



March 9, 2026

MA Precious Holding Inc.

Attention: Majid Ahangaran

Re: OTT-24006545-A0 116 & 118 Carruthers Avenue, Ottawa  
Mechanical Noise Assessment

Dear Mr. Ahangaran:

EXP Services Inc. (EXP) was retained by MA Precious Holding Inc. (Client) to assess potential noise impact from mechanical equipment associated with the proposed apartment development at 116 & 118 Carruthers Avenue in Ottawa (Site). It is our understanding that the assessment to satisfy the City of Ottawa's requirement for a site plan approval application. This letter summarises our findings.

## 1. Project Description

The Site is located on the west side of Carruthers Avenue between Lyndale Avenue and Scott Street. The project consists of a 4-storey apartment building. The majority of mechanical equipment is either housed in the mechanical penthouse or on the roof. A site plan is provided in Appendix A. The Site is surrounded by residential properties.

## 2. Stationary Noise Sources

It is our understanding that each apartment unit in the Site will be equipped with an individual HVAC system. The air-conditioning condensers for all apartment units will be installed on the roof. There will be a total of 16 condensers. Other major mechanical equipment will be housed inside the mechanical penthouse. Therefore, the significant stationary noise sources are the condenser on the roof. Their locations are shown in Appendix C.

As it is in the early stage of design, selection of mechanical equipment has not been finalized. Based on information received from the mechanical engineer, the condenser will be 1.5 tons single stage condenser with SEER2 rating of 13.4. A cut sheet of a York model YC318E2S11 condenser is provided in Appendix B. It has a sound power level of 77 dBA or lower according to the cut sheet. It is assumed that the condensers may run continuously for an hour during daytime and evening; and for 33% of an hour during night-time.

## 3. Critical Noise Receptors

Critical noise receptors are those receptors likely to be most affected by the identified noise sources. The critical noise receptors are the residential properties surrounding the Site. They are listed in Table 1. The lot immediately north of the Site is currently vacant and a noise receptor on second floor at the centre of the lot is assumed. The locations of critical noise receptors are shown in Appendix C.

**Table 1. Critical Noise Receptors**

Receptor ID	Receptor Location	Height (m)
PRO1	Dormer window on north façade near east end of the apartment building at 120 Carruthers Avenue	10.5
POR2	Dormer window on north façade near west end of the apartment building at 120 Carruthers Avenue	10.5
POR3	3-storey house at 185-187 Hinchey Avenue	7.5
POR4	Vacant lot at 112-114 Carruthers Avenue	4.5
POR5	2-storey house at 117 Carruthers Avenue	4.5
POR6	4th floor window of proposed apartment building at 116-118 Carruthers Avenue	12.4

## 4. Noise Criteria

The guidelines for assessing the noise impact of stationary noise sources on noise sensitive land uses in Ottawa are given in Ottawa Environmental Noise Control Guidelines, which references Ministry of Environment, Conservation and Parks (MECP) Publication NPC-300, Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning. It states that:

“For sound from a stationary source..., the sound level limit at a point of reception, expressed in terms of the One Hour Equivalent Sound Level (Leq) is the higher of the applicable exclusion limit value given in Table 2, or the background sound level for that point of reception.”

The area is considered by EXP to be Class 2 Area (Suburban). The exclusionary sound level limits of 50 dBA during daytime and evening; and 45 dBA during night-time are used to assess compliance.

**Table 2. Exclusionary Limit Values of One-Hour Equivalent Sound Level for Class 2 (Suburban) Area**

Time Period	Plane of Window Point of Reception	Outdoor Points of Reception
	Leq(1hr) (dBA)	Leq (1hr) (dBA)
Daytime (07:00 – 19:00)	50	50
Evening (19:00 – 23:00)	50	45
Night-time (23:00 – 07:00)	45	-

## 5. Noise Prediction

Sound levels at the Receptors due to the rooftop mechanical equipment were calculated using the software CadnaA in accordance with the methods described in ISO-9613-2. The ground absorption is assumed to be 0.2. The calculated sound levels are presented in Table 3. The CadnaA calculation output and noise source locations are provided in Appendix G. The exclusionary sound level limits are met at all receptors. The sound level limits are met at all receptors.

**Table 14. Calculated Sound Levels at Receptors**

Receptor ID	Calculated Sound Level (dBA)		Sound Level Limit (dBA)		Compliance?
	Day & Evening	Night	Day & Evening	Night	
PRO1	49	44	50	45	Yes
POR2	46	42	50	45	Yes

Receptor ID	Calculated Sound Level (dBA)		Sound Level Limit (dBA)		Compliance?
	Day & Evening	Night	Day & Evening	Night	
POR3	47	42	50	45	Yes
POR4	41	36	50	45	Yes
POR5	43	38	50	45	Yes
POR6	50	45	50	45	Yes

## 6. Conclusion

The noise impact from rooftop mechanical equipment of the proposed apartment building on surrounding residential properties will meet Ottawa and MECP criteria. The proposed residential development at 116 & 118 Carruthers Avenue in Ottawa should therefore be approved from the noise perspective.

