNECTED TO SEWER DRAIN, PROVIDE TRAP PRIMERS..

21-PROVIDE COMPLETE PIPING FOR DISHWASHER AND DISPOSAL CONNECTIONS, OBSERVE CLEARANCE REQUIREMENTS UNDER KITCHEN SINKS.

22-ALL DRAINS LOCATED BELOW THE STREET GRADE SHALL HAVE LOCAL OR CENTRAL TYPE BACK WATER VALVES. DRAINS FROM UPPER FLOORS WILL CONNECT AT EXIT

23-ALL PLUMBING FIXTURES SHALL BE APPROVED TYPE IN THE STATE OF PROJECT BEING USED, SPECIFICATIONS ARE FOR QUALITY, LOOK AND PERFORMANCE PURPOSES ONLY. IF SPECIFIED EQUIPMENT IS NOT THE APPROVED TYPE. CONTRACTOR SHALL PROVIDE SIMILAR APPROVED FIXTURE.

24-ALL FLOOR DRAINS IN BOILER ROOMS SHALL BE COORDINATED WITH BOILER PLACEMENTS SO THAT CONDENSATE DRAINS WILL BE DRAINED TO FLOOR DRAIN.

25-ALL PENETRATIONS THROUGH FIRE RATED WALLS AND CEILINGS SHALL BE FIRE SAFED.
USE FIRE PUDDY WITH FIRE WOOL FILLING FOR 2" AND SMALL PIPES,
USE INTUMESCENT COLLAR FOR LARGER PIPES.

26-ALL LAUNDRY DRAINS FOR BUILDINGS 4 STORIES AND HIGHER SHALL HAVE DEDICATED DRAIN LINES CONNECTED TO SEWER LINES AT BUILDING DISCHARGE.

27-ALL BASEMENT DRAINS WILL HAVE BACK WATER VALVES AND AND UPPER FLOORS WILL BE CONNECTED TO SEWER DISCHARGE SEPERATELY FROM BASEMENT DRAIN

28- PROVIDE BALL TYPE SHUT OFF VALVES FOR ALL RIZERS AND WATER BRANCHES OFF THE MAIN PIPES. RISERS SHALL HAVE DRAIN VALVES WITH CAP AND CHAIN

KRONOS COMPANIES

EFFICIENCY
ACCURACY
TECHNOLOGY

KRONOS CO. 235 MARGINAL ST CHELSEA MA 02150

Notes:

2. WORK TO FIGURED DIMENSIONS ONLY.

3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S, SERVICE ENGINEER'S AND KRONOS CO. DRAWINGS AND SPECIFICATIONS.

ENGINEERING STAMP:

COMMONWEALTH OF MASSACHUSETTS
JASON M.C KAHAN
No. 48388
REGISTERED PROFESSIONAL ENGINEER

2/02/22

PROPOSED 4-STORY MUTI FAMILY

254 PARIS STREET EAST BOSTON, MA

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS:

CLIENT:

ENGINEER:

SITE: 254 PARIS STREET EAST BOSTON, MA

TITLE: PLUMBING NOTES

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
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PROJECT NO:	DRAWING NO:	REVISION:
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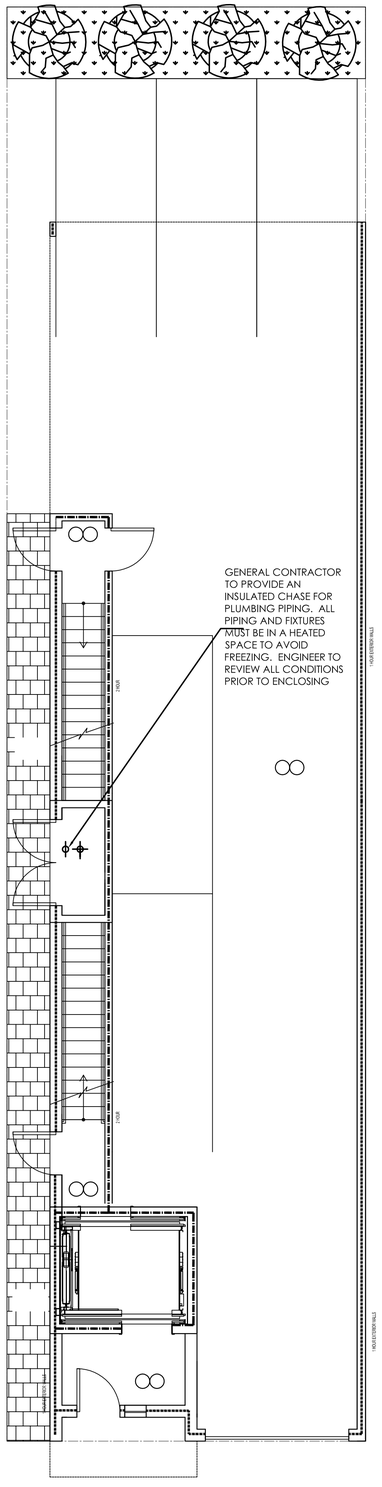
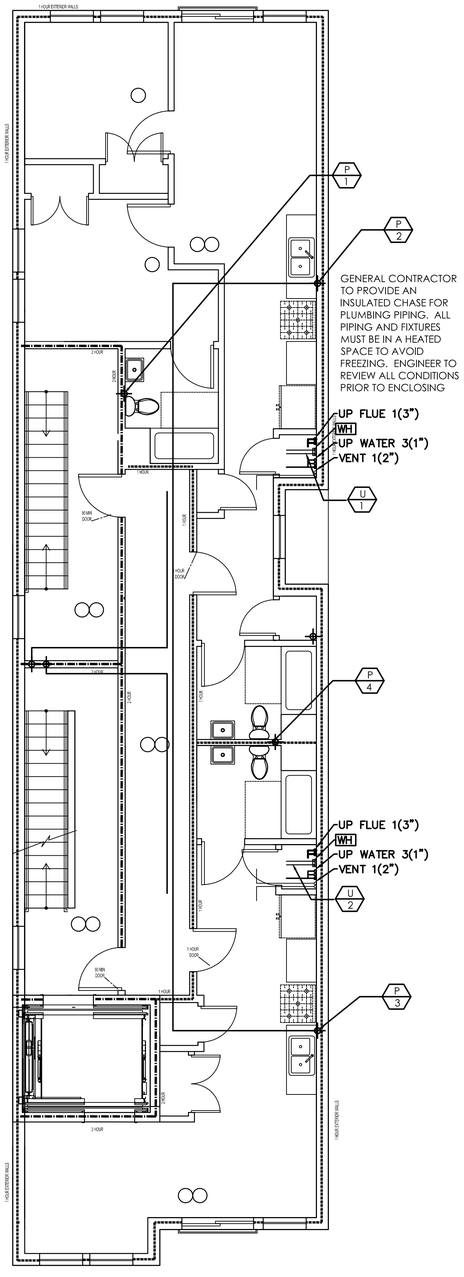


1 FIRST FLOOR PLUMBING PLAN



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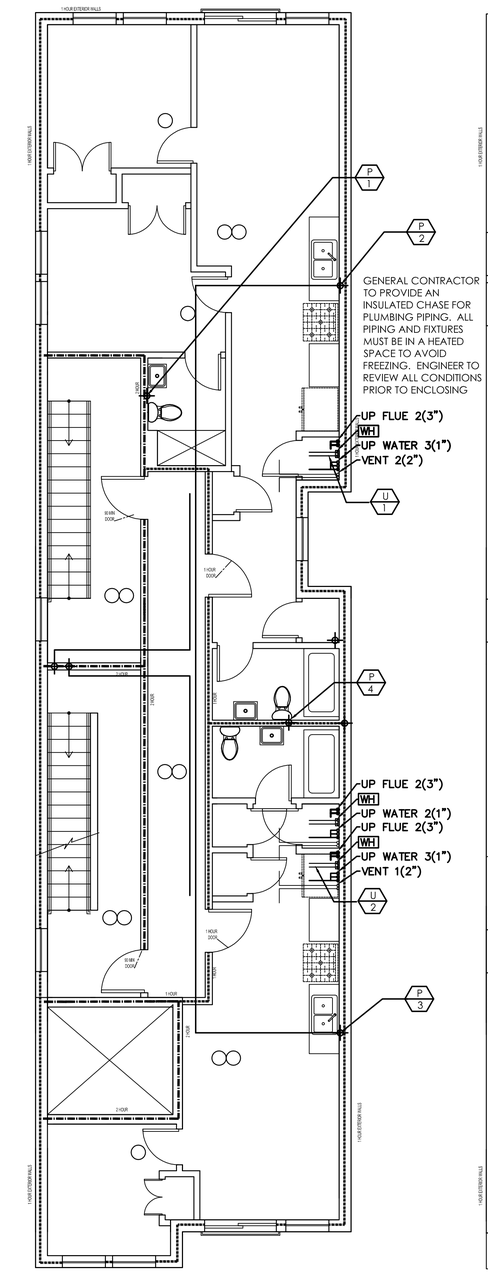
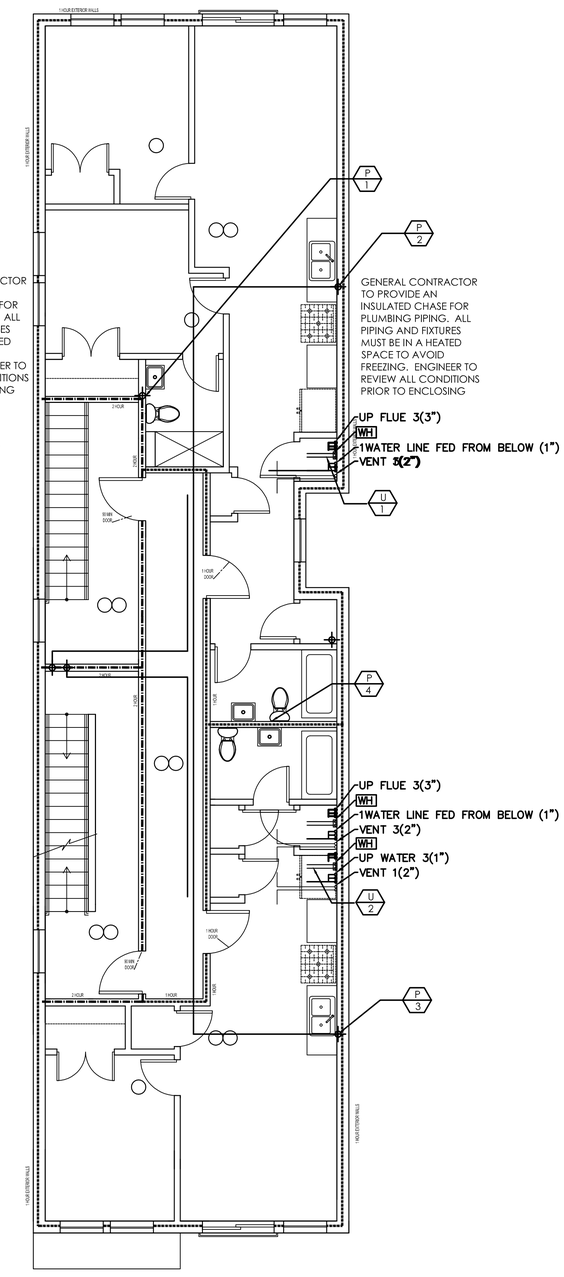


1 THIRD FLOOR PLUMBING PLAN



2 FOURTH FLOOR PLUMBING PLAN

EFFICIENCY
ACCURACY
TECHNOLOGY

KRONOS CO. 235 MARGINAL ST CHELSEA MA 02150

Notes:

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ENGINEERING STAMP:

COMMONWEALTH OF MASSACHUSETTS
JASON M.C KAHAN
No. 48388
REGISTERED PROFESSIONAL ENGINEER

2/02/22

PROPOSED 4-STORY MUTI FAMILY

254 PARIS STREET EAST BOSTON, MA

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
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STATUS: PERMIT SET

CLIENT:

ENGINEER: KRONOS COLLABORATIVE
235 CHELSEA ST.
CHELSEA, MA
02150

SITE: 254 PARIS STREET
EAST BOSTON, MA

TITLE: PLUMBING PLANS

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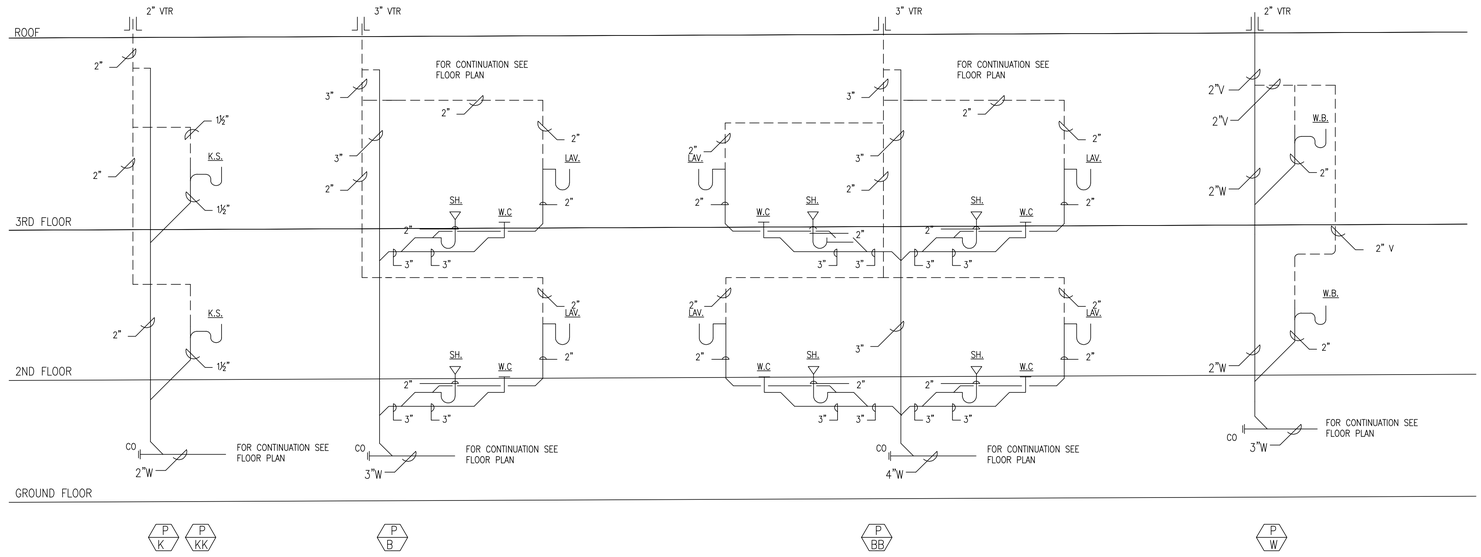
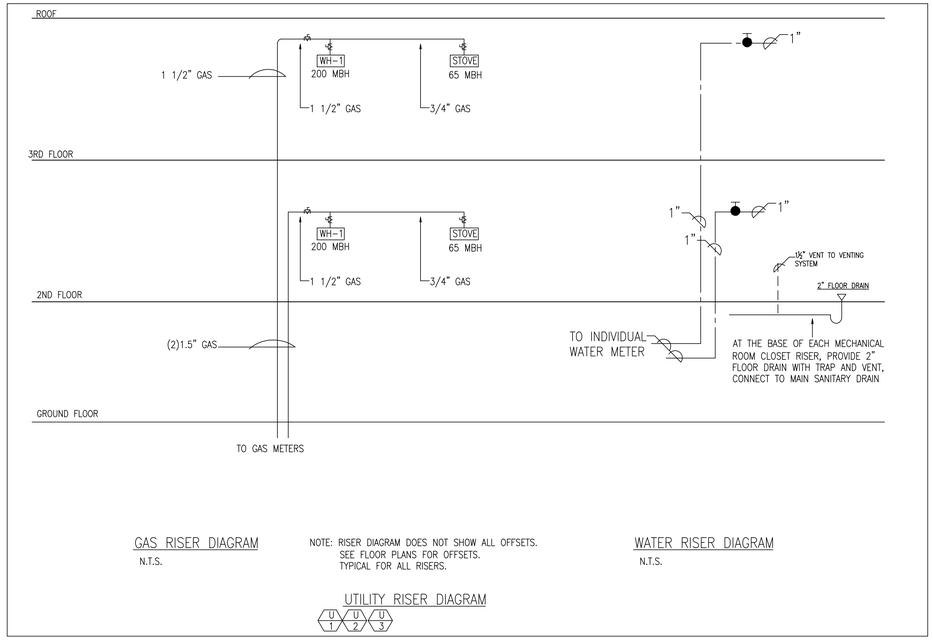


SANITARY RISER DIAGRAM

N.T.S.

NOTE: RISER DIAGRAM DOES NOT SHOW ALL OFFSETS.
SEE FLOOR PLANS FOR OFFSETS.
TYPICAL FOR ALL RISERS.



GAS RISER DIAGRAM

N.T.S.

