Noise Control Detailed Study
Proposed High School - ESP Orleans South

Revised March 2025

Prepared for:

CONSEIL DES ÉCOLES PUBLIQUES DE L'EST DE L'ONTARIO
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J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

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1.0 INTRODUCTION

J.L. Richards & Associates Limited (JLR) was retained by Conseil des Écoles publiques de l'Est de l'Ontario (CEPEO) to prepare a Noise Control Detailed Study for their proposed High School located at 2405 & 2419 Mer-Bleue Road, in the Orleans South area of the City of Ottawa. The purpose of this study is to assess the potential environmental noise impact on the site, due to vehicular traffic on Mer-Bleue Road and stationary noise from building mechanical equipment.

This report is prepared to satisfy the Ministry of the Environment, Conservation and Parks (MECP) Environmental Noise Guidelines NPC-300 and the City of Ottawa Environmental Noise Control Guidelines (approved by City Council January 2016) and in particular Part 4 Section 3.2: Phase 2 Noise Control Detailed Study Requirements.

2.0 PROJECT DESCRIPTION

The proposed high school development is situated on a ±6.4 ha parcel of land that is bounded by existing residential to the north and east, Mer-Bleue Road to the west and vacant land to the south, as shown on Figure 1 - Location Plan.

The proposed development will consist of 1 high school approximately 85,000 ft^2 (31 classrooms), a parking area, and outdoor recreation areas as shown on the Site Plan prepared by GRC Architects (January 10, 2025) provided in Appendix 'A'.

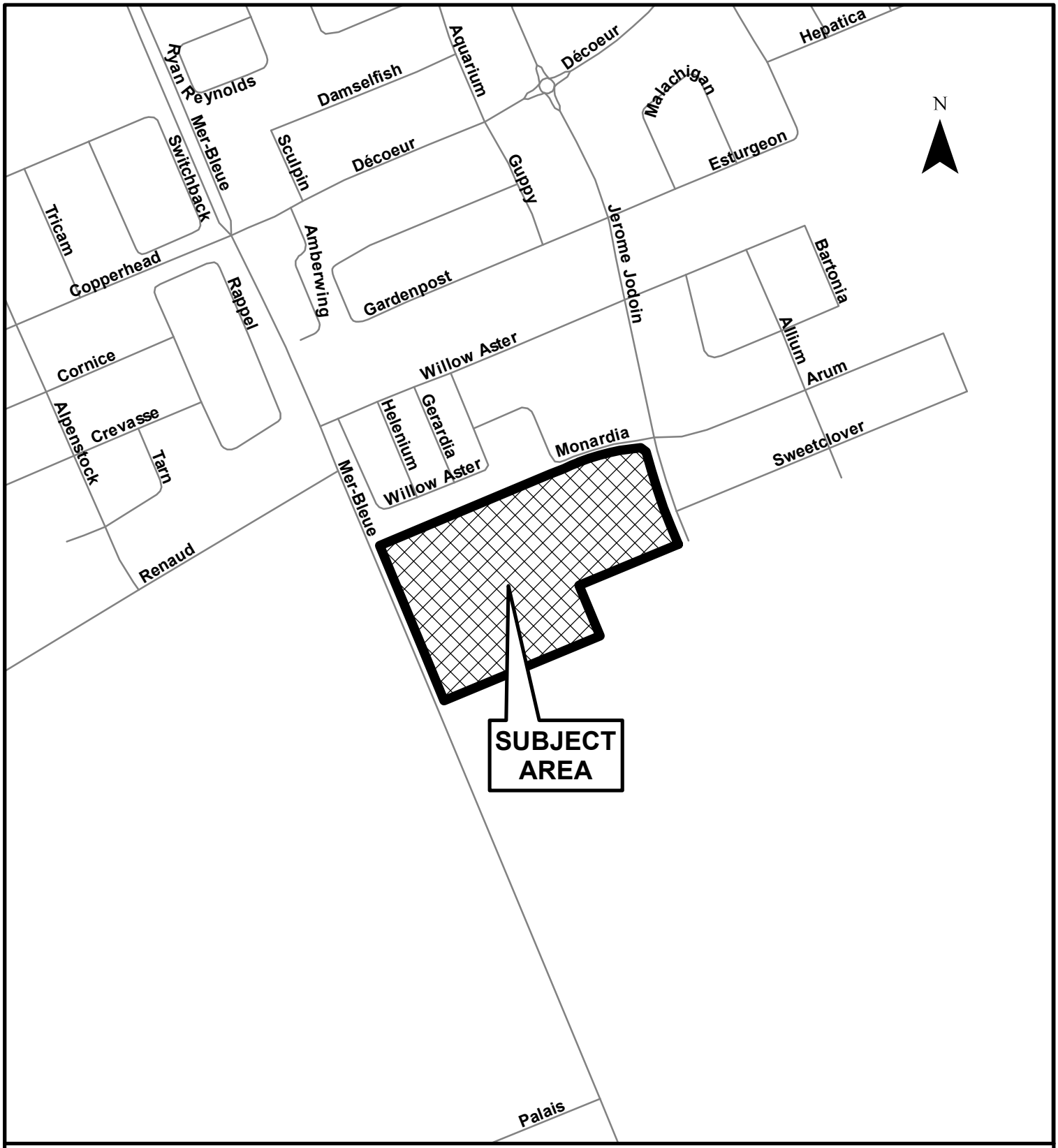
3.0 TRANSPORTATION NOISE SOURCE

The transportation noise source is Mer-Bleue Road. Drawing N1 shows the location of the noise source and existing roadways in relation to the proposed development.

3.1 Transportation Sound Level Criteria

For the purpose of determining the predicted noise levels, and based on the sound level criteria established by the City of Ottawa Environmental Noise Control Guidelines (ENCG), the following will be used as the maximum acceptable sound levels (Leq) for residential development and other land uses, such as nursing homes, schools and daycare centres:

Receiver Location	Criteria	Time Period
Outdoor Living Area:	55 dBA	Daytime (0700 - 2300 hrs.)
Indoor Living/Dining Rooms (inside):	45 dBA	Daytime (0700 - 2300 hrs.)
General Office, Reception Area (inside):	50 dBA	Daytime (0700 - 2300 hrs.)
Sleeping Quarters (inside):	40 dBA	Nighttime (2300 - 0700 hrs.)



PROJECT:

PROPOSED HIGH SCHOOL - ESP ORLEANS SOUTH

2405 & 2419 MER-BLEUE ROAD, OTTAWA, ON

DRAWING:

LOCATION PLAN

J.L.Richards
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www.jlrichards.ca

DESIGN:	TB
DRAWN:	TB
CHECKED:	LJ
JLR #:	33322-001

DRAWING #:

FIGURE 1

File Location: R:\33000\33322-001 - Orleans NIA\03-Design\01-Civil\Noise\1 - 1st Submission\33322-001 Orleans Location Plan.mxd

Plot Date: December 20, 2024 9:01:55 AM

Outdoor Living Areas (OLA) are defined as that portion of the outdoor amenity area of a dwelling for the quiet enjoyment of the outdoor environment during the daytime period. Typically, the point of assessment in an OLA is 3.0 m from the building façade mid-point and 1.5 m above the ground within the designated OLA for each individual unit. OLAs commonly include backyards, balconies (with a minimum depth of 4 m as per NPC-300), common outdoor living areas, and passive recreational areas.

3.2 Transportation Noise Attenuation Requirements

When the sound levels are equal to or less than the specified criteria, per the City of Ottawa ENCG and/or MOE NPC-300, no noise attenuation (control) measures are required.

The following tables outline noise attenuation measures to achieve required dBA Leq for surface transportation noise, per the City of Ottawa ENCG.

Table 1: Outdoor Noise Control Measures for Surface Transportation Noise

<table>
<tr><th rowspan="2">Primary Mitigation Measure
(in order of preference)</th><th colspan="2">Secondary Mitigation Measures</th></tr>
<tr><th>Landscape Plantings and/or Non-acoustic Fence to Obscure Noise Source</th><th>Warning Clauses</th></tr>
<tr><td>Distance setback with soft ground</td><td rowspan="2">Recommended</td><td rowspan="2"></td></tr>
<tr><td>Insertion of Noise insensitive land uses between the source and receiver receptor</td></tr>
<tr><td>Orientation of buildings to provide sheltered zones in rear yards</td><td rowspan="4">Required</td><td rowspan="4">Warning Clauses necessary and to include:
- Reference to specific noise mitigation measures in the development.
- Whether noise is expected to increase in the future.
- That there is a need to maintain mitigation.</td></tr>
<tr><td>Shared outdoor amenity areas</td></tr>
<tr><td>Earth berms (sound barriers)</td></tr>
<tr><td>Acoustic barriers (acoustic barriers)</td></tr>
</table>

Table 2: Indoor Noise Control Measures for Surface Transportation Noise

<table>
<tr><th rowspan="2">Primary Mitigation Measure
(in order of preference)</th><th colspan="2">Secondary Mitigation Measures</th></tr>
<tr><th>Landscape Plantings and/or Non-acoustic Fence to Obscure Noise Source</th><th>Warning Clauses</th></tr>
<tr><td>Distance setback with soft ground</td><td rowspan="2">Recommended</td><td rowspan="2">Not necessary</td></tr>
<tr><td>Insertion of Noise insensitive land uses between the source and receiver receptor</td></tr>
<tr><td>Orientation of buildings to provide sheltered zones or modified interior spaces and amenity areas</td><td>Required</td><td>Warning Clauses necessary and to include:</td></tr>
</table>

Enhanced construction techniques and construction quality		- Reference to specific noise mitigation measures in the development. - Whether noise is expected to increase in the future. - That there is a need to maintain mitigation.
Earth berms (sound barriers)		
Indoor isolation – air conditioning and ventilation, enhanced dampening materials (indoor isolation)		

The following tables outline the noise level limits per the MOE NPC-300 and City of Ottawa ENCG.

Table 3: Outdoor Living Area (OLA) Noise Limit for Surface Transportation

Time Period	Leq (16 hr) (dBA)
16 hr., 07:00 am - 23:00	55

Table 4: Indoor Noise Limit for Surface Transportation

Type of Space	Time Period	Leq (dBA)	
		Road	Rail
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	07:00-23:00	45	40
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	23:00-07:00	45	40
Sleeping quarters	07:00-23:00	45	40
	23:00-07:00	40	35

In addition to the implementation of noise attenuation features, if required, and depending on the severity of the noise problem, warning clauses may be recommended to advise the prospective purchasers/tenants of affected units of the potential environmental noise. These warning clauses should be included in the Site Plan Agreement and should be registered on Title. Warning clauses may be included for any development, irrespective of whether it is considered a noise sensitive land use.

Where site measures are required to mitigate noise levels, the City of Ottawa requires that notices be placed on Title informing potential buyers and/or tenants of the site conditions. Sample templates of the notices that could be registered on Title are included in Appendix 'B' as presented in the City of Ottawa ENCG.

Detailed wording for clauses should be provided as part of a detailed Noise Impact Study to be completed in support of the Site Plan Application. Clauses are to be worded to describe the mitigation measures and noise conditions applicable where MOE and City of Ottawa noise criteria are exceeded.

3.3 Prediction of Noise Levels

3.3.1 Road Traffic Data

The following traffic data was used to predict noise levels:

Table 5: Road Traffic Data to Predict Noise Levels

	Mer-Bleue Road
Total Traffic Volume (AADT)	35,000
Day/Night Split (%)	92/8
Medium Trucks (%)	7
Heavy Trucks (%)	5
Posted Speed (km/hr.)	60
Road Gradient (%)	1
Road Classification	4-Lane Urban Arterial-Divided (4-UAD)

Schedules ‘C4’ and ‘C16’ of the City of Ottawa Official Plan Adopted By-Law 2021-386 were utilized to determine the road classification and protected right-of-way. These findings were then compared to Table B1 (Part 4, Appendix ‘B’) of the City of Ottawa Environmental Noise Control Guidelines to determine an appropriate AADT value.

3.3.2 Noise Level Calculations

The noise levels for the daytime and nighttime periods were calculated for a number of representative receivers described in 6 and shown on Drawing N1, using the MOE Road Traffic Noise Computer program STAMSON, Version 5.03.

Computer printouts are included in Appendix ‘B’.

Table 6: Predicted Freefield Noise Levels and Distances from Noise Sources

Receiver No. and File Names	Receiver Description and Location	Noise Levels (dBA)	
		Daytime	Nighttime
R1 MB_R1	Plane of Window (front) fronting on Mer Bleue Road, at a distance of 15.7 m from the centerline of Mer Bleue Road Northbound and 29.7 m from the centerline of Mer Bleue Road Southbound.	70.23	n/a
R2 MB_R2	Plane of Window (front) fronting on Mer Bleue Road, at a distance of 35.4 m from the centerline of Mer Bleue Road Northbound and 49.8 m from the centerline of Mer Bleue Road Southbound.	65.10	n/a

3.4 Summary of Findings (Transportation)

A summary of the minimum noise requirements and required Warning Clauses is shown on Table 7. The facility will require notices to be registered on Title as part of the Site Plan Agreement, advising the occupants of the environmental noise problems and/or of the noise attenuation measures being implemented.

Table 7: Minimum Required Control Features/Warning Clauses (Transportation)

Receiver Location	Noise Attenuation Barrier	Central Air Conditioning	Forced Air Heating	Warning Clauses	Building Components Study
Plane of Window – Front Façade	n/a	Yes	Yes	Type 'D'	Yes

3.5 Summary of Findings (Preliminary Building Component)

JLR completed preliminary building component analysis of the cafeteria curtain wall to determine if sufficient acoustical mitigation is provided with the proposed window assembly to mitigate interior noise levels to MECP and City of Ottawa criteria. The Acoustical Insulation Factor (AIF) Method, as described in the Ministry of the Environment Ontario, Ontario Publication, Environmental Noise Assessment in Land Use Planning (ENALUP) 1987 (Page 10-29), was used; to assess the building construction required to mitigate exterior noise to meet interior noise criteria. A freefield noise level of 70 dBA was conservatively utilized to determine minimum wall and window construction.

CEPEO provided floor plan and building elevation drawings, for the Orleans South High School. Floor and elevation drawings are included in Appendix 'C'. Using the CEPEO drawings, JLR calculated the window and floor areas for the cafeteria. This data was then used to calculate the window to floor area ratios. Design tables provided in ENALUP were then utilized to identify minimum window construction requirements to mitigate the plane of window noise levels. Table 13 in Appendix 'D' presents the working calculations for the window requirements necessary to

acoustically insulate the cafeteria. The following table presents a summary of the analysis with the minimum standard window required.

Table 8: Minimum Window and Wall Construction Types

Unit Type	Representative Window Type Glass Thickness (Spacing) Glass Thickness	Representative Exterior Wall Type
Orleans South High School Cafeteria	6(6)6 Double Pane	n/a

For this analysis, glass doors identified on the plans are treated as a window. The acoustic insulation factor methodology does not account for glass doors as a door type. It is noted that no additional doors are identified with a connection to the noise sensitive interior room.

It should be noted that other types of windows could be chosen to achieve the same minimum noise mitigation. These details will be established during the detailed building component study in consultation with CEPEO.

Tables A2 and A3 from Canada Mortgage and Housing's (CMHC) publication, Airport Noise, revised 1981 were used to convert AIF values to the more widely recognized Sound Transmission Class (STC) values. Appendix 'E' presents these CMHC tables.

AIF and equivalent STC values are presented in Table 9 for the town unit bedroom with the highest AIF requirement. It is recommended that at the time of building permit application that the AIF/STC be confirmed to suit the specific unit proposed for the Block.

Table 9: AIF Value Conversion to STC Value

Type of Unit	AIF Req.	Windows			Walls		
		Window/ Floor Area Ratio	AIF Conversion Formula	STC	Wall/Floor Area Ratio	AIF Conversion Formula	STC
Orleans South High School Cafeteria	30	33%	STC	31	n/a	n/a	n/a

4.0 OPINION OF PROBABLE COSTS (OPC) FOR MITIGATION MEASURES

Based on the results of the analysis identified in this report, additional noise mitigation measures are not required. The construction materials and cooling units chosen by the design team meet or exceed the minimum noise mitigation requirements.

5.0 STATIONARY NOISE SOURCES

The stationary noise sources for this study are the air handling units installed on the building rooftop. The Noise Impact Assessment Stationary Noise Source Drawing N2 (refer to Appendix 'A') shows the approximate location and distances of the proposed air handling units in relation to the existing adjacent developments.

5.1 Stationary Source Sound Level Criteria

The stationary sound level criteria within a community are largely dependent on its location within the City. In the Ministry of the Environment (MOE) guideline NPC-300 and the City's ENCG there are four separate community class areas which are defined by their ambient sound level (see Table 10).

Table 10: Area Classes for Definition of Stationary Noise Ambient Sound Level (From the City's ENCG, Part 1 Table 3.0)

Class 1	Means an area with an acoustical environment typical of a major population centre, where the background sound level is dominated by the activities of people, usually road traffic, often referred to as "urban hum". Within the City Class 1 areas generally include all of the urban area as well as lands in proximity to Employment Lands and the 416/417 corridor.
Class 2	Means an area with an acoustical environment that has qualities representative of both Class 1 and Class 3 areas. These are the suburban areas of the City outside of the busy core where the urban hum is evident but within the urban boundary. Class 2 areas also include core areas of large and medium sized villages such as Manotick, Greely, Richmond, Carp and Metcalfe. Class 2 areas have the following characteristics: i. sound levels characteristic of Class 1 during daytime (07:00 to 19:00 or to 23:00 hours); and ii. low evening and night background sound level defined by natural environment and infrequent human activity starting as early as 19:00 hours (19:00 or 23:00 to 07:00 hours).
Class 3	Means a rural area with an acoustical environment that is dominated by natural sounds having little or no road traffic, such as: i. a small community or village; ii. agricultural area; iii. a rural recreational area such as a cottage or a resort area; or iv. a wilderness area. Within the City, Class 3 areas are found in the rural area, Greenbelt and within small residential oriented villages such as Kinburn, Ashton, Sarsfield and Constance Bay.
Class 4	Means an area or specific site that would otherwise be defined as Class 1 or 2 and which: i. is an area intended for development with new noise sensitive land use(s) that are not yet built; ii. is in proximity to existing, lawfully established stationary source(s); and iii. has formal confirmation (designation) from the City of the Class 4 area classification through Council approval. This classification may not be applied retroactively. Existing noise sensitive land use(s) cannot be classified as Class 4 areas until these land uses are replaced, redeveloped or rebuilt. Class 4 is only applied on a property-by-property basis and, if the noise source is removed (i.e., the Provincial ECA is removed or lapses), the classification will become consistent with that of the adjacent lands (either Class 1 or 2). Finally, lands adjacent to undeveloped industrially zoned properties or areas defined as employment lands in the Official Plan may not be classified Class 4. Class 4 is considered to be an extraordinary circumstance that, while proposed by an applicant, can only be classified through a City or Ontario Municipal Board approval of a Planning Act application and accompanying noise study. A list and schedule for each Class 4 area that have been approved by the City is found in Appendix E.

For the purpose of determining the predicted noise levels, the sound level criteria established by the City's ENCG and the NPC-300, Tables 11 and 12 will be used as the maximum acceptable sound levels (Leq) for the existing residential development, which is noise sensitive land use. The high school is defined by Class 2.

Table 11: Guidelines for Stationary Noise – Steady and Varying Sound (From MOE NPC-300, Table C-6)

Time of Day	Class 1 Area		Class 2 Area		Class 3 Area		Class 4 Area	
	Outdoor Point of Reception	Plane of Window	Outdoor Point of Reception	Plane of Window	Outdoor Point of Reception	Plane of Window	Outdoor Point of Reception	Plane of Window
07:00-19:00	50	50	50	50	45	45	55	60
19:00-23:00	50	50	45	50	40	40	55	60
23:00-07:00	-	45	-	45	-	40	-	55

Table 12: Guidelines for Stationary Noise – Impulsive Sound (From City's ENCG, Part 1 Table 3.2b and MOE NPC-300, Tables C-7 and C-8)

Time of Day	No. of Impulses in Period of One-hour	Class 1 Area		Class 2 Area		Class 3 Area		Class 4 Area	
		Outdoor Point of Reception	Plane of Window	Outdoor Point of Reception	Plane of Window	Outdoor Point of Reception	Plane of Window	Outdoor Point of Reception	Plane of Window
07:00-23:00	≥9	50	50	50	50	45	45	55	60
	7 to 8	55	55	55	55	50	50	60	65
	5 to 6	60	60	60	60	55	55	65	70
	4	65	65	65	65	60	60	70	75
	3	70	70	70	70	65	65	75	80
	2	75	75	75	75	70	70	80	85
	1	80	80	80	80	75	75	85	90
23:00-07:00	≥9	-	45	-	45	-	40	-	55
	7 to 8	-	50	-	50	-	45	-	60
	5 to 6	-	55	-	55	-	50	-	65
	4	-	60	-	60	-	55	-	70
	3	-	65	-	65	-	60	-	75
	2	-	70	-	70	-	65	-	80
	1	-	75	-	75	-	70	-	85

5.2 Stationary Source Noise Requirements

When the sound levels are equal to or less than the specified criteria per Tables 11 and 12 no noise attenuation (control) measures are required.

The following Table 13 outlines noise attenuation measures which can be implemented to reduce the noise levels for stationary noise sources to the specified criteria, per the City of Ottawa ENCG.

Table 13: Noise Control Measures for New Stationary Noise Sources (From City's ENCG, Part 1 Table 3.3b)

Primary Mitigation Measure (in order of preference)	Secondary Mitigation Measures
	Landscape plantings and/or non-acoustic fence to obscure noise source
Earth berms (sound barriers)	Required
Development of non-noise producing and insensitive land uses between the source and sensitive receptor within facility.	
Development of additional related uses with enhanced construction and materials within facility between source and sensitive receptor.	
Acoustic Barriers (acoustic barriers)	

5.3 Prediction of Freefield Noise Levels (Stationary)

5.3.1 Rooftop Unit Data

Table 14 summarizes the rooftop air handling unit data that was provided by the project mechanical engineer from the equipment supplier AAON (refer to Appendix 'F' for more detailed information) to predict noise levels.

Table 14: Rooftop Unit Data

Unit	No. of Air Handling Units (Capacity)	Sound Levels for Rooftop Units at the Source, each @ 75% capacity	Approximate Height of Building
DOAS 1-ASHP	1 (RN 50 Ton)	89.0 dBA	12.0m (Roof Level 5)
DOAS GYM-ASHP	1 (RN 6 Ton)	74.0 dBA	4.0 m (Roof Level 1)
Fluid Cooler - FEVR-26408 (Fans)	2	91.0 dBA	8.0 m (Roof Level 2)
RTU1 GYM1-ASHP; RTU2 GYM2-ASHP;	2 (RN 11 Ton)	77.0 dBA	10.0 m (Roof Level 3)
RTU4 CAFE Perimeter-ASHP	2 (RN 11 Ton)	77.0 dBA	8.0 m (Roof Level 2)
RTU3 CAFE-ASHP	1 (RN 16 Ton)	84.0 dBA	8.0 m (Roof Level 2)
Kitchen Exhaust Fan	1	66.0 dBA	8.0 m (Roof Level 2)
Kitchen MUA Supply Fan	1	78.0 dBA	8.0 m (Roof Level 2)
Dust Collector	1	73 dBA	Ground Level
Culinary MUA	1	46.0 dBA	12.0m (Roof Level 5)

The typical practice for commercial developments is for the supply fan in a heating and cooling rooftop unit to be running continuously during normal operating hours. Whereas the compressor turns on and off at various times during the day, depending on cooling demands. The noise level difference between the fan continuously running and the compressor turning on is considered negligible. For the purposes of this Study, it is assumed that all of the heating and cooling units are running 24 hr/day at 75% capacity.

The existing residential dwellings fronting on Willow Aster Circle are 2-storey townhouses. The existing residential dwellings fronting on Mer Bleue Road are single storey dwellings. For the purposes of this Study, it is assumed that the point of reception for the plane of window is 2.5 m above the ground for the first level and the point of reception is 4.5 metres above the ground for the second-floor bedroom windows. As summarized in Table 14, the High School has various roof levels.

5.3.2 Rooftop Unit Noise Level Calculations

Table 12 summarizes the sound pressure level data provided for the respective rooftop units. The following formula (from the 2005 ASHRAE Fundamentals Handbook, page 7.3 (12)) was used to combine decibel levels and determine a representative total decibel level on the rooftop of each commercial building.

Lsum=10log(10^(L1/10)+10^(L2/10)+….)

The following formula (from the 2005 ASHRAE Fundamentals Handbook, page 7.8 (28)) was then used to determine a corresponding value at the exterior wall of the closest residential dwelling units.

Free Field Lp=Lw+10log(Q/(4 pi r^2))+10.5
Lp = Sound Pressure
Lw = Sound Power
Q = Directivity = 2 flat surface, 4 junction two large surfaces, 8 in a corner
r = distance from source in ft

Noise receivers R3, R4 and R5 represent the existing residential dwellings as shown on Drawing N2. Results have been summarized in Table 15, refer to Appendix 'G' for detailed calculations.

Table 15: Estimated Stationary Noise Levels (Air Handling Units)

Representative Sound Pressure Level on Roof (total for all units)	Distance to Closest Noise-Sensitive Receptor				Estimated Freefield Sound Pressure Level at Rear Wall of Closest Noise-Sensitive Receptors			
	R3	R4	R5	R6	R3	R4	R5	R6
95.8 dBA	74.5m	98.8m	88.1m	34.9 m	48.5 dBA	46.1 dBA	46.9 dBA	54.2 dBA

5.3.3 Summary of Findings (Stationary)

The results indicate that the City's stationary noise criterion will not be exceeded. As noted previously, these results assume that all the rooftop units will be operating simultaneously 24 hours a day at 75% capacity using the air handling units selected by the Mechanical consultant. Depending on commercial building occupancy, this could vary over time. Further to this, the criteria have not been adjusted to account for the background noise levels associated with vehicular traffic on Mer Bleue Road. Based on the transportation analysis of this report Mer Bleue is predicted to generate 70 dBA. Comparing the 70 dBA noise level to the predicted stationary noise level at receiver R3 (43.9 dBA) and using the nomograph method to add decibels, it can be expected that the noise levels will not be affected with the addition of the proposed stationary noise source. Regardless, a conservative analytic approach has been used to predict the noise levels from the proposed stationary noise source.