## 7. General Limitations

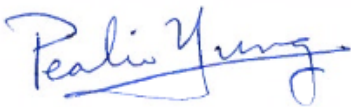
The information and conclusions in this report are considered to be privileged and confidential and have been prepared exclusively for MA Precious Holding Inc. The purpose of this report is to provide MA Precious Holding Inc. with an assessment of the potential noise impact from the proposed residential development at 116 & 118 Carruthers Avenue.

The information presented in this report is based on information provided by others and visual observations as identified herein. Achieving the objectives stated in this report has required us to arrive at conclusions based upon the best information presently known to us. No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information; it can only reduce the possibility to an acceptable level. Professional judgment was exercised in gathering and analyzing the information obtained and in the formulation of the conclusions. Like all professional persons rendering advice, we do not act as absolute insurers of the conclusions we reach, but we commit ourselves to care and competence in reaching those conclusions.

Any use which a third party makes of this report, or any part thereof, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. EXP accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Noise and vibration levels at various times may differ from those assessed. In addition, any changes to the proposed design or introduction of new processes and/or sources may render the conclusions of this report inaccurate or invalid. In the event of any such changes, EXP should be contacted to re-evaluate the conditions within the assessed areas and make appropriate revisions to the original conclusions of this report.

Yours truly,  
EXP Services Inc.



Pearlie Yung, M.Sc., P.Eng.  
Senior Acoustic Engineer  
Environmental Services



Ron Taylor, M.Sc., C.Chem., CIH  
Discipline Lead, Air Quality & Industrial Hygiene  
Environmental Services

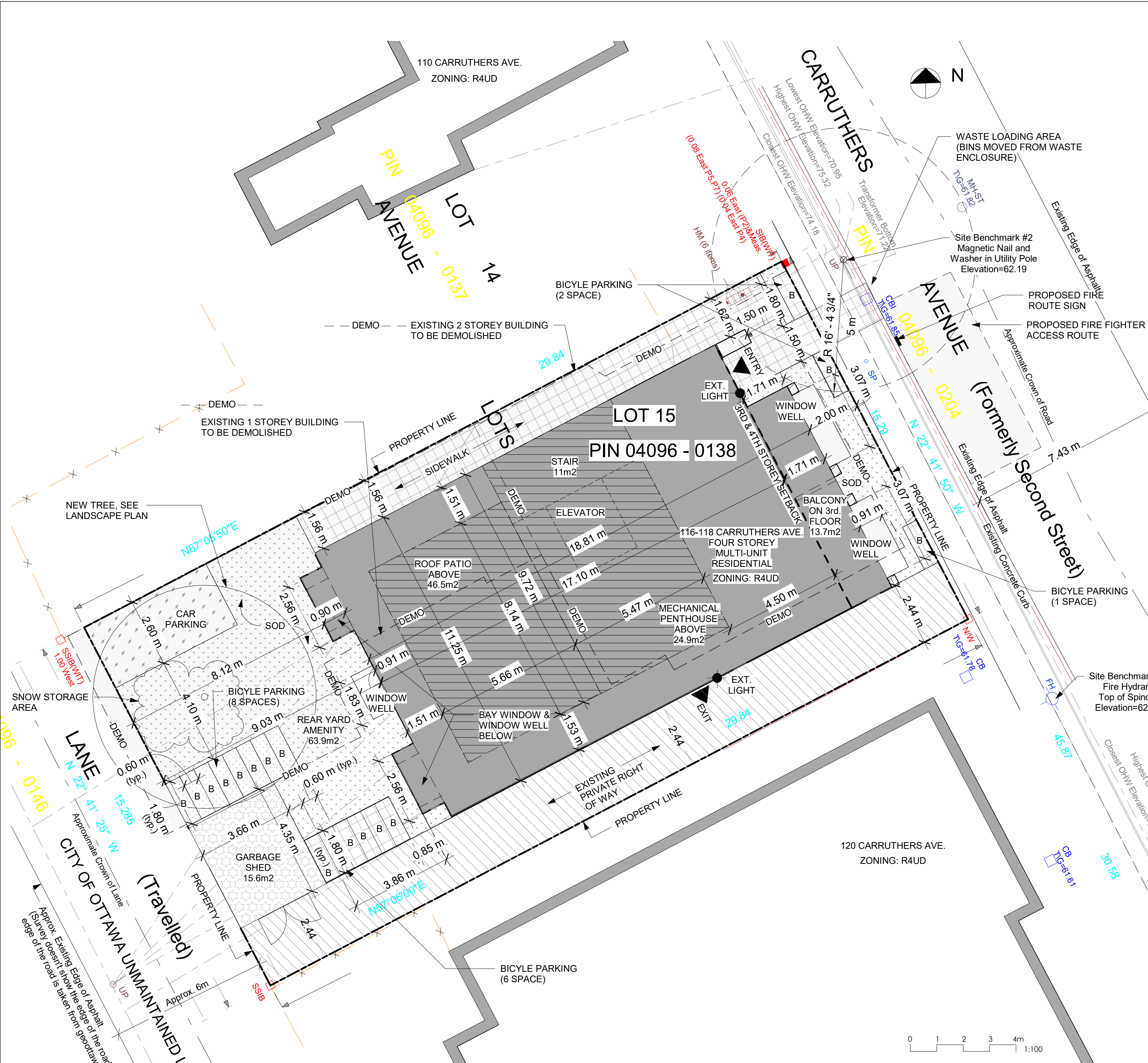
Appendices:

Appendix A – Drawings

Appendix B – Technical Information

Appendix C – Noise Source and Receptor Locations

## Appendix A – Drawings



### 116-118 CARRUTHERS AVENUE

SITE PLAN OF SURVEY PART OF LOT 15, WEST CARRUTHERS AVENUE REGISTERED PLAN 35, CITY OF OTTAWA  
PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD., COMPLETED MARCH 1, 2024

R4UD - RESIDENTIAL FOURTH DENSITY ZONE (SEC. 161-162) CITY OF OTTAWA; DWELLING TYPE: 4 STOREY LOW-RISE RESIDENTIAL

ZONING MECHANISMS	REQUIREMENT	PROVIDED	SECTION
A) MINIMUM LOT AREA	450 m <sup>2</sup>	456.07 m <sup>2</sup>	Section 162, Table 162A
B) MINIMUM LOT WIDTH	15 m	15.29 m	Section 162, Table 162A
C) MINIMUM LOT DEPTH	N/A	29.84 m	Section 162, Table 162A
D) MINIMUM FRONT YARD SET BACK	Lesser of the average of abutting lots' corresponding FYS (-1.99 m) or 4.5 m	2 m	Section 144(1)(a), Section 162, Table 162A
E) MINIMUM INTERIOR SIDE YARD SET BACK	1.5 m	1.5 m, 2.44 m	Section 144, Table 144A
F) MINIMUM REAR YARD SETBACK	%30 of lot depth (8.952m)	9 m	Section 144(3)(a)
G) MINIMUM REAR YARD AREA	25% of lot area (114.32 m <sup>2</sup> )	138.5 m <sup>2</sup>	Section 162, Table 162A
H) MAXIMUM BUILDING HEIGHT	14.5 m	TBD < 14.5 m	
I) PERCENTAGE OF LANDSCAPE AREA OF THE LOT AREA	30% of lot area (136.82 m <sup>2</sup> )	30.04% (136.99 m <sup>2</sup> )	Section 161(8)
J) MINIMUM AREA OF SOFTLANDSCAPING IN REAR YARD AREA	On a lot greater than 450 m <sup>2</sup> in area: 50% of rear yard Minimum aggregate area of 25 m <sup>2</sup> , with a longer dimension <math>\geq 2 \times</math> shorter dimension	73.63 m <sup>2</sup> 53.15%	Section 161(15)(b)(i) Section 161(15)(b)(iv)
K) MINIMUM AGGREGATE FRONT YARD SOFTLANDSCAPED AREA	For lot where FYS is 1.5-3m: 20% (7.64 m <sup>2</sup> )	39.21% (12 m <sup>2</sup> )	Section 161, Table 161
L) MINIMUM FENESTRATION REQUIREMENT	Front facade: at least 25% windows	34% windows	Section 161(15)(g)
M) MINIMUM FRONT FACADE ADDITIONAL RECESS	At least 20% of front facade minimum of 0.6 m from front setback line	23.6%	Section 161(15)(h)
N) MINIMUM VEHICLE PARKING (RESIDENTS) Area Z on Schedule 1A	0	0	Section 101(2)
O) MINIMUM VEHICLE PARKING (VISITOR)	No Visitor parking spaces are required for the first 12 units. 0.1 per unit parking space per unit after 12 units ((17-12) x 0.1 = 0.5 (1) parking space)	1 30.04% (136.99 m <sup>2</sup> )	Section 102(2)
P) MINIMUM PARKING SPACE	2.6 m (width) x 5.2 m (length) Maximum width of 3.1 m		Section 106(1)
R) UNIT BREAKDOWN	25% 2 bedroom units (4)	Total unit number=17 Number of 2 bedroom unit=4	Section 161(16)
S) MINIMUM BICYCLE PARKING	0.5 per dwelling unit (17x0.5=8.5= 9 parking spaces)	17 parking spaces	Section 111, Table 111A(b)
T) AMENITY AREA	0	63.9 m <sup>2</sup> rear yard 13.7 m <sup>2</sup> balcony 46.5 m <sup>2</sup> roof top patio	

BUILDING AREAS	UNIT BREAKDOWN			
	BACHELOR	1 BED	2 BED	TOTAL
<b>BASEMENT</b>				
BUILDING AREA	1	1	1	3
GFA				
<b>GROUND FLOOR</b>				
BUILDING AREA	1	1	1	3
GFA				
<b>SECOND FLOOR</b>				
BUILDING AREA	2	1	1	4
GFA				
<b>THIRD FLOOR</b>				
BUILDING AREA	3	1	0	4
GFA				
<b>FOURTH FLOOR</b>				
BUILDING AREA	1	1	1	3
GFA				
<b>TOTAL</b>	<b>8</b>	<b>5</b>	<b>4</b>	<b>17</b>

FLOOR	BUILDING AREA	GFA
BASEMENT	205.2 m <sup>2</sup>	145.6 m <sup>2</sup>
GROUND FLOOR	210 m <sup>2</sup>	151 m <sup>2</sup>
SECOND FLOOR	210 m <sup>2</sup>	162.4 m <sup>2</sup>
THIRD FLOOR	196 m <sup>2</sup>	148.5 m <sup>2</sup>
FOURTH FLOOR	196 m <sup>2</sup>	150.5 m <sup>2</sup>
<b>TOTAL BUILDING AREA</b>	<b>1017.2 m<sup>2</sup></b>	
<b>TOTAL GFA</b>	<b>758 m<sup>2</sup></b>	