NOTE: RISER DIAGRAM DOES NOT SHOW ALL OFFSETS.
SEE FLOOR PLANS FOR OFFSETS.
TYPICAL FOR ALL RISERS.

WATER RISER DIAGRAM

N.T.S.

UTILITY RISER DIAGRAM

U 1 U 2 U 3

EFFICIENCY
ACCURACY
TECHNOLOGY

KRONOS CO. 235 MARGINAL ST CHELSEA MA 02150

Notes:

2. WORK TO FIGURED DIMENSIONS ONLY.

3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, SERVICE ENGINEER'S AND KRONOS CO. DRAWINGS AND SPECIFICATIONS.

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2/02/22

PROPOSED 4-STORY MUTI FAMILY

254 PARIS STREET EAST BOSTON, MA

REV:	DESCRIPTION:	BY:	DATE:
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B			
A			

STATUS:

CLIENT:

ENGINEER:

SITE: 254 PARIS STREET EAST BOSTON, MA

TITLE: PLUMBING RISER DIAGRAM

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5"	3'-6"ø 3'-6"x3'-6" 4'-0"ø 4'-0"x4'-0" 4'-6"ø	5'-0" 5'-0" 3'-6" 3'-0" 3'-0"	4'-6" 4'-6" 3'-0" 2'-6" 2'-0"
6"	4'-0"ø 3'-0"x4'-0" 4'-6"ø 4'-6"x4'-6" 5'-0"ø 5'-0"x5'-0"	5'-0" 4'-0" 4'-0" 3'-6" 3'-0" 3'-0"	4'-6" 3'-6" 3'-6" 3'-0" 2'-6" 2'-6"
8"	5'-0"ø 5'-6"x5'-0" 6'-0"ø 6'-0"x5'-0" 6'-6"ø 6'-6"x6'-6"	6'-0" 4'-6" 4'-0" 3'-0" 3'-0" 3'-0"	5'-0" 4'-0" 3'-6" 2'-0" 3'-0" 2'-6"

NOTES:
- ALL INLET TRAPS TO BE PROVIDED IN ACCORDANCE WITH 248 CMR 10.00
- FOR INLETS LARGER THAN 10" THE DESIGN AND DIMENSIONS WILL BE DETERMINED FOR EACH PARTICULAR CASE.
- PRE-CAST SEPERATORS ARE TO HAVE ALL SPECIFIED HOLES EITHER CORE-BORED OR CAST IN PLACE.
- CIRCULAR BASINS ARE RECOMMENDED.

GENERAL CONSTRUCTION NOTES:

BASIN TO BE LOCATED OUTSIDE OF BUILDING WHERE POSSIBLE, COVER TO HAVE A CENTER HOLE.

A THIGHT COVER MUST BE USED IF BASIN IS LOCATED INSIDE OF BUILDING.

OPENING SHALL BE NOT LESS THAN 24" DIAMETR.

THE CATCH BASIN SHALL BE SO LOCATED AND CONSTRUCTED THAT SURFACE WATER SHALL BE EXLUDED.

INLET PIPE SHALL BE AT LEAST FOUR INCHES ABOVE NORMAL WATER LINE.

WHERE SUBJECT TO FROST OR CRUSHING CONDITIONS, OUTLET SHALL BE AT LEAST THREE FEET BELOW THE SURFACE.

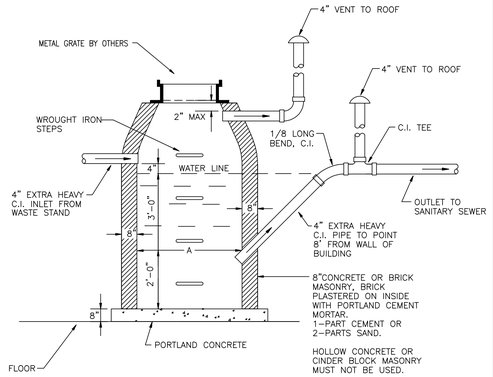
THE NEW CATCH BASIN MUST BE FILLED WITH CLEAN WATER BEFORE USING, AND AFTER BEING EMPTIED FOR PERIODIC CLEANING.

ALL OIL AND GASOLINE MUST BE REMOVED BEFORE CLEANING OUT THE BASIN AND MUST NOT BE DISCHARGED INTO THE SEWER THROUGH OTHER FIXTURES.

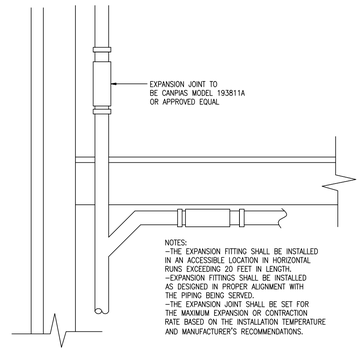
SPECIFICATIONS FOR COVERING SPECIAL CASES OR CONDITIONS SHALL BE APPROVED BY THE LOCAL AUTHORITIES.

WROUGHT IRON STEPS SHALL BE SPACED ABOUT 18" APART.

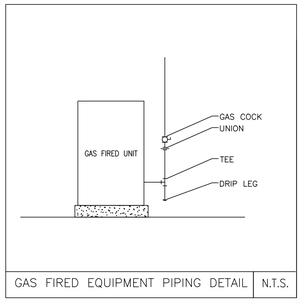
BOTH VENTS SHALL BE EXTENDED INDEPENDENTLY 18" ABOVE THE ROOF, OR AS APPROVED BY THE LOCAL AUTHORITIES.



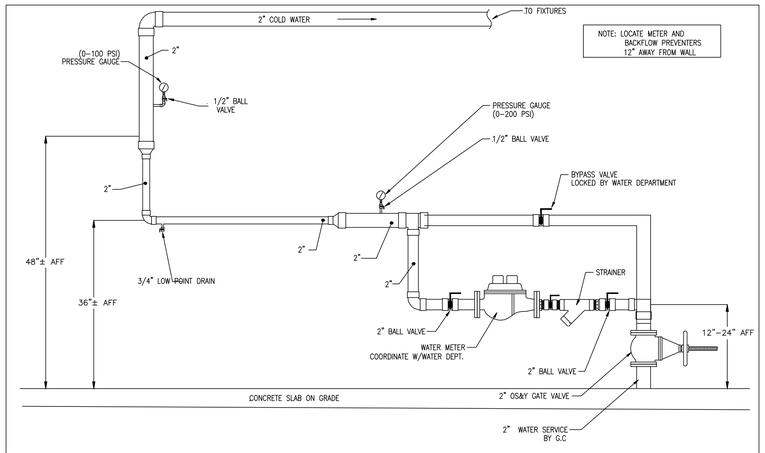
GASOLINE AND SAND TRAP — N.T.S.



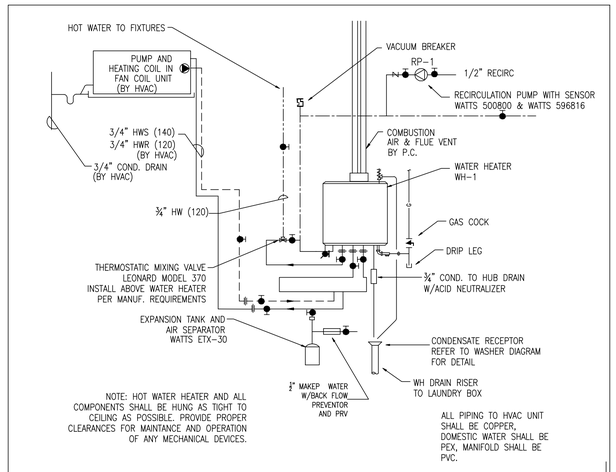
P.V.C. EXPANSION JOINT FITTING — N.T.S.



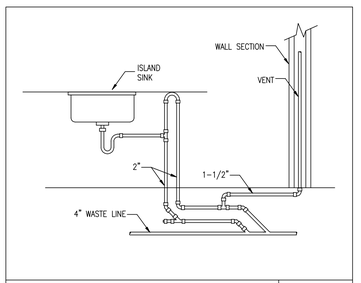
GAS FIRED EQUIPMENT PIPING DETAIL — N.T.S.



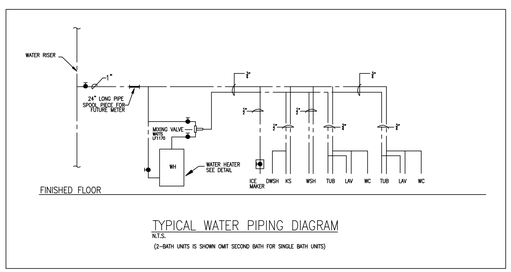
WATER METER DETAIL — N.T.S.



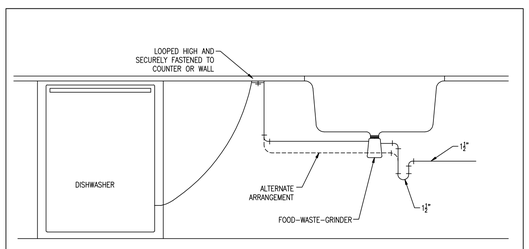
INSTANTANEOUS WATER HEATER DETAIL — N.T.S.



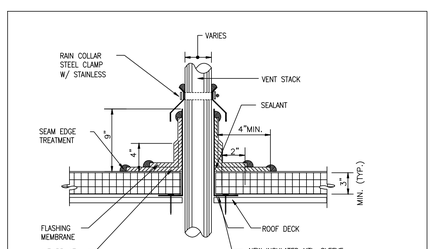
BOW VENT HORIZONTAL CONNECTION DETAIL — N.T.S.



TYPICAL WATER PIPING DIAGRAM
N.T.S.
(2-BATH UNITS IS SHOWN OMIT SECOND BATH FOR SINGLE BATH UNITS)



TYPICAL SINK DISHWASHER & FOOD WASTE GRINDER – DETAIL — N.T.S.



VENT TERMINAL — N.T.S.

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TECHNOLOGY

KRONOS CO. 235 MARGINAL ST CHELSEA MA 02150

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ENGINEERING STAMP:

COMMONWEALTH OF MASSACHUSETTS
JASON M.C. KAHAN
No. 48308
REGISTERED PROFESSIONAL ENGINEER

2/02/22

PROPOSED 4-STORY MUTI FAMILY

254 PARIS STREET EAST BOSTON, MA

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS:

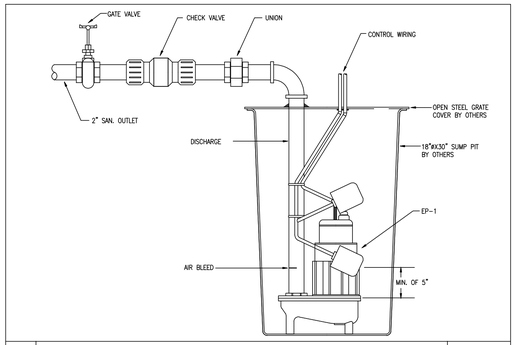
CLIENT:

ENGINEER:

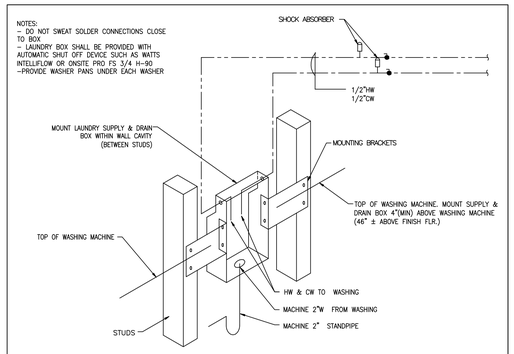
SITE: 254 PARIS STREET EAST BOSTON, MA

TITLE: PLUMBING DETAIL

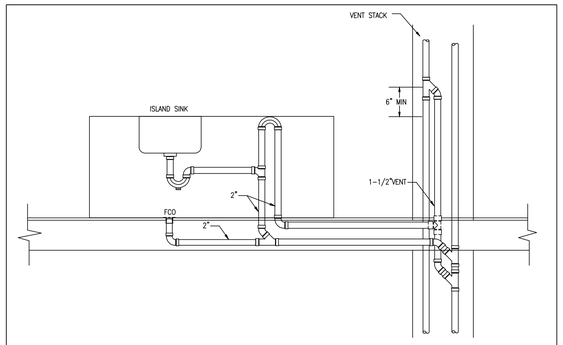
SCALE AT A1:	DATE:	DRAWN:	CHECKED:
3/16"=1'-0"	1/4/22		
PROJECT NO:	DRAWING NO:		REVISION:
---	P 1.03		---



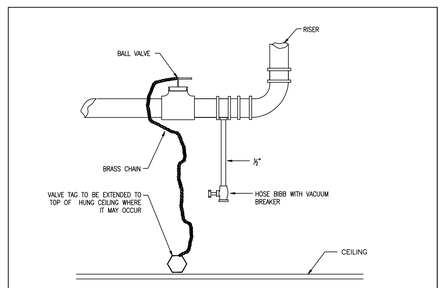
–	EJECTOR PUMP DETAIL	N.T.S.



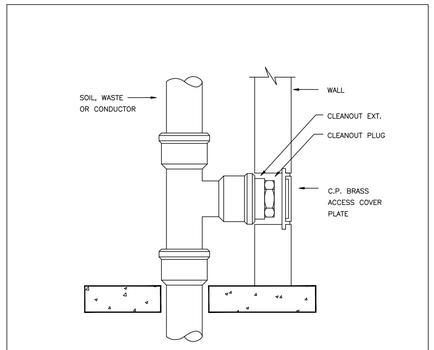
WASHING MACHINE CONNECTION	N.T.S.



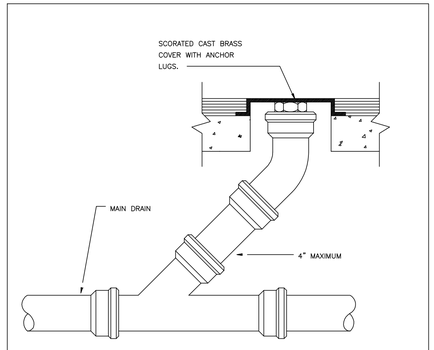
BOW VENT VERTICAL CONNECTION DETAIL	N.T.S.



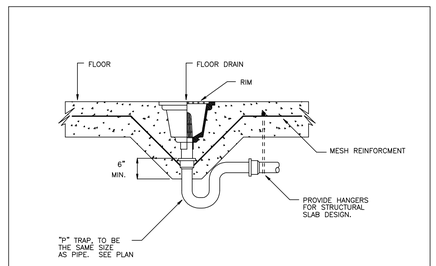
TYPICAL CONNECTION AT BASE OF WATER RISER	N.T.S.



FLUSH WALL CLEANOUT DETAIL	N.T.S.

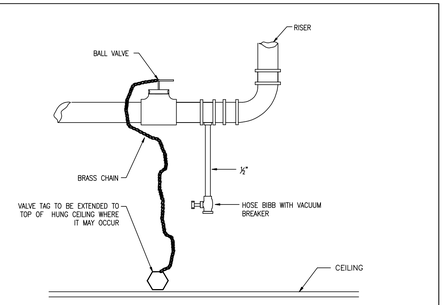


FLUSH FLOOR CLEANOUT DETAIL	N.T.S.

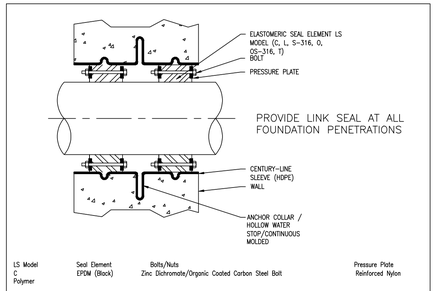


NOTE: CHECK TO SEE IF FLOOR AROUND DRAIN IS TO BE SLOPED OR FEATHERED.

FLOOR DRAIN DETAIL	N.T.S.



TYPICAL CONNECTION AT BASE OF WATER RISER	N.T.S.



LS Model	Seal Element	Bolts/Nuts	Pressure Plate
C Polymer	EPDM (Black)	Zinc Dichromate/Organic Coated Carbon Steel Bolt	Reinforced Nylon

Sleeve Model	Description	Material
CS	Century-Line Sleeve	HDPE

LINK SEAL DETAIL	N.T.S.

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ENGINEERING STAMP:

COMMONWEALTH OF MASSACHUSETTS
JASON M.C. KAHAN
No. 48388
REGISTERED PROFESSIONAL ENGINEER

2/02/22

PROPOSED 4-STORY MUTI FAMILY

254 PARIS STREET EAST BOSTON, MA

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS:

CLIENT:

ENGINEER:

SITE: 254 PARIS STREET EAST BOSTON, MA

TITLE: PLUMBING DETAIL

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
3/16"=1'-0"	1/4/22		

PROJECT NO:	DRAWING NO:	REVISION:
---	P 1.05	---

FIRE ALARM LEGEND

NOTIFICATION

- FIRE ALARM SYSTEM ADA TYPE 90db HORN/ STROBE UNIT, SEE MOUNTING DETAIL FOR HEIGHTS. 75cd - INDICATES CANDELA RATING (AS SHOWN ON DRAWINGS)
- FIRE ALARM SYSTEM ADA TYPE 15db STROBE ONLY UNIT, SEE MOUNTING DETAIL FOR HEIGHTS. 15cd - INDICATES CANDELA RATING (AS SHOWN ON DRAWINGS)
- FIRE ALARM SYSTEM ADA TYPE 90db LOW FREQUENCY (520Hz) TYPE MINI HORN UNIT, SEE MOUNTING DETAIL FOR HEIGHTS.
- FIRE ALARM SYSTEM WEATHER PROOF SPRINKLER FLOW ALARM BELL. SEE MOUNTING DETAIL FOR HEIGHTS.