In addition, the results presented are conservative for the following reasons:

- Shielding of noise by the various school rooflines has not been accounted for in the calculations.
- Both air compressors and supply fans are assumed to operate 24 hours per day whereas normal operation allows compressors to turn on & off as required.

5.3.4 Summary of Findings (Preliminary Building Component)

JLR completed preliminary building component analysis of one classroom to determine if sufficient acoustical mitigation is provided with the proposed window and wall assembly to mitigate interior noise levels to MECP and City of Ottawa criteria. The Acoustical Insulation Factor (AIF) Method, as described in the Ministry of the Environment Ontario, Ontario Publication, Environmental Noise Assessment in Land Use Planning (ENALUP) 1987 (Page 10-29), was used; to assess the building construction required to mitigate exterior noise to meet interior noise criteria. A freefield noise level of 55 dBA was conservatively utilized to determine minimum wall and window construction.

CEPEO provided floor plan and building elevation drawings, for the Orleans South High School. Floor and elevation drawings are included in Appendix 'C'. Using the CEPEO drawings, JLR calculated the window and floor areas for the cafeteria. This data was then used to calculate the window to floor area ratios. Design tables provided in ENALUP were then utilized to identify minimum window construction requirements to mitigate the plane of window noise levels. Table 19 in Appendix 'H' presents the working calculations for the window requirements necessary to acoustically insulate a classroom. The following table presents a summary of the analysis with the minimum standard window required.

Table 16: Minimum Window and Wall Construction Types

Unit Type	Representative Window Type Glass Thickness (Spacing) Glass Thickness	Representative Exterior Wall Type
Orleans South High School Representative Classroom	2(6)2 Double Pane	EW1

For this analysis, glass doors identified on the plans are treated as a window. The acoustic insulation factor methodology does not account for glass doors as a door type. It is noted that no additional doors are identified with a connection to the noise sensitive interior room.

A standard wall construction detail with a 38 x 89 mm wall construction complete with siding, sheathing, insulation, and 12.7 mm gypsum board will provide satisfactory acoustic insulation to achieve indoor noise requirements.

Exterior wall type construction notes:

- EW1 – Standard wall construction (noted above), with sheathing, wood or metal siding and fibre backer board.
- EW2 – Standard wall construction (noted above), with rigid insulation (25-30 mm), wood or metal siding, and fibre backer board.
- EW3 – Standard wall construction (noted above), with sheathing, 28 x 89 mm framing, sheathing and asphalt roofing material.

- EW4 – Standard wall construction (noted above), with sheathing and 20 mm stucco.

It should be noted that other types of window and wall assembly could be chosen to achieve the same minimum noise mitigation. These details will be established during the detailed building component study in consultation with CEPEO.

Tables A2 and A3 from Canada Mortgage and Housing's (CMHC) publication, Airport Noise, revised 1981 were used to convert AIF values to the more widely recognized Sound Transmission Class (STC) values. Appendix 'E' presents these CMHC tables.

AIF and equivalent STC values are presented in Table 917 for the town unit bedroom with the highest AIF requirement. It is recommended that at the time of building permit application that the AIF/STC be confirmed to suit the specific unit proposed for the Block.

Table 17: AIF Value Conversion to STC Value

Type of Unit	AIF Req.	Windows			Walls		
		Window/ Floor Area Ratio	AIF Conversion Formula	STC	Wall/Floor Area Ratio	AIF Conversion Formula	STC
Orleans South High School Classroom	20*	7%	STC + 5	10	51%	STC – 4	19

*An AIF of 20 was conservatively used for a noise level of 55 dBA. The lowest noise level shown in the AIF table of the ENALUP is 60 dBA.

6.0 CONCLUSION AND RECOMMENDATIONS

Predicted transportation noise levels are expected to exceed the City of Ottawa ENCG and MECP criteria at the plane of window of the cafeteria. Based on preliminary building component analysis, the standard building materials and cooling units being proposed no additional mitigation measures are required.

Predicted stationary noise levels generated from the high school are **not** expected to exceed the City of Ottawa ENCG and MECP criteria at the closest adjacent residential units.

6.1 Indoor Noise Control Features

6.1.1 Heating System

The High School shall be fitted with a forced air heating system or equivalent system.

6.1.2 Cooling System

The High School shall be fitted with a central air conditioning system or equivalent system.

6.2 Warning Clauses

6.2.1 Warning Clause Type D

Clause A is to be registered on Title for the High School

"Purchasers/tenants are advised that despite the inclusion of noise control features within the building units, sound levels due to increasing road/transitway/rail/light rail traffic may, on occasion, interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the City and the Ministry of the Environment.

To help address the need for sound attenuation this facility includes:

- *single/multi-pane glass windows;*
- *Central air conditioning.*

To ensure that provincial sound level limits are not exceeded it is important to maintain these sound attenuation features.

This Facility has been supplied with a central air conditioning system and other measures which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the City and the Ministry of the Environment."

6.3 Site Plan Agreement and Notices on Title

It is recommended that the previous recommendations and Warning Clauses are to be included in the Site Plan Agreement and in the Sale and/or lease of the affected facility and be registered on Title.

6.4 Building Permit Requirements

A report prepared and stamped by a Professional Engineer / Acoustical Consultant detailing building components (e.g., glazing/window, wall sections) to provide acoustical insulation to satisfy the City of Ottawa Environmental Noise Control Guidelines for indoor noise levels is required prior to the issuance of a Building Permit.

This report has been prepared by J.L. Richards & Associates Limited for CEPEO's exclusive use. Its discussions and conclusions are summary in nature and cannot properly be used, interpreted or extended to other purposes without a detailed understanding and discussions with the client as to its mandated purpose, scope and limitations. This report is based on information, drawings, data, or reports provided by the named client, its agents, and certain other suppliers or third parties, as applicable, and relies upon the accuracy and completeness of such information. Any inaccuracy or omissions in information provided, or changes to applications, designs, or materials may have a significant impact on the accuracy, reliability, findings, or conclusions of this report.

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J.L. RICHARDS & ASSOCIATES LIMITED

Prepared by:

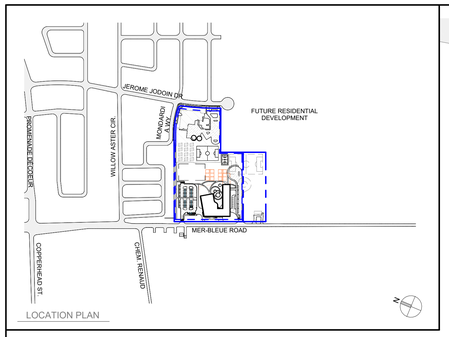
Thomas Blais, A.Sc.T.
Senior Technologist

Reviewed by:

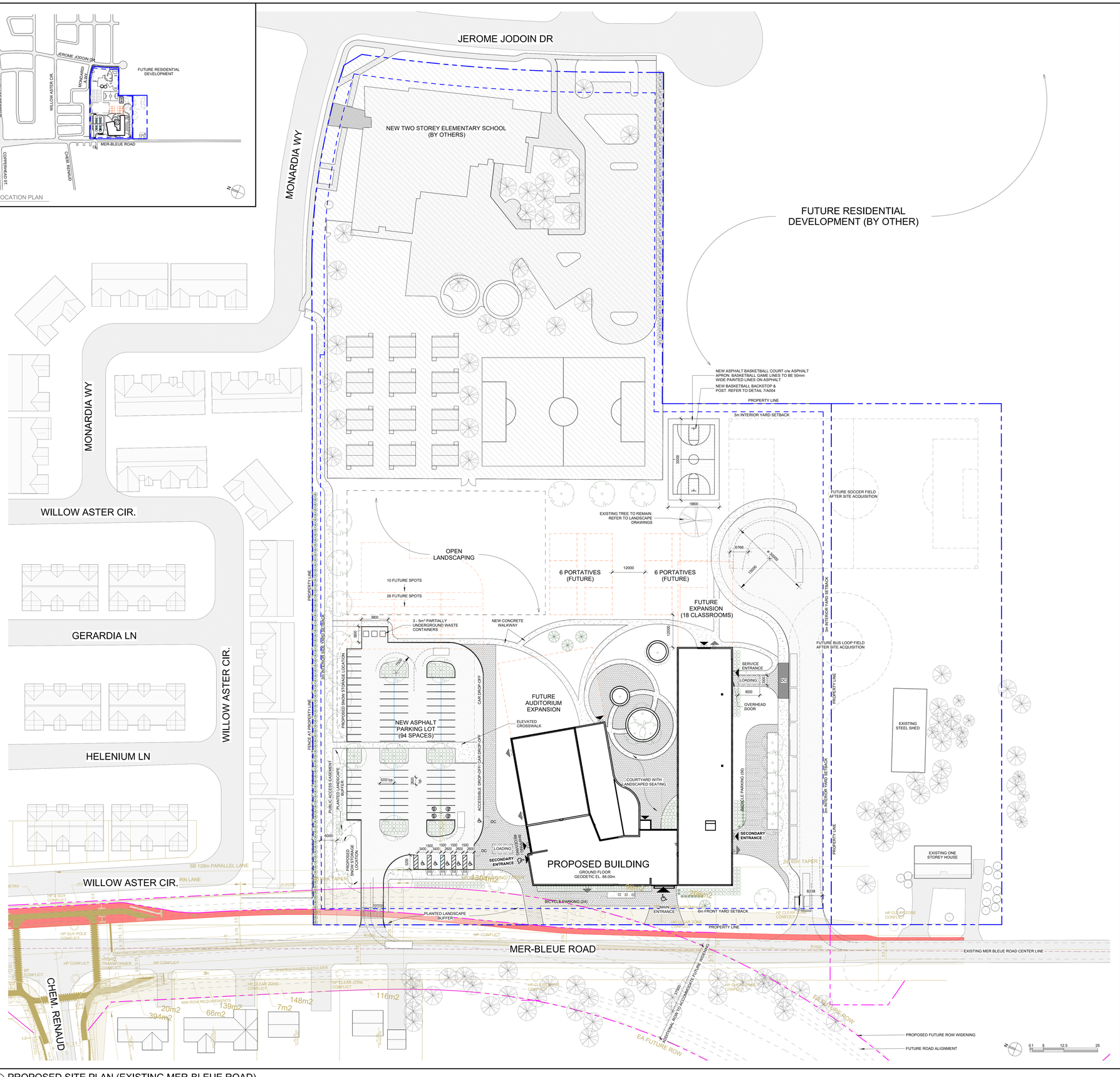
Lee Jablonski, P.Eng.
Associate
Senior Civil Engineer

Appendix A

Drawings



LOCATION PLAN



1 / A002 PROPOSED SITE PLAN (EXISTING MER-BLEUE ROAD)
1 : 500

GENERAL NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT GRADE, FLOOR ELEVATIONS AND PROPERTY LINE DIMENSIONS (SHOWN IN METERS).
2. ALL LEGAL SURVEY INFORMATION OBTAINED FROM SURVEY PLANS PREPARED BY : CALLON DIETZ INC., DATED AUGUST 8TH, 2024.
3. REFER TO LANDSCAPE DRAWINGS FOR SIDEWALK, CONCRETE CURBS, SOFT/HARD LANDSCAPING, AND PAVEMENT MATERIAL PATTERN LAYOUT
4. REFER TO CIVIL DRAWING FOR CATCH BASINS, MANHOLES, SITE SERVICES, SITE GRADING, SURFACE DRAINAGE, ROAD WORK, PAVEMENT, SIDEWALK AND CONCRETE CURBS.
5. ELEVATIONS SHOWN ARE REFERRED TO GEODETIC DATUM.
6. ALL PARKING SPACES TO HAVE 100mm WIDE PAINTED LINES ON ASPHALT, INCLUDING ACCESSIBLE PARKING SPACE LOGO AND ELECTRIC CAR CHARGING LOGO AS ILLUSTRATED.

FULL COURT BASKETBALL

- ALL GAME LINES FOR FULL COURT BASKETBALL TO BE PAINTED WHITE, UNLESS NOTED OTHERWISE
- LANE SPACE MARKS & NEUTRAL ZONE MARKS TO BE PAINTED A CONTRASTING COLOR TO THE BOUNDING LINES
- ALL GAME LINES FOR BASKETBALL TO BE 50mm WIDE, UNLESS NOTED OTHERWISE.

SITE PLAN LEGEND

	PROPERTY LINE
	BUILDING SETBACK
	NEW CHAIN LINK FENCE
	MAIN ENTRANCE
	SECONDARY ENTRANCE
	EXIT ONLY
	VEHICULAR DIRECTION
	BARRIER FREE PARKING STALL
	BICYCLE LANE
	PROPOSED SHRUBS & PERENNIALS, SEE LANDSCAPE
	PROPOSED TREE, SEE LANDSCAPE
	EXISTING TREE TO REMAIN, SEE LANDSCAPE
UP	EXISTING UTILITY POLE
FH	FIRE HYDRANT, SEE CIVIL
FH.EX	EXISTING FIRE HYDRANT
FP	NEW FLAG POLE C/W CONCRETE BASE, SEE DETAIL 2/A004.
DC	DEPRESSED CURB WITH TACTILE INDICATOR
CB	CATCH BASIN, SEE CIVIL
CB	EXISTING CATCH BASIN
B	NEW GALVANIZED STEEL BOLLARDS, PAINTED. SEE DETAIL 1/A004.
LP	NEW LIGHT POST C/W CONCRETE BASE, SEE DETAIL 6/A004. REFER TO ELECTRICAL.
LP	EXISTING LIGHT POST
TS	NEW SCHOOL TITLE SIGNAGE, SEE DETAIL 3/A004. REFER TO ELECTRICAL.
MH	EXISTING MANHOLE

SITE PLAN LEGEND - HATCH PATTERN

	PROPOSED PRECAST CONCRETE PAVERS, REFER TO LANDSCAPE DRAWINGS
	PROPOSED PERMEABLE PAVERS, REFER TO LANDSCAPE DRAWINGS
	PROPOSED CONCRETE, REFER TO LANDSCAPE DRAWINGS
	PROPOSED MULCH, REFER TO LANDSCAPE DRAWINGS
	PROPOSED HEAVY DUTY ASPHALT, REFER TO CIVIL DRAWINGS
	PROPOSED LIGHT DUTY ASPHALT, REFER TO CIVIL DRAWINGS
	EXISTING ASPHALT

PROJECT NAME:	**REPEAT HIGHSCHOOL STUDY - ORLEANS**
OWNER:	CONSEIL DES ÉCOLES PUBLIQUES DE L'EST DE L'ONTARIO (CEPEO) 2445 ST-LAURENT BLVD, OTTAWA, ON K1G 6C3 T: 613 742-8960
ARCHITECT:	GRC ARCHITECTS 401-47 CLARENCE STREET, OTTAWA, ON K1N 9K1 T: 613 241 8203 F: 613 241 4180
LEGAL DESCRIPTION	PART OF LOT 4 CONCESSION 11 (GEOGRAPHIC TOWNSHIP OF CUMBERLAND) PIN: 14563-1816(LT) & 14563-0513(LT) & 14563-0514(LT)
ADDRESS	2405 & 2419, MER-BLEUE ROAD OTTAWA, ON K4A 3V1
AREA OF SITE	52 457m² (564 642ft²)
GROSS FLOOR AREA:	7,873m² (84 746ft²)
GROUND FLOOR AREA:	4,287m² (46 142ft²)
SECOND FLOOR AREA:	1,949m² (20 981ft²)
THIRD FLOOR AREA:	1,637m² (17 622ft²)
LOT COVERAGE:	6.66%

ZONING PROVISION	REQUIRED	PROVIDED
PARKING, QUEUING AND LOADING PROVISIONS:		
PARKING RATES	93 Spaces (3/Classroom x [31 Classrooms]) Table 101, Row N80 (Subject to 2017-303)	*88 Standard Spaces* *2 Type A' Accessible Spaces* *3 Type B' Accessible Spaces* **93 Total Spaces**
PARKING SPACE DIMENSIONS	106.(1) (a): min 2.6m width (b): 5.2m length	2.6m width 5.2m length
AISLE & DRIVEWAY	107.(1) (a)(i): 6.0m driveway lane 107.(1) (c)(i): 6.7m aisle width	6.0m driveway >6.7m aisle width
LOCATION OF PARKING	N/A	yes
LANDSCAPING	110.(1) (a),(b): min. 15% of parking lot Table 110 (a), (b): 3m buffer width	>15% TBD
REFUSE COLLECTION	110.(3) (a): min. 9m from lot line abutting (b) public street (c) min.3m from other lot line screened from view	yes yes waste stored below grade screened with soft landscaping
BICYCLE PARKING RATES	Table 111A(d): 1 space per 100m² FA 78.73 spaces reuired	80 spaces
LOCATION OF BICYCLE SPACES	111.(3),(4),(6),(7),(9)	yes
BICYCLE SPACE DIMENSIONS	Table 111B(a): 0.6m x 1.8m 111.(9) 1.5m access aisle	0.6m x 1.8m 1.5m access aisle
LOADING SPACE RATES	Table 113A(a): 1 space	1 space
LOADING SPACE DIMENSIONS	Table 113B(a)(i): 6.0m driveway width Table 113B(b)(i): 5.0m access width Table 113B(c): 3.5m min width Table 113B(d)(ii): 7.0m min length Table 113B(f):	>6.0m driveway width 7.5m access width 3.5m width 7.0m length yes
ZONING PROVISIONS:	INSTITUTIONAL ZONE I1A[2530]R3Z , Schedule 1/1A - Area D(Rural)	
ZONE REGULATIONS	Table 170A (a): 15m min lot width (b): 400m² min lot area (c): 6m front yard setback (Along Mer-Bleue Rd) (d): 7.5m rear yard setback (e): 3m side yard setback (f): 4.5m corner side yard setback (g): 20m max or 4 storeys building height	190.85 m 52 457m² >6m setback >7.5m setback >3m setback >4.5m setback 13m max height

Conseil des écoles publiques de l'Est de l'Ontario

NOT FOR CONSTRUCTION

ISSUED FOR COORDINATION.
2025-01-10

no.	date	revision / issue	by

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northpoint

professional stamp

project title
PROPOSED HIGH SCHOOL - ÉSP ORLEANS SUD
Barrhaven Ontario

drawing title
PROPOSED SITE PLAN

date	NOV 05, 2024	job. no.	3024
scale	As indicated	drawing no.	A002
drawn	DH		
approved	CJ/PD		
plot date	2025-01-10 5:10:40 PM		

1. DO NOT SCALE FROM THIS DRAWING
2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL

LEGEND:

PLANE OF WINDOW RECEIVER

MONARDIA WY

WILLOW ASTER CIR.

GERARDIA LN

WILLOW ASTER CIR.

HELENIUM LN

WILLOW ASTER CIR.

PROPERTY LINE

OPEN LANDSCAPING

10 FUTURE SPOTS

6 PORTATIVES (FUTURE)

6 PORTATIVES (FUTURE)

FUTURE EXPANSION (18 CLASSROOMS)

FUTURE SOCCER FIELD AFTER SITE ACQUISITION

FUTURE BUS LOOP FIELD AFTER SITE ACQUISITION

FUTURE AUDITORIUM EXPANSION

ELEVATED CROSSWALK

COURTYARD WITH LANDSCAPED SEATING

SERVICE ENTRANCE

LOADING

OVERHEAD DOOR

DC

EXISTING STEEL SHED

EXISTING ONE STOREY HOUSE

PROPOSED SNOW STORAGE LOCATION

CAR DROP-OFF

ACCESSIBLE DROP-OFF

PUBLIC ACCESS EASEMENT

PLANTED LANDSCAPE SCREEN BUFFER

FENCE AT PROPERTY LINE

SHIPPING/RECEIVING

SECONDARY ENTRANCE

PROPOSED BUILDING

R1

R2

1304m2

BICYCLE PARKING (24)

MAIN ENTRANCE

SECONDARY ENTRANCE

E PARKING (56)

29.7m

15.7m

35.4m

49.8m

MER BLEUE ROAD (NORTH BOUND AADT 17,500)

MER BLEUE ROAD (SOUTH BOUND AADT 17,500)

MER-BLEUE ROAD

EXISTING MER BLEUE ROAD CENTER LINE

2m SHARED PAVED SHOULDER

3m PAVED SHOULDER

R1000

CHEMIN RENAUD

MIN ROW REQUIREMENTS

20m2

394m2

66m2

139m2

7m2

148m2

116m2

PROPOSED FUTURE ROW WIDENING

FUTURE ROAD ALIGNMENT

No.	ISSUE / REVISION	DD/MM/YY

VERIFY SHEET SIZE AND SCALES. THE BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: 1:500

CLIENT:

CONSULTANT: www.jlrichards.ca

J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROFESSIONAL STAMP

PROJECT NORTH

PROJECT:

CONSEIL DES ÉCOLES PUBLIQUES DE L'EST DE L'ONTARIO (CEPEO)
CITY OF CLARENCE-ROCKLAND
HIGH SCHOOL
2405 & 2419 MER-BLEUE ROAD, OTTAWA, ONTARIO

DRAWING:

NOISE CONTROL DETAILED STUDY
TRANSPORTATION NOISE SOURCE RECEIVER LOCATIONS

DESIGN:	TB
DRAWN:	TB
CHECKED:	L.J
JLR #:	33322-002

DRAWING #: N1

File Location: R:\33000\33322-001 - Orleans N\A\03-Design\01-Civil\Noise\1 - 1st Submission\33322-001 N1.dwg

PLOT DATE: January 30, 2025 1:16:18 PM

MONARDIA WY

WILLOW ASTER CIR.

GERARDIA LN

WILLOW ASTER CIR.

HELENIUM LN

WILLOW ASTER CIR.

MER BLEUE ROAD

CHEMIN RENAUD

PROPERTY LINE

OPEN LANDSCAPING

10 FUTURE SPOTS

6 PORTATIVES (FUTURE)

6 PORTATIVES (FUTURE)

FUTURE EXPANSION (18 CLASSROOMS)

FUTURE SOCCER FIELD AFTER SITE ACQUISITION

FUTURE BUS LOOP FIELD AFTER SITE ACQUISITION

FUTURE AUDITORIUM EXPANSION

ELEVATED CROSSWALK

PROPOSED SNOW STORAGE LOCATION

CAR DROP-OFF

ACCESSIBLE DROP-OFF CAR DROP-OFF

FENCE AT PROPERTY LINE

PROPOSED SNOW STORAGE LOCATION

DC

SERVICE ENTRANCE

LOADING

OVERHEAD DOOR

DUST COLLECTOR (NOISE LEVEL AT 5' IS 73 dba)

R6

R4

R5

R3

RTU-1 GYM-1

RTU-2 GYM-2

RTU-4 CAFE PERIMETER

RTU-3 CAFE

DDAS GYM

DDAS-1

KITCHEN MUA SUPPLY FAN

KITCHEN EXHAUST FAN

FLUID COOLERS

SECONDARY ENTRANCE

CULINARY MUA NOISE LEVEL AT 3' IS 46 dba)

MAIN ENTRANCE

EXISTING STEEL SHED

EXISTING ONE STOREY HOUSE

EXISTING MER BLEUE ROAD CENTER LINE

PROPOSED FUTURE ROW WIDENING

FUTURE ROAD ALIGNMENT

2m SHARED PAVED SHOULDER

2m PAVED SHOULDER

MIN ROW REQUIREMENTS

R1000

1304m2

102.7m
112.8m
103.4m
121.3m
128.2m
119.5m
152.0m
104.0m
121.9m
98.8m
152.2m
114.0m
104.6m
114.3m
88.1m
92.3m
109.9m
115.9m
140.9m
104.2m
105.9m
134.8m
39.0m
43.7m
34.9m
59.9m
86.3m
53.6m
43.7m
52.3m
41.6m
84.7m
128.0m
122.7m
115.5m
75.7m
74.5m
96.5m
103.4m
123.4m
128.7m
105.8m
110.1m

LEGEND:

PLANE OF WINDOW RECEIVER

No.	ISSUE / REVISION	DD/MM/YY

VERIFY SHEET SIZE AND SCALES. THE BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: 1:500

CLIENT:

CONSULTANT: www.jlrichards.ca

J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROFESSIONAL STAMP

PROJECT NORTH

PROJECT:

CONSEIL DES ÉCOLES PUBLIQUES DE L'EST DE L'ONTARIO (CEPEO)
CITY OF CLARENCE-ROCKLAND
HIGH SCHOOL
2405 & 2419 MER-BLEUE ROAD, OTTAWA, ONTARIO

DRAWING:

NOISE CONTROL DETAILED STUDY
STATIONARY NOISE SOURCE
RECEIVER LOCATIONS

DESIGN:	TB
DRAWN:	TB
CHECKED:	LJ
JLR #:	33322-002

DRAWING #: N2

File Location: R:\33000\33322-001 - Orleans NIA\04-Design\01-Civil\Noise\2 - 2nd Submission\33322-001 N2.dwg

PLOT DATE: Friday, March 14, 2025 12:25:25 AM

Appendix B

Transportation Noise Source Predictions

STAMSON 5.0 NORMAL REPORT Date: 17-01-2025 14:05:50
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: MB_R1.te Time Period: Day/Night 16/8 hours
Description: Orleans South HS Plane of Window R1

Road data, segment # 1: MerBleueN (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 17500
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: MerBleueN (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.70 / 15.70 m
Receiver height : 2.25 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: MerBleueS (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 17500
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: MerBleueS (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  29.70 / 29.70  m
Receiver height           :   2.25 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Results segment # 1: MerBleueN (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 68.92 + 0.00) = 68.92 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.64  70.67   0.00  -0.32  -1.42   0.00   0.00   0.00  68.92
-------------------------------------------------------------------------------

Segment Leq : 68.92 dBA


Results segment # 2: MerBleueS (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 64.39 + 0.00) = 64.39 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.64  70.67   0.00  -4.86  -1.42   0.00   0.00   0.00  64.39
-------------------------------------------------------------------------------