**GARBAGE REQUIREMENT**  
GARBAGE, RECYCLING AND COMPOSTING ARE TO BE STORED IN THE GARBAGE SHED AND REMOVED PRIVATELY DURING COLLECTION

**SNOW REMOVAL REQUIREMENT**  
PROPERTY OWNER WILL BE RESPONSIBLE FOR THE REMOVAL AND STORAGE OF SNOW FOR ALL WALKWAYS & WINDOW WELLS THROUGHOUT THE WINTER

AVERAGE GRADE:  
CALCULATED FROM EXISTING ELEVATION POINTS AT A DISTANCE EQUAL TO THE MINIMUM FRONT YARD & REAR YARD SETBACKS, AT THE INTERIOR SIDE PROPERTY LINES  
AVERAGE GRADE : 62.14m (62.09m + 61.86m + 62.27m + 62.35m) /4

#### SITE LEGEND

- NEW TREE
- EX TREE TO BE REMOVED
- NEW SHRUB
- PROPOSED BUILDING
- EXISTING BUILDING TO BE DEMOLISHED
- PROPOSED / EXISTING ENTRY / EXIT
- PROPERTY LINE
- DENOTES HARD LANDSCAPING
- DENOTES SOFT LANDSCAPING
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING PRIVATE RIGHT OF WAY
- SNOW STORAGE AREA
- WASTE COLLECTION AREA
- BYCYCLE PARKING (SOD)
- BYCYCLE PARKING (PAVER)
- BIKE RACKS
- CAR PARKING SPACE (ASPHALT)
- EX. CHAINED LINK/BOARD FENCE
- EXTERIOR LIGHT

#### WASTE COLLECTION LEGEND

- GB 4YD GARBAGE CONTAINER
- BB 3-360L BLUE BIN
- B 3-360L BLACK BIN
- G 240L ORGANICS

#### SITE NOTES

- NEW ROOF DOWN SPOUTS SHALL NOT BE DIRECTED TOWARDS THE ADJACENT PROPERTIES
- EXCAVATED MATERIAL TO BE REMOVED FROM PROPERTY
- ALL GRADE TO SLOPE 2% AWAY FROM FOUNDATION WALL
- ALL MEASUREMENTS ARE METRIC (ACCOMPANYING IMPERIAL MEAS. MAY APPEAR)
- EXISTING GRADING AND DRAINAGE PATTERNS NOT TO BE ALTERED UNLESS OTHERWISE NOTED BY THE CIVIL ENGINEER
- SNOW ACCUMULATION TO BE REMOVED OFF SITE IMMEDIATELY AS NEEDED

**RAI REDLINE ARCHITECTURE**

REDLINE ARCHITECTURE INC.  
Tel: 613-612-2232  
info@redlinearchitecture.ca  
www.redlinearchitecture.ca

**RESPONSIBILITIES:**  
DO NOT SCALE DRAWINGS  
ALL DESIGN AND CONSTRUCTION TO BE IN ACCORDANCE WITH THE ONTARIO BUILDING CODE 2012  
ALL CONTRACTORS MUST WORK IN ACCORDANCE WITH ALL LAWS, REGULATIONS AND BYLAWS HAVING JURISDICTION  
IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT IMMEDIATELY  
THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION UNLESS SIGNED BY THE ARCHITECT  
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GENERAL NOTES:  
ONTARIO ASSOCIATION OF ARCHITECTS  
LEVENT TATAR  
LICENSE  
1942

# 116-118 CARRUTHERS AVE.

## FOUR STOREY LOW RISE APARTMENT DWELLING

OWNER/DEVELOPER:  
MA PRECIOUS HOLDING INC.

ARCHITECT:  
REDLINE ARCHITECTURE INC.