INITIATING

- MANUAL PULL STATION, MOUNTED 48" ABOVE FINISHED FLOOR
- CEILING MOUNTED PHOTOELECTRIC, SYSTEM TYPE SMOKE DETECTOR
- AUTOMATIC HEAT DETECTOR 135 DEGREES FIXED TEMPERATURE WITH ZONE ADDRESSABLE MODULE.
- CEILING MOUNTED PHOTOELECTRIC, SYSTEM CARBON MONOXIDE (CO) DETECTOR.
- LOCAL 120 VOLT, TANDEM WIRED PHOTOELECTRIC SMOKE DETECTOR WITH INTEGRAL BATTERY BACK-UP
- LOCAL 120 VOLT, TANDEM WIRED COMBINATION OF PHOTOELECTRIC SMOKE/CARBON MONOXIDE DETECTOR WITH INTEGRAL BATTERY BACK-UP
- ADDRESSABLE MONITOR MODULE.

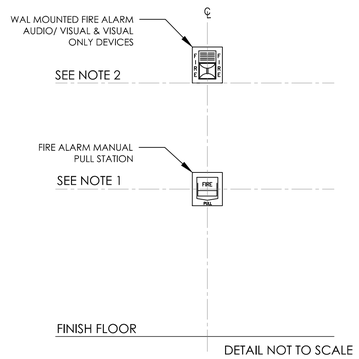
EQUIPMENT

- FACP — FIRE ALARM CONTROL PANEL. "FACP"
- FAA — FIRE ALARM ANNUNCIATOR. "FAA"
- FIRE ALARM WEATHERPROOF BEACON - FLASHING TYPE (NOT ROTATING)
- 24/IO HOUR BATTERY
- CC — IP/CELLULAR COMMUNICATOR
- FS — FIRE PROTECTION SYSTEM FLOW SWITCH, FURNISHED AND INSTALLED BY THE SPRINKLER CONTRACTOR, WIRED BY ELECTRICAL CONTRACTOR.
- TS — FIRE PROTECTION SYSTEM TAMPER SWITCH, FURNISHED AND INSTALLED BY THE SPRINKLER CONTRACTOR, WIRED BY ELECTRICAL CONTRACTOR.

WIRING

- 2/C#14 POWER LIMITED FIRE ALARM CABLE TYPE "FPLP" (INITIATING)
- 2/C#14 POWER LIMITED FIRE ALARM CABLE TYPE "FPLP" (NOTIFICATION)
- DENOTES WATERPROOF

FIRE ALARM DEVICE MOUNTING HEIGHT DETAIL



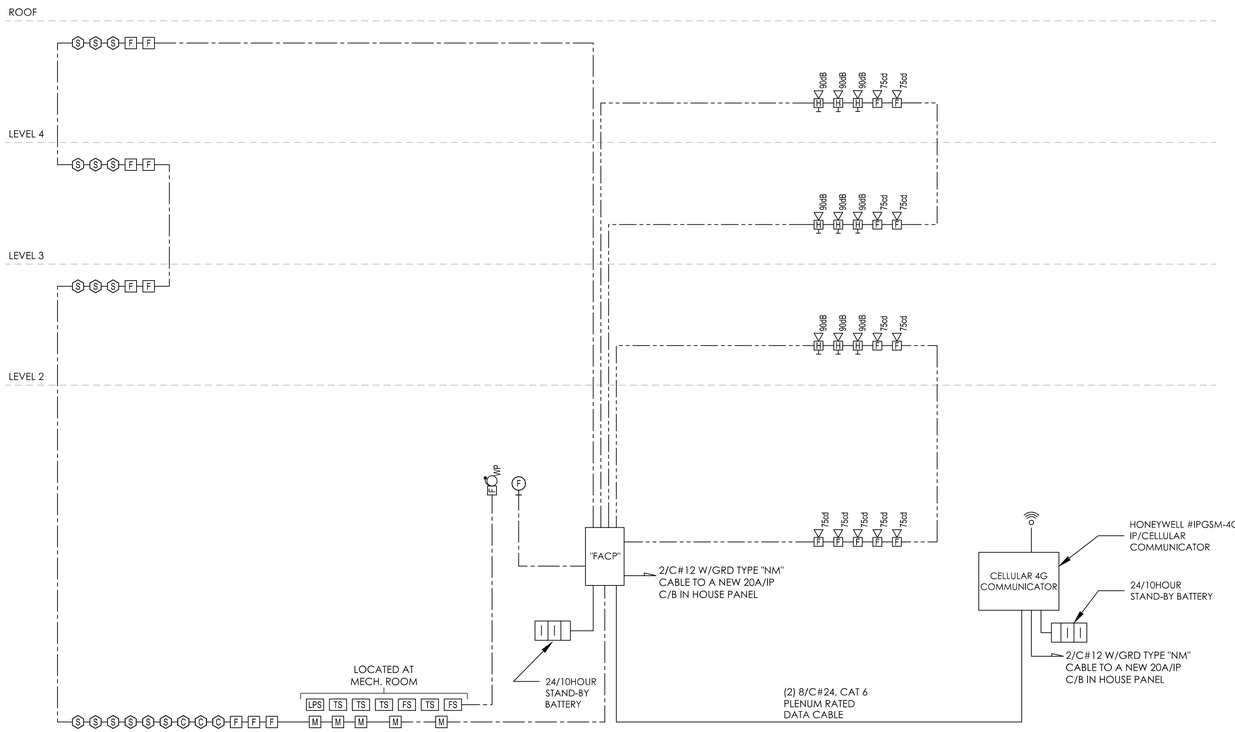
DETAIL NOT TO SCALE

NOTES

1. THE OPERABLE PART OF EACH MANUAL FIRE ALRM BOX SHALL BE NOT LESS THAN 42" AND NOT MORE THAN 48" ABOVE FINISHED FLOOR LEVEL.
2. WALL-MOUNTED APPLIANCES SHALL BE MOUNTED SUCH THAT THE ENTIRE LENS IS NOT LESS THAN 80" ABOVE THE FINISH FLOOR.
3. WHERE LOW CEILING HEIGHTS DO NOT PERMIT MOUNTING AT A MINIMUM OF 80" AFF. VISUAL APPLIANCES SHALL BE MOUNTED WITHIN 6" OF THE CEILING.
4. DEVICES SHALL BE INSTALLED ON A COMMON VERTICAL CENTERLINE WHERE EVER POSSIBLE.
5. ALL DEVICES SHALL BE INSTALLED AT MOUNTING HEIGHTS AS INDICATED ON THIS DETAIL UNLESS OTHERWISE NOTED.

FIRE ALARM NOTES

1. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL A COMPLETE ADDRESSABLE, NON-CODED, ELECTRONICALLY SUPERVISED MICRO-PROCESSOR BASED, FIRE ALARM SYSTEM AS INDICATED AND AS SPECIFIED. ALL FIRE ALARM CIRCUIT WIRING SHALL BE POWER LIMITED FIRE ALARM CABLE: 2/C#14 FPLP NON-SHIELDED CABLE SHALL BE PROVIDED FOR ALL STROBE (VISUAL) CIRCUITS AND 2/C#14 NON-SHIELDED, TWISTED CABLE FOR SIGNALING LINE CIRCUITS (SLC). ALL SLC AND NOTIFICATION APPLIANCE CIRCUITS (NAC) SHALL BE ARRANGED CLASS "A" WITH A AT LEAST A 12" SEPARATION BETWEEN LEAVING AND RETURN CIRCUITS.
2. ELECTRICAL CONTRACTOR SHALL UTILIZE ALARM VERIFICATION AS A STANDARD FEATURE FOR ALL ADDRESSABLE SMOKE DETECTORS.
3. THE CONTRACTOR, BEFORE INSTALLATION OR PROCUREMENT OF EQUIPMENT, SHALL SUBMIT SHOP DRAWINGS OF ALL THE SPECIFIED DEVICES, EQUIPMENT AND CABLING BEING SUPPLIED FOR THIS PROJECT, BATTERY CALCULATIONS AND VOLTAGE DROP CALCULATIONS. THE SHOP DRAWING SHALL INCLUDE, AS PART OF THE SUBMITTAL PACKAGE, A ONE LINE DIAGRAM INDICATING HOW THE SYSTEM WILL OPERATE AND LAYOUT DRAWINGS OF ALL FLOORS THAT INDICATE DEVICE LOCATIONS AND ADDRESS NUMBERS.
4. ALL PULL AND JUNCTION BOXES AS WELL AS 6" OF ANY CONDUIT ENTERING OR LEAVING ANY PULL OR JUNTION BOX SHALL BE PAINTED RED.
5. FIRE ALARM SYSTEM SHALL BE MANUFACTURED BY FIRELITE OR EQUAL.
6. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR A SET OF AS-BUILT DRAWINGS OF THE FIRE ALARM SYSTEM. AS-BUILT DRAWINGS SHALL INDICATE THE LOCATION OF THE CONTROL PANEL, ALL FIRE ALARM DEVICES AND WIRING INSTALLED. AS-BUILT DRAWINGS SHALL BE TURNED OVER TO THE OWNER'S PROJECT REPRESENTATIVE.
7. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CONNECTING THE FIRE ALARM SYSTEM TO THE IP/CELLULAR RADIO TRANSCEIVER THAT WILL TRANSMIT ALARM, TROUBLE, SUPERVISORY SIGNALS TO A U.L. APPROVED CENTRAL STATION MONITORING COMPANY.
8. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AN ANNUNCIATOR THAT INDICATES ALL ADDRESSABLE DEVISES TO BE INSTALLED AT THE MAIN ENTRANCE.
9. THE FIRE ALARM SYSTEM SHALL BE IN ACCORDANCE WITH NFPA 72. ANY CHANGES TO THE SYSTEM DESIGN SHALL BE PRE-APPROVED BY THE BOSTON FIRE DEPARTMENT AND DESIGNER ENGINEER.
10. FIRE ALARM ONE-LINE DIAGRAM IS COMPLEMENTARY TO THE FLOOR PLAN. WHERE A CONFLICT ARISES THE MOST STRINGENT CONDITION SHALL PREVAIL.
11. ALL AUDIO VISUAL DEVICES SHALL BE SYNCHRONIZED CODE 3, TEMPORAL PATTERN.
12. UPON ACTIVATION OF SYSTEM CARBON MONOXIDE DETECTOR AN ALARM SIGNAL SHALL BE SENT TO A U.L. APPROVED CENTRAL STATION MONITOR COMPANY. RETRANSMISSION SIGNAL SHALL BE SENT TO A BUILDING MAINTENANCE SUPERVISOR TO ALERT OF AN EXCESS CARBON MONOXIDE LEVEL WITHIN THE BUILDING.
13. UPON COMPLETION OF THE INSTALLATION, THE FIRE ALARM SYSTEM AND ALL FIRE ALARM COMPONENTS SHALL BE TESTED IN ACCORDANCE WITH NFPA 72.
14. A RECORD OF COMPLETION IN ACCORDANCE WITH NFPA 72 VERIFYING THAT THE SYSTEM HAS BEEN INSTALLED AND TESTED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS SHALL BE PROVIDED.
15. ALL SMOKE DETECTORS SHALL BE LOCATED A MINIMUM OF 36" FROM DOORS TO BATHROOMS WITH SHOWERS/TUBS AND AWAY FROM ANY VENTS/DIRECT AIR FLOW, AIR SUPPLY, DIFFUSER OR RETURN AIR OPENING.
16. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THIRD PARTY TESTING AND DESIGN DOCUMENTS FOR A BI-DIRECTIONAL ANTENNA SYSTEM FOR THE BUILDING IN ACCORDANCE WITH CHAPTER 24 OF THE 2010 NFPA 72. RADIO COVERAGE SHALL BE PROVIDED THROUGHOUT THE BUILDING IN ALL CRITICAL AREAS AND GENERAL AREAS AS SPECIFIED IN CHAPTER 24. -95dBm INBOUND AND OUTBOUND SIGNAL STRENGTH SHALL BE PROVIDED THROUGHOUT THE COVERAGE AREAS.
17. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE BOSTON FIRE DEPARTMENT REGARDING TESTING FOR A BI-DIRECTIONAL ANTENNA SYSTEM. TESTING SHALL COMMENCE ONCE THE BUILDING IS COMPLETE AND BASED ON TEST RESULTS, A DETERMINATION SHALL BE MADE TO INSTALL THE SYSTEM.



FIRE ALARM ONE-LINE DIAGRAM DETAIL

DETAIL NOT TO SCALE

FIRE ALARM INPUT/OUTPUT MATRIX

	FIRE ALARM CONTROL PANEL AUDIO VISUAL	AUDIO VISUAL HORN/STROBE DEVICES	VISUAL STROBE DEVICES	AUDIO MINI HORN DEVICES	AUDIO VISUAL SUPERVISORY SIGNAL	AUDIO VISUAL COMMON TROUBLE SIGNAL	EXTERIOR FLASHING TYPE BEACON	REMOTE ANNUNCIATOR
MANUAL PULL STATIONS	●	●	●	●			●	●
SMOKE DETECTORS (ADDRESSABLE/LOCAL)	●	●	●	●			●	●
HEAT DETECTORS	●	●	●	●			●	●
CARBON MONOXIDE DETECTORS (ADDRESSABLE/LOCAL)					●			●
WATER FLOW	●	●	●	●			●	●
TAMPER		●	●	●	●		●	●
OPEN CIRCUIT						●		●
GROUND FAULT						●		●
LOSS OF SIGNAL						●		●

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KRONOS CO. 235 MARGINAL ST CHELSEA MA

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ENGINEERING STAMP:

COMMONWEALTH OF MASSACHUSETTS
JASON CATALFO
KAHAN
FIRE PROTECTION
NO. 46358
REGISTERED
PROFESSIONAL ENGINEER
12/20/2021

MULTI-UNIT RESIDENCE

254 PARIS ST., EAST BOSTON, MA 02128

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS: PERMIT SET

CLIENT:

ENGINEER: KRONOS COLLABORATIVE
235 MARGINAL ST.,
CHELSEA, MA 02150

SITE: 254 PARIS ST.,
EAST BOSTON, MA 02128

TITLE: FIRE ALARM LEGENDS, NOTES, RISER DIAGRAM & DETAILS

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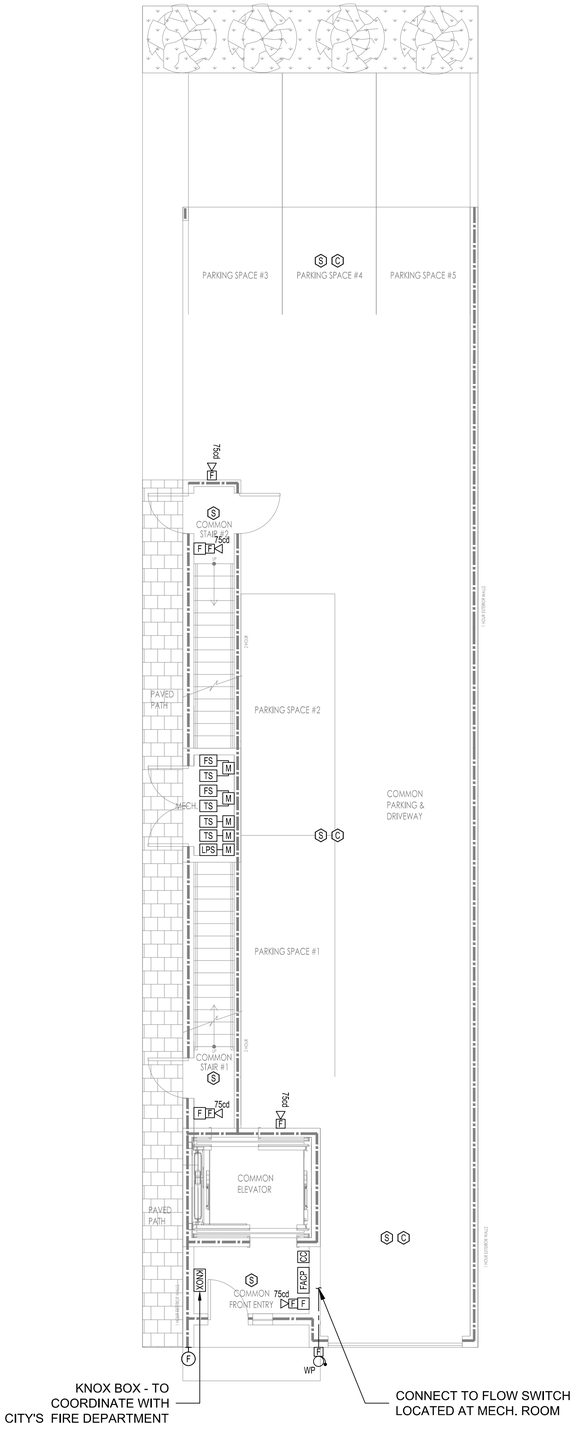
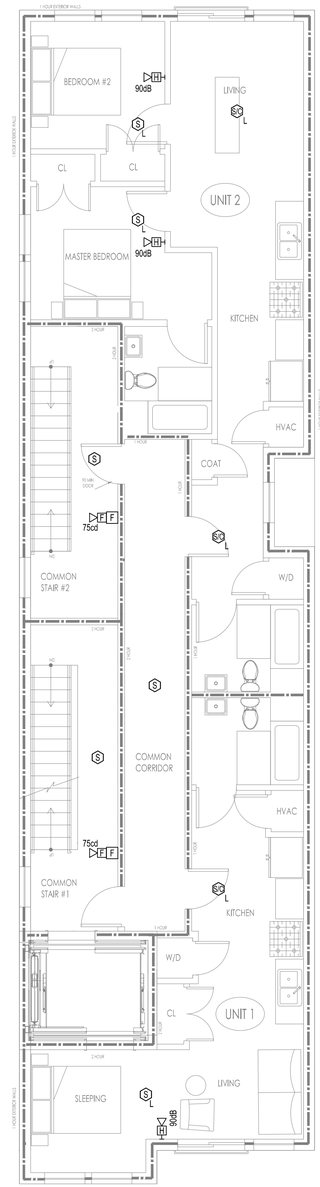
NOT TO SCALE	12/14/21	EMS	JK