Segment Leq : 64.39 dBA

Total Leq All Segments: 70.23 dBA


Results segment # 1: MerBleueN (night)
-------------------------------------
```

Source height = 1.50 m

ROAD (0.00 + 61.46 + 0.00) = 61.46 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	63.07	0.00	-0.31	-1.30	0.00	0.00	0.00	61.46

Segment Leq : 61.46 dBA

Results segment # 2: MerBleueS (night)

Source height = 1.50 m

ROAD (0.00 + 57.11 + 0.00) = 57.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	63.07	0.00	-4.66	-1.30	0.00	0.00	0.00	57.11

Segment Leq : 57.11 dBA

Total Leq All Segments: 62.82 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.23
(NIGHT): 62.82

STAMSON 5.0 NORMAL REPORT Date: 20-01-2025 09:38:09
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: mb_r2.te Time Period: Day/Night 16/8 hours
Description: Orleans South HS Plane of Window R2

Road data, segment # 1: MerBleueN (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %

```
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: MerBleueN (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  35.40 / 15.70  m
Receiver height           :   2.25 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 2: MerBleueS (day/night)
-------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: MerBleueS (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  49.80 / 29.70  m
Receiver height           :   2.25 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
```

Reference angle   :   0.00

Results segment # 1: MerBleueN (day)

Source height = 1.50 m

ROAD (0.00 + 63.14 + 0.00) = 63.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.64	70.67	0.00	-6.11	-1.42	0.00	0.00	0.00	63.14

Segment Leq : 63.14 dBA

Results segment # 2: MerBleueS (day)

Source height = 1.50 m

ROAD (0.00 + 60.71 + 0.00) = 60.71 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.64	70.67	0.00	-8.53	-1.42	0.00	0.00	0.00	60.71

Segment Leq : 60.71 dBA

Total Leq All Segments: 65.10 dBA

Results segment # 1: MerBleueN (night)

Source height = 1.50 m

ROAD (0.00 + 61.46 + 0.00) = 61.46 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	63.07	0.00	-0.31	-1.30	0.00	0.00	0.00	61.46

Segment Leq : 61.46 dBA

Results segment # 2: MerBleueS (night)

Source height = 1.50 m

ROAD (0.00 + 57.11 + 0.00) = 57.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	63.07	0.00	-4.66	-1.30	0.00	0.00	0.00	57.11

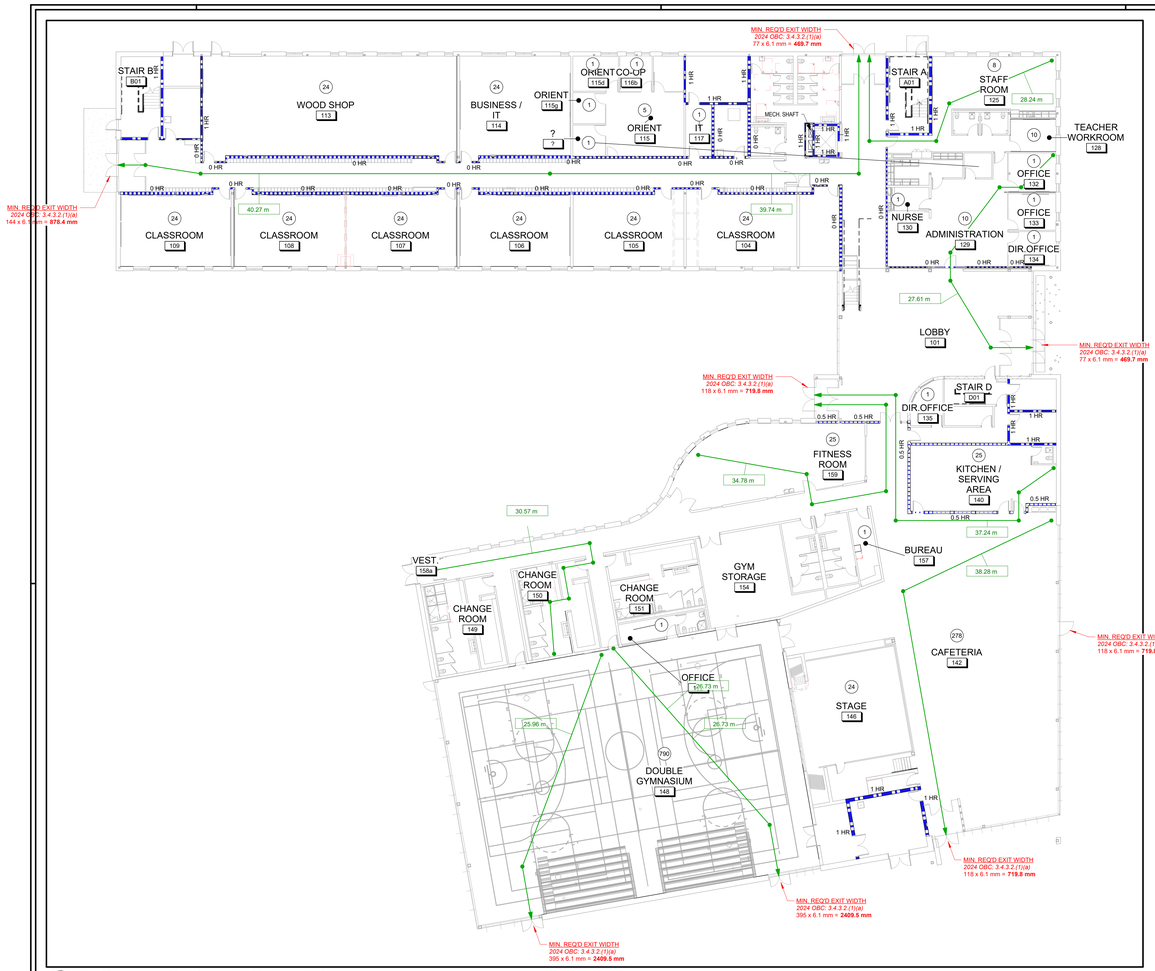
Segment Leq : 57.11 dBA

Total Leq All Segments: 62.82 dBA

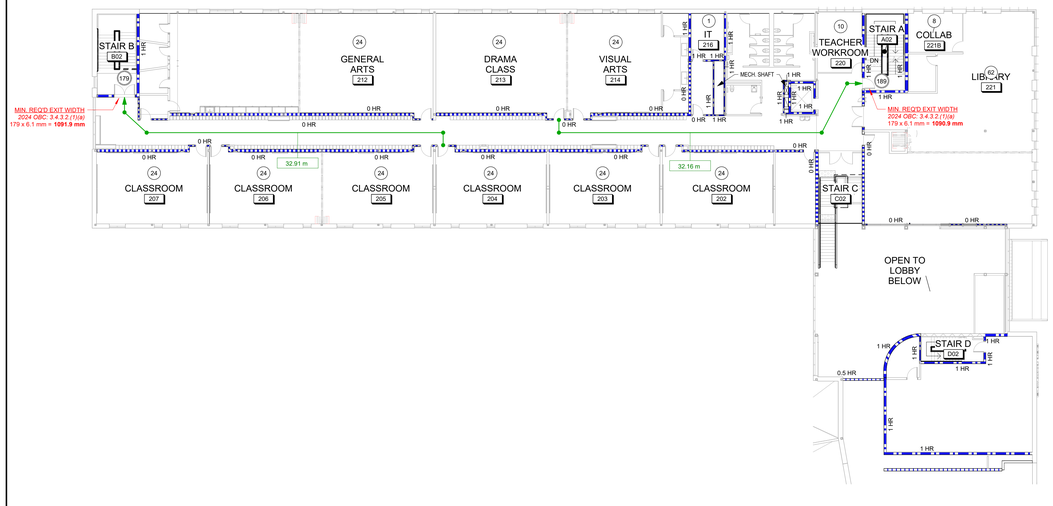
TOTAL Leq FROM ALL SOURCES (DAY): 65.10
(NIGHT): 62.82

Appendix C

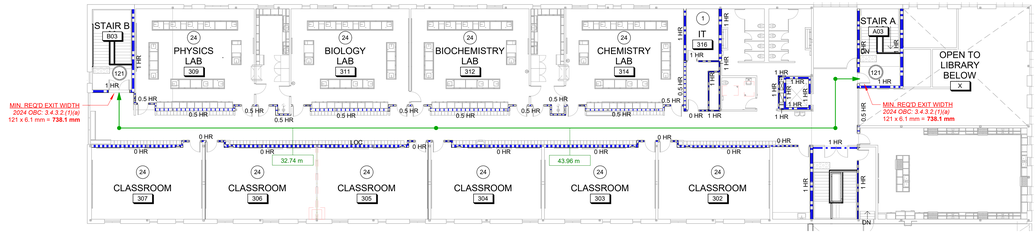
Floor Plan & Building Elevation Drawings



1 / A015 GROUND FLOOR - LIFE SAFETY PLAN
1 : 200



2 / A015 SECOND FLOOR - LIFE SAFETY PLAN
1 : 200



3 / A015 THIRD FLOOR - LIFE SAFETY PLAN
NTS

FIRE RESISTANCE RATING (FRR) LEGEND

- NON-RATED FIRE SEPARATION (0 HR)
- 0.5 HR FIRE SEPARATION
- 1 HR FIRE SEPARATION

REQUIRED FIRE SEPARATIONS

JANITOR	0 HR
IT	1 HR
HAZARDOUS CLASSROOMS	0.5 HR
INTERCONNECTED SPACES	0.5 HR
EXIT STAIRS	1 HR
SHIPPING & RECEIVING	1 HR
MECHANICAL ROOM	1 HR
ELECTRICAL ROOM	1 HR

NOTES:

1. ALL FLOOR ASSEMBLIES TO HAVE AN FRR OF 1 HR.
2. ALL LOADBEARING STRUCTURAL ELEMENTS TO HAVE AN FRR OF 1 HR.
3. REFER TO TYPICAL DETAILS FOR 1HR FRR PROTECTION OF TYPICAL HSS COLUMNS.
4. USE FIRE RATED GYPSUM BOARD FOR ALL FIRE RATED WALLS.
5. FIRE SEPARATION WALLS TO EXTEND TO U/S OF FLOOR / ROOF DECK. SEAL PERIMETER, AND ALL PENETRATIONS.

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project title
NOUVELLE ÉCOLE SECONDAIRE PUBLIQUE À ORLÉANS SUD
Ontario

drawing title
LIFE SAFETY PLANS

date	NOVEMBER,2024	job. no.	3024
scale	1 : 200		
drawn	DH	drawing no.	A015
approved	CJ / PD		
plot date	yyyy / mm /dd		

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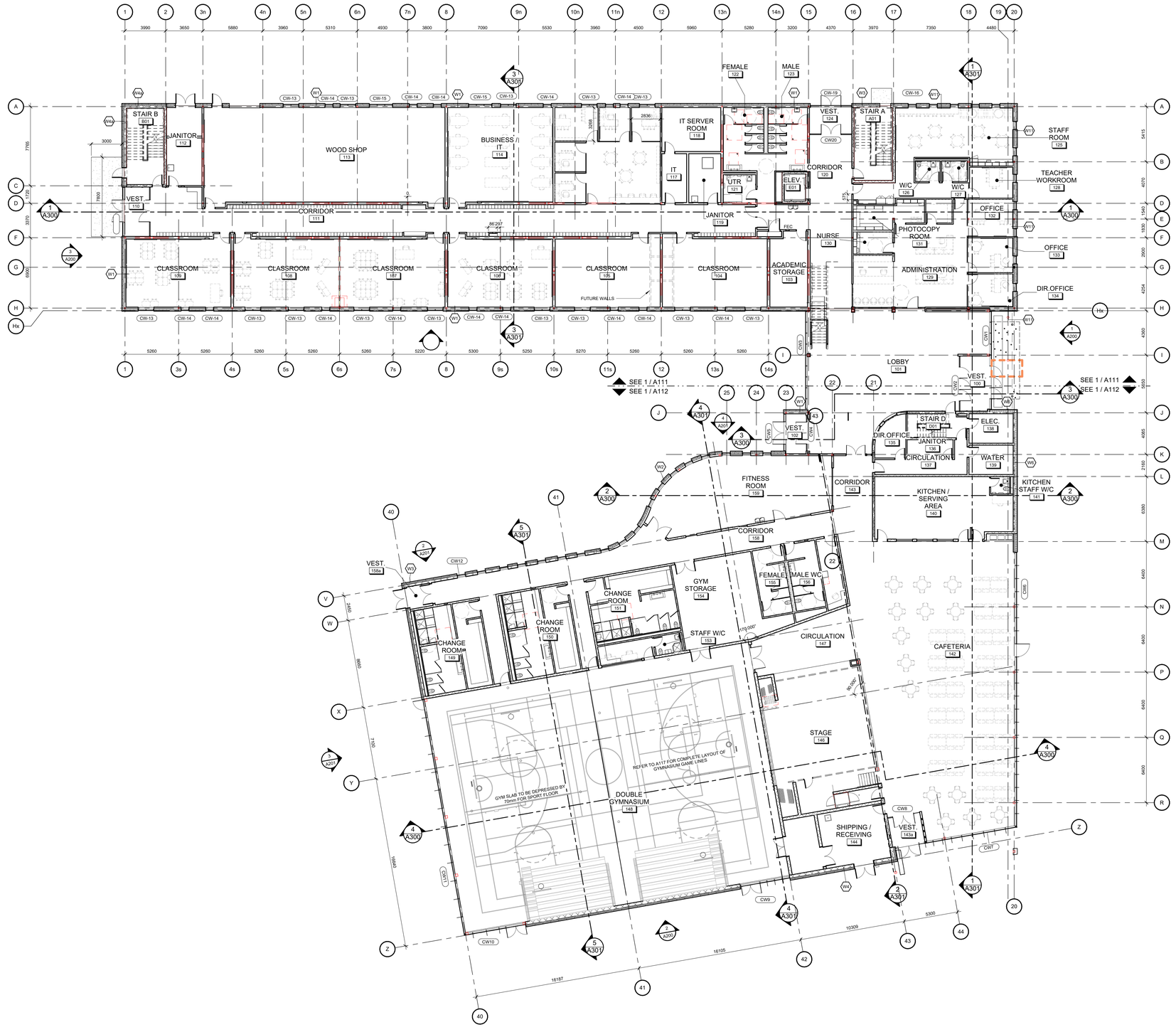

1 A101 GROUND FLOOR PLAN - OVERALL
1 : 150

ASSEMBLY TYPE NOTES

1. DIMENSION LINES ARE TAKEN FROM GRIDLINES, FACE OF STUDS, AND FACE OF BLOCK WALLS, UNLESS OTHERWISE NOTED.
2. REFER TO LIFE SAFETY PLANS FOR LOCATION AND RATING OF FIRE RATED WALLS. USE FIRE-RATED GYPSUM BOARD FOR ALL FIRE RATED WALLS.
3. ALL INTERIOR WALL ASSEMBLIES TO U/S OF FLOOR / ROOF DECK UNLESS OTHERWISE NOTED.
4. REFER TO ROOM FINISH SCHEDULE FOR FINISHES OF WALLS.
5. NON RATED FIRE SEPERATIONS - EXTEND ENTIRE ASSEMBLY TO U/S OF FLOOR / ROOF DECK, SEAL PERIMETER AND ALL PENATRATIONS.
6. FOR GROUT FILLING AND REINFORCEMENT DETAILS OF CONCRETE BLOCK WALLS, REFER TO STRUCTURAL DRAWINGS.
7. WASHROOMS REQUIRE MOISTURE RESISTANT GYPSUM BOARD.
8. GYPSUM BOARD CORRIDORS & GYPSUM BOARD CLAD COLUMNS TO BE ABUSE-RESISTANT GYPSUM BOARD.
9. ALL EXPOSED BLOCK EDGES TO BE BULLNOSE BLOCK UNLESS OTHERWISE NOTED.
10. REFER TO PARTIAL PLANS AND/OR BLOW-UPS FOR MORE GENERAL ANNOTATION AND DIMENSIONS.
11. ALL MECHANICAL CHASES ARE TO BE WALL TYPE P1e EXCEPT NOTED OTHERWISE.

EXTERIOR WALL ASSEMBLIES

W1 — 90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
100mm RIGID INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
16mm EXTERIOR SHEATHING
152mm STRUCTURAL STEEL STUDS
50mm SEMI-RIGID ROCK WOOL INSULATION (R8)
16mm GYPSUM BOARD

W2 — 90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
150mm (2 x 75mm) STAGGERED JOINTS SEMI-RIGID ROCK WOOL INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
16mm EXTERIOR SHEATHING
152mm STRUCTURAL STEEL STUDS
50mm SEMI-RIGID ROCK WOOL INSULATION (R8)
16mm GYPSUM BOARD

W3a — 90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
2 LAYERS OF 50mm RIGID STRAGGERED INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
190mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)
22mm FURRING @ 400mm O.C.
16mm GYPSUM BOARD

W3 — 90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
2 LAYERS OF 50mm RIGID STRAGGERED INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
190mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W4 — 90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
2 LAYERS OF 50mm RIGID STRAGGERED INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
290mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W4b — 90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
2 LAYERS OF 50mm RIGID STRAGGERED INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
240mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W5 — 38mm PREFINISHED VERTICAL METAL SIDING
WEATHER BARRIER
178mm HORIZONTAL Z-GIRTS
178mm (2 x 89mm) SEMI-RIGID ROCK WOOL INSULATION (R28 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
16mm EXTERIOR SHEATHING
152mm STRUCTURAL STEEL STUDS
16mm GYPSUM BOARD

W6 — 38mm PREFINISHED VERTICAL METAL SIDING
WEATHER BARRIER
178mm HORIZONTAL Z-GIRTS
127mm SEMI-RIGID ROCK WOOL INSULATION (R20 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
190mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W6b — SAME AS W6, BUT WITH 22mm FURRING CHANNELS AND 16mm GYPSUM BOARD

W7 — 38mm PREFINISHED VERTICAL METAL SIDING
WEATHER BARRIER
178mm HORIZONTAL Z-GIRTS
127mm SEMI-RIGID ROCK WOOL INSULATION (R20 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
240mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W8 — 38mm PREFINISHED VERTICAL METAL SIDING
WEATHER BARRIER
178mm HORIZONTAL Z-GIRTS
127mm SEMI-RIGID ROCK WOOL INSULATION (R20 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
290mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W9 — 13mm PHENOLIC PANELS
WEATHER BARRIER
25mm VERTICAL GALVANIZED STEEL HAT SECTION
178mm HORIZONTAL Z-GIRTS
178mm (2 x 89mm) SEMI-RIGID ROCK WOOL INSULATION (R28 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
16mm EXTERIOR SHEATHING
152mm STRUCTURAL STEEL STUDS
16mm GYPSUM BOARD

W10 — 13mm PHENOLIC PANELS
WEATHER BARRIER
25mm VERTICAL GALVANIZED STEEL HAT SECTION
178mm HORIZONTAL Z-GIRTS
178mm (2 x 89mm) SEMI-RIGID ROCK WOOL INSULATION (R28 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
190mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W11 — 90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
100mm RIGID INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
16mm EXTERIOR SHEATHING
152mm STRUCTURAL STEEL STUDS
50mm SEMI-RIGID ROCK WOOL INSULATION (R8)
12.7mm RESILIENT CHANNEL AT 610 MM
19 mm (3/4") SOUNDPROOFING WOOD FIBER BOARD
16mm GYPSUM BOARD
16mm GYPSUM BOARD

W12 — 38mm PREFINISHED VERTICAL METAL SIDING
WEATHER BARRIER
178mm HORIZONTAL Z-GIRTS
178mm (2 x 89mm) SEMI-RIGID ROCK WOOL
INSULATION (R28 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
152mm STRUCTURAL STEEL STUDS
12.7mm RESILIENT CHANNEL AT 610 MM
19 mm (3/4") SOUNDPROOFING WOOD FIBER BOARD
16mm GYPSUM BOARD
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project title
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Ontario

drawing title
GROUND FLOOR PLAN - OVERALL

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drawn	DH		
approved	CJ / PD		
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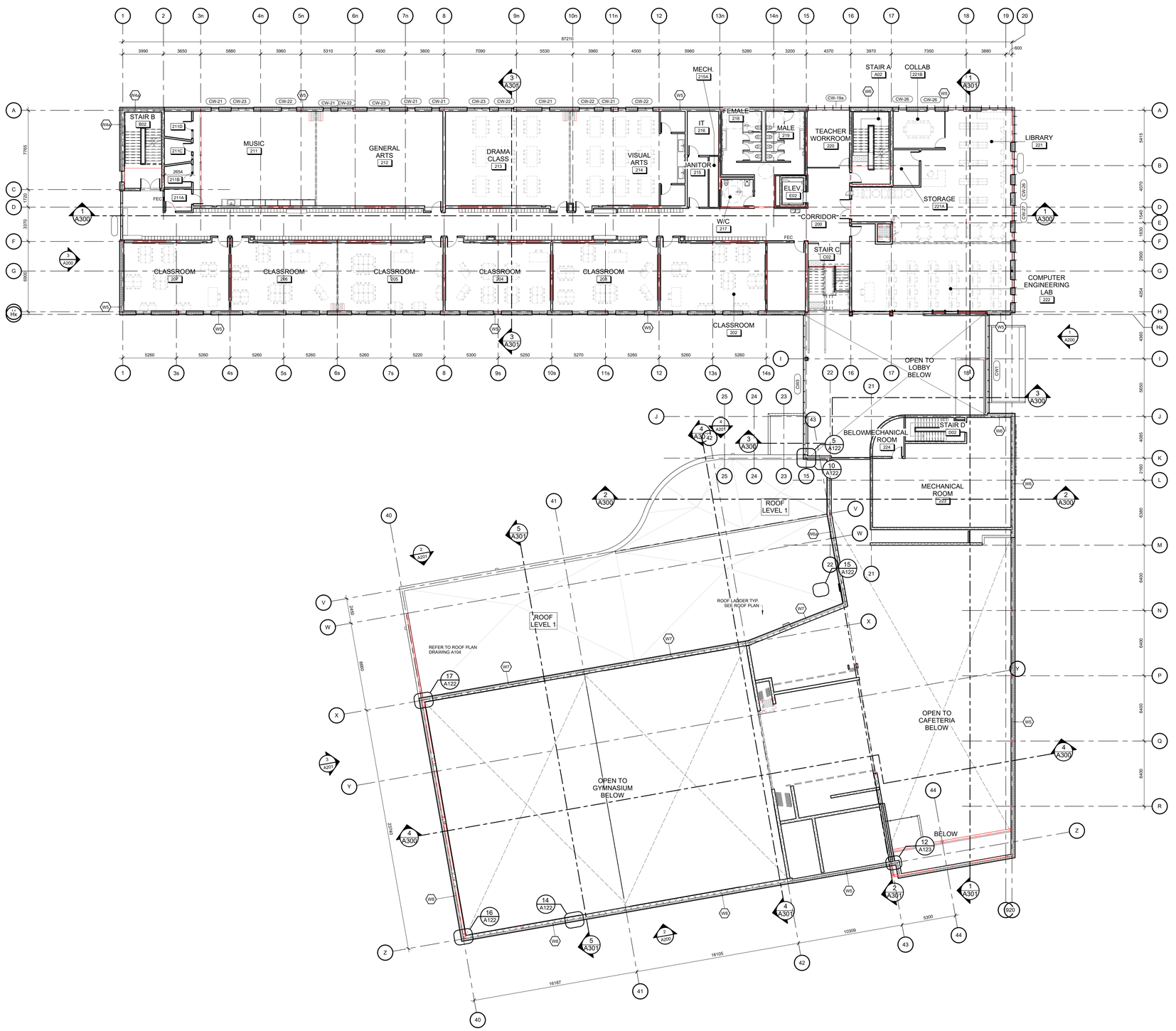

ASSEMBLY TYPE NOTES

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EXTERIOR WALL ASSEMBLIES

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90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
100mm RIGID INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
16mm EXTERIOR SHEATHING
152mm STRUCTURAL STEEL STUDS
50mm SEMI-RIGID ROCK WOOL INSULATION (R8)
16mm GYPSUM BOARD

W2
90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
150mm (2 x 75mm) STAGGERED JOINTS SEMI-RIGID ROCK WOOL INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
16mm EXTERIOR SHEATHING
152mm STRUCTURAL STEEL STUDS
50mm SEMI-RIGID ROCK WOOL INSULATION (R8)
16mm GYPSUM BOARD

W3a
90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
2 LAYERS OF 50mm RIGID STRAGGERED INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
190mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)
22mm FURRING @ 400mm O.C.
16mm GYPSUM BOARD

W3