APPLICANT:  
OR PLANNING + DESIGN,  
DANIEL EDWARDS  
24 HURKSTALL AVENUE, OTTAWA,  
ON K2H 3M5

CIVIL ENGINEER:  
E2P SERVICES INC.  
100-2602 OLSENSVIEW DRIVE  
OTTAWA, ONTARIO K2B 8H6

LANDSCAPING:  
JAMES B. LENOX & ASSOCIATES INC.  
332 CARLING AVE OTTAWA ON K2H 5A8  
CANADA

SURVEYOR:  
4241 TD  
14 CONTOURAGE GATE, SUITE 500  
OTTAWA ON K2E 7G8

CONSULTANTS:  
STRUCTURAL - TBD  
MECHANICAL - TBD  
ELECTRICAL - TBD

NO.	REVISION/ISSUE	DATE
1	ISSUED FOR SPA REV.	01/02/25
2	ISSUED FOR SPA	11/12/24
3	REVISION/ISSUE	

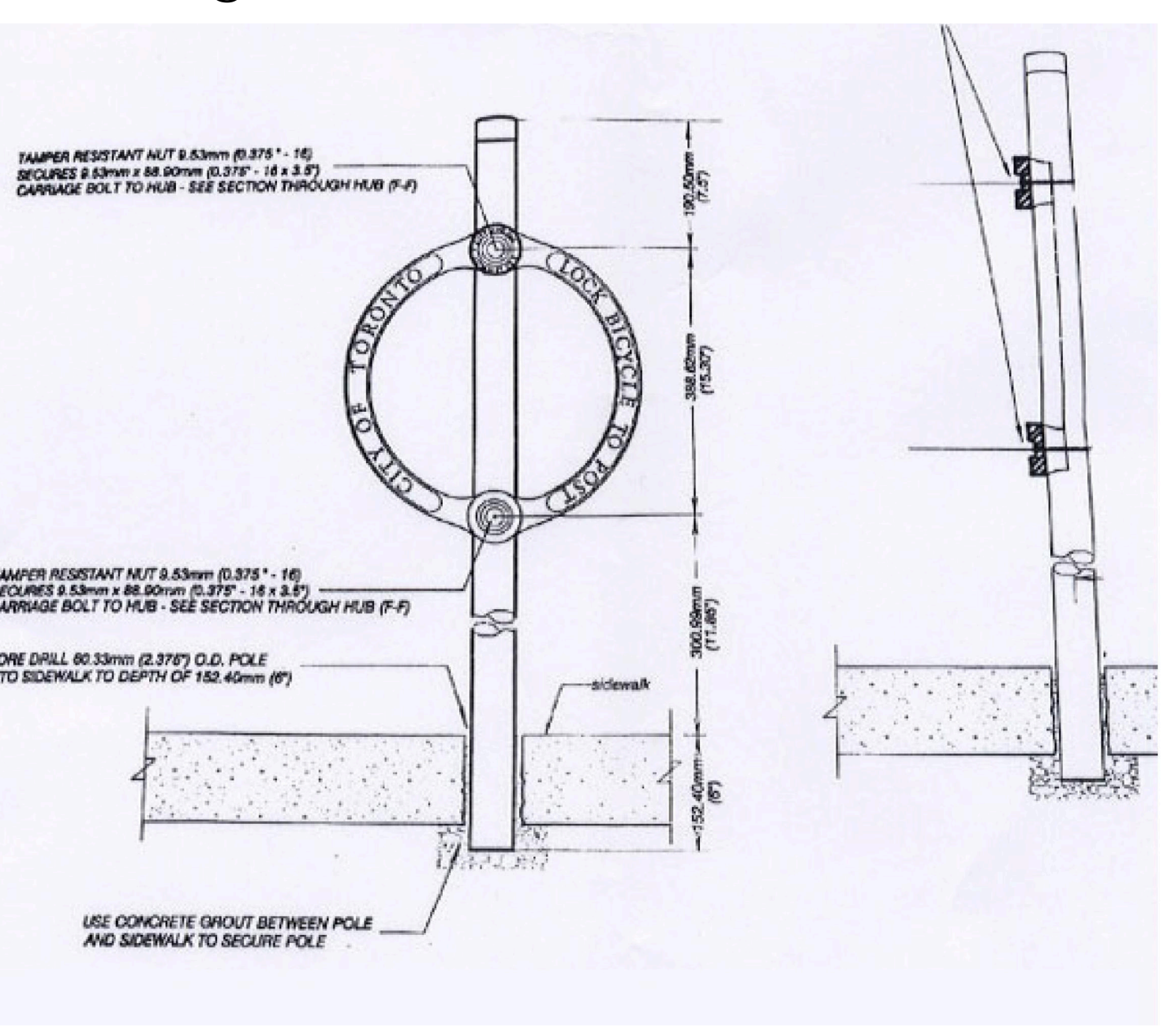
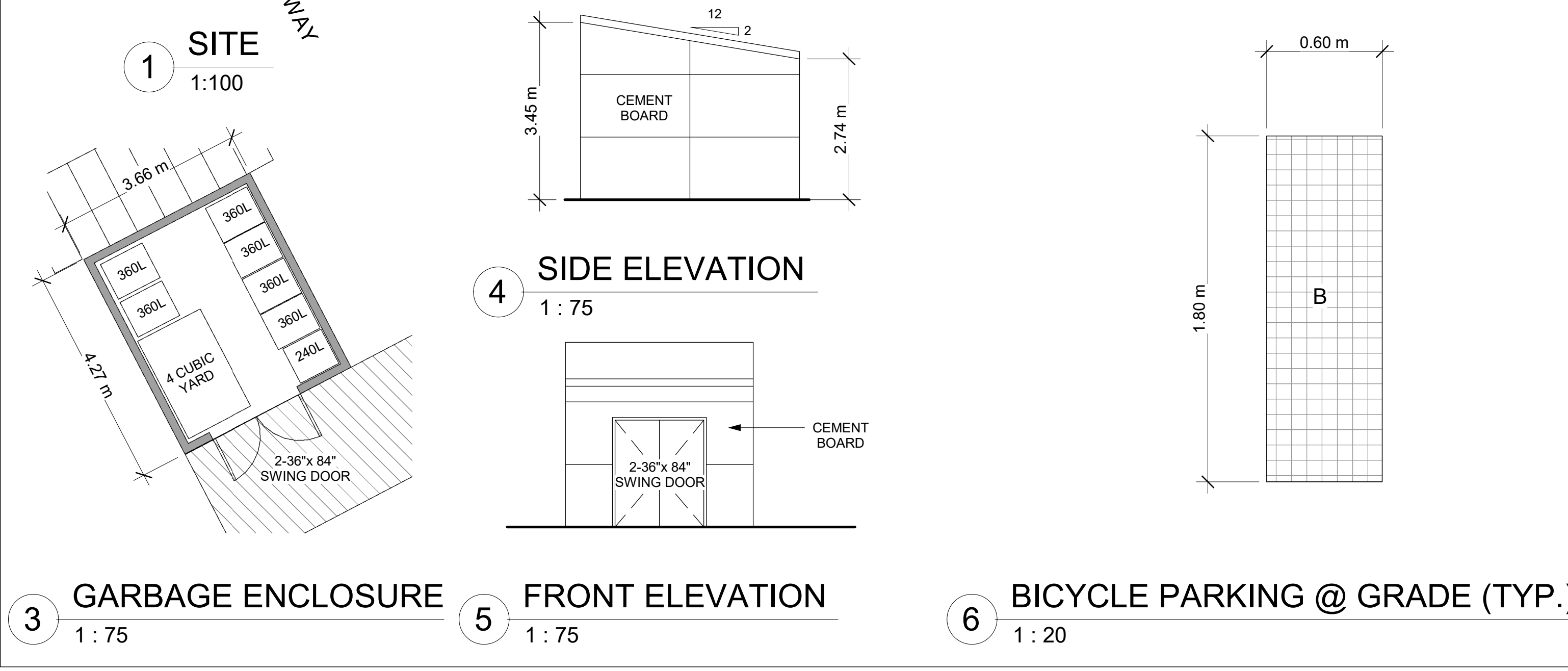
PROJECT:  
116-118 CARRUTHERS AVE.  
116-118 CARRUTHERS AVE.  
OTTAWA, ON K1Y 1N6