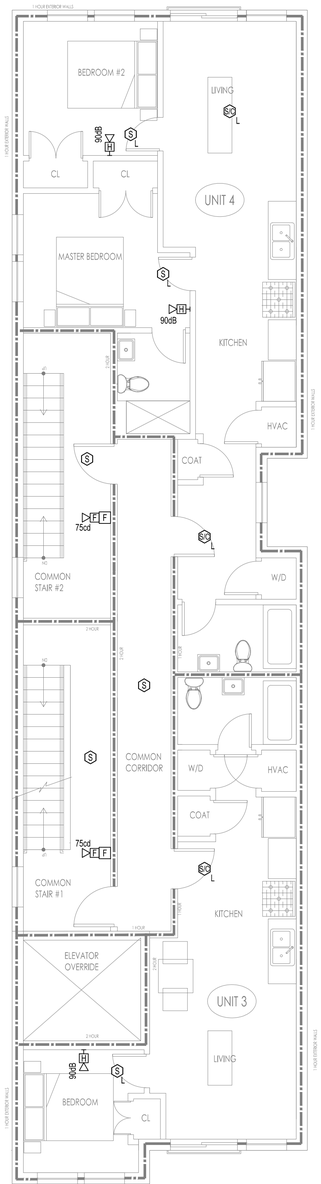
PROJECT NO:	DRAWING NO:	REVISION:
##	FA1.0	##



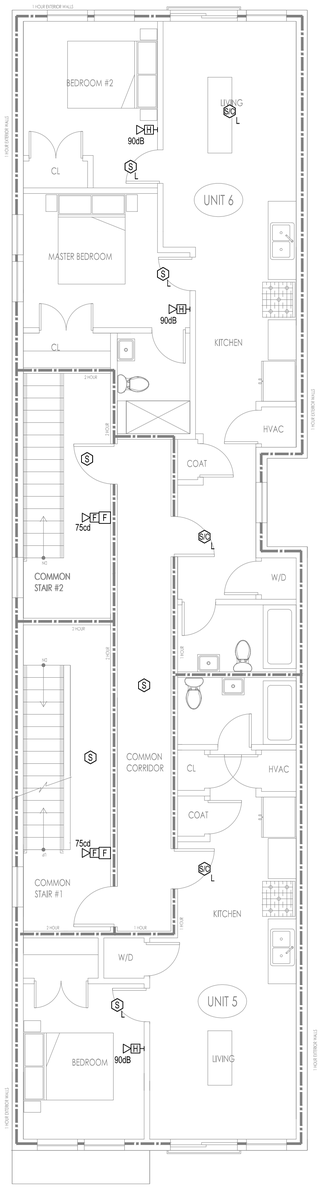
1 GROUND FLOOR FIRE ALARM PLAN
3/16" = 1'- 0"



2 LEVEL 2 FIRE ALARM PLAN
3/16" = 1'- 0"



3 LEVEL 3 FIRE ALARM PLAN
3/16" = 1'- 0"



4 LEVEL 4 FIRE ALARM PLAN
3/16" = 1'- 0"

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KRONOS CO. 235 MARGINAL ST CHELSEA MA

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ENGINEERING STAMP:

COMMONWEALTH OF MASSACHUSETTS
JASON CATALFO
KAVIAN
FIRE PROTECTION
NO. 46358
REGISTERED
PROFESSIONAL ENGINEER
12/20/2021

MULTI-UNIT RESIDENCE

254 PARIS ST., EAST BOSTON, MA 02128

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS: PERMIT SET

CLIENT:

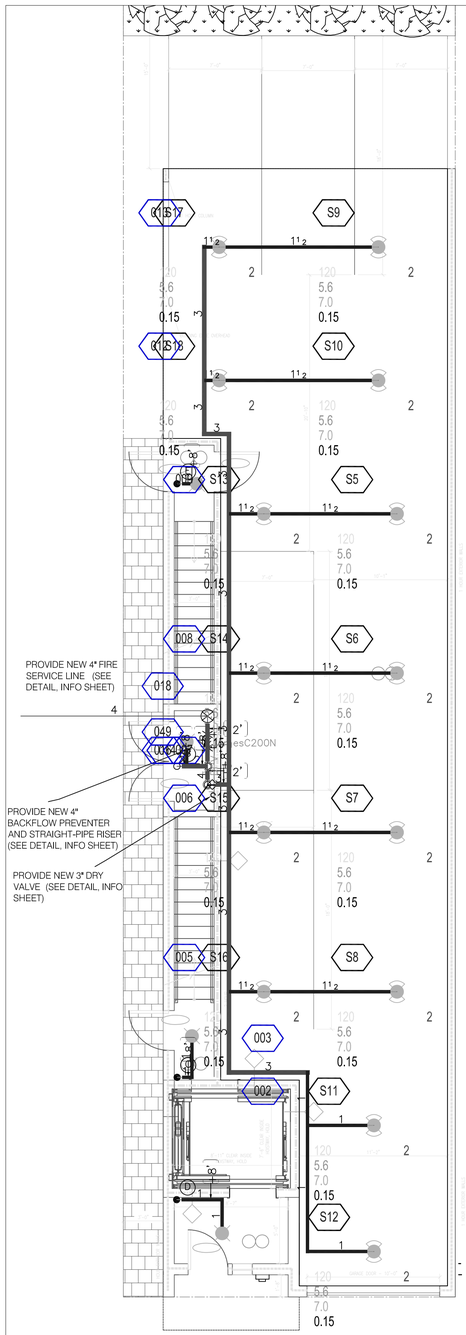
ENGINEER: KRONOS COLLABORATIVE
235 MARGINAL ST.,
CHELSEA, MA 02150

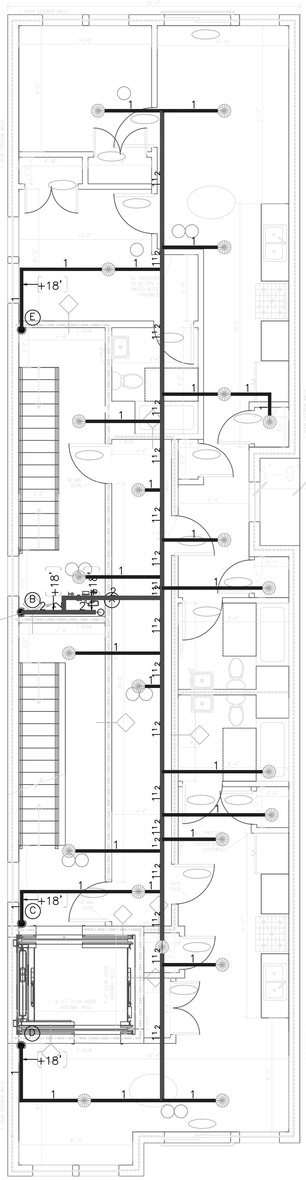
SITE: 254 PARIS ST.,
EAST BOSTON, MA 02128

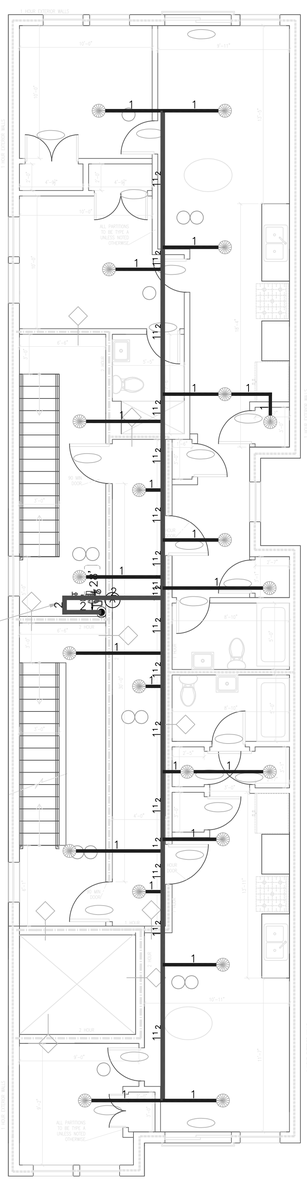
TITLE: GROUND FLOOR, LEVEL 2, 3 & 4 FIRE ALARM PLAN

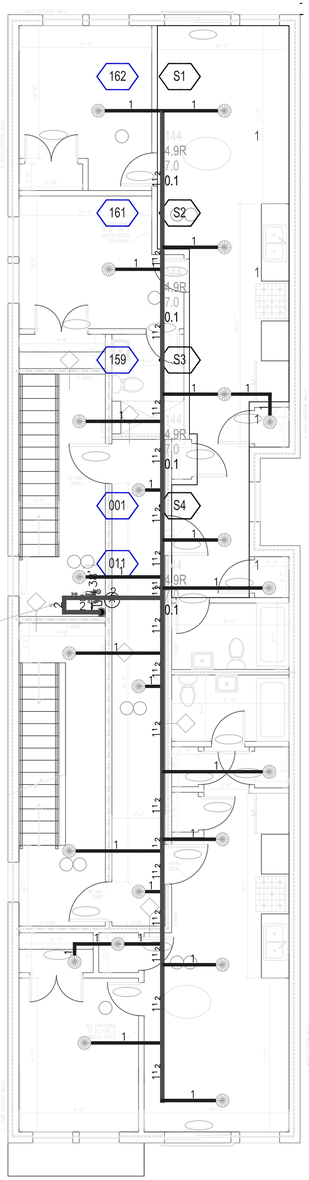
SCALE AT A1:	DATE:	DRAWN:	CHECKED:
3/16" = 1'-0"	12/14/21	EMS	JK

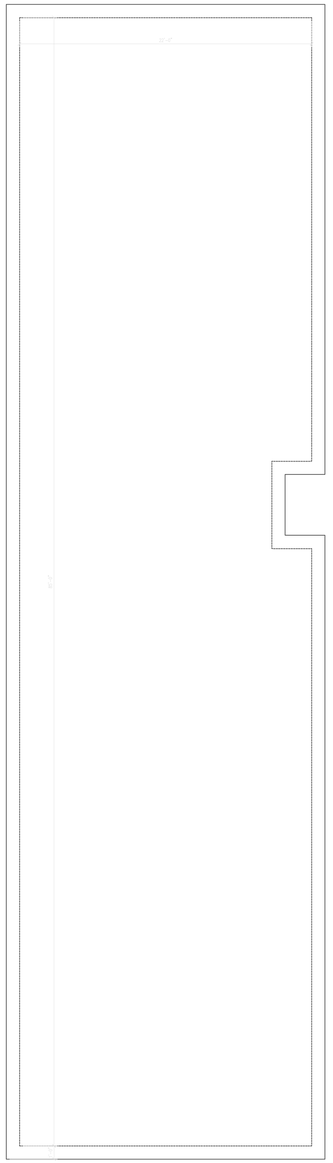
PROJECT NO:	DRAWING NO:	REVISION:
##	FA2.0	##











Calculation results for Design Area 2 – GARAGE

This system as shown on KRONOS COLLABVORATIVE company print no _____ dated 12/20/21
for MULTI UNIT at 254 PARIS ST
contract no _____ is designed to discharge at a rate of 0.15 gpm/ft² (L/min/m²) of floor area over a maximum area of 1434.25 ft² when supplied with water at a rate of 286 gpm at 24.6 psi at the base of the riser.
Hose stream allowance of _____ is included in the above.

Occupancy classification: OH
Commodity classification: _____
Maximum storage height: _____
Storage arrangement: _____

Number of heads flowing: 14
System Type: Dry
Maximum velocity: 12.44 ft/s

Flow from In-Rack sprinklers:	0 gpm
Flow from Overhead sprinklers:	286 gpm
Flow from Inside Hoses:	0 gpm
Flow from Outside Hoses:	0 gpm
Other fixed flows:	0 gpm
Total flow in system piping:	286 gpm
Additional flow at/beyond source:	250 gpm
Total of all flows:	536 gpm

Pressure Required at Source: 24.6 psi
Pressure Available at Source: 69.2 psi
Surplus Pressure at Source: 44.6 psi

Design Area 2	Dry System
GARAGE	
Demand Calculations using Hazen-Williams Method	
Occupancy Classification:	OH
Design Area Density:	0.15
Additional Outside Hose:	250
Design Area Size:	1434.25
Notes:	

Design Area 1	Wet System
TOP FLOOR	
Demand Calculations using Hazen-Williams Method	
Occupancy Classification:	LH
Design Area Density:	0.1
Additional Outside Hose:	100
Design Area Size:	328.65
Notes:	

Calculation results for Design Area 1 – TOP FLOOR

This system as shown on KRONOS COLLABVORATIVE company print no _____ dated 12/20/21
for MULTI UNIT at 254 PARIS ST
contract no _____ is designed to discharge at a rate of 0.1 gpm/ft² (L/min/m²) of floor area over a maximum area of 328.65 ft² when supplied with water at a rate of 58.7 gpm at 37.6 psi at the base of the riser.
Hose stream allowance of _____ is included in the above.

Occupancy classification: LH
Commodity classification: _____
Maximum storage height: _____
Storage arrangement: _____

Number of heads flowing: 4
System Type: Wet
Maximum velocity: 8.49 ft/s

Flow from In-Rack sprinklers:	0 gpm
Flow from Overhead sprinklers:	58.7 gpm
Flow from Inside Hoses:	0 gpm
Flow from Outside Hoses:	0 gpm
Other fixed flows:	0 gpm
Total flow in system piping:	58.7 gpm
Additional flow at/beyond source:	100 gpm
Total of all flows:	158.7 gpm

Pressure Required at Source: 37.6 psi
Pressure Available at Source: 69.9 psi
Surplus Pressure at Source: 32.3 psi

KRONOS COMPANIES
EFFICIENCY ACCURACY TECHNOLOGY

KRONOS CO. 235 MARGINAL ST CHELSEA MA

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ENGINEERING STAMP:

COMMONWEALTH OF MASSACHUSETTS
JASON CATALFO
KAHAN FIRE PROTECTION
NO. 46356
REGISTERED PROFESSIONAL ENGINEER
12/20/2021

MULTI UNIT

254 PARIS ST BOSTON, MA

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS: STATUS

CLIENT:

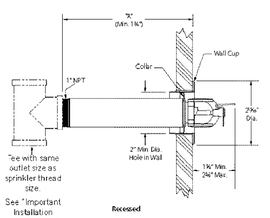
ENGINEER: KRONOS COLLABORATIVE
235 MARGINAL ST
CHELSEA, MA

SITE: 254 PARIS ST
BOSTON, MA

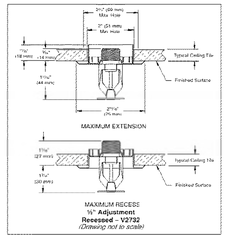
TITLE: PIPING PLAN
1ST–ROOF

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
3/16"=1'–0"	12/20/21	JK	NB

PROJECT NO:	DRAWING NO:	REVISION:
	FP 1	



DRY-SIDEWALL DETAIL
SCALE: NOT TO SCALE

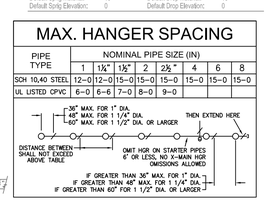


RESIDENTIAL PENDENT DETAIL
SCALE: NOT TO SCALE

Job:	MULTI UNIT
Address:	254 PARIS ST
City:	BOSTON State: MA Zip/Postal Code: 02128
Contract #:	Date: 12/20/21
Contractor:	KRONOS COLLABORATIVE Designer: JK
Address:	235 MARGINAL ST
City:	CHELSEA State: MA Zip/Postal Code: 02150
Phone:	617-633-3533 Fax: Email:
Approving Authority:	
Design Defaults:	Standards: NFPA13
Default Sprig Size:	1 Default Drop Size: 1
Default Sprig Material:	10 Default Drop Material: 10
Default Sprig Elevation:	0 Default Drop Elevation: 0

MAX. HANGER SPACING

PIPE TYPE	NOMINAL PIPE SIZE (IN)							
	1	1¼"	1½"	2	2½"	4	6	8
SCH 10,40 STEEL	12–0	12–0	15–0	15–0	15–0	15–0	15–0	15–0
UL LISTED CPVC	6–0	6–6	7–0	8–0	9–0			



CLOSETS (TYPICAL)

EXCEPT WHERE SPECIFIED IN SECTION 6.6.4 (NFPA 13D,13R, 2013 EDITION), SPRINKLERS SHALL NOT BE REQUIRED IN CLOTHES CLOSETS, LINEN CLOSETS, AND PANTRIES THAT MEET ALL OF THE FOLLOWING CONDITIONS:

1) THE AREA OF THE SPACE DOES NOT EXCEED 24 SF
2) THE LEAST DIMENSION DOES NOT EXCEED 3 FT
3) THE WALLS AND CEILINGS ARE SURFACED WITH NONCOMBUSTIBLE OR LIMITED-COMBUSTIBLE MATERIALS AS DEFINED IN NFPA 220.