90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
2 LAYERS OF 50mm RIGID STRAGGERED INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
190mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W4
90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
2 LAYERS OF 50mm RIGID STRAGGERED INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
290mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W4b
90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
2 LAYERS OF 50mm RIGID STRAGGERED INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
240mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W5
38mm PREFINISHED VERTICAL METAL SIDING
WEATHER BARRIER
178mm HORIZONTAL Z-GIRTS
178mm (2 x 89mm) SEMI-RIGID ROCK WOOL INSULATION (R28 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
16mm EXTERIOR SHEATHING
152mm STRUCTURAL STEEL STUDS
16mm GYPSUM BOARD

W6
38mm PREFINISHED VERTICAL METAL SIDING
WEATHER BARRIER
178mm HORIZONTAL Z-GIRTS
127mm SEMI-RIGID ROCK WOOL INSULATION (R20 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
190mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W6b
SAME AS W6, BUT WITH 22mm FURRING CHANNELS AND 16mm GYPSUM BOARD

W7
38mm PREFINISHED VERTICAL METAL SIDING
WEATHER BARRIER
178mm HORIZONTAL Z-GIRTS
127mm SEMI-RIGID ROCK WOOL INSULATION (R20 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
240mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W8
38mm PREFINISHED VERTICAL METAL SIDING
WEATHER BARRIER
178mm HORIZONTAL Z-GIRTS
127mm SEMI-RIGID ROCK WOOL INSULATION (R20 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
290mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W9
13mm PHENOLIC PANELS
WEATHER BARRIER
25mm VERTICAL GALVANIZED STEEL HAT SECTION
178mm HORIZONTAL Z-GIRTS
178mm (2 x 89mm) SEMI-RIGID ROCK WOOL INSULATION (R28 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
16mm EXTERIOR SHEATHING
152mm STRUCTURAL STEEL STUDS
16mm GYPSUM BOARD

W10
13mm PHENOLIC PANELS
WEATHER BARRIER
25mm VERTICAL GALVANIZED STEEL HAT SECTION
178mm HORIZONTAL Z-GIRTS
178mm (2 x 89mm) SEMI-RIGID ROCK WOOL INSULATION (R28 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
190mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W11
90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
100mm RIGID INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
16mm EXTERIOR SHEATHING
152mm STRUCTURAL STEEL STUDS
50mm SEMI-RIGID ROCK WOOL INSULATION (R8)
12.7mm RESILIENT CHANNEL AT 610 MM
19 mm (3/4") SOUNDPROOFING WOOD FIBER BOARD
16mm GYPSUM BOARD
16mm GYPSUM BOARD

W12
38mm PREFINISHED VERTICAL METAL SIDING
WEATHER BARRIER
178mm HORIZONTAL Z-GIRTS
178mm (2 x 89mm) SEMI-RIGID ROCK WOOL INSULATION (R28 MIN.)
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12.7mm RESILIENT CHANNEL AT 610 MM
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Ontario

drawing title
SECOND FLOOR PLAN - OVERALL

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approved	CJ / PD		
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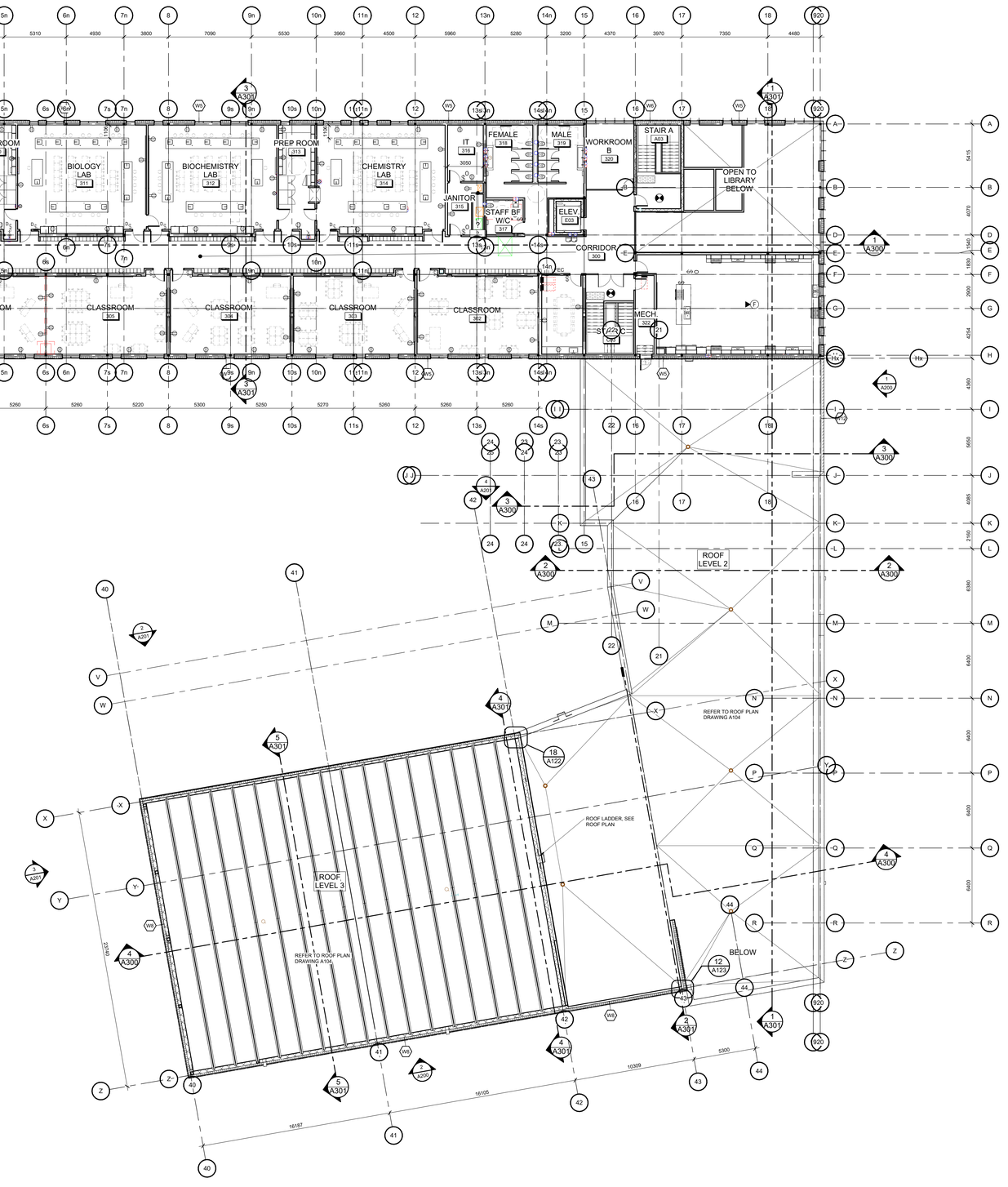
1 SECOND FLOOR PLAN - OVERALL



1 A103 THIRD FLOOR PLAN - OVERALL
1 : 150

ASSEMBLY TYPE NOTES

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EXTERIOR WALL ASSEMBLIES

W1
90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
100mm RIGID INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
16mm EXTERIOR SHEATHING
152mm STRUCTURAL STEEL STUDS
50mm SEMI-RIGID ROCK WOOL INSULATION (R8)
16mm GYPSUM BOARD

W2
90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
150mm (2 x 75mm) STAGGERED JOINTS SEMI-RIGID ROCK WOOL INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
16mm EXTERIOR SHEATHING
152mm STRUCTURAL STEEL STUDS
50mm SEMI-RIGID ROCK WOOL INSULATION (R8)
16mm GYPSUM BOARD

W3a
90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
2 LAYERS OF 50mm RIGID STRAGGERED INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
190mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)
22mm FURRING @ 400mm O.C.
16mm GYPSUM BOARD

W3
90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
2 LAYERS OF 50mm RIGID STRAGGERED INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
190mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W4
90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
2 LAYERS OF 50mm RIGID STRAGGERED INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
290mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W4b
90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
2 LAYERS OF 50mm RIGID STRAGGERED INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
240mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W5
38mm PREFINISHED VERTICAL METAL SIDING
WEATHER BARRIER
178mm HORIZONTAL Z-GIRTS
178mm (2 x 89mm) SEMI-RIGID ROCK WOOL INSULATION (R28 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
16mm EXTERIOR SHEATHING
152mm STRUCTURAL STEEL STUDS
16mm GYPSUM BOARD

W6
38mm PREFINISHED VERTICAL METAL SIDING
WEATHER BARRIER
178mm HORIZONTAL Z-GIRTS
127mm SEMI-RIGID ROCK WOOL INSULATION (R20 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
190mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W6b
SAME AS W6, BUT WITH 22mm FURRING CHANNELS AND 16mm GYPSUM BOARD

W7
38mm PREFINISHED VERTICAL METAL SIDING
WEATHER BARRIER
178mm HORIZONTAL Z-GIRTS
127mm SEMI-RIGID ROCK WOOL INSULATION (R20 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
240mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W8
38mm PREFINISHED VERTICAL METAL SIDING
WEATHER BARRIER
178mm HORIZONTAL Z-GIRTS
127mm SEMI-RIGID ROCK WOOL INSULATION (R20 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
290mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W9
13mm PHENOLIC PANELS
WEATHER BARRIER
25mm VERTICAL GALVANIZED STEEL HAT SECTION
178mm HORIZONTAL Z-GIRTS
178mm (2 x 89mm) SEMI-RIGID ROCK WOOL INSULATION (R28 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
16mm EXTERIOR SHEATHING
152mm STRUCTURAL STEEL STUDS
16mm GYPSUM BOARD

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13mm PHENOLIC PANELS
WEATHER BARRIER
25mm VERTICAL GALVANIZED STEEL HAT SECTION
178mm HORIZONTAL Z-GIRTS
178mm (2 x 89mm) SEMI-RIGID ROCK WOOL INSULATION (R28 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
190mm CONCRETE BLOCK (SEE STRUCTURAL FOR REINFORCEMENT)

W11
90mm MASONRY (SEE ELEVATIONS FOR TYPE)
25mm AIR SPACE
100mm RIGID INSULATION (R24 MIN.)
SELF ADHERED AIR/VAPOUR BARRIER
152mm STRUCTURAL STEEL STUDS
50mm SEMI-RIGID ROCK WOOL INSULATION (R8)
12.7mm RESILIENT CHANNEL AT 610 MM
19 mm (3/4") SOUNDPROOFING WOOD FIBER BOARD
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12.7mm RESILIENT CHANNEL AT 610 MM
19 mm (3/4") SOUNDPROOFING WOOD FIBER BOARD
16mm GYPSUM BOARD
16mm GYPSUM BOARD

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2025-JAN-21

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NOUVELLE ÉCOLE SECONDAIRE PUBLIQUE À ORLÉANS SUD
Ontario

drawing title
THIRD FLOOR PLAN - OVERALL

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approved	CJ / PD		
plot date	yyyy / mm /dd		

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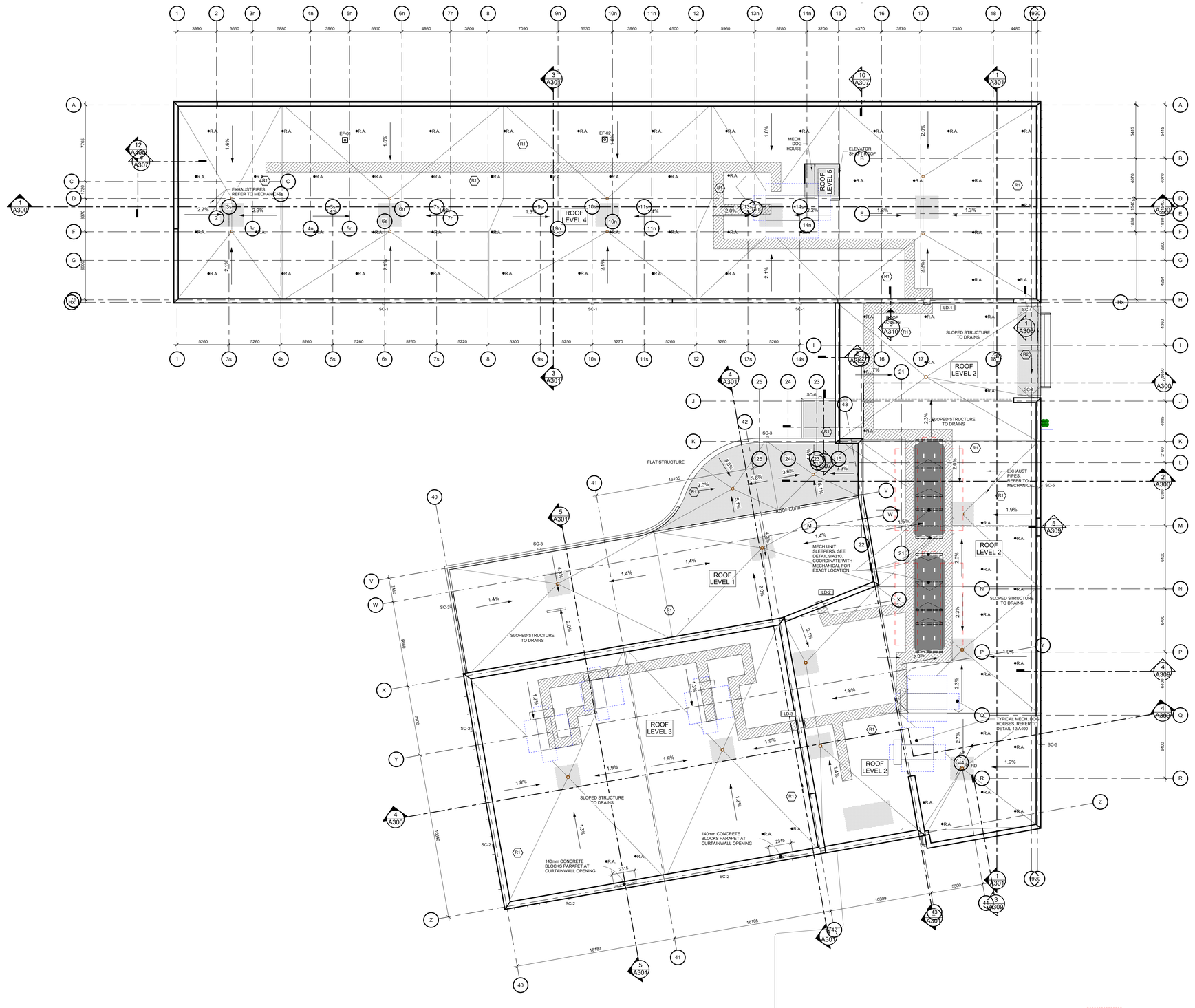
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL



1 / A104 ROOF PLAN
1 : 150

GENERAL NOTES:

1. MECHANICAL AND ELECTRICAL EQUIPMENT IS SHOWN FOR COORDINATION PURPOSES ONLY. REFER TO CONTRACT DOCUMENTS FOR EACH DISCIPLINE FOR SPECIFICATIONS AND EXACT LOCATIONS.
2. COORDINATE WITH MECHANICAL DRAWINGS FOR LOCATION AND SIZE OF ALL OPENINGS THROUGH ROOF DECK.
3. FOR ROOF DETAILS REFEREE TO DRAWING A310

LEGEND

- RD — ROOF DRAIN IN 2400mm SUMP (25mm DEPRESSION IN INSULATION)
- 1m WIDE WALKWAY TRAFFIC MEMBRANE ON TPOP OF ROOF ASSEMBLY - CONTRASTING COLOUR
- LD-# — ROOF LADDER
- SCUPPER, REFER TO SHEET A310
- EF - # — EXHAUST FAN
- FCU-# / RTU-# — ROOF TOP UNIT, MECHANICAL TO PROVIDE SUPPORT TYPE. CONCRETE TOPPING TO BE PROVIDED BELLOW ALL ROOF TOP UNITS (RTUs & FCUs) AS INDICATED ON STRUCTURAL DRAWINGS.
- SLOPED TOP INSULATION
- # % — SLOPE TO ROOF DRAIN. PERCENTAGES INDICATED ARE FROM HORIZONTAL PLANE.
- 450x450x65 PRECAST CONCRETE PAVER
- •R.A. — WINDOW WASHING ROOF ANCHORS. QUANTITY & LOCATION OF ROOF ANCHORS TO MEET CAN/CSA-Z91 "HEALTH AND SAFETY CODE FOR SUSPENDED EQUIPMENT OPERATIONS" SEE DETAIL 18 / A310 FOR DETAILS.
- ROOF CRICKET

ROOF ASSEMBLIES

R1 — 2-PLY SBS MODIFIED BITUMEN ROOFING MEMBRANE
3mm INSULATION PROTECTION BOARD
SLOPED POLYISOCYANURATE INSULATION CRICKETS TO ROOF DRAIN
168mm (2 LAYERS 84mm) POLYISOCYANURATE, STRAGGERED ROOF INSULATION (R40)
AIR/VAPOUR BARRIER MEMBRANE
13mm DECK SHEATHING BOARD
STEEL DECK ON STRUCTURAL FRAMING (SEE STRUCTURAL)

R1c — 2-PLY SBS MODIFIED BITUMEN ROOFING MEMBRANE
3mm INSULATION PROTECTION BOARD
SLOPED POLYISOCYANURATE INSULATION CRICKETS TO ROOF DRAIN
168mm (2 LAYERS 84mm) POLYISOCYANURATE, STRAGGERED ROOF INSULATION (R40)
AIR/VAPOUR BARRIER MEMBRANE
62mm CONCRETE TOPPING @ MECHANICAL UNIT, REFER TO STRUCTURE FOR EXTENT
13mm DECK SHEATHING BOARD
STEEL DECK ON STRUCTURAL FRAMING (SEE STRUCTURAL)

R2 — CANOPY ROOFS
2-PLY SBS MODIFIED BITUMEN ROOFING MEMBRANE
3mm INSULATION PROTECTION BOARD
SLOPED POLYISOCYANURATE INSULATION TO SCUPPERS
STEEL DECK ON STRUCTURAL FRAMING (SEE STRUCTURAL)

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NOUVELLE ÉCOLE SECONDAIRE PUBLIQUE À ORLÉANS SUD Ontario

drawing title
ROOF PLAN

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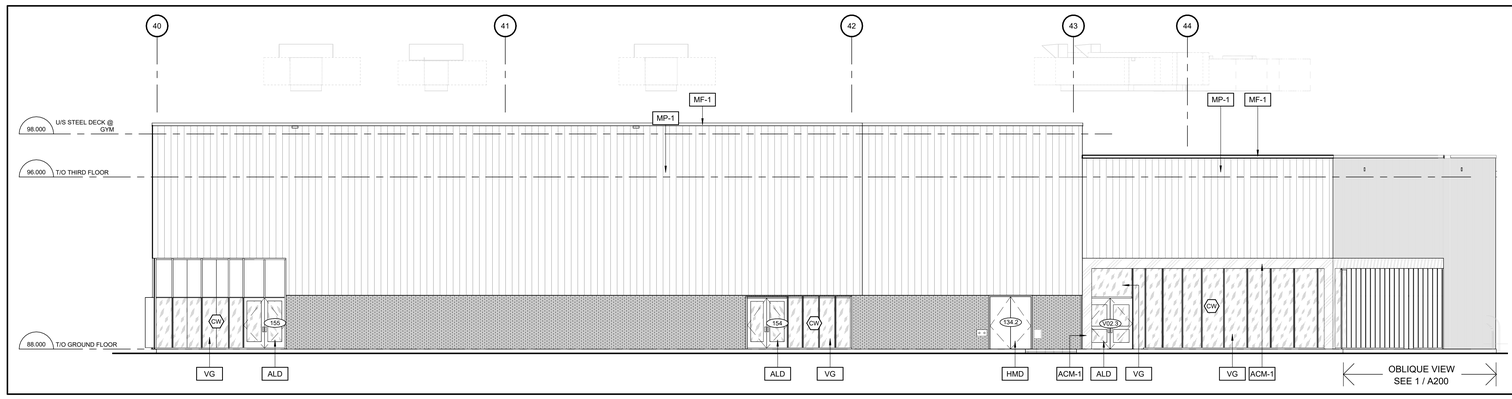
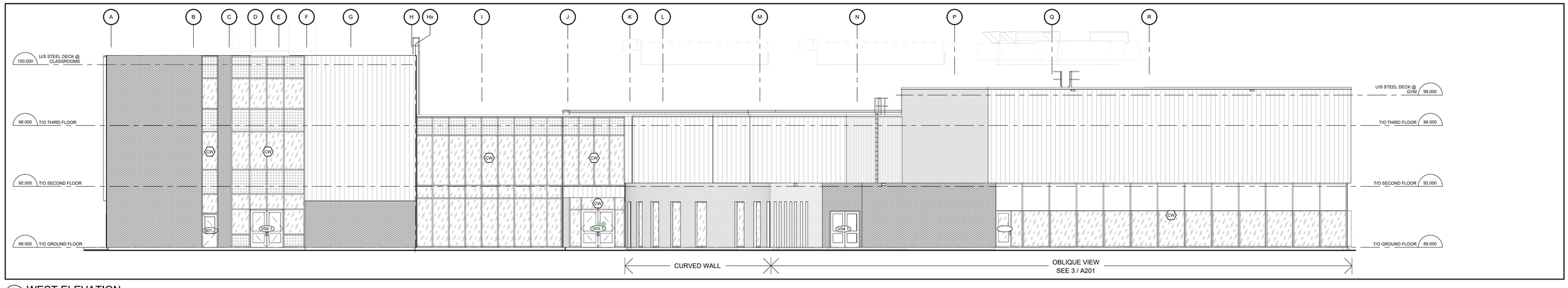
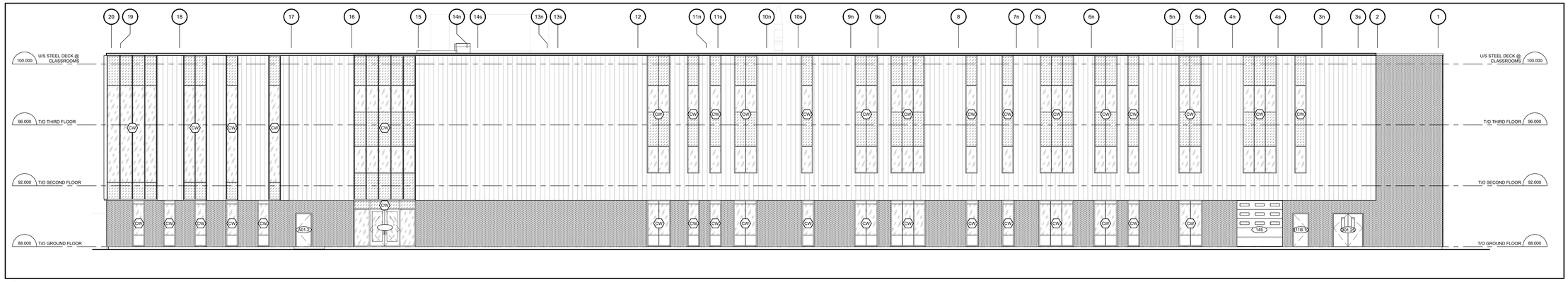
1 A200 EAST ELEVATION
1 : 100



2 A200 SOUTH ELEVATION
1 : 100



3 A200 WEST ELEVATION
1 : 100



4 A200 NORTH ELEVATION
1 : 100

MATERIAL LEGEND

- BRICK TYPE 1 (HOMOGENEOUS BRICK)
- PREFINISHED METAL PANELS (MULTICOLOUR)
- ALUMINUM COMPOSITE PANEL (BEIGE)
- ALUMINUM COMPOSITE PANEL (WHITE)
- CLEAR VISION GLASS PANEL
- TRANSLUCENT GLASS PANEL
- GLAZED SPANDREL PANEL (WHITE)

KEYNOTE LEGEND