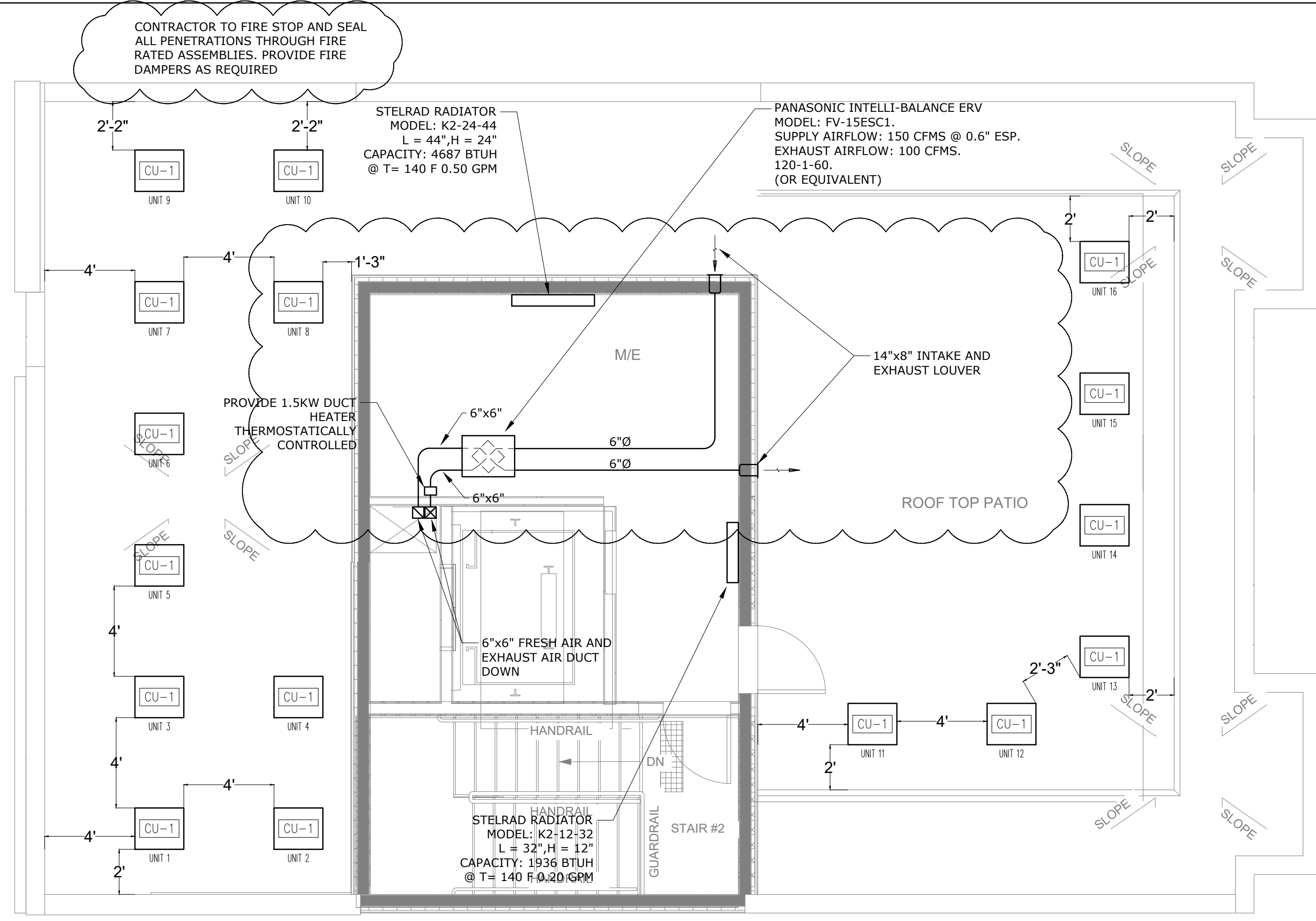
SITE PLAN

DRAWN BY: [ ] SHEET: [ ]  
DATE/MAY 3, 2024  
SCALE: AS NOTED

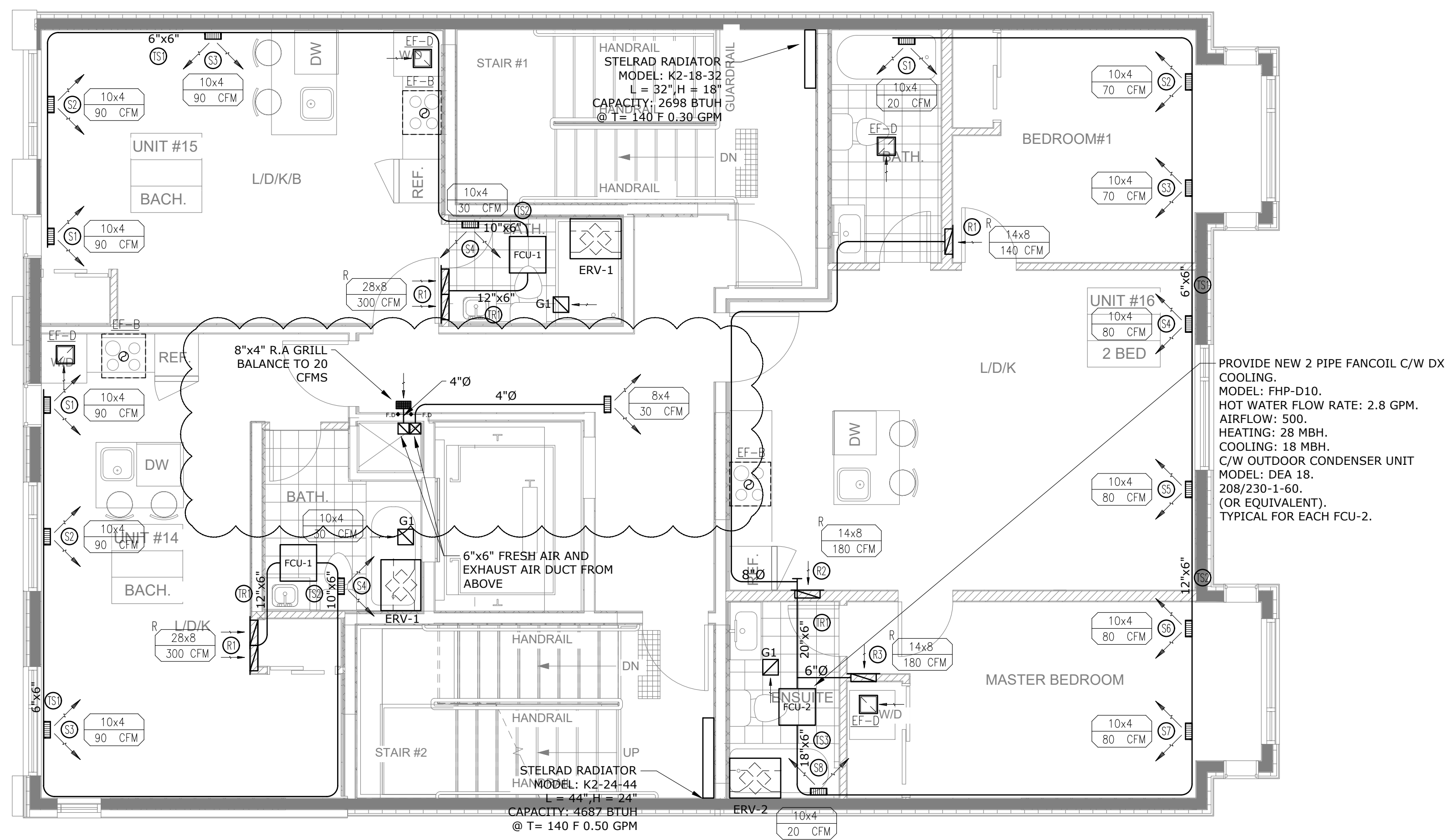
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# 19212





2 ROOF PLAN (APARTMENTS)- HVAC  
M-2.3 SCALE: 1/4"=1'-0"



1 4TH FLOOR PLAN (APARTMENTS)- HVAC  
M-2.3 SCALE: 1/4"=1'-0"

NOTE before commencing work:  
The contractor shall check and verify location of all pipes, ducts, diffusers, light fixtures and equipment and coordinate with other trades on site to prevent interference. The contractor is responsible for any changes to the drawings without the written approval of MSH Engineers.