NOTE: WHEN MECHANICAL EQUIPMENT OR LAUNDRY MACHINES ARE PLACED IN THE CLOSET, THE CLOSET IS NO LONGER CONSIDERED A CLOTHES CLOSET, LINEN CLOSET, OR PANTRY, SO THE EXCEPTION OF 6.6.3 IS NO LONGER VALID AND SPRINKLERS MUST BE INSTALLED.

FIRE PROTECTION NOTES:

THE PURPOSE OF THIS FIRE PROTECTION DRAWING AND THE ASSOCIATED FIRE PROTECTION DESIGN NARRATIVE IS TO INDICATE THE PROPOSED RESIDENTIAL SPRINKLER SYSTEM TO BE INSTALLED WITHIN THE RENOVATED MULTI-UNIT BUILDING LOCATED AT 254 PARIS ST IN BOSTON, MASSACHUSETTS.

THIS BUILDING CONSISTS OF A GROUND LEVEL, SECOND LEVEL, THIRD LEVEL AND FOURTH LEVEL AS INDICATED ON THE ASSOCIATED ARCHITECTURAL DRAWINGS.

THIS RESIDENTIAL SPRINKLER SYSTEM HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 13R (2013 EDITION) FOR A RESIDENTIAL BUILDING UP TO 4 STORIES IN HEIGHT .

THE SPRINKLER CONTRACTOR SHALL FOLLLOW THE LATEST REQUIREMENTS OF NFPA 13R (2013 EDITION), MASSACHUSETTS STATE BUILDING CODE (780 CMR, 9TH EDITION) AND BOSTON FIRE DEPARTMENT REQUIREMENTS.

THIS SYSTEM WILL BE SUPPLIED BY A NEW 4" FIRE SERVICE, TAPPED OFF THE EXISTING WATER MAIN ON PARIS STREET. THE 4" SERVICE SHALL BE DESIGNED, INSTALLED, FLUSHED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 24 BY A LICENSED UNDERGROUND CONTRACTOR AND WILL ENTER THE BASEMENT AS INDICATED ON THIS DRAWING.

THE SYSTEM HAS BEEN HYDRAULICALLY CALCULATED IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 13R, INCLUDING THE FOUR HYDRAULICALLY MOST DEMANDING HEADS IN A SINGLE COMPARTMENT BASED ON THE REQUIREMENTS OF THE SPECIFIC SPRINKLER HEAD AND THE SPACING USED IN THIS DESIGN (16'x16' REQUIRING A MINIMUM OF 13 GPM @ 7 PSI). REMOTE AREAS, DENSITIES AND HOSE STREAM ALLOWANCES ARE INDICATED ON THIS DRAWING ALONG WITH SYSTEM DEMANDS AT CONNECTION TO STREET AND CALCULATION RESULTS HAVE BEEN COMPARED TO RECENT HYDRANT FLOW TEST INFORMATION OBTAINED FROM THE BOSTON WATER & SEWER DEPARTMENT. CALCULATIONS HAVE BEEN SUBMITTED WITH THIS DRAWING TO THE BOSTON FIRE DEPARTMENT FOR REVIEW.

SPRINKLER HEAD LOCATIONS HAVE NOT BEEN COORDINATED WITH CEILING-MOUNTED FIXTURES. INSTALLING SPRINKLER CONTRACTOR SHALL COORDINATE WITH ELECTRICIAN AND LOCATE SPRINKLERS AT LEAST 36" FROM THE CENTER OF ANY CEILING-MOUNTED FIXTURE, IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 13 WHILE MAINTAINING THE MAXIMUM DISTANCES FROM WALLS INDICATED ON THIS DESIGN (8-FT). ADDITIONAL SPRINKLERS REQUIRED DUE TO INABILITY TO MEET OBSTRUCTION CRITERIA SHALL BE AT THE OWNERS EXPENSE.

RESIDENTIAL
FLAT PLATE CONCEALED PENDENT

SPRINKLER CONTRACTOR SHALL TAKE PRECAUTIONS WHEN INSTALLING SPRINKLER PIPING IN JOISTS ON TOP FLOOR. GENERAL CONTRACTOR SHALL BE REQUIRED TO INSTALL SUFFICIENT INSULATION TO MAINTAIN 40-DEGREES IN ALL AREAS WHERE SPRINKLER PIPING AND HEADS ARE INSTALLED

INSTALLATION NOTES:

ALL WORK SHALL BE PERFORMED BY A MASSACHUSETTS LICENSED SPRINKLER CONTRACTOR. THE SPRINKLER CONTRACTOR SHALL FOLLOW THE LATEST REQUIREMENTS OF NFPA 13R (2013 EDITION), MASSACHUSETTS STATE BUILDING CODE (9TH EDITION) AND THE BOSTON FIRE DEPARTMENTS.

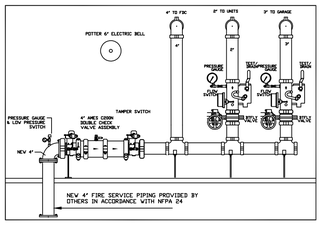
THE ARCHITECTURAL BACKGROUND OF BUILDING MAY DIFFER SLIGHTLY FROM ACTUAL LAYOUT. DRAWINGS ARE NOT INTENDED TO SHOW ALL OFFSETS AND PIPING ELEVATION CHANGES. CONTRACTOR SHALL FIELD VERIFY ALL MEASUREMENTS PRIOR TO FABRICATION.

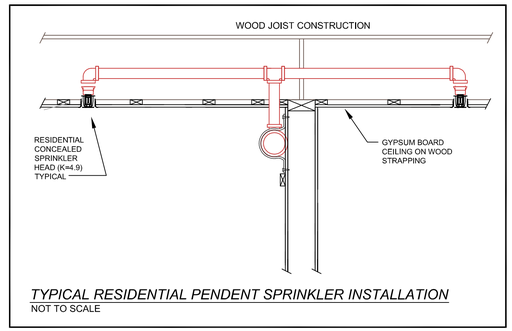
CONTRACTOR SHALL HYDROSTATICALLY TEST ALL SPRINKLER PIPING AT 200 PSI FOR 2 HOURS AND IS RESPONSIBLE FOR THE COMPLETION OF ALL ABOVE GROUND TEST CERTIFICATES, SUPPLIED TO THE OWNER.

ALL PIPING INSTALLED THROUGHOUT THE RESIDENTIAL AREAS OF THE BUILDING SHALL BE UL LISTED CPVC SPRINKLER PIPINGALL PIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 13R (2013 EDITION) AND ALL MANUFACTURERS INSTALLATION RECOMMENDATIONS. ALL PIPING SHALL BE PITCHED TO DRAIN WITH LOW-POINT DRAINS AT SECTIONS OF PIPING SUBJECT TO WATER TRAPPING. SPRINKLER CONTRACTOR SHALL PROVIDE PROTECTIVE PLATES WHERE CPVC PIPING IS RUN THROUGH STUDS TO PREVENT PUNCTURING OF THE SPRINKLER PIPING DURING DRYWALL INSTALLATION AS REQUIRED BY NFPA STANDARDS.

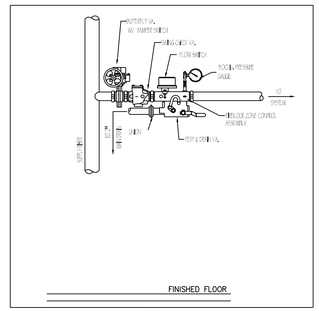
ALL SPRINKLER HEADS WITHIN RESIDENTIAL AREAS OF THE BUILDING SHALL BE RESIDENTIAL PENDENT SPRINKLERS. SPRINKLERS WITHIN THE BASEMENT LEVEL WILL BE QUICK-RESPONSE UPRIGHT HEADS. ALL HEADS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS AND THE REQUIREMENTS OF NFPA 13R (2013 EDITION).

THE BUILDING OWNER IS RESPONSIBLE FOR MAINTAINING THIS SPRINKLER SYSTEM IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 25, INCLUDING THE PROVISION OF HEAT IN ALL AREAS CONTAINING SPRINKLER PIPING AND HEADS TO PREVENT PIPE FROM FREEZING. THE ENGINEER OF RECORD TAKE NO RESPONSIBILITY FOR ANY DAMAGES CAUSED BY FREEZE UPS.





TYPICAL RESIDENTIAL PENDENT SPRINKLER INSTALLATION
NOT TO SCALE



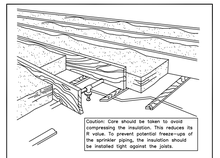
FLOOR CONTROL ASSEMBLY
SCALE: N.T.S.

SYM	CNT	POSITION	FINISH	TEMP	K	NPT	SIN	MFG.	MODEL#
	4	PEND	BRASS	155	5.60	1/2"	TY3251	Tyco	TY–B
	14	PEND	CHROME	155	5.60	1/2"	TY3505	Tyco	RFLL
	65	PEND	BRASS	155	4.90	1/2"	TY2234	Tyco	LFII

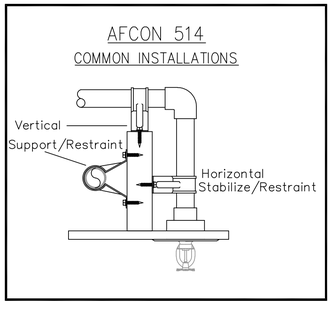
UL LISTED CPVC SPRINKLER PIPING

FREEZE PROTECTION

THE BUILDING OWNER IS RESPONSIBLE FOR PROVIDING HEAT IN ALL AREAS CONTAINING SPRINKLER PIPING AND HEADS TO PREVENT PIPE FROM FREEZING. ANY AREAS THAT RAISE CONCERN WITH REGARD TO FREEZING POTENTIAL SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION, IN WRITING, PRIOR TO INSTALLATION. THE ENGINEER OF RECORD TAKE NO RESPONSIBILITY FOR DAMAGES CAUSED BY FREEZE-UPS OF THE SPRINKLER SYSTEM.



INSULATION PROTECTING SPRINKLER PIPING ON UPPER FLOOR DETAIL
NOT TO SCALE



NFPA 13 TABLE 8.10.7.1.3 + FIGURE 8.10.7.1.3
RESIDENTIAL SIDEWALL SPRINKLERS

TABLE 8.10.7.1.3
POSITIONING OF SPRINKLER TO AVOID OBSTRUCTION TO DISCHARGE

DISTANCE FROM SPRINKLERS TO SIDE OF OBSTRUCTION (A)	MAXIMUM ALLOWABLE DISTANCE OF DEFLECTOR ABOVE BOTTOM OF OBSTRUCTION (INCHES) (B)
LESS THAN 8 FT	0
8'–0" TO LESS THAN 10'	0'–1"
10' TO LESS THAN 11'	0'–2"
11' TO LESS THAN 12'	0'–3"
12' TO LESS THAN 13'	0'–4"
13' TO LESS THAN 14'	0'–6"
14' TO LESS THAN 15'	0'–7"
15' TO LESS THAN 16'	0'–9"
16' TO LESS THAN 17'	0'–11"
17' OR GREATER	1'–2"

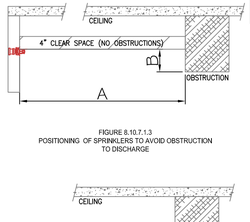


FIGURE 8.10.7.1.3
POSITIONING OF SPRINKLERS TO AVOID OBSTRUCTION TO DISCHARGE

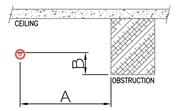


FIGURE 8.10.7.1.4 (B)
POSITIONING OF SPRINKLERS TO AVOID OBSTRUCTION TO DISCHARGE

NFPA 13 TABLE 8.10.7.1.4 + FIGURE 8.10.7.1.4 (B)
STANDARD SIDEWALL SPRINKLERS

TABLE 8.10.7.1.4
POSITIONING OF SPRINKLER TO AVOID OBSTRUCTION TO DISCHARGE

DISTANCE FROM SPRINKLERS TO SIDE OF OBSTRUCTION (A)	MAXIMUM ALLOWABLE DISTANCE OF DEFLECTOR ABOVE BOTTOM OF OBSTRUCTION (INCHES) (B)
LESS THAN 1'–6"	0'–0"
1'–6" TO LESS THAN 3'–0"	0'–1"
3' TO LESS THAN 4'	0'–3"
4' TO LESS THAN 4'–6"	0'–5"
4'–6" TO LESS THAN 6'	0'–7"
6' TO LESS THAN 6'–6"	0'–9"
6'–6" TO LESS THAN 7'	0'–11"
7' TO LESS THAN 7'–6"	1'–2"

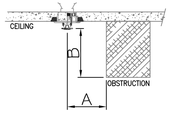


FIGURE 8.10.6.1.2(A)
POSITIONING OF SPRINKLERS TO AVOID OBSTRUCTION TO DISCHARGE

NFPA 13 TABLE 8.10.6.1.2 + FIGURE 8.10.6.1.2(A)
RESIDENTIAL PENDENT AND UPRIGHT SPRAY SPRINKLERS

TABLE 8.3.2.5(c)
TEMPERATURE RATINGS OF SPRINKLERS IN SPECIFIED RESIDENTIAL AREAS

HEAT SOURCE	MINIMUM DISTANCE FROM EDGE OF SOURCE TO ORDINARY TEMPERATURE SPRINKLER (INCHES)	MINIMUM DISTANCE FROM EDGE OF SOURCE TO INTERMEDIATE TEMPERATURE SPRINKLER (INCHES)
SIDE OF OPEN OR RECESSED FIREPLACE	36	12
FRONT OF RECESSED FIREPLACE	60	36
KITCHEN RANGE	18	9
WALL OVEN	18	9
SIDE OF CEILING OR WALL MOUNTED HOT AIR DIFFUSER	24	12
FRONT OF WALL MOUNTED HOT AIR DIFFUSER	36	18
HOT WATER HEATER OR FURNACE	6	3
LIGHT FIXTURE: OW–250W	6	3
LIGHT FIXTURE: 250W–499W	12	6

EFFICIENCY
ACCURACY
TECHNOLOGY

KRONOS CO. 235 MARGINAL ST CHELSEA MA

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ENGINEERING STAMP:

COMMONWEALTH OF MASSACHUSETTS
JASON CATALFO
KAHAN FIRE PROTECTION
NO. 48358
REGISTERED PROFESSIONAL ENGINEER
12/20/2021

MULTI UNIT

254 PARIS ST BOSTON, MA

REV.	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS: STATUS

CLIENT:

ENGINEER: KRONOS COLLABORATIVE
235 MARGINAL ST
CHELSEA, MA

SITE: 254 PARIS ST
BOSTON, MA

TITLE: PIPING PLAN
INFO SHEET

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
1/4"=1'–0"	12/20/21	JK	NB

PROJECT NO:

DRAWING NO: FP 2

REVISION:

FIRE PROTECTION NARRATIVE

COMMONWEALTH OF MASSACHUSETTS STATE BUILDING CODE 780 CMR, 9th Edition
FIRE PROTECTION SYSTEMS CHAPTER 9

Date: 12/20/21

Project and Owner: 254 Paris St
Boston, Ma

1 - Building Description:
* Wood and GWB walls, wood frame and roof.
* Footprint SQ FT of area under consideration =5,309 SF approximately
* Floors above grade = 4
* Floors below grade = 0
* Occupancies = Dwelling units classified as non transient Apartments or Condo's
* Hazardous materials = None known
* High storage = None known – Limited to 12 ft

2 - Applicable Laws, Regulations, Standards:
* NFPA 13R 2013) Installation of Sprinkler Systems
* 780 CMR Mass. State Building Code (Current Edition)
* Underwriters Laboratories Inc. Publications
* Manufacturer's Listed and Approved Design/Installation/Maintenance Manuals

3 - Design Responsibility for Fire Protection Systems:
* Tier I permit drawings developed by Coliseum, JFP Kronos Cos
* Fire Sprinkler P.E. of record is Jason Kahan PE.
* Fire Alarm by Kronos Cos
* Kitchen/Cooking suppression by others
* Underground fire service by others
* Manual suppression systems by others
* Smoke control systems by others

4 - Fire Protection Systems to be installed:
The fire protection project consists of installing new sprinklers and pipe in an existing building. The occupancy is non-transient dwelling units (Residential) and conforms to the requirements of NFPA 13 . A new NFPA compliant fire service will be installed sized per plan.New piping is sized according to a schedule established by hydraulic calculations. Provided: single inlet 2-1/2" FDC for Fire Department use.