ACM-1	ALUMINUM COMPOSITE PANEL (WHITE)
ALD	PREFINISHED ALUMINUM ENTRANCE DOOR
BR-1	BRICK TYPE 1 (HOMOGENEOUS BRICK)
EC	ENTRANCE CANOPY (ALUMINUM COMPOSITE PANEL, YELLOW)
HMD	INSULATED HOLLOW METAL DOOR
LD	ROOF ACCESS LADDER
MF-1	PREFINISHED METAL CAP FLASHING
MP-1	PREFINISHED METAL PANELS
SP-1	INSULATED GLAZED SPANDREL PANELS (WHITE)
SP-2	INSULATED ALUMINUM COMPOSITE SPANDREL PANELS (GREY)
VG	CLEAR VISION GLASS PANEL

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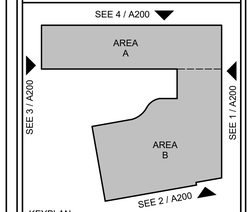

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drawing title
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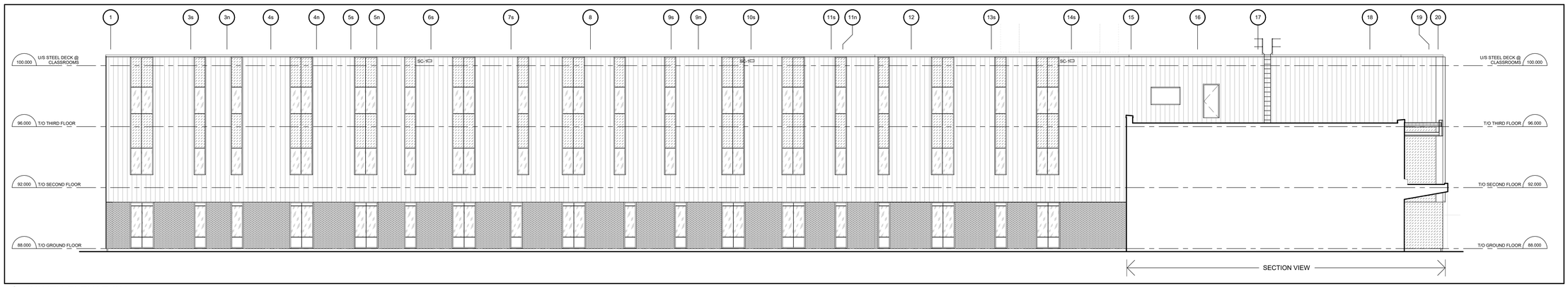
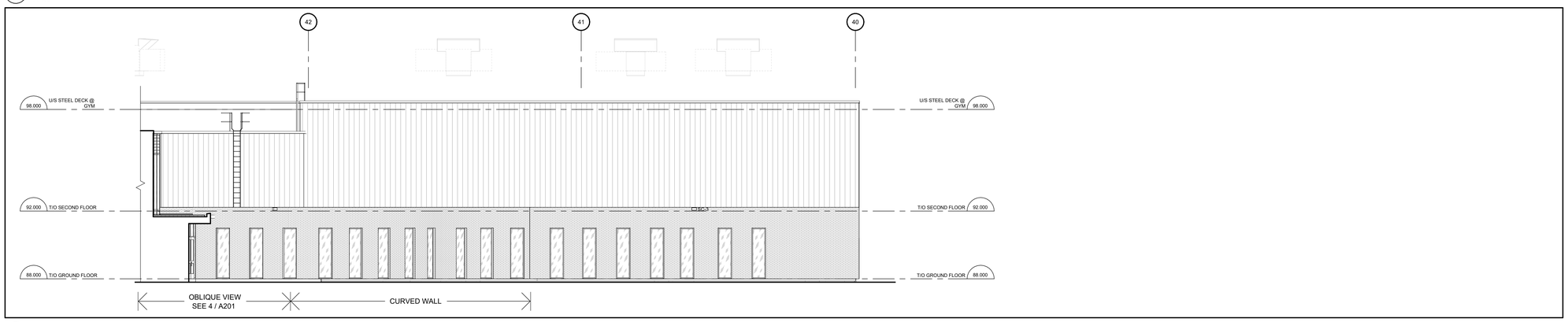
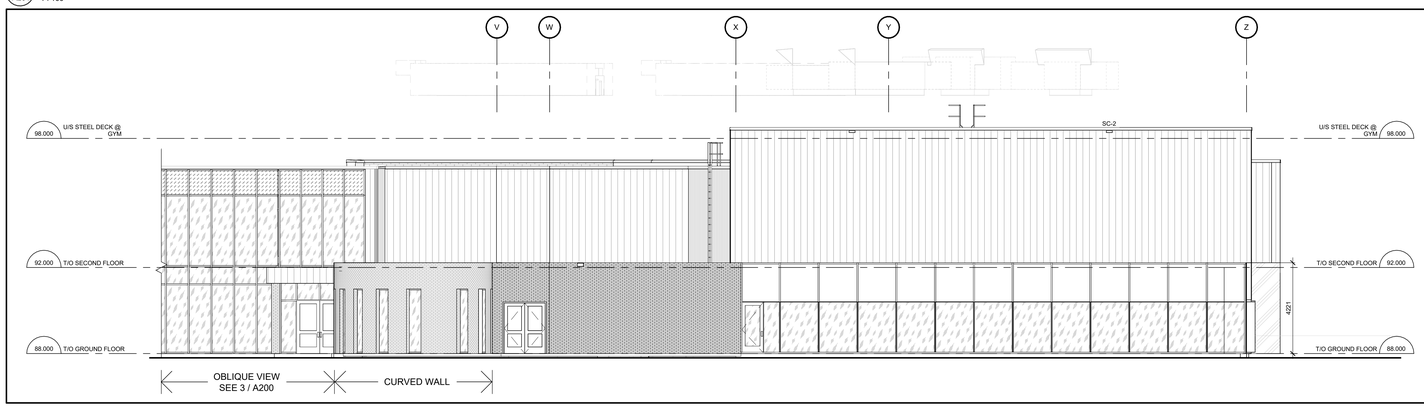


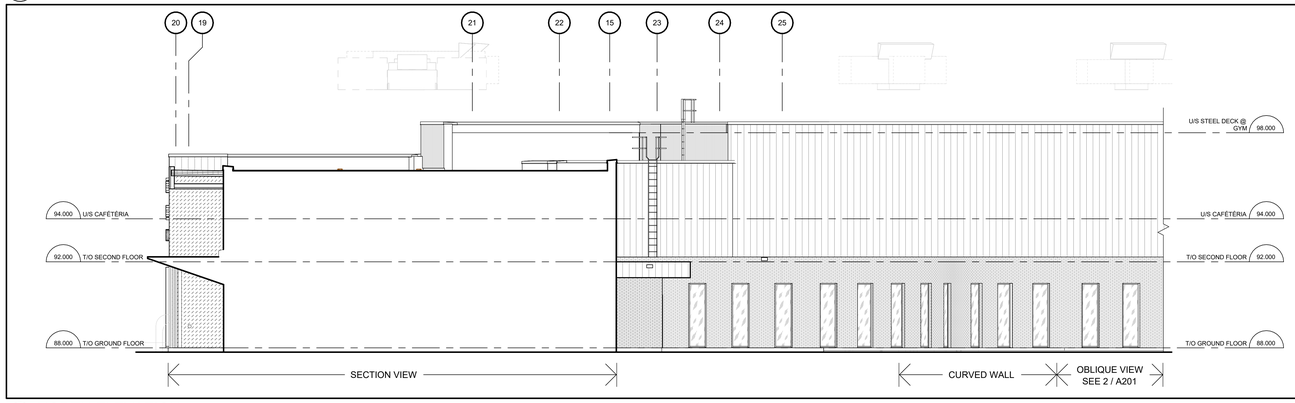
1 A201 SOUTH ELEVATION
1 : 100



2 A201 NORTH ELEVATION
1 : 100



3 A201 WEST ELEVATION
1 : 100



4 A201 NORTH ELEVATION
1 : 100

MATERIAL LEGEND

- BRICK TYPE 1 (HOMOGENEOUS BRICK)
- PREFINISHED METAL PANELS (MULTICOLOUR)
- ALUMINUM COMPOSITE PANEL (BEIGE)
- ALUMINUM COMPOSITE PANEL (WHITE)
- CLEAR VISION GLASS PANEL
- TRANSLUCENT GLASS PANEL
- GLAZED SPANDREL PANEL (WHITE)

KEYNOTE LEGEND

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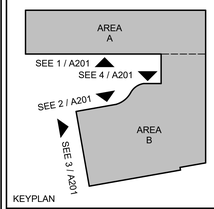

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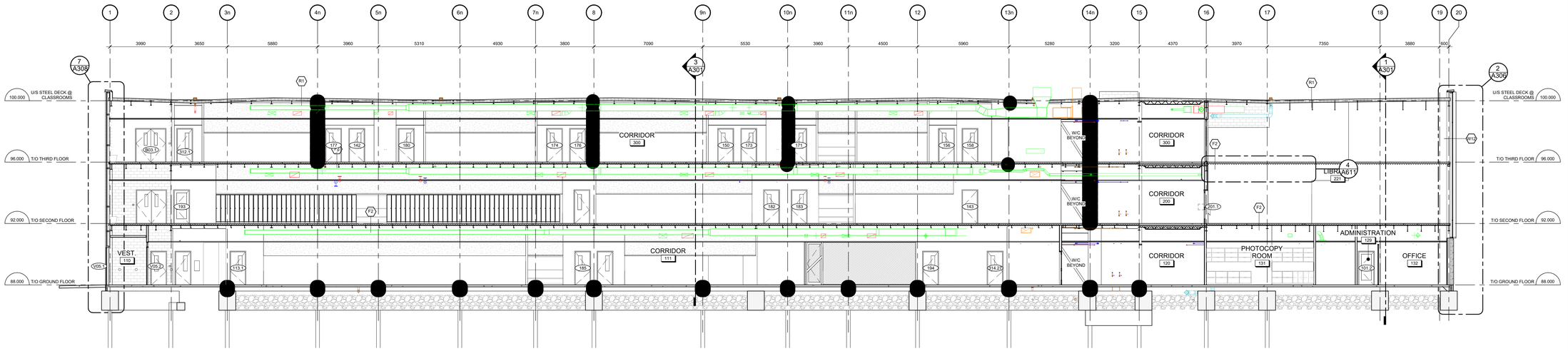
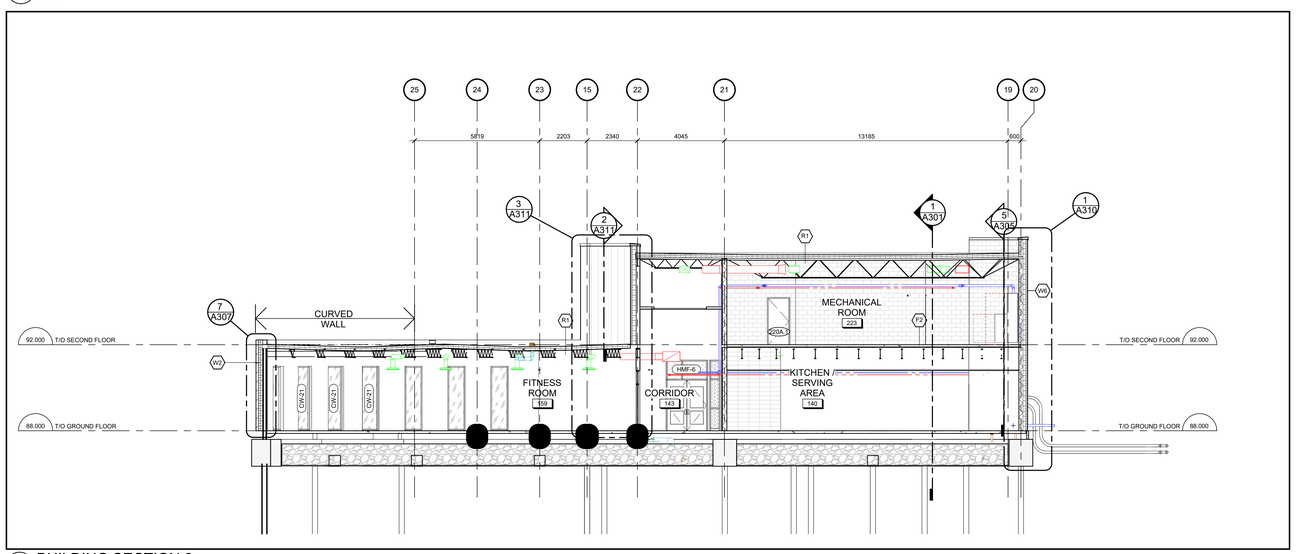


1 A300 BUILDING SECTION 1
1 : 100



2 A300 BUILDING SECTION 2
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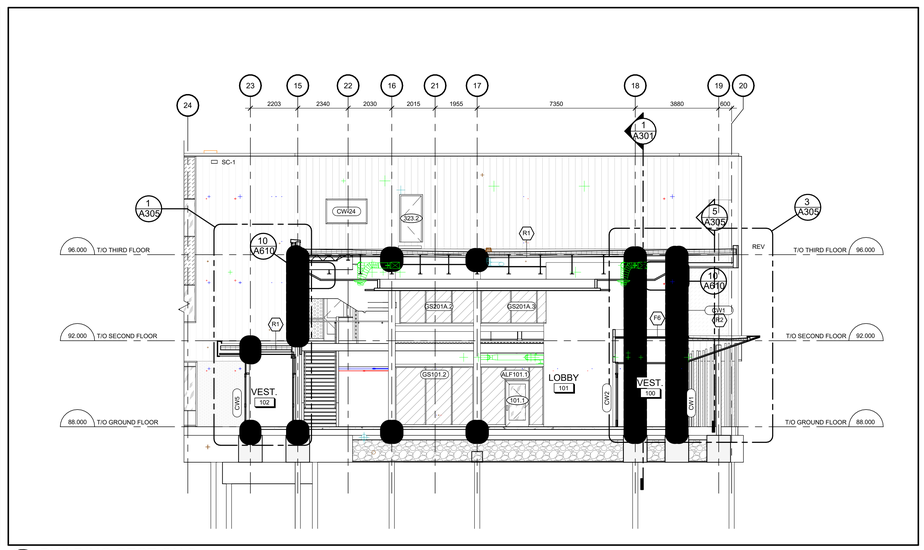
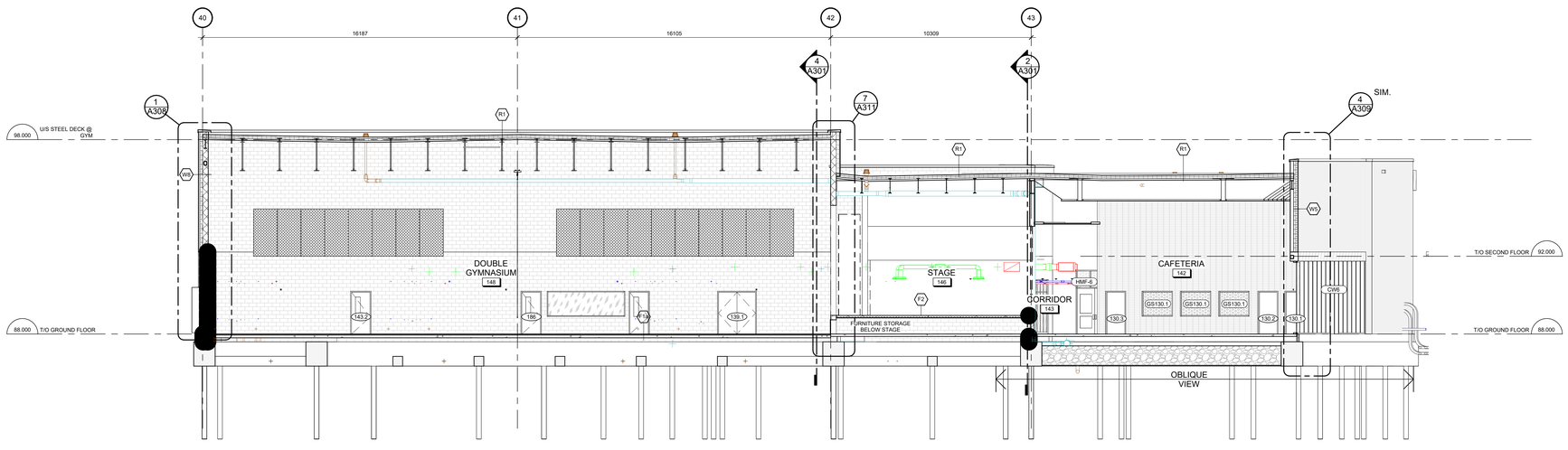


3 A300 BUILDING SECTION 3
1 : 100



4 A300 BUILDING SECTION 4
1 : 100

SEE DRAWING A002 FOR ASSEMBLY TYPES.

KEYNOTE LEGEND

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BUILDING SECTIONS

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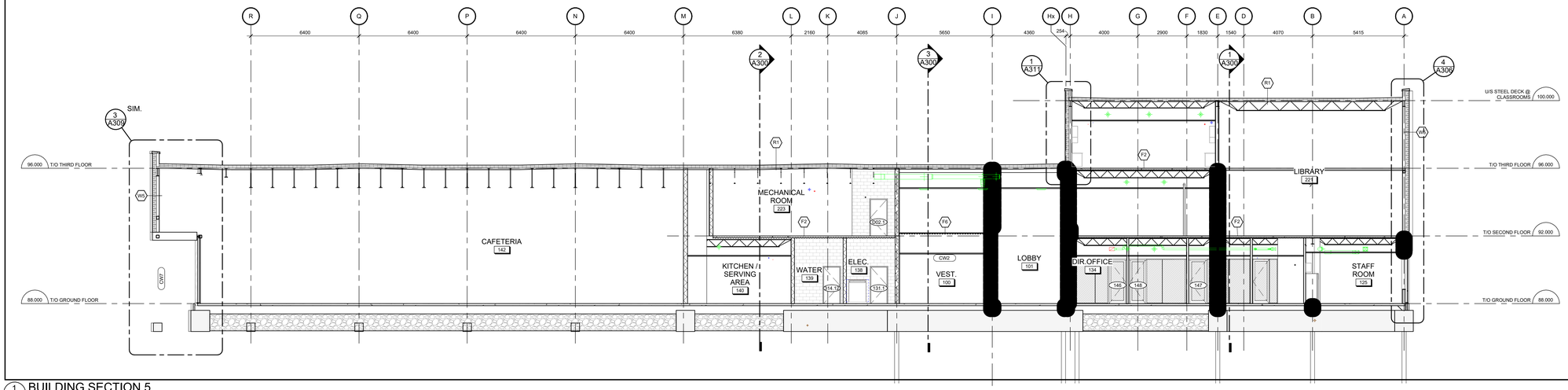

1 A301 BUILDING SECTION 5
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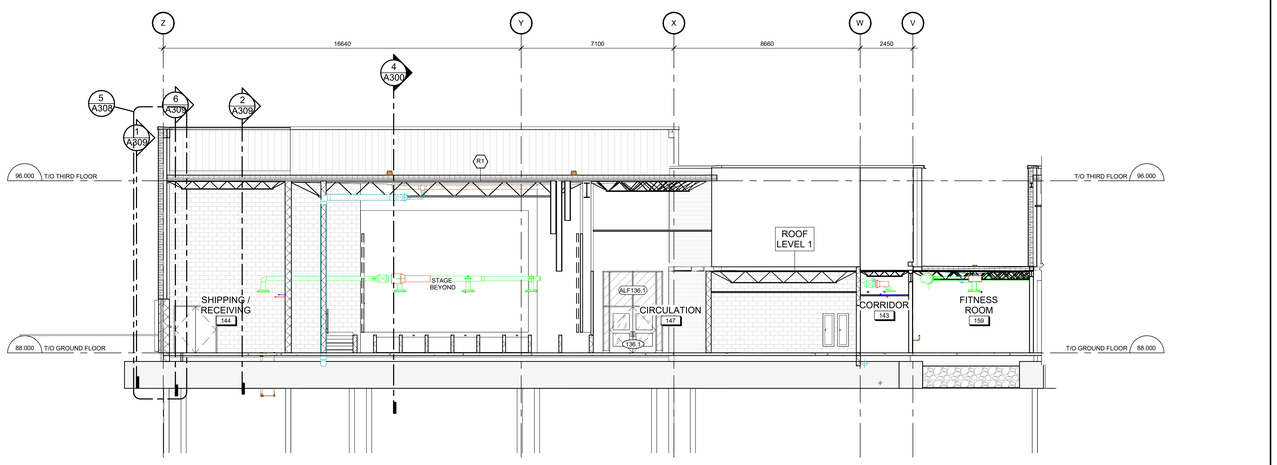

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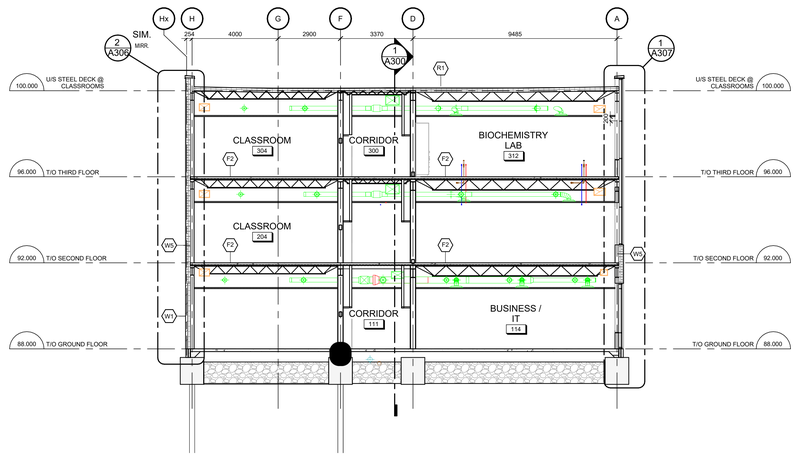

3 A301 BUILDING SECTION 7
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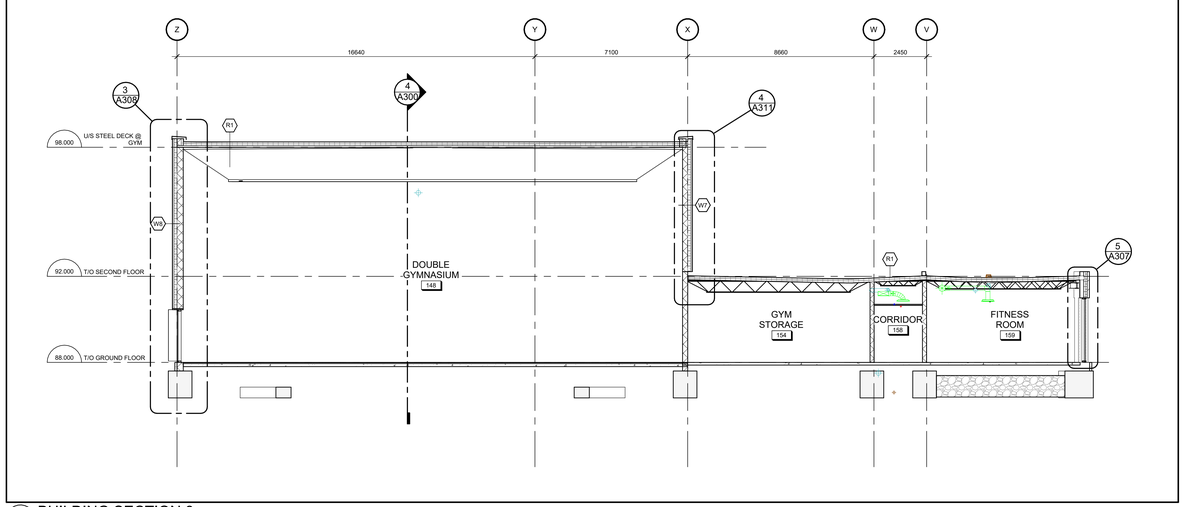

4 A301 BUILDING SECTION 8
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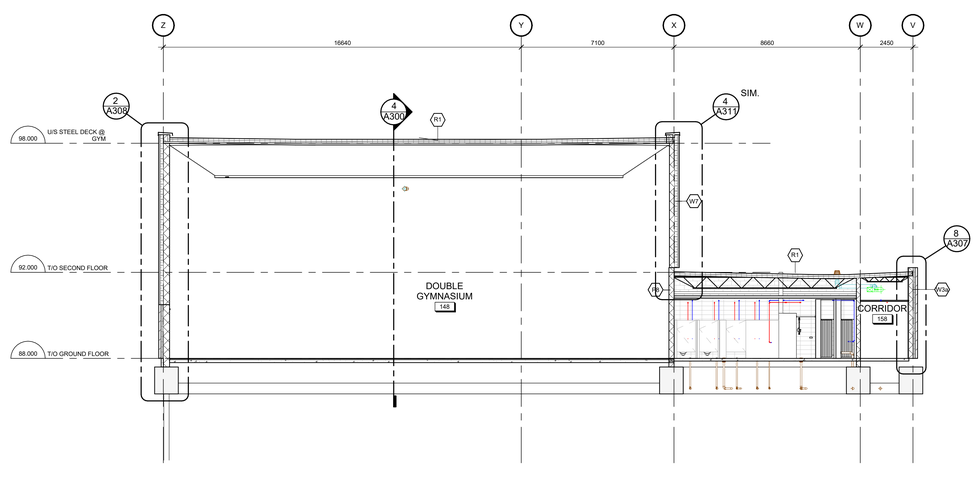

5 A301 BUILDING SECTION 9
1 : 100

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SEE DRAWING A002 FOR ASSEMBLY TYPES.

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1 A601 GROUND FLOOR RCP - AREA A1
1 : 100

GENERAL NOTES - RCP

1. MECHANICAL AND ELECTRICAL EQUIPMENT IS SHOWN FOR COORDINATION PURPOSES ONLY. REFER TO CONTRACT DOCUMENTS FOR EACH DISCIPLINE FOR SPECIFICATIONS AND EXACT LOCATIONS.

CEILING LEGEND

- GYPSUM BOARD (GB)
- ACT TILE (ACOUSTIC CEILING TILE) 610 X 610
- ACT TILE (ACOUSTIC CEILING TILE) 1220 X 610
- WOOD SLAT CEILING
- LINEAR METAL CEILING
- MAT / ## — CEILING MATERIAL / CEILING HEIGHT AFF
  GB GYPSUM BOARD
  ACT ACCOUSTIC CEILING TILE
  WD WOOD
- EXP — EXPOSED TO STRUCTURE
- LED LIGHT FIXTURE, SEE ELECTRICAL
- STRIP LIGHT, SEE ELECTRICAL
- RECESSED DOWNLIGHT, SEE ELECTRICAL
- SUPPLY AIR DIFFUSER, SEE MECHANICAL
- RETURN AIR GRILLE, SEE MECHANICAL

FIRE RESISTANCE RATING (FRR) LEGEND

NOTE: THICKNESS OF FRR HATCHES IN PLAN VARY ACCORDING TO WALL ASSEMBLY THICKNESS

- UNRATED SEPARATION (0 HR)
- 0.5 HR SEPARATION
- 1 HR SEPARATION

NOTES:

1. ALL FLOOR ASSEMBLIES TO HAVE AN FRR OF 1 HR.
2. ALL LOADBEARING STRUCTURAL ELEMENTS TO HAVE AN FRR OF 1 HR.
3. REFER TO TYPICAL DETAILS FOR 1HR FRR PROTECTION OF TYPICAL HSS COLUMNS.
4. USE TYPE 'X' GYPSUM BOARD FOR ALL FIRE RATED WALLS.
5. FIRE SEPARATION WALLS TO EXTEND TO U/S OF FLOOR / ROOF DECK. SEAL PERIMETER, AND ALL PENETRATIONS.
6. SEE DOOR SCHEDULE & GLAZED SCREENS FOR FRR REQUIREMENTS OF CLOSURES. WALL ASSEMBLIES ADJACENT TO DOORS & GLAZED SCREENS TO BE CONTINUOUS ABOVE DOOR/GLAZED SCREEN.

HORIZONTAL ROLLER BLINDS (HRB)

AS INDICATED ON PLANS

- HRB-1 — **TYPE 1** - SOLAR ROLLER BLINDS
- HRB-2 — **TYPE 2** - SOLAR ROLLER BLINDS w/ BLACKOUT OPTION
- HRB-3 — **TYPE 3** - MOTORIZED SOLAR ROLLER BLINDS

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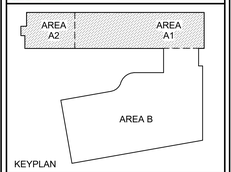

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drawing title
GROUND FLOOR RCP - AREA A

date	NOVEMBER,2024	job. no.	3024
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approved	CJ / PD		
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CEILING LEGEND

- GYPSUM BOARD (GB)
- ACT TILE (ACOUSTIC CEILING TILE) 610 X 610
- ACT TILE (ACOUSTIC CEILING TILE) 1220 X 610
- WOOD SLAT CEILING
- LINEAR METAL CEILING

MAT. / ## — CEILING MATERIAL / CEILING HEIGHT AFF

GB GYPSUM BOARD
ACT ACCOUSTIC CEILING TILE
WD WOOD

- EXP — EXPOSED TO STRUCTURE
- LED LIGHT FIXTURE, SEE ELECTRICAL
- STRIP LIGHT, SEE ELECTRICAL
- RECESSED DOWNLIGHT, SEE ELECTRICAL
- SUPPLY AIR DIFFUSER, SEE MECHANICAL
- RETURN AIR GRILLE, SEE MECHANICAL

FIRE RESISTANCE RATING (FRR) LEGEND

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- 0.5 HR SEPARATION
- 1 HR SEPARATION

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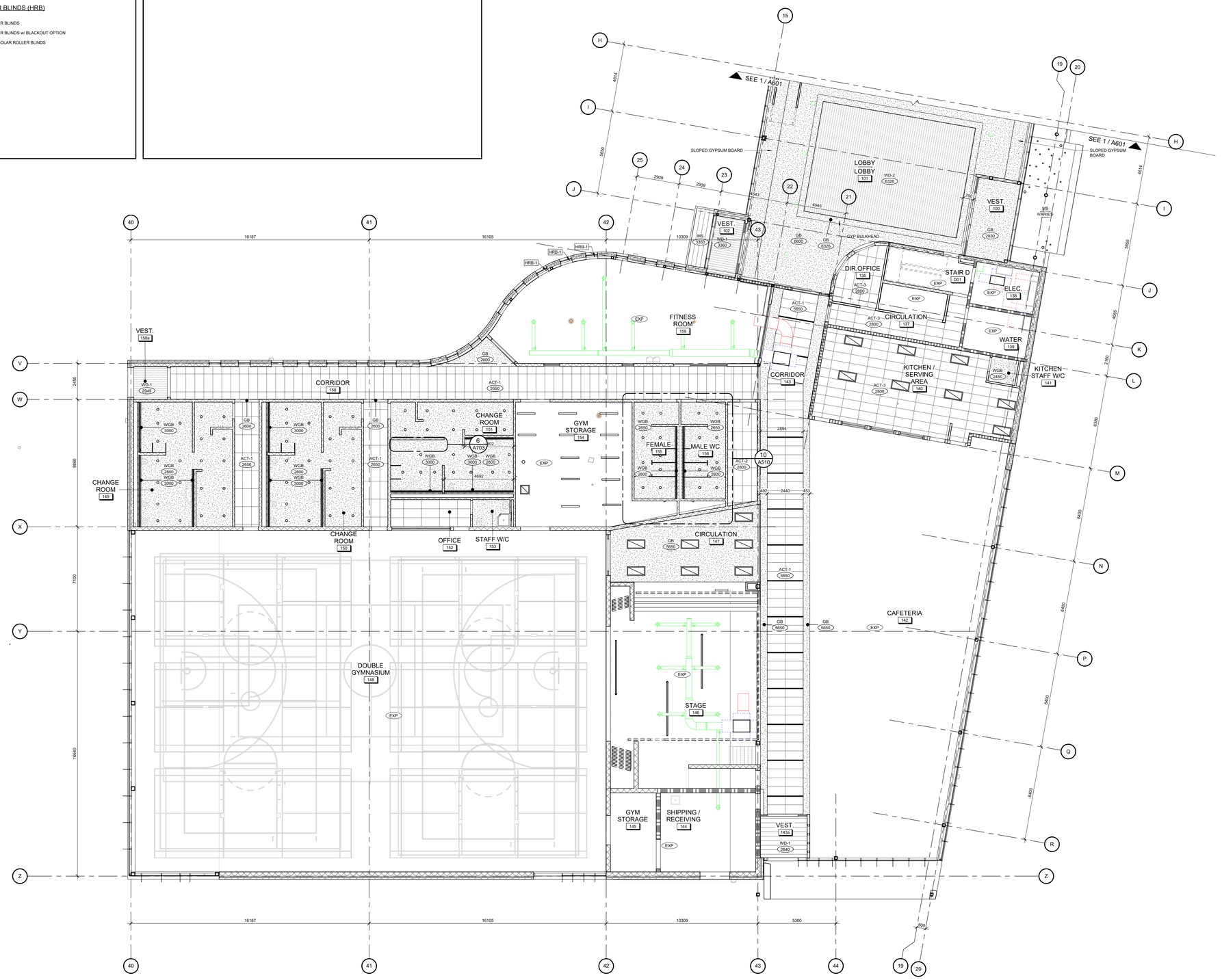
HORIZONTAL ROLLER BLINDS (HRB)

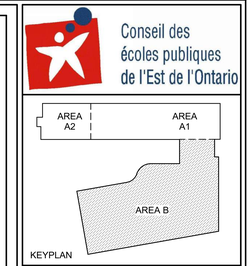
AS INDICATED ON PLANS

- HRB-1 — **TYPE 1** - SOLAR ROLLER BLINDS
- HRB-2 — **TYPE 2** - SOLAR ROLLER BLINDS w/ BLACKOUT OPTION
- HRB-3 — **TYPE 3** - MOTORIZED SOLAR ROLLER BLINDS

SEE DRAWING A601 FOR NOTES & LEGENDS



1 / A602 GROUND FLOOR RCP - AREA B
1 : 100



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drawing title
GROUND FLOOR RCP - AREA B

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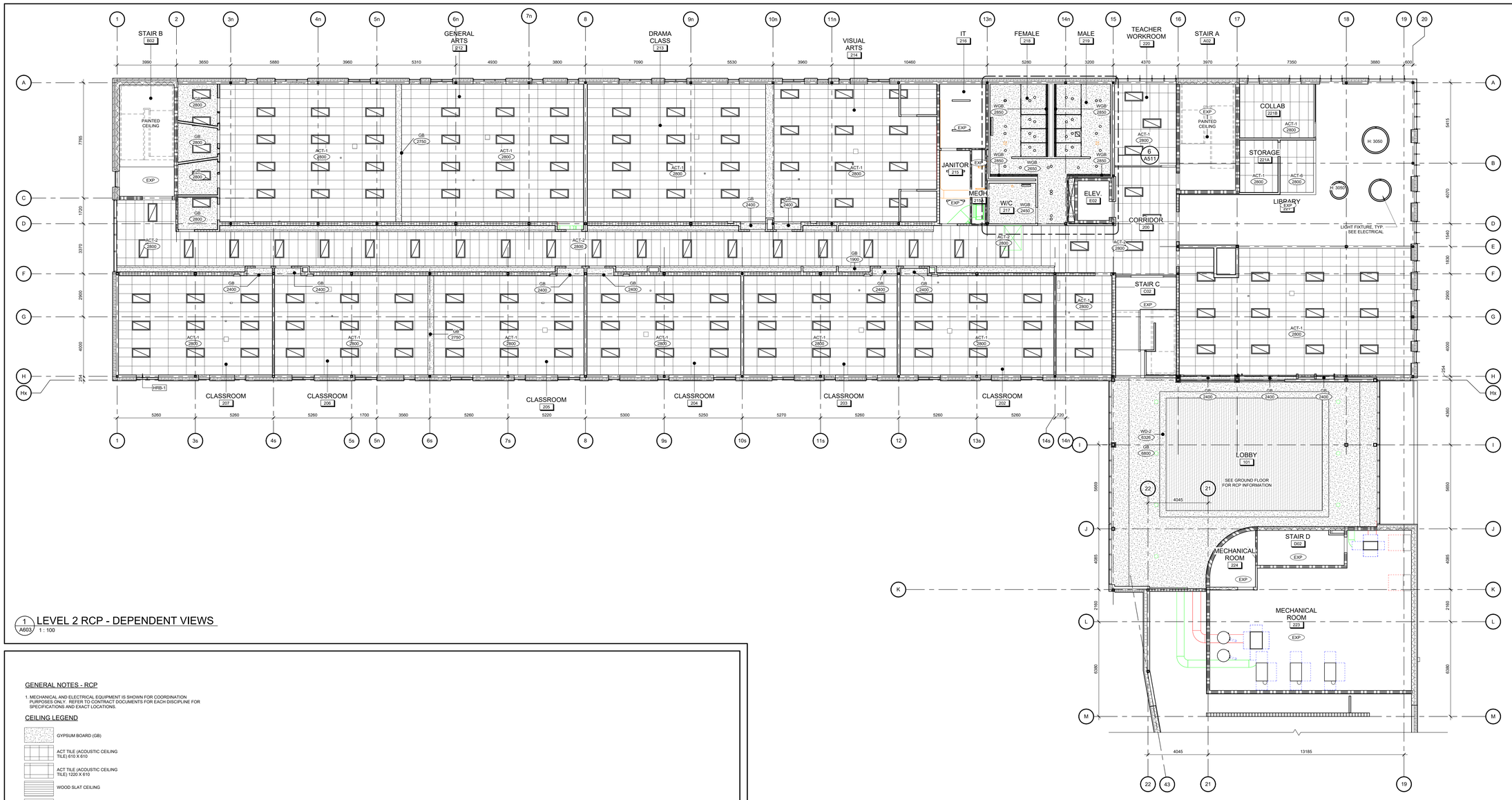


1 / A603 LEVEL 2 RCP - DEPENDENT VIEWS
1 : 100

GENERAL NOTES - RCP

1. MECHANICAL AND ELECTRICAL EQUIPMENT IS SHOWN FOR COORDINATION PURPOSES ONLY. REFER TO CONTRACT DOCUMENTS FOR EACH DISCIPLINE FOR SPECIFICATIONS AND EXACT LOCATIONS.

CEILING LEGEND

- GYPSUM BOARD (GB)
- ACT TILE (ACOUSTIC CEILING TILE) 610 X 610
- ACT TILE (ACOUSTIC CEILING TILE) 1220 X 610
- WOOD SLAT CEILING
- LINEAR METAL CEILING
- MAT / ## — CEILING MATERIAL, CEILING HEIGHT AFF
- GB GYPSUM BOARD; ACT ACCOUSTIC CEILING TILE; WD WOOD
- EXP — EXPOSED TO STRUCTURE
- LED LIGHT FIXTURE, SEE ELECTRICAL
- STRIP LIGHT, SEE ELECTRICAL
- RECESSED DOWNLIGHT, SEE ELECTRICAL
- SUPPLY AIR DIFFUSER, SEE MECHANICAL
- RETURN AIR GRILLE, SEE MECHANICAL

FIRE RESISTANCE RATING (FRR) LEGEND

NOTE: THICKNESS OF FRR HATCHES IN PLAN VARY ACCORDING TO WALL ASSEMBLY THICKNESS

- UNRATED SEPARATION (0 HR)
- 0.5 HR SEPARATION
- 1 HR SEPARATION

NOTES:

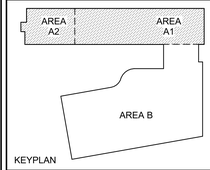
1. ALL FLOOR ASSEMBLIES TO HAVE AN FRR OF 1 HR.
2. ALL LOADBEARING STRUCTURAL ELEMENTS TO HAVE AN FRR OF 1 HR.
3. REFER TO TYPICAL DETAILS FOR 1HR FRR PROTECTION OF TYPICAL HSS COLUMNS.
4. USE TYPE 'X' GYPSUM BOARD FOR ALL FIRE RATED WALLS
5. FIRE SEPARATION WALLS TO EXTEND TO U/S OF FLOOR / ROOF DECK. SEAL PERIMETER, AND ALL PENETRATIONS.
6. SEE DOOR SCHEDULE & GLAZED SCREENS FOR FRR REQUIREMENTS OF CLOSURES. WALL ASSEMBLIES ADJACENT TO DOORS & GLAZED SCREENS TO BE CONTINUOUS ABOVE DOOR/GLAZED SCREEN.

HORIZONTAL ROLLER BLINDS (HRB)

AS INDICATED ON PLANS

- HRB-1 **TYPE 1** - SOLAR ROLLER BLINDS
- HRB-2 **TYPE 2** - SOLAR ROLLER BLINDS w/ BLACKOUT OPTION
- HRB-3 **TYPE 3** - MOTORIZED SOLAR ROLLER BLINDS

Conseil des écoles publiques de l'Est de l'Ontario



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1 A604 LEVEL 3 RCP - DEPENDENT VIEWS
1 : 100

GENERAL NOTES - RCP

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- RETURN AIR GRILLE, SEE MECHANICAL

FIRE RESISTANCE RATING (FRR) LEGEND

NOTE: THICKNESS OF FRR HATCHES IN PLAN VARY ACCORDING TO WALL ASSEMBLY THICKNESS

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- 1 HR SEPARATION

NOTES:

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HORIZONTAL ROLLER BLINDS (HRB)

AS INDICATED ON PLANS

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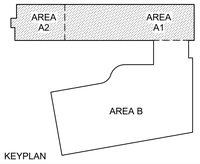
Conseil des écoles publiques de l'Est de l'Ontario



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THIRD FLOOR RCP

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Appendix D

Building Component Calculations
(Transportation)

TABLE 18: BUILDING COMPONENT TEMPLATE

Architect:
Location: Orleans South HS
Building Type: High School
Block Number:
Front Façade Noise Level (dBA) 70

JLR No: 33322-001
Prepared by: Thomas Blais
Checked by: Lee Jablonski

ROOM	# OF COMPONENTS	ROOM FLOOR AREA (M^2)	WINDOW AREA (M^2)	W/RFA %	DOOR AREA (M^2)	D/RFA %	EXT. WALL AREA (M^2)	EW/RFA %	REQUIRED AIF*	WINDOW		EXT. DOOR		EXT. WALL		CEILING/ROOF	
										Type	AIF**	Type	AIF***	Type	AIF****	Type	AIF*****
Cafeteria	2	415.5	137.6	33%	-	-	0.0	0%	30	6(6)6	30	-	-	-	-	-	-

** Taken from Table 10.5: AIF required for Road and Rail Traffic Noise Cases*
*** Taken from Table 10.6: Acoustic Insulation Factor for various types of windows (example: 2(100)2 denotes 2 mm glass (100 mm space) 2 mm glass).*
**** Taken from Table 10.9: Acoustic Insulation Factor for various types of exterior doors*
***** Taken from Table 10.7: Acoustic Insulation Factor for various types of exterior walls*
****** Taken from Table 10.8: Acoustic Insulation Factor for various ceiling-roof combinations (only for aircraft noise)*

Exterior Door Details
All prime doors should be fully weatherstripped. Except as noted specifically below, doors shall not have inset glazing:
D1 denotes 44 mm hollow-core wood door (up to 20% of area glazed).
D2 denotes 44 mm glass-fibre reinforced plastic door with foam or glass-fibre insulated core (up to 20% area glazed).
D3 denotes 35 mm in solid slab wood door.
D4 denotes 44 mm steel door with foam or glass-fibre insulated core.
D5 denotes 44 mm solid slab door.