1.	ISSUED FOR PERMIT	DEC 19, 2025
No.	Issued For:	Date

Orientation

Stamp

NOTES:  
All drawings and specifications is an instrument of service and remain the exclusive property of MSH Engineers, and are protected under the Copyright Act. They may not be reproduced, distributed, altered or submitted for approvals without written permission of the Designer.  
Do not scale drawings, dimensions to take precedent over scale.  
Contractor to check and verify all levels and dimensions on drawings and on site and report any discrepancies to MSH Engineers, and obtain clarification prior to commencing with the work.  
The contractor accepts all responsibility for working with drawings, not marked "Issued for Construction" and for any changes to the drawings without the express approval of MSH Engineers.  
All work to conform to all governing codes and By-laws.



Project  
**RESIDENTIAL APARTMENTS**  
Location  
116-118 CARRUTHERS AVE  
OTTAWA ON K1Y 1N5  
Project No. **25102**

For  
**4TH & ROOF FLOOR PLAN MECHANICAL-HVAC**

Scale 1/4" = 1'-0" Date DECEMBER 2025

Drawing by H.K.  
Checked by S.H.  
Approved by S.H. OF  
**M2.3**

CAD FILE NAME: 25102-M.dwg

## Appendix B – Technical Information

# YORK® residential air conditioners

**YC3 Air Conditioner**  
Optimized for northern climates  
13.4 SEER2  
1.5-5 Tons



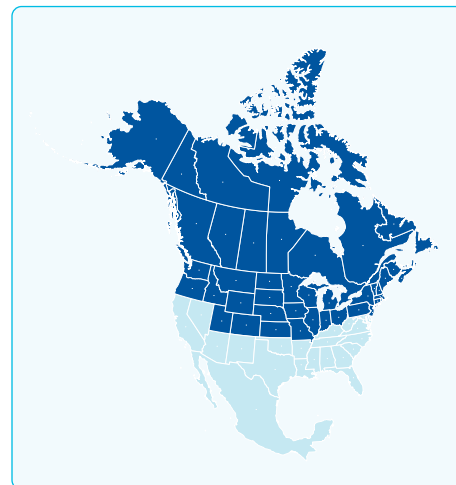
## Next-level efficiency for now and the future

The YORK® YC3 Air Conditioner is a perfect entry-level unit, meeting 13.4 SEER2 Regional Minimum Efficiency standards for the northern United States and Canada. We designed these units with a compact footprint, independent panels and swing-out control box for easy installation and servicing. High-quality construction means the YC3 is built to work.

Designed and constructed for optimal installation, performance and serviceability



- Designed for new low global warming potential (GWP) R-454B refrigerant
- Coming soon: Straight-Pipe Line Sets eliminate swedge and offer more installation flexibility
- Easy-to-follow, color-coded wiring diagrams for quick and easy installations
- Swing-out control box for easy access to internal components



Designed to meet minimum efficiency requirements for northern US and Canada.

Installation allowed

### Optimized performance

- Designed for optimal performance in northern US and Canadian regions
- High-efficiency microchannel aluminum coil provides reliable performance and small unit size
- Designed for operation with new GWP R-454B refrigerant



### One of the industry's most serviceable units

- Swing-out control panels and removable fan guard for quick and easy access to components
- Straight-Pipe Line Sets - coming soon - eliminate swedging and provide flexibility for every installation
- Easy-to-follow, color-coded wiring diagrams for quick and easy installation and servicing
- Comes with standard cylinder filter drier

### High-quality construction

- **Small footprint**
  - Minimum footprint makes the unit easy to store and transport, and fits easily through standard fence gates
- **Durable and sleek new finish**
  - The coated steel wire fan guard, coated external fasteners and pretreated G90 equivalent galvanized-steel chassis components resist corrosion and rust-creep
  - Automotive-grade, powdercoat finish is salt-spray rated at 1,000 hours for extra durability under the harshest of conditions
- **Low operating sound levels**
  - The sturdy cabinet and top design provides sound performance of 77 dBA or lower



**Lower cost of ownership**  
13.4 SEER2 cooling efficiency can save energy costs compared to older units, and quality engineering reduces repairs to save you money.



**Quiet operation**  
Sturdy cabinet and top design provides sound performance of 77 dBA or lower.



**Confidence guaranteed**  
Industry-leading warranties ensure years of dependability.



**Small footprint**  
Minimum footprint for easier handling, transportation and installation.

SKU	Tonnage	Weight (lb)	Dimensions (in.)			Liquid Connections (in.)	Vapor Connection (in.)
			H	W	D		
→ YC318E2S11	1.5	120	26-3/4	24	24	3/8	3/4
YC324E2S11	2	135	33-1/4	24	24	3/8	3/4
YC330E2S11	2.5	140	36-1/4	24	24	3/8	3/4
YC336E2S11	3	150	36-1/4	24	24	3/8	3/4
YC342E2S11	3.5	195	36-1/4	29-1/4	29-1/4	3/8	7/8
YC348E2S11	4	210	33-1/4	35-1/4	31-3/4	3/8	7/8
YC360E2S11	5	230	36-1/4	38	34-1/4	3/8	7/8

• All dimensions are in inches and are subject to change without notice  
 • The overall height is from the bottom of the base pan to the top of the fan guard  
 • The overall length and width include screw heads



All limited warranties are subject to terms, conditions and exclusions set forth in the product's limited warranty statement. See applicable limited warranty statement for details.



Pair with an efficient YORK gas furnace for optimal performance.

Visit [www.york.com](http://www.york.com) for more information.



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## Appendix C – Noise Source and Receptor Locations