5 – Design Methodology:
Basement fire sprinkler pipe is steel schedule 10 with mechanical fittings, or steel schedule 40 with threaded fittings. Residential area piping is CPVC. Sway bracing is not required since all hanger rods are less than 6" in length. All sprinkler pipes are exposed (per UL listing for CPVC pipe).

The most hydraulically remote residential pendent or sidewall sprinkler heads are to be calculated 2-sprinkler heads if NFPA 13D 4-sprinkler heads if NFPA 13R and or NFPA 13 (code depending). Residential sprinkler heads as shown on plan are calculated on the top floor, are calculated per manufacturer specifications for 14 x 14 spacing (14 gpm each), residential pendants .; up to 4 sprinklers in a compartment. Per NFPA 13 design Basement Rooms are calculated per NFPA 13 (2013) to Ordinary Hazard Group 1 for the largest room which

contains 3 sprinklers (room is less than 500 sq ft). A verification calculation at 4-Commercial sprinkler heads at .15/4-heads to be confirmed for an NFPA 13D or NFPA 13R system.

CODE REFERENCES:

* Design and installation to conform to NFPA 13R 2013 edition

* Design and installation to conform to State Code, Local Fire and Building Departments.

6 - Special considerations and descriptions:

* No official code interpretations.
* No official waivers or variances.

7 - Sequence of operation:

* Fire sprinkler activates.

* Water starts flowing and activates the water flow switch.
* Water flow switch sends alarm signal to alarm panel and Fire Department.
* Building alarm is activated.

8 - Testing criteria:

* Tests will be conducted to the satisfaction of local authorities.
* Tests to be set up and scheduled by the contractor.
* Water will be flowed from the test valve on the riser.
* Pipes to be pressure tested to 200 psi for two hours.
* All alarm and tamper switches to be tested for proper activation.
* Written approval of final tests to be obtained from the code official.
* Required fire sprinkler and aboveground piping reports to be submitted to the code officials.

For any further questions or clarifications feel free to call at

Jason Kahan P.E.
617-633-3533

JASON KAHAN P.E.

Date: 12/20/21

Inspectional Services Department
City of Boston
1010 Massachusetts Avenue
Boston, MA 02118

Re: Tier I Construction Documents for
Residential Building
254 Paris St
Boston, Ma

Subject: Fire Alarm System Narrative

Below is a narrative that supplements Tier I, Fire Alarm Construction documents in accordance with the 2013 Edition of NFPA 72 and Ninth Edition of the Massachusetts State Building Code, Section 107.1.2 (Fire Department Review).

Building Summary First , Second, Third and Fourth Floors.

In reference to the above-mentioned project, the existing building consists of a multi-unit residence. The building consists

The existing building is approximately 5,309 square feet, 38-11" tall, and access for fire apparatus will be from

The Building Use Group is "R2".

The building will be fully sprinkled.

Design Methodology

This office has designed a new addressable, microprocessor-based fire alarm system that will be equipped with a Honeywell #IPGSM-4G IP/Cellular communicator to notify the fire department of any alarms within the building. The communicator will send alarm, trouble, and supervisory signals to a UL Approved Central Station Monitoring Company.

The new Fire Alarm Control Panel (FACP) will be in the basement sprinkler room and the new Fire Alarm Annunciator (FAA) will be located in the main entry vestibule located on the first floor. There will be an emergency lighting unit at both locations that will provide 90 minutes of emergency lighting in the event of a power failure.

The building will be marked with an exterior "RED" beacon to alert fire officials to the location of the fire alarm control panel.

Addressable photoelectric type smoke detectors will be installed in the basement, above the fire alarm annunciator in the first-floor main entry vestibule, sprinkler room above the FACP and the third-floor common stairwell.

New addressable system connected heat detectors will be installed in all the dwelling unit entry areas. These

devices will provide an addressable point on the FACP if one of them is activated. This will indicate to the fire officials the exact dwelling unit that is in alarm.

System connected Carbon Monoxide detector will be provided in the basement. It shall be programmed to transmit an alarm signal to a U.L. Approved central station monitoring company. Retransmission from the central station to the building manager will take place to alert him/her of a potential ga sleak.

Addressable manual pull stations will be installed within 5'-0" of every exit door and no further apart than 200 linearfeet.

Monitor modules will be installed at sprinkler system flow switches and flow control valve stations. These devices will be programmed to send an alarm signal to central station monitoring company and sound the evacuation signal throughout the building.

Monitor modules will be installed at sprinkler system tamper switches. These devices will be programmed to send a supervisory signal to the central station monitoring company.

The entire building will be equipped with ADA type Horn/Strobe audio/visual devices. These devices when activated will provide a synchronized Temporal pattern (Code 3) with a strobe intensity of 75 candela at 45'-0". Both the horn and the light will be synchronized. Power supplies will be strategically located in storage closets to provide Notification Appliance Circuits (NAC) throughout the building.

Each dwelling unit living space and each bedroom will be equipped with Low Frequency (520Hz) sounder devices to augment the sound level throughout each dwelling unit.

The primary power source will be a dedicated 120 volt circuit run in Metal Clad cable from a dedicated 20-amp single pole circuit breaker. The breaker shall be equipped with a handle-lock and labeled "FACP"

The entire fire alarm system shall have enough battery capacity to operate the entire system under quiescent load (system operating in a non-alarm condition) for a minimum of 24 hours and still be able to operate all alarm notification appliances for a period of 10 minutes as a secondary source of power.

Local 120-volt, tandem wired photoelectric smoke/carbon monoxide detectors with integral battery back-up will be installed in all dwelling units. The devices shall be installed in all living rooms and bedrooms in accordance with 780 CMR 919/527 CMR 31.00 Sections of the Massachusetts State BuildingCode.

Local smoke detectors will be photoelectric type detectors in accordance with UL 217.

All local devices within a dwelling unit will be interconnected so that if one device is in alarm all the interconnected devices will sound within the respective dwelling unit.

All fire alarm circuit wiring shall be RED, plenum rated, power limited fire alarm cable (FPLP) the entire length of each circuit. Riser cables shall be RED, power limited fire alarm cable suitable for use in vertical shafts or runs from floor to floor and shall be type FPLR cable. NAC's shall be 2#14 and SLC's shall be 2#14 twisted. All fire alarm circuits shall be arranged class 'A'.

Sequence of Operation

1. The fire alarm system shall be in accordance with NFPA 72, ANSI 117.7, and U.L. Standard for the Hearing-Impaired and A.D.A. Any changes to the system design shall be pre-approved by the City of Boston Fire Department.

2. An alarm system shall be provided and installed to serve the following functions.
    a. General evacuation alarm signaling
    b. Communications to a U.L. Approved Central Station Monitoring Company
    c. Beacon shall flash
    d. Annunciate alarm point on FACP and FAA
3. The operation of any system smoke detector, heat detector, manual fire alarm station or sprinkler system flow switch shall automatically.
    a. Notify the Fire Department via a U.L. Approved Central Station Monitoring Company
    b. Activate the evacuation signal throughout the building. The evacuation signal shall be a Temporal Pattern general evacuation signal. The evacuation signal shall be approximately 600 Hertz and terminating at approximately 3 ½ seconds and an interruption between tones of approximately ½ second
    c. Activate all strobe lights throughout the building
    d. Activate exterior beacon on the outside of the building
    e. Annunciate alarm points on the FACP and FAA
4. The system shall be electrically/electronically supervised against component failure of the entire audio path including but not limited to audio/visual devices, wiring, switches and electrical contacts and shall detect opens, short, grounds or loss of signal which might impair the function of the system.
5. All opens, short, grounds or loss of signal shall cause a trouble signal at the FACP and notify the central station. Retransmission should take place within 90 seconds.
6. The fire alarm control panel for the Fire Department Operations will be provided in the basement sprinkler room and the new fire alarm annunciator will be located in the main entry vestibule located on the first floor which is accessible from Paris St.. The fire alarm control panel will also allow the fire department to Reset, Acknowledge and Test the system.
7. The fire alarm control panel shall contain the following.
    a. LCD read-out of all alarm points in the fire alarm system
    b. Battery cabinet
    c. Emergency battery-powered lighting sufficient to provide at least 90 minutes of lighting
    d. Smoke detector above the FACP and FAA
8. Alarm Sequence.
    a. General evacuation signal

Inspection, Testing & Maintenance

Inspection testing and maintenance shall be performed in accordance with 2013 NFPA 72, Chapter 14, Table 14.3.1 "Visual Inspection Frequencies", Table 14.4.2.2 "Test Methods", Table 14.4.5 "Testing Frequencies" and 14.6.2 "Maintenance, Inspection and Testing Records".

A record of completion in accordance with NFPA 72 will be required to be submitted to the engineer and

owner, verifying that the system has been installed and tested in accordance with approved plans and specifications.

Tier II Documents

The installing contractor shall be responsible for providing Tier II shop drawings to the Engineer of Record prior to procurement or installation or any equipment. The Tier II shop drawings must be approved by the Engineer of Record prior to submitting them to the fire department.

The Tier II shop drawings shall include but not be limited to detailed design layout; equipment cut sheets, sequence of operations, matrix, one-line wiring diagrams, voltage drop calculation, battery calculations, etc…

Tier II shop drawings shall include the installing contractors company name, person in responsible charge, license number license expiration date.

Tier III Documents

The installing contractor shall be responsible for providing Tier III as-built drawings that have been reviewed and approved by the Engineer of Record performing the Construction Control prior to turning over to the owner. All revisions and deviations shall be documented on the Tier III documents.

If you have any questions or comments on the fire alarm system indicated, please do not hesitate to contact this office at your convenience.

CALCULATION SUMMARY

Project Name : MULTI UNIT

Project Location: 254 PARIS ST

Drawing No. :

City: BOSTON, MA 02128

Design Areas

Design Area Name	Calc. Mode (Model)	Occupancy	Area of Application	Total Water	Pressure @ Source	Min. Density	Min. Pressure	Min. Flow	Calculated Heads	Hose Streams	Margin To Source
			(ft²)	(gpm)	(psi)	(gpm/ft²)	(psi)	(gpm)	#	(gpm)	(psi)
2	Demand (HW)	OH	1434.25	536	Required 24.6	0.15	10.3	18	14	250	44.6

File: C:\Users\Blackwater2\appdata\local\temp\254 Paris St_1_12232_1310.sv$

Date 12/20/2021

HYDRAULIC CALCULATIONS
for

Job Information

Project Name : MULTI UNIT

Contract No. :

City: BOSTON, MA 02128

Project Location: 254 PARIS ST

Date: 12/20/2021

Contractor Information

Name of Contractor: KRONOS COLLABVORATIVE

Address: 235 MARGINAL ST

City: CHELSEA, MA 02150

Phone Number: 617-633-3533

E-mail:

Name of Designer: JK

Authority Having Jurisdiction:

Design

Remote Area Name	2
Remote Area Location	GARAGE
Occupancy Classification	OH
Density (gpm/ft²)	0.15
Area of Application (ft²)	1434.25
Coverage per Sprinkler (ft²)	120
Number of Calculated Sprinklers	14
In-Rack Demand (gpm)	0
Special Heads	
Hose Streams (gpm)	250
Total Water Required (incl. Hose Streams) (gpm)	536
Required Pressure at Source (psi)	24.6
Type of System	Dry
Volume - Downstream DPV (gal)	40.4 gal

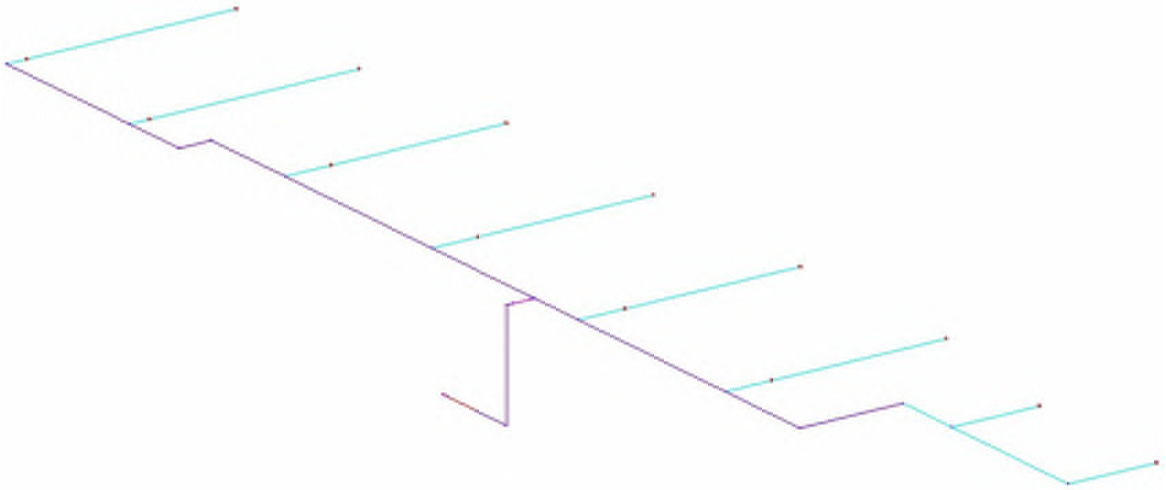
Water Supply Information

Date	
Location	LEXINGTON ST
Source	W1

Notes

Node Labels: Off
Pipe Labels: Off

Diagram for Design Area : 2
(Optimized Hydraulic Simplified)



Hydraulic Analysis for : 2

Calculation Info

Calculation Mode	Demand
Hydraulic Model	Hazen-Williams
Fluid Name	Water @ 60F (15.6C)
Fluid Weight, (lb/ft³)	N/A for Hazen-Williams calculation.
Fluid Dynamic Viscosity, (lb·s/ft²)	N/A for Hazen-Williams calculation.