sd denotes storm door of wood or aluminum with openable glazed sections.

Exterior Wall Details
The common structure of walls EW1 to EW5 is composed of 12.7 mm gypsum board, vapour barrier, and 38x89 mm studs with 50 mm (or thicker) mineral wool or glass fibre batts in the inter-stud cavities.
EW1 denotes the above plus sheathing, plus wood siding or metal siding and fibre backer board.
EW2 denotes the above plus rigid insulation (25-50mm), and wood siding or metal siding and fibre backer board.
EW2 also denotes exterior wall described in EW1 with the addition of rigid insulation (25-50mm) between the sheathing and the external finish.
EW3 denotes simulated mansard with structure as the above plus sheathing, 38 x 89 mm framing, sheathing and asphalt roofing material.
EW4 denotes the above plus sheathing and 20 mm stucco.
EW5 denotes the above plus sheathing, 25 mm air space, 100 mm brick veneer.
EW6 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50mm), 100 mm back-up block, 100 mm face brick.
EW6 also denotes an exterior wall conforming to rainscreen design principles and composed of same gypsum board and rigid insulation with 100 mm concrete block, 25 mm air space, and 100 mm brick veneer.
EW7 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50mm), 140 mm back-up block, 100 mm face brick.
EW8 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50mm), 200 mm concrete.
R denotes the mounting of the interior gypsum board on resilient clips

ROOM BY ROOM CALCULATIONS

Cafeteria

Floor Area (sq.m) 415.5

	Width	Height	Area	
Window 1 (front)	25.6	4.0	102.4	
Window 2 (side)	8.8	4.0	35.2	
Patio Door (front)			0.0	
			137.6	Total Window Area
			33.12%	% of Floor Area

	Width	Height	Area	
Exterior Door	0	0	0	
			0	Total Door Area
			0.00%	% of Floor Area

	Width	Height	Area	Area minus windows/doors
Exterior Wall (front)			0.00	-
Exterior Wall (side)			0.00	-
				0.00 Total Exterior Wall Area
				0.00% % of Floor Area

Appendix E

Canada Mortgage and Housing
(CMHC) Table A2 and Table A3

Table A1: Standard source spectrum for calculating Acoustic Insulation Factor (AIF)

Frequency (Hz)	Source Sound Pressure Level	A-weighted Source Sound Pressure Level
100	66.1	47
125	69.1	53
160	71.4	58
200	71.9	61
250	71.6	63
315	71.6	65
400	71.8	67
500	71.2	68
630	70.9	69
800	70.8	70
1000	70.0	70
1250	69.4	70
1600	69.0	70
2000	68.8	70
2500	68.7	70
3150	67.8	69
4000	67.0	68
5000	65.5	66

Note: Values in the second and third columns of this table are $\frac{1}{3}$-octave band sound pressure levels expressed in dB.

Table A2: Approximate conversion from STC to AIF for windows and doors

Window (or door) Area Expressed as Percentage of Room Floor Area	Acoustic Insulation Factor (AIF)
80.0	STC-5
63.0	STC-4
50.0	STC-3
40.0	STC-2
32.0	STC-1
25.0	STC
20.0	STC+1
16.0	STC+2
12.5	STC+3
10.0	STC+4
8.0	STC+5
6.3	STC+6
5.0	STC+7
4.0	STC+8

Note: For area percentages not listed in the table, use the nearest listed value.

Examples: For a window whose area = 20% of the room floor area and STC = 32, the AIF is 32 + 1 = 33.
For a window whose area = 60% of the room floor area and STC = 29, the AIF is 29 - 4 = 25.

Table A3: Approximate conversion from STC to AIF for exterior walls and ceiling-roof systems.

Exterior Wall Area Expressed as Percentage of Room Floor Area	Acoustic Insulation Factor (AIF)
200.0	STC-10
160.0	STC-9
125.0	STC-8
100.0	STC-7
80.0	STC-6
63.0	STC-5
50.0	STC-4
40.0	STC-3
32.0	STC-2
25.0	STC-1
20.0	STC
16.0	STC+1
12.5	STC+2
10.0	STC+3
8.0	STC+4

Note: For area percentages not listed in the table, use the nearest listed value.

Example: For a wall whose area = 120% of room floor area and STC = 48, the AIF is 48 - 8 = 40.

Note: For ceiling-roof systems, AIF = STC - 7.

Figure A1: Worksheet for Calculating AIF from Transmission Loss Data

Frequency (Hz)	A-weighted Source Sound Pressure Level (dB)	Sound Transmission Loss (dB)	A-weighted Indoor Sound Pressure Level (dB)	Energy Equivalent of Indoor SPL
	(A)	(B)	(C = A-B)	(D = $10^{C/10}$)
100	47	24	23	200
125	53	26	27	501
160	58	19	39	7 943
200	61	21	40	10 000
250	63	20	43	19 953
315	65	20	45	31 623
400	67	25	42	15 849
500	68	30	38	6 310
630	69	33	36	3 981
800	70	37	33	1 995
1000	70	39	31	1 259
1250	70	41	29	794
1600	70	43	27	501
2000	70	44	26	398
2500	70	45	25	316
3150	89	43	26	398
4000	68	37	31	1 259
5000	88	35	31	1 259
			Sum of values in column D:	104 539=E

Calculated indoor A-weighted sound level: $10 \log_{10}$ (E) = 50.2 = F

AIF (component area = 80% of floor area): (77 - F) = 26.8 = G

Component Area as a Percentage of Room Floor Area	Acoustic Insulation Factor (AIF)
6.3	(G + 11) = 38
8.0	(G + 10) = 37
10.0	(G + 9) = 36
12.5	(G + 8) = 35
16.0	(G + 7) = 34
20.0	(G + 6) = 33
25.0	(G + 5) = 32
32.0	(G + 4) = 31
40.0	(G + 3) = 30
50.0	(G + 2) = 29
63.0	(G + 1) = 28
80.0	(G) = 27
100.0	(G - 1) = 26
125.0	(G - 2) = 25
160.0	(G - 3) = 24

Appendix F

Stationary Noise Source Data

AAON Standard Condenser Fan Radiated Sound Levels

Updated 10/26/2018

Sound Pressure Level in a Hemispherical Free Field — Dist (ft): 15

		Fans	Dia	RPM	Sound Power Level									Sound Pressure Level								
					63	125	250	500	1000	2000	4000	8000	LwA	63	125	250	500	1000	2000	4000	8000	dBA
RQ 2 & 3 Ton	Inlet	1	30	850	79	74	72	70	66	62	59	59	72	58	53	51	48	44	41	38	38	50
	Outlet				81	77	71	71	67	62	59	58	73	60	56	49	50	46	41	38	37	51
	Total				83	79	74	73	69	65	62	61	75	62	58	53	52	48	44	41	40	54
RQ 4-6 Ton & RN 6 & 7 Ton	Inlet	1	30	1085	85	79	77	*75*	*71*	*68*	*65*	*64*	77	63	58	56	54	50	46	44	43	56
	Outlet				86	83	76	*76*	*72*	*68*	*65*	*63*	78	65	62	55	55	51	46	44	42	57
	Total				89	84	80	79	75	71	68	67	80	67	63	58	57	53	49	47	46	59
RN 8 & 10 Ton	Inlet	1	30	1085	92	86	85	82	78	75	72	71	84	71	65	63	61	57	54	51	50	63
	Outlet				94	90	83	83	79	75	72	71	85	72	69	62	62	58	54	51	49	64
	Total				96	91	87	86	82	78	75	74	88	75	70	66	65	60	57	54	53	66
RN 09 & 11 Ton	Inlet	2	30	1085	88	82	80	78	74	71	68	67	80	66	61	59	57	53	49	47	46	59
	Outlet				89	86	79	79	75	71	68	66	81	68	65	58	58	54	49	47	45	60
	Total				92	87	83	82	78	74	71	70	83	70	66	61	60	56	52	50	49	62
RN 13-20 Ton	Inlet	2	30	1085	95	89	88	85	81	78	75	74	87	74	68	66	64	60	57	54	53	66
	Outlet				97	93	86	86	82	78	75	74	88	75	72	65	65	61	57	54	52	67
	Total				99	94	90	89	85	81	78	77	91	78	73	69	68	63	60	57	56	69
RN 25 & 30 Ton	Inlet	3	30	1085	97	91	89	87	83	80	77	76	89	75	70	68	66	62	58	55	55	68
	Outlet				98	95	88	88	84	80	77	75	90	77	73	67	67	63	58	55	54	69
	Total				101	96	92	91	86	83	80	79	92	79	75	70	69	65	61	58	57	71
RN 26,31 & 40 Ton	Inlet	4	30	1085	98	92	91	88	84	81	78	77	90	77	71	69	67	63	60	57	56	69
	Outlet				100	96	89	89	85	81	78	77	91	78	75	68	68	64	60	57	55	70
	Total				102	98	93	92	88	84	81	80	94	81	76	72	71	66	63	60	59	72
RN 50,60 & 70 Ton	Inlet	6	30	1085	100	94	92	90	86	83	80	79	92	78	73	71	69	65	61	58	58	71
	Outlet				101	98	91	91	87	83	80	78	93	80	76	70	70	66	61	58	57	72
	Total				104	99	95	94	89	86	83	82	95	82	78	73	72	68	64	61	60	74
RN E 55,65 & 75 Ton LN & LZ 45-60 Ton RZ 45-75	Inlet	4	30	1170	92	86	87	87	86	85	85	78	92	71	65	66	66	65	64	64	57	71
	Outlet				92	86	87	87	86	85	85	78	92	71	65	66	66	65	64	64	57	71
	Total				95	89	90	90	89	88	88	81	95	74	68	69	69	68	67	67	60	74
RN E 90-140 Ton LN & LZ 75-140 Ton RZ 90-140	Inlet	8	30	1170	95	89	90	90	89	88	88	81	95	74	68	69	69	68	67	67	60	74
	Outlet				95	89	90	90	89	88	88	81	95	74	68	69	69	68	67	67	60	74
	Total				98	92	93	93	92	91	91	84	98	77	71	72	72	71	70	70	63	77
RZ 145-180	Inlet	12	30	1170	97	91	92	92	91	90	90	83	97	76	70	71	71	70	69	69	62	76
	Outlet				97	91	92	92	91	90	90	83	97	76	70	71	71	70	69	69	62	76
	Total				100	94	95	95	94	93	93	86	100	79	73	74	74	73	72	72	65	79
RZ 200-240	Inlet	16	30	1170	98	92	93	93	92	91	91	84	98	77	71	72	72	71	70	70	63	77
	Outlet				98	92	93	93	92	91	91	84	98	77	71	72	72	71	70	70	63	77
	Total				101	95	96	96	95	94	94	87	101	80	74	75	75	74	73	73	66	80

Tested in Accordance with AMCA 300 - Updated 6-15-15

Speed %			Fans	Dia	RPM	Sound Power Level 63	125	250	500	1000	2000	4000	8000	LwA
100%	RQ 2 & 3 Ton	Inlet	1	30	850	79	74	72	70	66	62	59	59	72
		Outlet				81	77	71	71	67	62	59	58	73
		Total				83	79	74	73	69	65	62	61	75
75%	RQ 2 & 3 Ton	Inlet	1	30	638	73	68	66	63	59	56	53	52	65
		Outlet				75	71	64	65	60	56	53	52	66
		Total				77	73	68	67	63	59	56	55	69
50%	RQ 2 & 3 Ton	Inlet	1	30	425	64	59	57	54	51	47	44	44	57
		Outlet				66	62	56	56	52	47	44	43	57
		Total				68	64	59	58	54	50	47	46	60
25%	RQ 2 & 3 Ton	Inlet	1	30	213	49	44	42	39	36	32	29	29	42
		Outlet				51	47	40	41	37	32	29	28	42
		Total				53	49	44	43	39	35	32	31	45
100%	RQ 4-6 RN 6 & 7 Ton	Inlet	1	30	1085	85	79	77	75	71	68	65	64	77
		Outlet				86	83	76	76	72	68	65	63	78
		Total				89	84	80	79	75	71	68	67	80
75%	~~RQ 4-6~~ RN 6 ~~& 7~~ Ton	Inlet	1	30	814	78	73	71	69	65	61	58	58	71
		Outlet				80	77	70	70	66	61	58	57	72
		Total				82	78	73	72	68	64	61	61	74
50%	RQ 4-6 RN 6 & 7 Ton	Inlet	1	30	543	70	64	62	60	56	53	50	49	
		Outlet				71	68	61	61	57	53	50	48	63
		Total				74	69	65	64	59	56	53	52	65
25%	RQ 4-6 RN 6 & 7 Ton	Inlet	1	30	271	54	49	47	45	41	37	35	34	47
		Outlet				56	53	46	46	42	38	35	33	48
		Total				59	54	50	48	44	41	38	37	50
100%	RN 8 & 10 Ton	Inlet	1	30	1085	92	86	85	82	78	75	72	71	84
		Outlet				94	90	83	83	79	75	72	71	85
		Total				96	91	87	86	82	78	75	74	88
75%	RN 8 & 10 Ton	Inlet	1	30	814	86	80	78	76	72	68	66	65	78
		Outlet				87	84	77	77	73	69	66	64	79
		Total				90	85	81	80	75	72	69	68	81
50%	RN 8 & 10 Ton	Inlet	1	30	543	77	71	69	67	63	60	57	56	69
		Outlet				79	75	68	68	64	60	57	56	70
		Total				81	76	72	71	67	63	60	59	73
25%	RN 8 & 10 Ton	Inlet	1	30	271	62	56	54	52	48	45	42	41	54
		Outlet				64	60	53	53	49	45	42	41	55
		Total				66	61	57	56	52	48	45	44	58

DOAS-GYM

100%	RN 9 & 11 Ton	Inlet	2	30	1085	88	82	80	78	74	71	68	67	80
		Outlet				89	86	79	79	75	71	68	66	81
		Total				92	87	83	82	78	74	71	70	83
75%	~~RN 9 &~~ 11 Ton	Inlet	2	30	814	81	76	74	72	68	64	61	61	74
		Outlet				83	80	73	73	69	64	61	60	75