Water Supply Parameters

Supply 1 : W1

Flow (gpm)	Pressure (psi)
0	70
1867	62

Supply Analysis

Node at Source	Static Pressure (psi)	Residual Pressure (psi)	Flow (gpm)	Available Pressure (psi)	Total Demand (gpm)	Required Pressure (psi)
W1	70	62	1867	69.8	536	24.6

Hoses

Inside Hose Flow / Standpipe Demand (gpm)	
Outside Hose Flow (gpm)	
Additional Outside Hose Flow (gpm)	
Other (custom defined) Hose Flow (gpm)	
Total Hose Flow (gpm)	

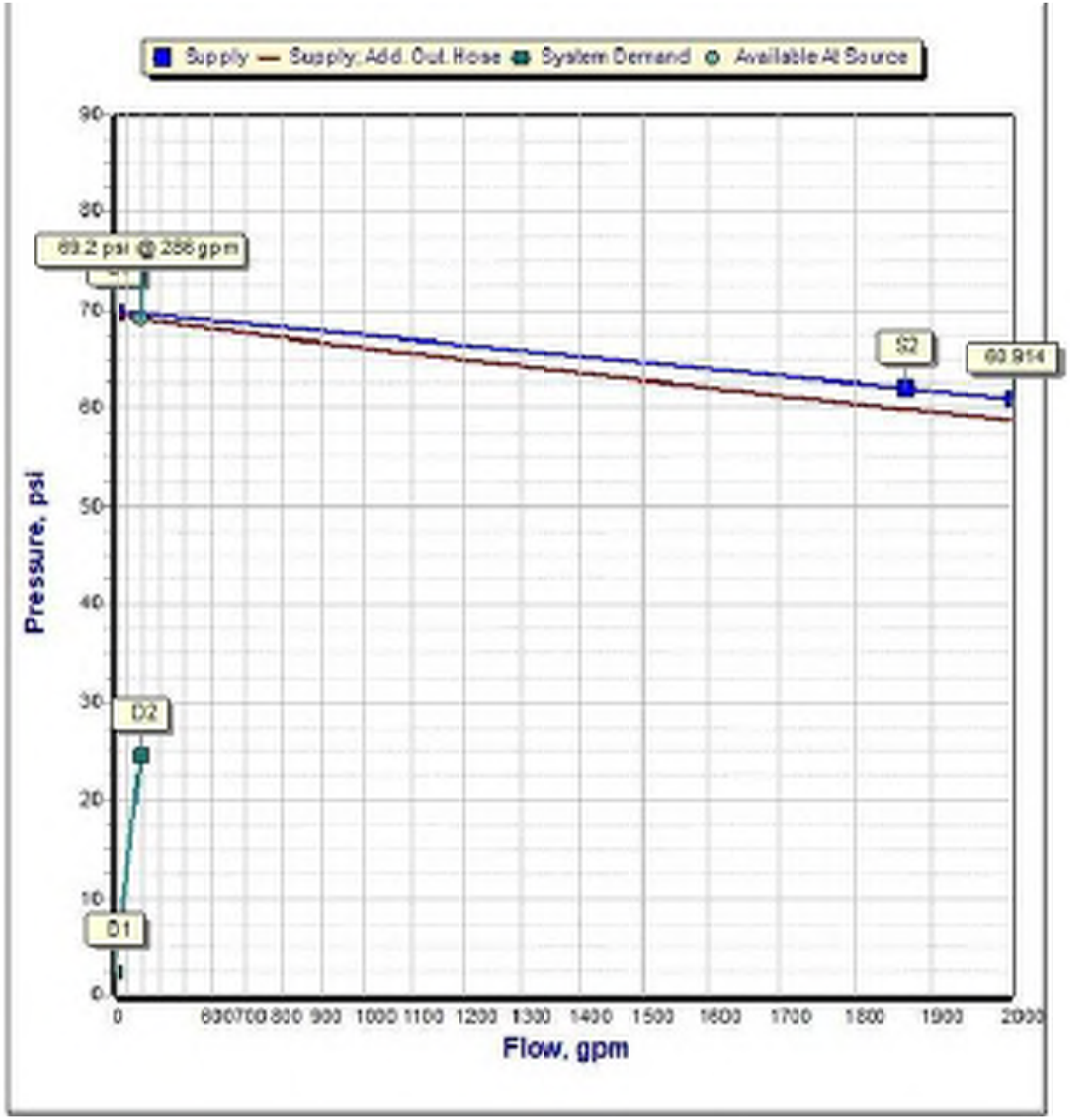
Sprinklers

Ovehead Sprinkler Flow (gpm)	286
InRack Sprinkler Flow (gpm)	0
Other (custom defined) Sprinkler Flow (gpm)	0
Total Sprinkler Flow (gpm)	286

Other

Required Margin of Safety (psi)	0
W1 - Pressure (psi)	24.6
W1 - Flow (gpm)	286
Demand w/o System Pump(s)	N/A

Hydraulic Analysis for : 2



Hydraulic Analysis for : 2

Graph Labels

Label	Description	Values	
		Flow (gpm)	Pressure (psi)
S1	Supply point #1 - Static	0	70
S2	Supply point #2 - Residual	1867	62
D1	Elevation Pressure	0	2.6
D2	System Demand	286	24.6

Curve Intersections & Safety Margins

Curve Name	Intersection		Safety Margin	
	Pressure (psi)	Flow (gpm)	Pressure (psi)	@ Flow (gpm)
Supply	69.2	520.2	44.6	536
Supply; Add. Out. Hose	68.5	516.9	44.6	536

Open Heads

Head Ref.	Head Type	Coverage	K-Factor	Required			Calculated		
				Density	Flow	Pressure	Density	Flow	Pressure
		(ft²)	(gpm/psi½)	(gpm/ft²)	(gpm)	(psi)	(gpm/ft²)	(gpm)	(psi)
S10	Overhead Sprinkler	120	5.6	0.15	18	10.3	0.17	20.4	13.3
S11	Overhead Sprinkler	120	5.6	0.15	18	10.3	0.155	18.6	11.1
S12	Overhead Sprinkler	120	5.6	0.15	18	10.3	0.15	18	10.3
S13	Overhead Sprinkler	120	5.6	0.15	18	10.3	0.172	20.7	13.6
S14	Overhead Sprinkler	120	5.6	0.15	18	10.3	0.174	20.9	13.9
S15	Overhead Sprinkler	120	5.6	0.15	18	10.3	0.177	21.2	14.3
S16	Overhead Sprinkler	120	5.6	0.15	18	10.3	0.176	21.1	14.2
S17	Overhead Sprinkler	120	5.6	0.15	18	10.3	0.173	20.7	13.7
S18	Overhead Sprinkler	120	5.6	0.15	18	10.3	0.171	20.6	13.5
S5	Overhead Sprinkler	120	5.6	0.15	18	10.3	0.171	20.5	13.4
S6	Overhead Sprinkler	120	5.6	0.15	18	10.3	0.173	20.7	13.7
S7	Overhead Sprinkler	120	5.6	0.15	18	10.3	0.175	21	14.1
S8	Overhead Sprinkler	120	5.6	0.15	18	10.3	0.175	21	14

S9	Overhead Sprinkler	120	5.6	0.15	18	10.3	0.171	20.6	13.5

Node Data

Node# Elev	Type Hgroup	K-Fact. Open/Closed	Discharge Overdischarge	Coverage Density	Tot. Pres. Elev. Pres.	Req. Pres. Req. Discharge
ft		gpm/psi½	gpm gpm	ft² gpm/ft²	psi psi	psi gpm
S12 8	Overhead Sprinkler HEAD	5.6 Open	18 0	120 0.15	10.3 -2.6	10.3 18
S11 8	Overhead Sprinkler HEAD	5.6 Open	18.6 0.6	120 0.155	11.1 -2.6	10.3 18
S10 8	Overhead Sprinkler HEAD	5.6 Open	20.4 2.4	120 0.17	13.3 -2.6	10.3 18
S5 8	Overhead Sprinkler HEAD	5.6 Open	20.5 2.5	120 0.171	13.4 -2.6	10.3 18
S9 8	Overhead Sprinkler HEAD	5.6 Open	20.6 2.6	120 0.171	13.5 -2.6	10.3 18
S18 8	Overhead Sprinkler HEAD	5.6 Open	20.6 2.6	120 0.171	13.5 -2.6	10.3 18
S13 8	Overhead Sprinkler HEAD	5.6 Open	20.7 2.7	120 0.172	13.6 -2.6	10.3 18
S6 8	Overhead Sprinkler HEAD	5.6 Open	20.7 2.7	120 0.173	13.7 -2.6	10.3 18
S17 8	Overhead Sprinkler HEAD	5.6 Open	20.7 2.7	120 0.173	13.7 -2.6	10.3 18
S14 8	Overhead Sprinkler HEAD	5.6 Open	20.9 2.9	120 0.174	13.9 -2.6	10.3 18
S8 8	Overhead Sprinkler HEAD	5.6 Open	21 3	120 0.175	14 -2.6	10.3 18
S7 8	Overhead Sprinkler HEAD	5.6 Open	21 3	120 0.175	14.1 -2.6	10.3 18
S16 8	Overhead Sprinkler HEAD	5.6 Open	21.1 3.1	120 0.176	14.2 -2.6	10.3 18
S15 8	Overhead Sprinkler HEAD	5.6 Open	21.2 3.2	120 0.177	14.3 -2.6	10.3 18
002 8	Node NODE				12.3 -2.6	
013 8	Node NODE				14 -2.6	
012 8	Node NODE				14.1 -2.6	
009 8	Node NODE				14.3 -2.6	
008 8	Node NODE				14.6 -2.6	
003 8	Node NODE				14.9 -2.6	
005 8	Node NODE				14.9 -2.6	
006 8	Node NODE				15 -2.6	
007 8	Node NODE				15.4 -2.6	
014-O 8	Node NODE				15.5 -2.6	
014-I 8	Node NODE				16.4 -2.6	

Node Data

Node# Elev	Type Hgroup	K-Fact. Open/Closed	Discharge Overdischarge	Coverage Density	Tot. Pres. Elev. Pres.	Req. Pres. Req. Discharge
ft		gpm/psi½	gpm gpm	ft² gpm/ft²	psi psi	psi gpm
016 2	Node NODE				20.8 0	
018-O 2	Node NODE				20.8 0	
018-I 2	Node NODE				24.6 0	
W1 2	Supply SUPPLY		-286		24.6 0	

Pipe Data

Path # Pipe Ref.	Type Hgroup	Schedule Size	HWC Rough.	Fittings Eq.Len.	Length Total Len.	Flow Velocity	Fr.Resist. Loss Frict.	Vel.Pres. Loss Elev.	Start End	Start Disch. End Disch.
			in	ft	ft ft	gpm ft/s	psi/ft psi	psi psi		gpm gpm
1 002	Brline PIPE	10 1	100 0.015	1(us.Tee-Run);1(us.90); 1.77	14.5 16.27	18 6.11	0.1203 2	0.3 0	002 S12	18
1 003	Brline PIPE	10 1	100 0.015	1(us.90); 1.77	3.99 5.76	36.6 12.44	0.4485 2.6	1 0	003 002	
1 005	Cmain PIPE	10 3	100 0.015	1(us.Tee-Run);1(us.90); 6.71	12 18.71	36.6 1.41	0.0022 0.0	0.0 0	005 003	
1 006	Cmain PIPE	10 3	100 0.015	1(us.Tee-Run);	12	78.7 3.03	0.0092 0.1	0.1 0	006 005	
1 007	Cmain PIPE	10 3	100 0.015	1(us.Tee-Br); 14.37	3.6 17.98	120.9 4.65	0.0204 0.4	0.1 0	007 006	
1 022	Cmain PIPE	10 3	100 0.015	1(coupling); 0.96	0.23 1.19	286 10.99	0.1002 0.1	0.8 0	014-O 007	
1 187	DPV DPV	DPV-1 3	0 0		1.02	286 0	0.8247 0.8	0 0	014-I 014-O	
1 024	Cmain PIPE	10 3	120 0.004	2(us.90); 18.82	6.36 25.18	286 10.99	0.0715 1.8	0.8 2.6	016 014-I	
1 025	Cmain PIPE	10 4	120 0.004	1(us.Tee-Run);1(coupling); 1.32	2.41 3.73	286 6.44	0.0194 0.1	0.3 0	018-O 016	
1 188	BFP BFP	AmesC200N 4	0 0		2.43	286 0	1.5641 3.8	0 0	018-I 018-O	
1 027	Cmain PIPE	10 4	120 0.004		0.32	286 6.44	0.0194 0	0.3 0	W1 018-I	-286
2 186	Brline PIPE	10 1	100 0.015	1(us.Tee-Br); 4.43	5 9.43	18.6 6.33	0.1283 1.2	0.3 0	002 S11	18.6
3 017	Brline PIPE	10 1.5	100 0.015		12	20.4 2.95	0.019 0.2	0.1 0	S18 S10	20.6 20.4
3 016	Brline PIPE	10 1.5	100 0.015	1(us.Tee-Br); 7.02	1.11 8.13	41 5.93	0.0692 0.6	0.2 0	012 S18	20.6
3 010	Cmain PIPE	10 3	100 0.015	1(us.Tee-Run);2(us.90); 13.42	11.91 25.32	82.3 3.16	0.01 0.3	0.1 0	009 012	
3 009	Cmain PIPE	10 3	100 0.015	1(us.Tee-Run);	12	123.5 4.75	0.0212 0.3	0.2 0	008 009	
3 008	Cmain PIPE	10 3	100 0.015	1(us.Tee-Br); 14.37	8.4 22.77	165.1 6.34	0.0362 0.8	0.3 0	007 008	
4 019	Brline PIPE	10 1.5	100 0.015		10.03	20.5 2.97	0.0193 0.2	0.1 0	S13 S5	20.7 20.5
4 018	Brline PIPE	10 1.5	100 0.015	1(us.Tee-Br); 7.02	2.63 9.64	41.2 5.97	0.07 0.7	0.2 0	009 S13	20.7
5 015	Brline PIPE	10 1.5	100 0.015		12	20.6 2.98	0.0193 0.2	0.1 0	S17 S9	20.7 20.6
5 014	Brline PIPE	10 1.5	100 0.015	1(us.90); 3.51	1.11 4.62	41.3 5.98	0.0702 0.3	0.2 0	013 S17	20.7
5 013	Cmain PIPE	10 3	100 0.015	1(us.Tee-Run);	10.04	41.3 1.59	0.0028 0.0	0.0 0	012 013	
6 021	Brline PIPE	10 1.5	100 0.015		10.03	20.7 3	0.0196 0.2	0.1 0	S14 S6	20.9 20.7
6 020	Brline PIPE	10 1.5	100 0.015	1(us.Tee-Br); 7.02	2.63 9.64	41.6 6.02	0.0711 0.7	0.2 0	008 S14	20.9
7 185	Brline PIPE	10 1.5	100 0.015		10.03	21 3.03	0.02 0.2	0.1 0	S16 S8	21.1 21

Pipe Data

Start Tot.Pres. End Tot.Pres.
psi psi
12.3 10.3
14.9 12.3
14.9 14.9
15 14.9
15.4 15
15.5 15.4
16.4 15.5
20.8 16.4
20.8 20.8
24.6 20.8
24.6 24.6
12.3 11.1
13.5 13.3
14.1 13.5
14.3 14.1
14.6 14.3
15.4 14.6
13.6 13.4
14.3 13.6
13.7 13.5
14 13.7
14.1 14
13.9 13.7
14.6 13.9
14.2 14

Pipe Data

Path # Pipe Ref.	Type Hgroup	Schedule Size	HWC Rough.	Fittings Eq.Len.	Length Total Len.	Flow Velocity	Fr.Resist. Loss Frict.	Vel.Pres. Loss Elev.	Start End	Start Disch. End Disch.
			in	ft	ft ft	gpm ft/s	psi/ft psi	psi psi		gpm gpm
7 184	Brline PIPE	10 1.5	100 0.015	1(us.Tee-Br); 7.02	2.63 9.64	42.1 6.09	0.0727 0.7	0.2 0	005 S16	 21.1
8 183	Brline PIPE	10 1.5	100 0.015		10.03	21 3.05	0.0201 0.2	0.1 0	S15 S7	21.2 21
8 182	Brline PIPE	10 1.5	100 0.015	1(us.Tee-Br); 7.02	2.63 9.64	42.2 6.11	0.0732 0.7	0.3 0	006 S15	 21.2

Pipe Data

Start Tot.Pres. End Tot.Pres.
psi psi
14.9 14.2
14.3 14.1
15 14.3

PIPE INFORMATION

Node 1 Node 2	Elev 1 Elev 2	K-Factor 1 K-Factor 2	Flow added(q)* Total flow (Q)	Nominal ID Actual ID	Fittings quantity x (name) = length	L F T	C Factor Pf per ft	total (Pt) elev (Pe) frict (Pf)	NOTES
	(ft)	(gpm/psi½)	(gpm)	(in)	(ft)	(ft)	(psi)	(psi)	
S12	8	5.6	18	1	1x(us.90)=1.77	14.5	100	10.3	
002	8		18	1.097		1.77	0.1203	0	
						16.27		2	
002	8		18.6	1	1x(us.90)=1.77	3.99	100	12.3	
003	8		36.6	1.097		1.77	0.4485	0	
						5.76		2.6	
003	8		0	3	1x(us.90)=6.71	12	100	14.9	
005	8		36.6	3.26		6.71	0.0022	0	
						18.71		0.0	
005	8		42.1	3		12	100	14.9	
006	8		78.7	3.26		0	0.0092	0	
						12		0.1	
006	8		42.2	3	1x(us.Tee-Br)=14.37	3.6	100	15	
007	8		120.9	3.26		14.37	0.0204	0	
						17.98		0.4	
007	8		165.1	3	1x(coupling)=0.96	0.23	100	15.4	
014-O	8		286	3.26		0.96	0.1002	0	
						1.19		0.1	
014-O	8		0	3		1.02	0	15.5	DPV-1
014-I	8		286	0		0	0.8247	0	***
						1.02		0.8	
014-I	8		0	3	2x(us.90)=18.82	6.36	120	16.4	
016	2		286	3.26		18.82	0.0715	2.6	
						25.18		1.8	
016	2		0	4	1x(coupling)=1.32	2.41	120	20.8	
018-O	2		286	4.26		1.32	0.0194	0	
						3.73		0.1	
018-O	2		0	4		2.43	0	20.8	AmesC200N
018-I	2		286	0		0	1.5641	0	***
						2.43		3.8	
018-I	2		0	4		0.32	120	24.6	
W1	2		286	4.26		0	0.0194	0	
						0.32		0	
S11	8	5.6	18.6	1	1x(us.Tee-Br)=4.43	5	100	11.1	
002	8		18.6	1.097		4.43	0.1283	0	
						9.43		1.2	
S10	8	5.6	20.4	1.5		12	100	13.3	
S18	8	5.6	20.4	1.68		0	0.019	0	
						12		0.2	
S18	8	5.6	20.6	1.5	1x(us.Tee-Br)=7.02	1.11	100	13.5	
012	8		41	1.68		7.02	0.0692	0	
						8.13		0.6	
012	8		41.3	3	2x(us.90)=13.42	11.91	100	14.1	
009	8		82.3	3.26		13.42	0.01	0	
						25.32		0.3	
009	8		41.2	3		12	100	14.3	
008	8		123.5	3.26		0	0.0212	0	
						12		0.3	
008	8		41.6	3	1x(us.Tee-Br)=14.37	8.4	100	14.6	
007	8		165.1	3.26		14.37	0.0362	0	
						22.77		0.8	
S5	8	5.6	20.5	1.5		10.03	100	13.4	
S13	8	5.6	20.5	1.68		0	0.0193	0	
						10.03		0.2	

PIPE INFORMATION

Node 1 Node 2	Elev 1 Elev 2	K-Factor 1 K-Factor 2	Flow added(q)* Total flow (Q)	Nominal ID Actual ID	Fittings quantity x (name) = length	L F T	C Factor Pf per ft	total (Pt) elev (Pe) frict (Pf)	NOTES
	(ft)	(gpm/psi½)	(gpm)	(in)	(ft)	(ft)	(psi)	(psi)	
S13	8	5.6	20.7	1.5	1x(us.Tee-Br)=7.02	2.63	100	13.6	
009	8		41.2	1.68		7.02	0.07	0	
						9.64		0.7	
S9	8	5.6	20.6	1.5		12	100	13.5	
S17	8	5.6	20.6	1.68		0	0.0193	0	
						12		0.2	
S17	8	5.6	20.7	1.5	1x(us.90)=3.51	1.11	100	13.7	
013	8		41.3	1.68		3.51	0.0702	0	
						4.62		0.3	
013	8		0	3		10.04	100	14	
012	8		41.3	3.26		0	0.0028	0	
						10.04		0.0	
S6	8	5.6	20.7	1.5		10.03	100	13.7	
S14	8	5.6	20.7	1.68		0	0.0196	0	
						10.03		0.2	
S14	8	5.6	20.9	1.5	1x(us.Tee-Br)=7.02	2.63	100	13.9	
008	8		41.6	1.68		7.02	0.0711	0	
						9.64		0.7	
S8	8	5.6	21	1.5		10.03	100	14	
S16	8	5.6	21	1.68		0	0.02	0	
						10.03		0.2	
S16	8	5.6	21.1	1.5	1x(us.Tee-Br)=7.02	2.63	100	14.2	
005	8		42.1	1.68		7.02	0.0727	0	
						9.64		0.7	
S7	8	5.6	21	1.5		10.03	100	14.1	
S15	8	5.6	21	1.68		0	0.0201	0	
						10.03		0.2	
S15	8	5.6	21.2	1.5	1x(us.Tee-Br)=7.02	2.63	100	14.3	
006	8		42.2	1.68		7.02	0.0732	0	
						9.64		0.7	

* Discharge shown for flowing nodes only

PIPE INFORMATION

Node 1 Node 2	Elev 1 Elev 2	K-Factor 1 K-Factor 2	Flow added (q) Total flow (Q)	Nominal ID Actual ID	Fittings quantity x (name) = length	L F T	C Factor Pf per ft	total (Pt) elev (Pe) frict (Pf)	NOTES
	(ft)	(gpm/psi½)	(gpm)	(in)	(ft)	(ft)	(psi)	(psi)	
Path No: 1									
S12	8	5.6	18	1	1x(us.90)=1.77	14.5	100	10.3	
002	8		18	1.097		1.77	0.1203	0	
						16.27		2	
002	8		18.6	1	1x(us.90)=1.77	3.99	100	12.3	
003	8		36.6	1.097		1.77	0.4485	0	
						5.76		2.6	
003	8		0	3	1x(us.90)=6.71	12	100	14.9	
005	8		36.6	3.26		6.71	0.0022	0	
						18.71		0.0	
005	8		42.1	3		12	100	14.9	
006	8		78.7	3.26		0	0.0092	0	
						12		0.1	
006	8		42.2	3	1x(us.Tee-Br)=14.37	3.6	100	15	
007	8		120.9	3.26		14.37	0.0204	0	
						17.98		0.4	
007	8		165.1	3	1x(coupling)=0.96	0.23	100	15.4	
014-O	8		286	3.26		0.96	0.1002	0	
						1.19		0.1	
014-O	8		0	3		1.02	0	15.5	DPV-1
014-I	8		286	0		0	0.8247	0	***
						1.02		0.8	
014-I	8		0	3	2x(us.90)=18.82	6.36	120	16.4	
016	2		286	3.26		18.82	0.0715	2.6	
						25.18		1.8	
016	2		0	4	1x(coupling)=1.32	2.41	120	20.8	
018-O	2		286	4.26		1.32	0.0194	0	
						3.73		0.1	
018-O	2		0	4		2.43	0	20.8	AmesC200N
018-I	2		286	0		0	1.5641	0	***
						2.43		3.8	
018-I	2		0	4		0.32	120	24.6	
W1	2		286	4.26		0	0.0194	0	
						0.32		0	
W1								**24.6**	
Path No: 2									
S11	8	5.6	18.6	1	1x(us.Tee-Br)=4.43	5	100	11.1	
002	8		18.6	1.097		4.43	0.1283	0	
						9.43		1.2	
002								**12.3**	

PIPE INFORMATION

Node 1 Node 2	Elev 1 Elev 2	K-Factor 1 K-Factor 2	Flow added (q) Total flow (Q)	Nominal ID Actual ID	Fittings quantity x (name) = length	L F T	C Factor Pf per ft	total (Pt) elev (Pe) frict (Pf)	NOTES
	(ft)	(gpm/psi½)	(gpm)	(in)	(ft)	(ft)	(psi)	(psi)	
Path No: 3									
S10	8	5.6	20.4	1.5		12	100	13.3	
S18	8	5.6	20.4	1.68		0	0.019	0	
						12		0.2	
S18	8	5.6	20.6	1.5	1x(us.Tee-Br)=7.02	1.11	100	13.5	
012	8		41	1.68		7.02	0.0692	0	
						8.13		0.6	
012	8		41.3	3	2x(us.90)=13.42	11.91	100	14.1	
009	8		82.3	3.26		13.42	0.01	0	
						25.32		0.3	
009	8		41.2	3		12	100	14.3	
008	8		123.5	3.26		0	0.0212	0	
						12		0.3	
008	8		41.6	3	1x(us.Tee-Br)=14.37	8.4	100	14.6	
007	8		165.1	3.26		14.37	0.0362	0	
						22.77		0.8	
007								**15.4**	
Path No: 4									
S5	8	5.6	20.5	1.5		10.03	100	13.4	
S13	8	5.6	20.5	1.68		0	0.0193	0	
						10.03		0.2	
S13	8	5.6	20.7	1.5	1x(us.Tee-Br)=7.02	2.63	100	13.6	
009	8		41.2	1.68		7.02	0.07	0	
						9.64		0.7	
009								**14.3**	
Path No: 5									
S9	8	5.6	20.6	1.5		12	100	13.5	
S17	8	5.6	20.6	1.68		0	0.0193	0	
						12		0.2	
S17	8	5.6	20.7	1.5	1x(us.90)=3.51	1.11	100	13.7	
013	8		41.3	1.68		3.51	0.0702	0	
						4.62		0.3	
013	8		0	3		10.04	100	14	
012	8		41.3	3.26		0	0.0028	0	
						10.04		0.0	
012								**14.1**	
Path No: 6									
S6	8	5.6	20.7	1.5		10.03	100	13.7	
S14	8	5.6	20.7	1.68		0	0.0196	0	
						10.03		0.2	
S14	8	5.6	20.9	1.5	1x(us.Tee-Br)=7.02	2.63	100	13.9	
008	8		41.6	1.68		7.02	0.0711	0	
						9.64		0.7	
008								**14.6**	

PIPE INFORMATION

Node 1 Node 2	Elev 1 Elev 2	K-Factor 1 K-Factor 2	Flow added (q) Total flow (Q)	Nominal ID Actual ID	Fittings quantity x (name) = length	L F T	C Factor Pf per ft	total (Pt) elev (Pe) frict (Pf)	NOTES
	(ft)	(gpm/psi½)	(gpm)	(in)	(ft)	(ft)	(psi)	(psi)	
Path No: 7									
S8	8	5.6	21	1.5		10.03	100	14	
S16	8	5.6	21	1.68		0	0.02	0	
						10.03		0.2	
S16	8	5.6	21.1	1.5	1x(us.Tee-Br)=7.02	2.63	100	14.2	
005	8		42.1	1.68		7.02	0.0727	0	
						9.64		0.7	
005								**14.9**	
Path No: 8									
S7	8	5.6	21	1.5		10.03	100	14.1	
S15	8	5.6	21	1.68		0	0.0201	0	
						10.03		0.2	
S15	8	5.6	21.2	1.5	1x(us.Tee-Br)=7.02	2.63	100	14.3	
006	8		42.2	1.68		7.02	0.0732	0	
						9.64		0.7	
006								**15**	

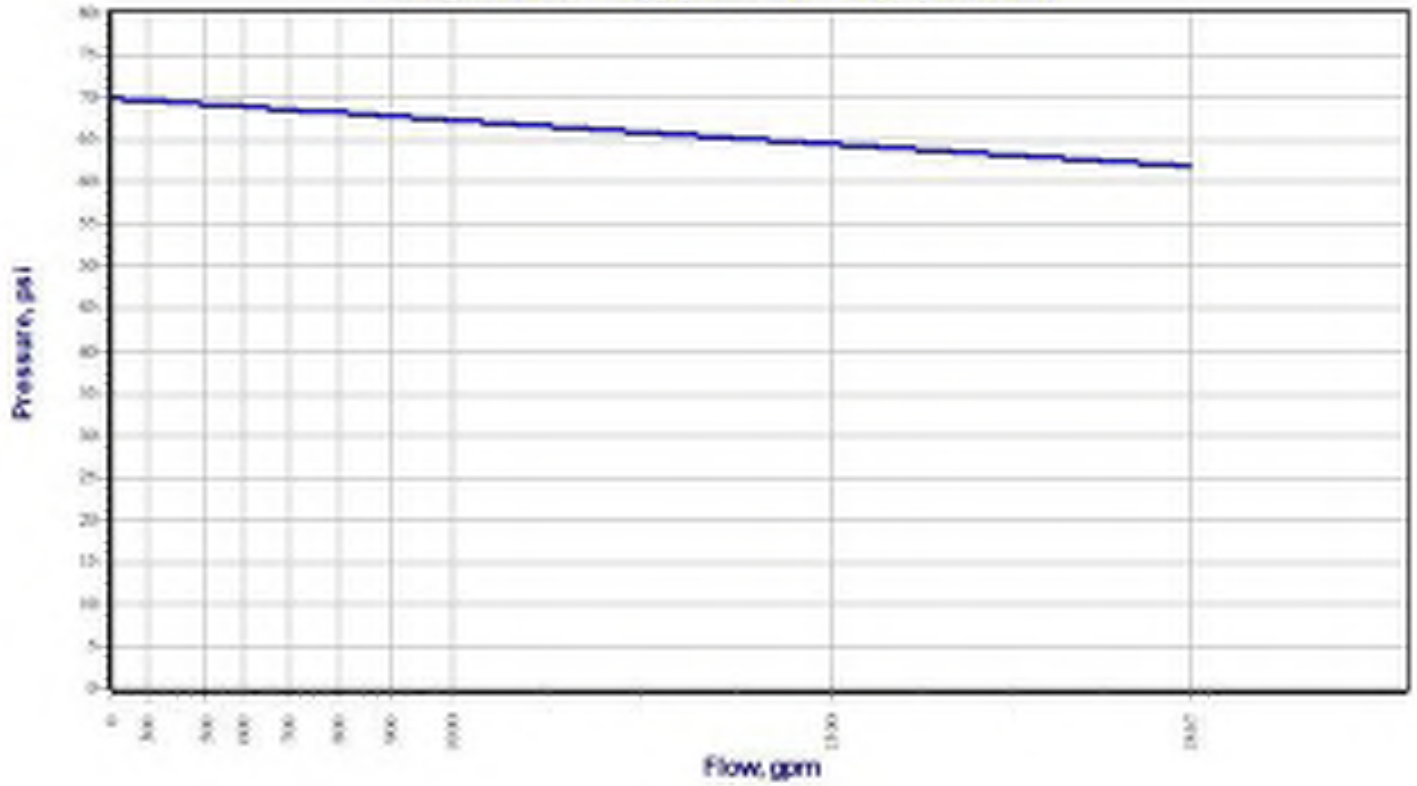
* Pressures are balanced to a high degree of accuracy. Values may vary by 0.1 psi due to display rounding.

* Maximum Velocity of 12.44 ft/s occurs in the following pipe(s): (003-002)

*** Device pressure loss (gain in the case of pumps) is calculated from the device's curve. If the device curve is printed with this report, it will appear below. The length of the device as shown in the table above comes from the CAD drawing. The friction loss per unit of length is calculated based upon the length and the curve-based loss/gain value. Internal ID and C Factor values are irrelevant as the device is not represented as an addition to any pipe, but is an individual item whose loss/gain is based solely on the curve data.

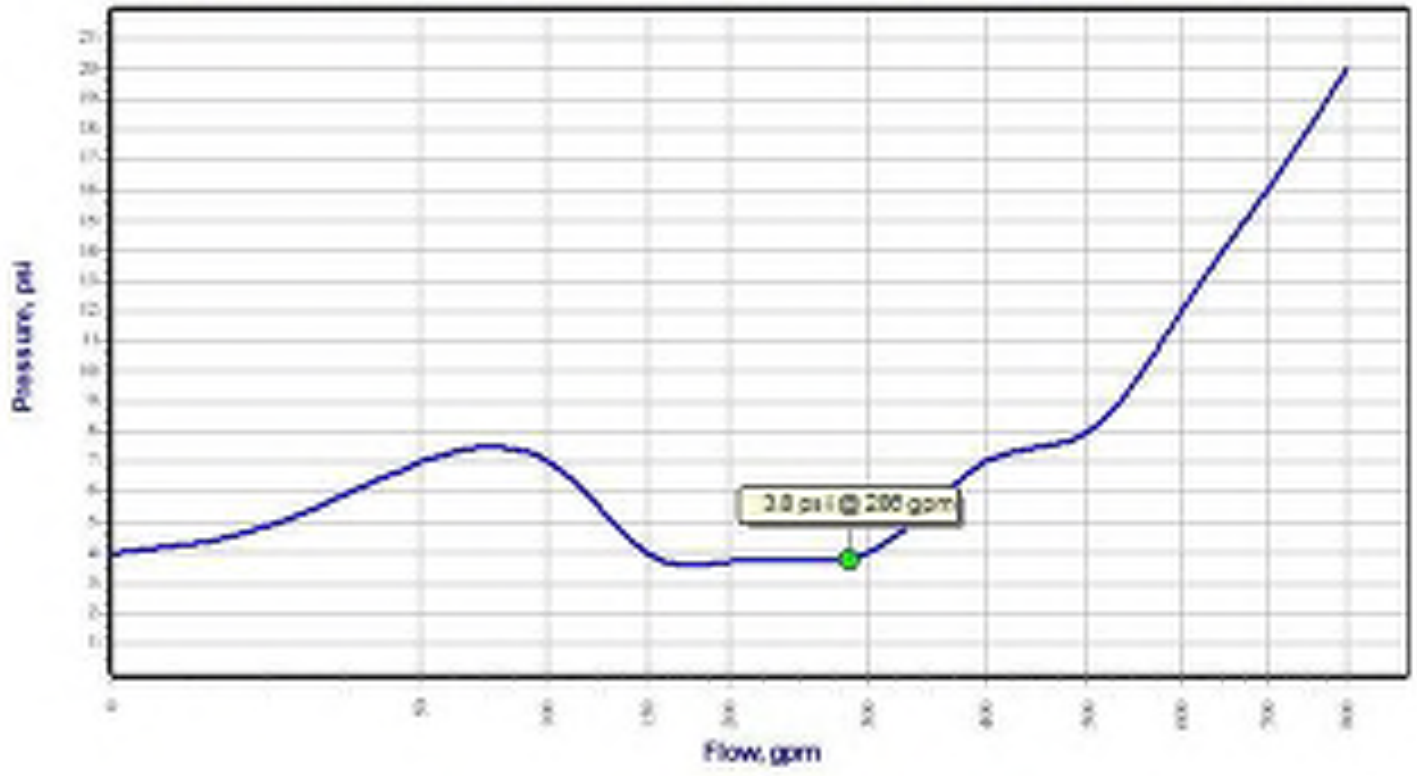
Pressure vs. Flow Function

Design Area: 2; Supply Ref.: W1; Supply Name:W1



Pressure Loss Function

Design Area: 2; BFP Ref.: 588 (AmesC200N, Size = 4); Inlet Node: 0184; Outlet Node: 018-O



File: C:\Users\Blackwater2\appdata\local\temp\254 Paris St_1_12232_1310.sv$