		Total				85	81	76	75	71	67	64	64	77
50%	RN 9 & 11 Ton	Inlet	2	30	407	66	61	59	57	53	49	46	46	59
		Outlet				68	64	58	58	54	49	46	45	60
		Total				70	66	61	60	56	52	49	48	62
25%	RN 9 & 11 Ton	Inlet	2	30	271	57	52	50	48	44	40	38	37	50
		Outlet				59	56	49	49	45	41	38	36	51
		Total				62	57	53	51	47	44	41	40	53

RTU1, RTU2, RTU4

100%	RN 13-20 Ton	Inlet	2	30	1085	95	89	88	85	81	78	75	74	87
		Outlet				97	93	86	86	82	78	75	74	88
		Total				99	94	90	89	85	81	78	77	91
75%	16 TON	Inlet	2	30	814	89	83	81	79	75	71	69	68	81
		Outlet				90	87	80	80	76	72	69	67	82
		Total				93	88	84	83	78	75	72	71	84
50%	RN 13-20 Ton	Inlet	2	30	543	80	74	72	70	66	63	60	59	72
		Outlet				82	78	71	71	67	63	60	59	73
		Total				84	79	75	74	70	66	63	62	76
25%	RN 13-20 Ton	Inlet	2	30	271	65	59	57	55	51	48	45	44	57
		Outlet				67	63	56	56	52	48	45	44	58
		Total				69	64	60	59	55	51	48	47	61

RTU3

100%	RN 25 & 30 Ton	Inlet	3	30	1085	97	91	89	87	83	80	77	76	89
		Outlet				98	95	88	88	84	80	77	75	90
		Total				101	96	92	91	86	83	80	79	92
75%	RN 25 & 30 Ton	Inlet	3	30	814	90	85	83	81	77	73	70	70	83
		Outlet				92	88	82	82	78	73	70	69	83
		Total				94	90	85	84	80	76	73	72	86
50%	RN 25 & 30 Ton	Inlet	3	30	543	81	76	74	72	68	64	62	61	74
		Outlet				83	80	73	73	69	65	62	60	75
		Total				86	81	77	75	71	67	65	64	77
25%	RN 25 & 30 Ton	Inlet	3	30	271	66	61	59	57	53	49	47	46	59
		Outlet				68	65	58	58	54	49	47	45	60
		Total				70	66	62	60	56	52	50	49	62

100%	RN 26, 31 & 40 Ton	Inlet	4	30	1085	98	92	91	88	84	81	78	77	90
		Outlet				100	96	89	89	85	81	78	77	91
		Total				102	98	93	92	88	84	81	80	94
75%	RN 26, 31 & 40 Ton	Inlet	4	30	814	92	86	84	82	78	75	72	71	84
		Outlet				93	90	83	83	79	75	72	70	85
		Total				96	91	87	86	81	78	75	74	87
50%	RN 26, 31 & 40 Ton	Inlet	2	30	1085	95	89	88	85	81	78	75	74	87
		Outlet				97	93	86	86	82	78	75	74	88
		Total				99	95	90	89	85	81	78	77	91
25%	RN 26, 31 & 40 Ton	Inlet	2	30	543	80	74	72	70	66	63	60	59	72
		Outlet				82	78	71	71	67	63	60	59	73
		Total				84	79	75	74	70	66	63	62	76

100%	RN 50, 60 & 70 Ton	Inlet	6	30	1085	100	94	92	90	86	83	80	79	92
		Outlet				101	98	91	91	87	83	80	78	93
		Total				104	99	95	94	89	86	83	82	95
75%	RN 50, ~~60 & 70 Ton~~	Inlet	6	30	814	93	88	86	84	80	76	73	73	86
		Outlet				95	91	85	85	81	76	73	72	87
		Total				97	93	88	87	83	79	76	75	89
50%	RN 50, 60 & 70 Ton	Inlet	3	30	1085	97	91	89	87	83	80	77	76	89
		Outlet				98	95	88	88	84	80	77	75	90
		Total				101	96	92	91	86	83	80	79	92
25%	RN 50, 60 & 70 Ton	Inlet	3	30	543	81	76	74	72	68	64	62	61	74
		Outlet				83	80	73	73	69	65	62	60	75
		Total				86	81	77	75	71	68	65	64	77

DOAS-1

100%	RN 55,65 & 75 Ton	Total	4	30	1170	89	84	84	84	84	83	83	79	90
75%	RN 55,65 & 75 Ton	Total	4	30	877.5	83	78	78	78	78	77	77	73	84
50%	RN 55,65 & 75 Ton	Total	4	30	585	74	69	69	69	69	68	68	64	75
25%	RN 55,65 & 75 Ton	Total	4	30	292.5	59	54	54	54	54	53	53	49	60

100%	RN 90,105,120,130,140	Total	8	30	1170	92	87	87	87	87	86	86	82	93
75%	RN 90,105,120,130,140	Total	8	30	877.5	86	81	81	81	81	80	80	76	87
50%	RN 90,105,120,130,140	Total	4	30	1170	89	84	84	84	84	83	83	79	90
25%	RN 90,105,120,130,140	Total	4	30	585	74	69	69	69	69	68	68	64	75

Data Sheet

RoVent 10

Type: **AKFD 800-6 K.6LA A1 UL**

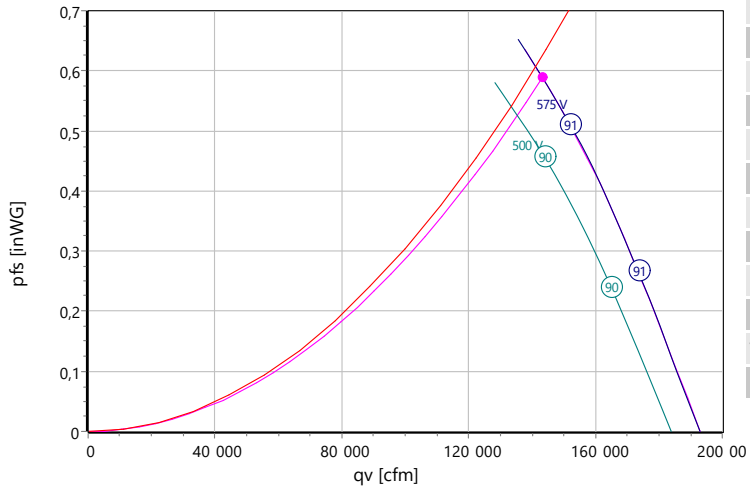
Installation type 1 direction of airflow A

Part no.: E61-80205

Quantity: 12

100% ErP ready

Curve:



ρ: 1,15 kg/m³

Operating Point:

q_V	143249	cfm
p_{fs}	0,589	inWG
p_{fd}	0,29	inWG
$\eta_{e,fs}$	35,5	%
$\eta_{e,tot}$	53,1	%
P_e	27,9	kW
I	39,3	A
n	1035	r/min
$L_WA_{A,IN}$	91	dB(A)
U	575	V
v	36,82	ft/s
SFP	412	Ws/m³

ErP-Data:

(EU) Nr. 327/2011 (Lot11)		
q_V	8554,39746	cfm
p_{fs}	0,651	inWG
η_{fs}	39,1	%
P_e	1,67	kW
n	893	r/min
N	44	N
v	26,385	ft/s

Set point:

q_V	143390	cfm
p_{fs}	0,59	inWG

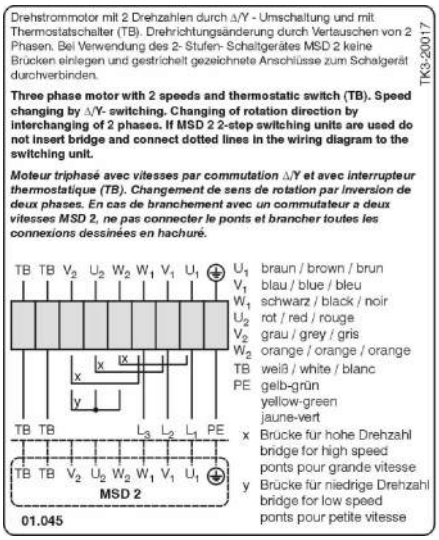
Nominal Data:

U [V]	f [Hz]	C [µF]	P_e [kW]	I_N [A]	n_N [r/min]	t_R [°C]	k_{10} [m²s/h]	I_A / I_N	IP	m [kg]
575 D	60	-	29,28	38,88	1030	-25 .. +50	-	3,6	IP 54	303,6
575 Y			18,6	22,08	810					

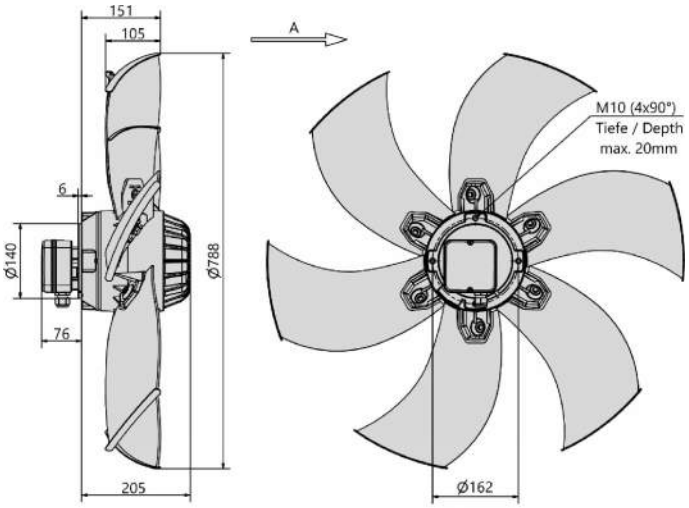
Sound Data:

Frequency	Σ		125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Distances	1 m	4 m
LwA(A,in) [dB(A)]	91	-	72	78	84	87	85	79	75	LpA(A,in) [dB(A)]	84	74

Wiring Diagram:



Drawing:



ErP-Data @ 50Hz-Type

Rosenberg Ventilatoren GmbH • Maybachstraße 1 • D - 74653 Künzelsau - Gaisbach
Tel: +49(0)7940/142-0 • Email: info@rosenberg-gmbh.com • www.rosenberg-gmbh.com

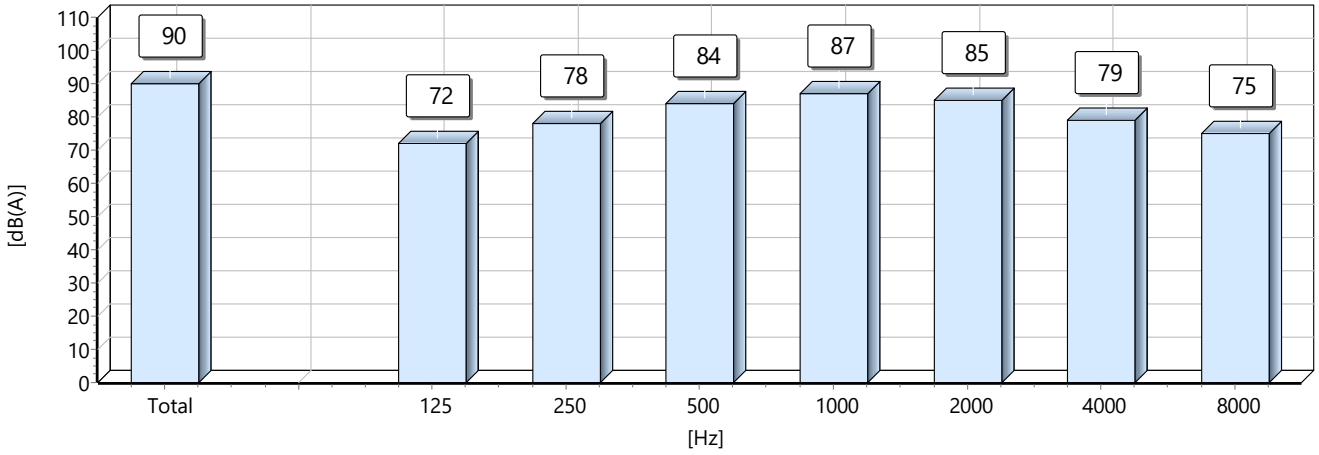
Type: **AKFD 800-6 K.6LA A1 UL**

Installation type 1 direction of airflow A

Part no.: E61-80205

Quantity: 12

LwA(in)



Rosenberg Ventilatoren GmbH • Maybachstraße 1 • D - 74653 Künzelsau - Gaisbach
Tel: +49(0)7940/142-0 • Email: info@rosenberg-gmbh.com • www.rosenberg-gmbh.com

COOK

Loren Cook Company certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

VCR-HP

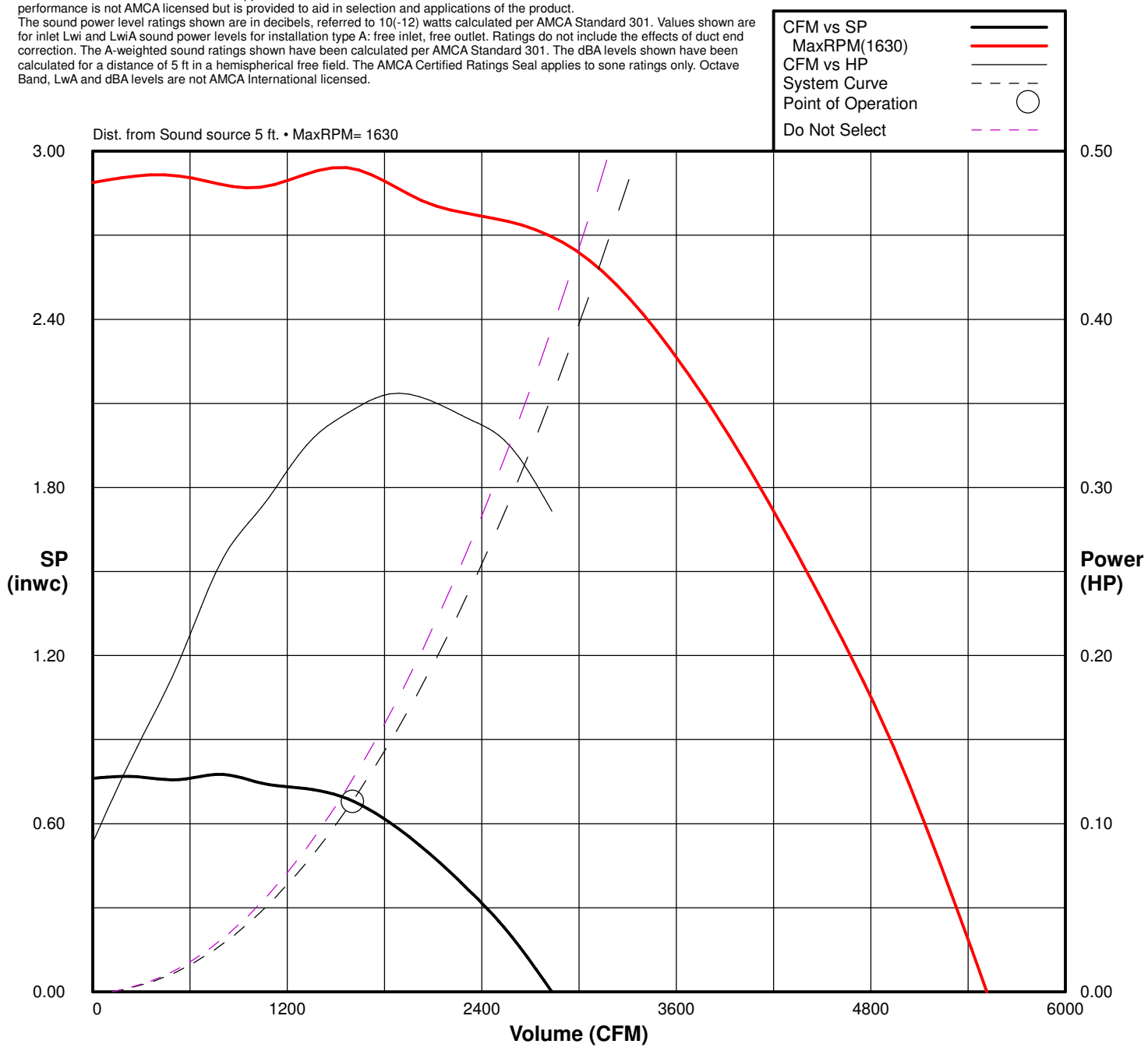
Performance (Belt Drive)

Model	CFM	SP	Fan RPM	Power* HP	FEG	FEI	Motor HP	OVEL (fpm)	TSPD (fpm)	SE	TEMP (ºF)	ELEV (Ft)	*Drive Loss Included
195 VCR-HP	1602	.680	837	.35	n/a	-	.5	414	4272	57%	70	700	15%

Sound Data 8 Octave Bands 10^{-12} Watts

1	2	3	4	5	6	7	8	LwA	dBA	SONES
64	67	67	61	60	59	54	47	66	54	7.

Performance certified is for installation type A: free inlet, free outlet. Power rating (BHP/kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The sound ratings shown are loudness values in hemispherical sones at 5 ft. in a hemispherical free field calculated per AMCA Standard 301. Values shown are for Installation type A: free inlet hemispherical sone levels. The AMCA International licensed air and/or sound performance data has been modified for installation, appurtenances or accessories, etc. not included in the certified data. The modified performance is not AMCA licensed but is provided to aid in selection and applications of the product.
The sound power level ratings shown are in decibels, referred to 10(-12) watts calculated per AMCA Standard 301. Values shown are for inlet Lwi and LwiA sound power levels for installation type A: free inlet, free outlet. Ratings do not include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA Standard 301. The dBA levels shown have been calculated for a distance of 5 ft in a hemispherical free field. The AMCA Certified Ratings Seal applies to sone ratings only. Octave Band, LwA and dBA levels are not AMCA International licensed.



Project No:
Project Name: Ecole Secondaire Rockland
Location:
Engineer:
Architect:
Reference: 2025-01-31 11:41:47 AM

Submitted by:

Equipment Tag

Contractor:

SAA8-DFOD

Model Information

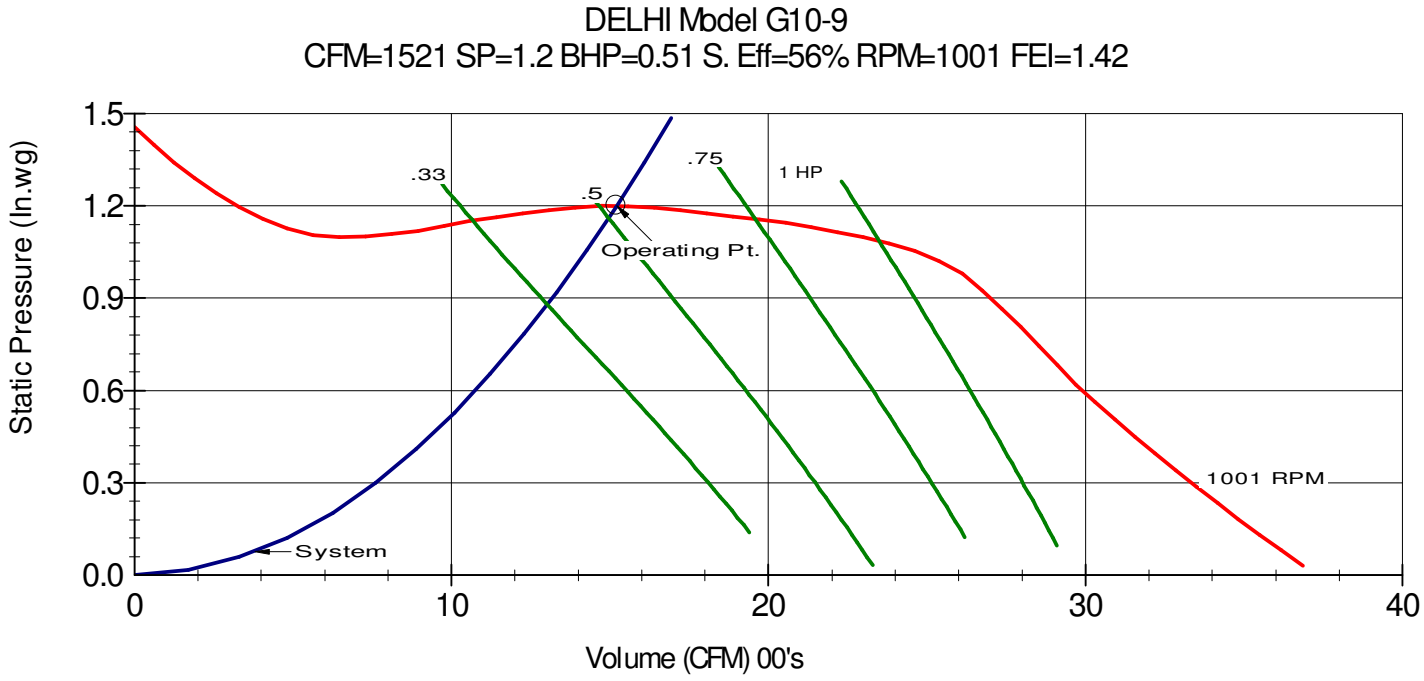
Model:	G10-9	Part Number:			
CFM:	1521	Shaft Diameter:	0.75	Unit Weight:	0
SP:	1.2	Wheel Diameter:	11.125	Ship Weight:	0
RPM:	1001	Tip Speed:	2915 FPM		
BHP:	0.51	Static Efficiency:	56	Elevation:	0
FEI:	n/a	Outlet Velocity:	1572 FPM	Temperature:	70

Sound Data

Sound Power Level @ Frequency, re: 10^-12 Watts	63	125	250	500	1000	2000	4000	8000	(Hz)	LwA:	78
	83	81	78	74	72	70	66	64	(dB)	SONES:	15.5

Ducted inlet or ducted outlet dBA @5 ft. 67 Ducted inlet and ducted outlet dBA @5 ft. 47

Performance Curve



Performance shown is for installation Type B: Free inlet, Ducted outlet. Power rating bhp does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories).

Drive Information

Motor Pulley	Turns Open	Blower Pulley	Bushing	Belt
8400 x 1/2" \ 8500035	3	MBL67 \ 8500003	H x 3/4 \ 8500062	4L380 \ 8200008

Motor Data

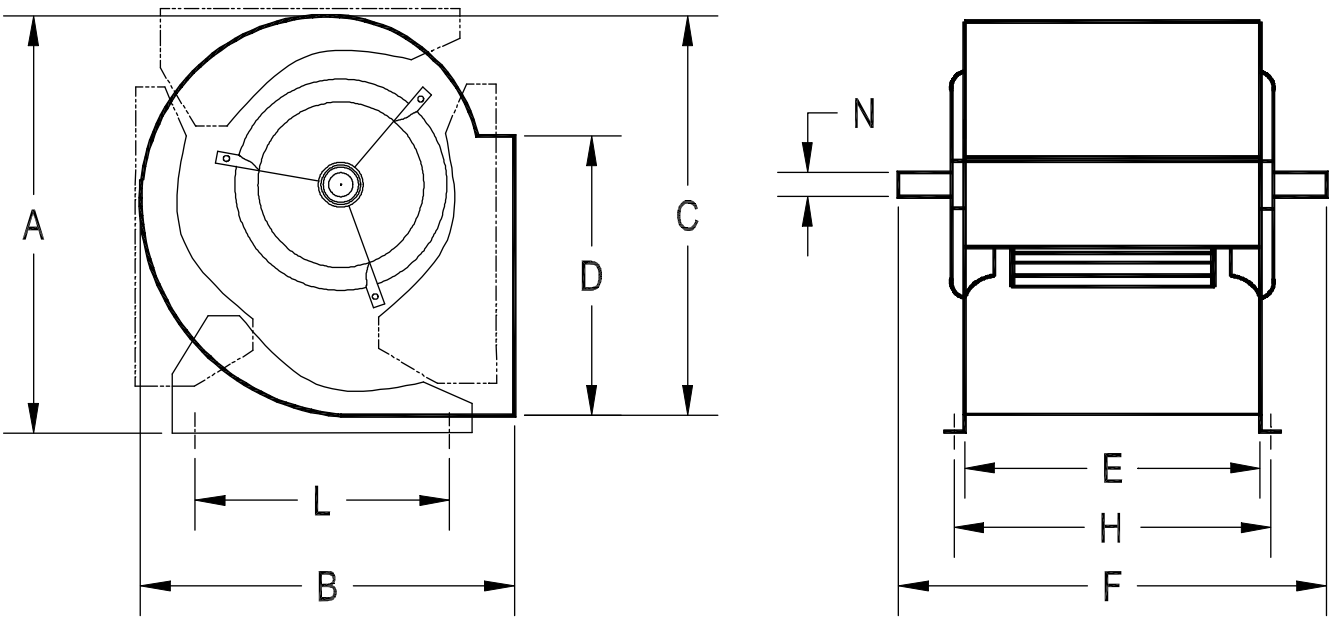
Motor HP and Type	Volts/Phase	Frame	Motor RPM	Position	Canarm Part Number
3/4 ODP	[115] 115/1 Phase	48	1750	1	1MD113-48-RS

Options

Dimensions

Model: G10-9

(Inches)

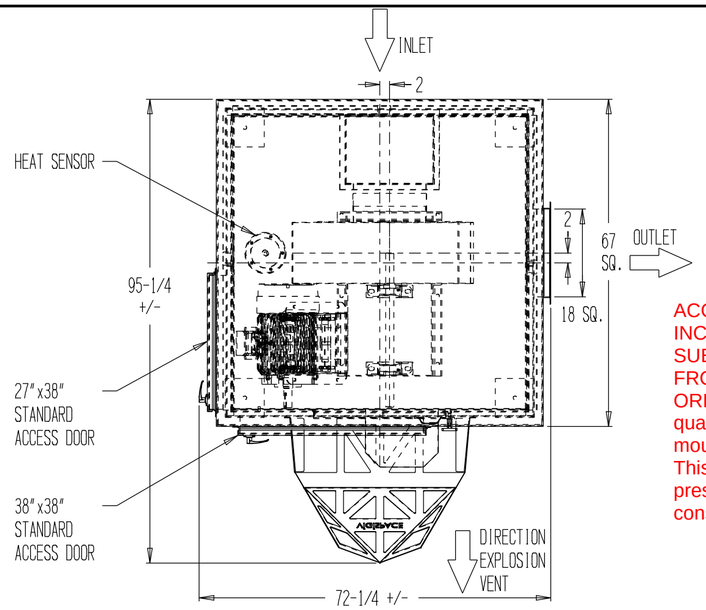


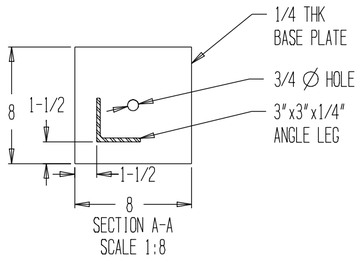
A	B	C	D	E	F	H	L
19.0	16.75	17.375	11.375	12.25	17.25	13.25	13.375

Standard Features

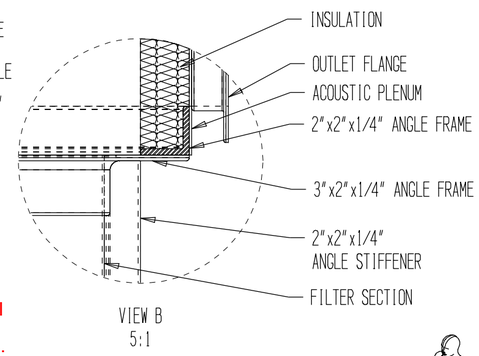
G Series FC DWDI Blowers

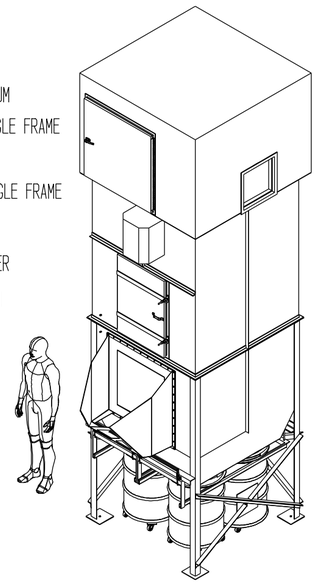
- Strong wheel design permits operation at speeds well beyond any normal requirements.
- Forward curved wheel provides quiet, low rpm operation.
- Matte finish zinc coated wheel and cut-off baffle in a galvanized housing.
- Permanently lubricated bearings, mounted in resilient rings for quiet operation.
- Twin blowers are joined with steel angle pieces and have a common shaft.

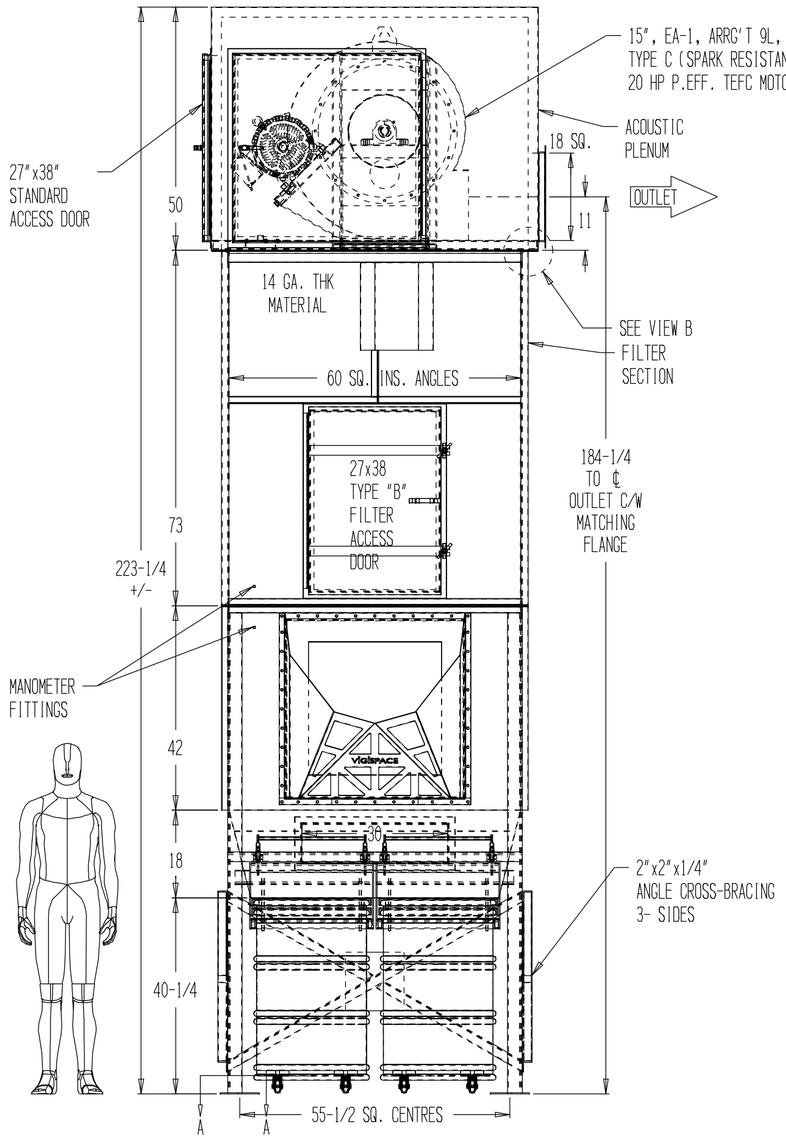


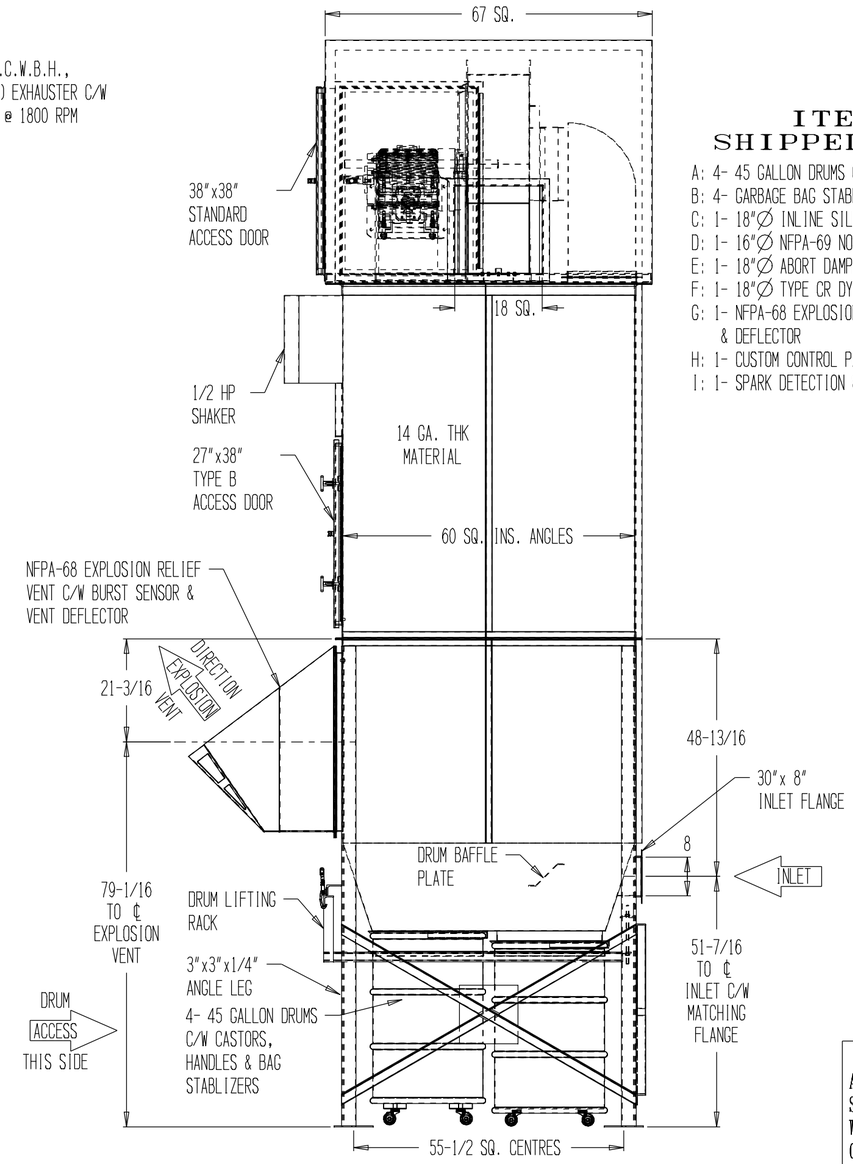


ACOUSTIC FAN ENCLOSURE HAS BEEN INCLUDED AS PART OF THE PROPOSED SPEC I SUBMITTED. ESIMATED SOUND PRESSURES FROM TOP MOUNTED DUST COLLECTOR FANS: ORLEANS: 73dBA @ 5ft (Assumes radiation over quarter sphere with 2 reflecting surfaces, i.e. fan mounted atop the dust collector located near a wall. This is as close as we can calculate the sound pressure, it will vary based on type of building construction & surround reflective surfaces.)









ITEMS SHIPPED LOOSE

A: 4- 45 GALLON DRUMS C/W HANDLES & CASTERS
B: 4- GARBAGE BAG STABLIZERS
C: 1- 18"∅ INLINE SILENCER
D: 1- 16"∅ NFPA-69 NO RETURN VALVE (NRV)
E: 1- 18"∅ ABORT DAMPER
F: 1- 18"∅ TYPE CR DYNAMIC FIRE DAMPER
G: 1- NFPA-68 EXPLOSION RELIF VENT, BURST SENSOR, & DEFLECTOR
H: 1- CUSTOM CONTROL PANEL
I: 1- SPARK DETECTION & SUPPRESSION SYSTEM

NOTICE
AFTER DWGS ARE REVIEWED AND SIGNED,ANY REQUESTED CHANGES WILL BE AS AN EXTRA TO THE CONTRACT FOR ALL APPLICABLE INVOLVEMENT.

EQUIPMENT SPECIFICATIONS

DESCRIPTION	VALUE
CFM:	5,450
F.P.M.:	4,431 D.V.
S.P.:	12" TOTAL (ESTIMATED)
B.H.P:	14.8
FILTER MEDIA:	TERYLENE
AIR TO FILTER RATIO:	7.7 TO 1
SQ. FT OF FILTER:	705
ELECTRICS:	??? / 3 / 60
APPROX. WEIGHT:	6,000 LBS

TAG: ORLEANS SUD WOOD SHOP

GENERAL NOTES

CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON THE JOB SITE AND REPORT ANY DESCREPANCIES BEFORE COMMENCING THE WORK. DIMENSIONS TO TAKE PRECEDENT OVER SCALE

NOTE: SAFETY LADDERS, PLATFORMS AND RAILINGS
THESE ITEMS ARE FACTORY PREFIT AS MUCH AS POSSIBLE, BUT DUE TO THE SIZE OF THE EQUIPMENT SOME WELDING AND BRACING MAY BE REQUIRED BY THE INSTALLING CONTRACTOR TO ADEQUATELY SECURE THESE ITEMS ON JOB SITE.

INSTALLATION NOTES:
1) CHECK ALL BOLTS TO MAKE SURE THEY HAVE NOT VIBRATED LOOSE DURING SHIPMENT
2) CHECK FILTER TUBES TO ENSURE THAT THEY HAVE NOT BECOME DETACHED DURING SHIPMENT.
(NOTE: FILTER TUBES AND CAGES ON HEC MODELS ARE SUPPLIED AS SEPERATE UNATTACHED ITEMS FOR INSTALLATION BY OTHERS.SEE PAGES 18 - 20 OF MAINTENANCE MANUAL FOR PROPER INSTALLATION PROCEDURES.
3) CHECK ALL DOOR SEALS AND LOCKS TO ENSURE THAT THE DOORS ARE OPERATING CORRECTLY , AND THAT AN AIR TIGHT SEAL IS BEING OBTAINED.
4) CHECK FUSIBLE LINK ON FIRE DAMPER (IF SUPPLIED).
5) CHECK BELT TENSION ON DUST COLLECTORS SUPPLIED WITH BELT DRIVEN FAN PACK.(REFER TO FAN ''O & M'' MANUAL.)
6) SUPPORT STAND LEGS MUST BE WELDED TO BASE PLATES (IF SUPPLIED SEPARATELY).
7) ALL BOLTED JOINTS ON STRUCTURAL SUPPORT STANDS TO BE FIELD WELDED AFTER ASSEMBLY & ERECTION BY OTHERS.
8) DUST COLLECTOR MUST BE WELDED INTO SUPPORT STAND AFTER ERECTION.(NOTE.SPACERS MAY BE REQUIRED.BY OTHERS.)
9) REFER TO MAINTENANCE MANUAL FOR ADDITIONAL INSTALLATION, INSPECTION & MAINTENANCE PROCEDURES.
10) LIFTING OF DUST COLLECTORS SHOULD ONLY BE DONE USING LIFTING LUGS INSTALLED ON THE DUST COLLECTOR UNDER NO CIRCUMSTANCES SHOULD THE EXHAUSTER FAN SHAFT BE USED TO LIFT THE EQUIPMENT

REV. NO.	DESCRIPTION	DATE	BY

REVISIONS

N.R. MURPHY LTD.
430 FRANKLIN BLVD.
CAMBRIDGE ONTARIO N1R 8G6
PHONE: (519) 621-6210
FAX: (519) 621-2841

CUSTOMER:
O'DELL ASSOCIATES

TITLE:
MKAW-705-4D DUST COLLECTOR

JOB NO.:	DWN. BY:	DWG. NO.:
5366-25JC	JS	Q-C-5366-25JC
P.O. NO.:	SCALE: 1/2" = 1'-0"	
DATE: FEB.28/25	CHK. BY:	

Culinary MUA - Orleans

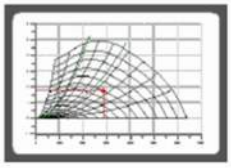
For SDME-25 (2850 CFM 1.76" WG TSP)

Referring to the fan sound data and considering the attenuation by the unit panels (Single wall, 1'' insulation)

the **average dBA at 3 feet distance (1 meter) is 45.79**

Input data					
Volume	2850 CFM	Temperature	68.0 °F	Density	0.075 lb/cu.ft
Static Pressure	1.76 In.W.G.	Altitude	0 ft	Free Inlet - Ducted Outlet	

	Catalogue data		
	n Max	Pw Max	J
	1/min	BHP	lb ft²
Selected Fan ATLI 9 - 9 B	2240	3.00	0.93



Fan Information											
OV ft/min	p tot In.W.G.	p sta In.W.G.	p dyn In.W.G.	tip speed ft/min	RPM 1/min	eta Tot %	eta Sta %	P fan BHP	Min Mot. BHP	P mot BHP	Shaft diameter in
3393	2.48	1.76	0.72	3970	1540	54.86	38.97	2.02	2.43	3.00	0.00

fm[Hz]		63	125	250	500	1000	2000	4000	8000	Tot.
Lw4 Total Sound Power Level inside the outlet duct - Lwo Outlet Duct Sound Power Level includes the effect of duct end correction										
Level Lw4	dB/dB(A)	82 / 56	81 / 65	79 / 71	78 / 75	80 / 80	79 / 80	76 / 77	71 / 70	88 / 85
Lw6d Total Sound Power Level outside the termination of the outlet duct - Lwmo Outlet Sound Power Level (free outlet) do not includes the effect of duct end correction										
Level Lw6d	dB/dB(A)	69 / 43	73 / 57	76 / 67	77 / 74	80 / 80	79 / 80	76 / 77	71 / 70	86 / 85

Appendix G

Stationary Noise Calculations

APPENDIX 'G'

Combining Sound Levels Power or Pressure
Lsum=10log(10^(L1/10)+10^(L2/10)+….)
ASHRAE 2005 Fundamentals 7.3 eq. 12

Air Handling Unit*	Unit Size	Noise Level At Unit
DOAS 1-ASHP	50 Ton	89.0
DOAS GYM-ASHP	6 Ton	74.0
Fluid Cooler - FEVR-26408 (Fans)	n/a	91.0
Fluid Cooler - FEVR-26408 (Fans)	n/a	91.0
RTU1 GYM1-ASHP	11 Ton	77.0
RTU2 GYM2-ASHP	11 Ton	77.0
RTU3 CAFE-ASHP	16 Ton	84.0
RTU4 CAFE Perimeter-ASHP	11 Ton	77.0
Kitchen Exhaust Fan	n/a	66.0
Kitchen MUA Supply Fan	n/a	78.0
Dust Collector		73.0
Culinary MUA		46.0
Total dBA		**95.8**

Convert From Sound Power to Sound Pressure
ASHRAE 2005 Fundamentals 7.8 (28)
Free Field Lp=Lw+10log(Q/4 pi r^2)+10.5
Lp = Sound Pressure
Lw = Sound Power
Q = Directivity = 2 flat surface, 4 junction two large surfaces, 8 in a corner
r = distance from source in ft

R3 - Noise Sensitive Receptor	Unit	Sound Power dBA @ 75% Unit Capacity	Sound Pressure @ Receiver Distance (m) (Approx.)	Estimated Attenuation dBA	Estimated dBA @ R3
Stationary Noise Sources	DOAS 1-ASHP	89.0	75.7		43.6
	DOAS GYM-ASHP	74.0	115.5		24.9
	Fluid Cooler - FEVR-26408 (Fans)	91.0	96.5		43.5
	Fluid Cooler - FEVR-26408 (Fans)	91.0	103.4		42.9
	RTU1 GYM1-ASHP	77.0	128.0		27.1
	RTU2 GYM2-ASHP	77.0	122.7		27.4
	RTU3 CAFE-ASHP	84.0	128.7		34.0
	RTU4 CAFE Perimeter-ASHP	77.0	123.4		27.4
	Kitchen Exhaust Fan	66.0	110.1		17.4
	Kitchen MUA Supply Fan	78.0	105.8		29.7
	Dust Collector	73.0	84.7		26.6
	Culinary MUA	46.0	74.5		0.8
	Total R3 dBA				**48.5**

R4 - Noise Sensitive Receptor		Sound Power dBA @ 75% Unit Capacity	Sound Pressure @ Receiver Distance (m) (Approx.)	Estimated Attenuation dBA	Estimated dBA @ R4
Stationary Noise Sources	DOAS 1-ASHP	89.0	152.2		37.6
	DOAS GYM-ASHP	74.0	112.8		25.2
	Fluid Cooler - FEVR-26408 (Fans)	91.0	121.3		41.5
	Fluid Cooler - FEVR-26408 (Fans)	91.0	128.2		41.0
	RTU1 GYM1-ASHP	77.0	102.7		29.0
	RTU2 GYM2-ASHP	77.0	103.4		28.9
	RTU3 CAFE-ASHP	84.0	98.8		36.3
	RTU4 CAFE Perimeter-ASHP	77.0	104.0		28.9
	Kitchen Exhaust Fan	66.0	119.5		16.7
	Kitchen MUA Supply Fan	78.0	121.9		28.5
	Culinary MUA	46.0	152.0		0.0
	Total R4 dBA				**46.1**

R5 - Noise Sensitive Receptor		Sound Power dBA @ 75% Unit Capacity	Sound Pressure @ Receiver Distance (m) (Approx.)	Estimated Attenuation dBA	Estimated dBA @ R5
Stationary Noise Sources	DOAS 1-ASHP	89.0	140.9		38.2
	DOAS GYM-ASHP	74.0	114.3		25.0
	Fluid Cooler - FEVR-26408 (Fans)	91.0	115.9		41.9
	Fluid Cooler - FEVR-26408 (Fans)	91.0	109.9		42.4
	RTU1 GYM1-ASHP	77.0	114.0		28.1
	RTU2 GYM2-ASHP	77.0	104.6		28.8
	RTU3 CAFE-ASHP	84.0	88.1		37.3
	RTU4 CAFE Perimeter-ASHP	77.0	92.3		29.9
	Kitchen Exhaust Fan	66.0	104.2		17.8
	Kitchen MUA Supply Fan	78.0	105.9		29.7
	Culinary MUA	46.0	134.8		0.0
	Total R5 dBA				**46.9**

R6 - Noise Sensitive Receptor		Sound Power dBA @ 75% Unit Capacity	Sound Pressure @ Receiver Distance (m) (Approx.)	Estimated Attenuation dBA	Estimated dBA @ R6
Stationary Noise Sources					
	DOAS GYM-ASHP	74.0	34.9		35.3
	Fluid Cooler - FEVR-26408 (Fans)	91.0	43.7		50.4
	Fluid Cooler - FEVR-26408 (Fans)	91.0	41.6		50.8
	RTU1 GYM1-ASHP	77.0	39.0		37.4
	RTU2 GYM2-ASHP	77.0	43.7		36.4
	RTU3 CAFE-ASHP	84.0	59.9		40.7
	RTU4 CAFE Perimeter-ASHP	77.0	56.5		34.2
	Kitchen Exhaust Fan	66.0	53.6		23.6
	Kitchen MUA Supply Fan	78.0	52.3		35.8
	Total R6 dBA				**54.2**

Appendix H

Building Component Calculations
(Stationary)

ROOM BY ROOM CALCULATIONS

Classroom

Floor Area (sq.m) 72.8

	Width	Height	Area	
Window 1	0.8	1.8	1.3	
Window 2	0.8	1.8	1.3	
Window 3	1.5	1.8	2.6	
			5.3	Total Window Area
			7.25%	% of Floor Area

	Width	Height	Area	
Exterior Door	0	0	0	
			0	Total Door Area
			0.00%	% of Floor Area

	Width	Height	Area	Area minus windows/doors	
Exterior Wall (front)	10.55	4.0	42.20	36.92	
Exterior Wall (side)			0.00	-	
				36.92	Total Exterior Wall Area
				50.71%	% of Floor Area

TABLE 19: BUILDING COMPONENT TEMPLATE

Architect:
Location: Orleans South HS
Building Type: High School
Block Number:
Front Façade Noise Level (dBA) 55

JLR No: 33322-001
Prepared by: Thomas Blais
Checked by: Lee Jablonski

ROOM	# OF COMPONENTS	ROOM FLOOR AREA (M^2)	WINDOW AREA (M^2)	W/RFA %	DOOR AREA (M^2)	D/RFA %	EXT. WALL AREA (M^2)	EW/RFA %	REQUIRED AIF*	WINDOW		EXT. DOOR		EXT. WALL		CEILING/ROOF	
										Type	AIF**	Type	AIF***	Type	AIF****	Type	AIF*****
Classroom	2	72.8	5.3	7%	-	-	36.9	51%	20	2(6)2	32	-	-	EW1	34	-	-

** Taken from Table 10.5: AIF required for Road and Rail Traffic Noise Cases*
*** Taken from Table 10.6: Acoustic Insulation Factor for various types of windows (example: 2(100)2 denotes 2 mm glass (100 mm space) 2 mm glass).*
**** Taken from Table 10.9: Acoustic Insulation Factor for various types of exterior doors*
***** Taken from Table 10.7: Acoustic Insulation Factor for various types of exterior walls*
****** Taken from Table 10.8: Acoustic Insulation Factor for various ceiling-roof combinations (only for aircraft noise)*

Exterior Door Details
All prime doors should be fully weatherstripped. Except as noted specifically below, doors shall not have inset glazing:
D1 denotes 44 mm hollow-core wood door (up to 20% of area glazed).
D2 denotes 44 mm glass-fibre reinforced plastic door with foam or glass-fibre insulated core (up to 20% area glazed).
D3 denotes 35 mm in solid slab wood door.
D4 denotes 44 mm steel door with foam or glass-fibre insulated core.
D5 denotes 44 mm solid slab door.
sd denotes storm door of wood or aluminum with openable glazed sections.

Exterior Wall Details
The common structure of walls EW1 to EW5 is composed of 12.7 mm gypsum board, vapour barrier, and 38x89 mm studs with 50 mm (or thicker) mineral wool or glass fibre batts in the inter-stud cavities.
EW1 denotes the above plus sheathing, plus wood siding or metal siding and fibre backer board.
EW2 denotes the above plus rigid insulation (25-50mm), and wood siding or metal siding and fibre backer board.
EW2 also denotes exterior wall described in EW1 with the addition of rigid insulation (25-50mm) between the sheathing and the external finish.
EW3 denotes simulated mansard with structure as the above plus sheathing, 38 x 89 mm framing, sheathing and asphalt roofing material.
EW4 denotes the above plus sheathing and 20 mm stucco.
EW5 denotes the above plus sheathing, 25 mm air space, 100 mm brick veneer.
EW6 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50mm), 100 mm back-up block, 100 mm face brick.
EW6 also denotes an exterior wall conforming to rainscreen design principles and composed of same gypsum board and rigid insulation with 100 mm concrete block, 25 mm air space, and 100 mm brick veneer.
EW7 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50mm), 140 mm back-up block, 100 mm face brick.
EW8 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25-50mm), 200 mm concrete.
R denotes the mounting of the interior gypsum board on resilient clips

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