



REPORT

Noise Impact Assessment

OCSB Fernbank Elementary School - 620 Triangle Street

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April 2025



Distribution List

Electronic copy - WSP Canada Inc.

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Document Control

Version	Date	Revision Description	Prepared By
1.0	April 4, 2025	Noise Impact Study to support a Site Plan Control (SPC) Application	WSP Canada Inc.

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Executive Summary

This Noise Impact Assessment (NIA) was prepared to support a Site Plan Control (SPC) Application for the proposed Ottawa Catholic School Board (OSCB) Fernbank North Elementary School that is to be located at 620 Triangle Street in Nepean, Ontario (the Site).

The purpose of the study is to assess the potential noise effects of the environment onto the Site and assess the potential noise impact of the proposed stationary noise sources at the Site on surrounding noise-sensitive areas. The assessment was based on the Site Plan prepared by Pye & Richards – Temprano & Young Architects Inc. prepared October 10, 2024.

The assessment was conducted in accordance with the City of Ottawa guideline, Environmental Noise Control Guidelines (ENCG) and the Ministry of the Environment, Conservation and Parks (MECP) Noise Guideline “Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning” (Publication NPC-300). The acceptable levels of road traffic noise impacting noise-sensitive institutional developments are discussed in Section “Part C- Land Use Planning of NPC-300 as well as Section 2 and 4 of the ENCG.

The significant noise sources in the vicinity of the proposed development are transportation noise sources, mainly road traffic on Cranesbill Road which is identified by the City of Ottawa Official Plan as major collector. The significant stationary sources of noise proposed at the Site are rooftop HVAC equipment and exhaust fans.

The Site is located outside the Ottawa Macdonald Cartier International Airport Operating Influence Zone, and thus, aircraft noise assessment is not required.

The evaluated potential noise impact of transportation sources on the Site, and stationary sources associated with the Site on nearby residential uses and onto the school itself. The predicted sound levels were assessed as per the MECP Publication NPC-300 and ENCG requirements to determine that the Site will comply with the applicable noise guidelines without additional noise control measures. Additionally, exterior walls, door, and window construction meeting the Ontario Building Code (OBC) minimum requirements will be adequate to meet the indoor sound level limits to comply with the City of Ottawa and the MECP noise guidelines. Stationary sources at the Site are predicted to comply with the City of Ottawa and the MECP noise guidelines sound level limits.

Study Limitations

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The report is intended to be used in its entirety. No excerpts may be taken to be representative of the findings in the assessment.

The conclusions presented in this report are based on work performed by trained, professional and technical staff, in accordance with their reasonable interpretation of current and accepted engineering and scientific practices at the time the work was performed.

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1 INTRODUCTION

WSP Canada Inc. (WSP) retained by Ottawa Catholic School Board (OSCB) to complete an Environmental Noise Impact Assessment for the proposed Fernbank North Elementary School development to be located at 620 Triangle Street in Nepean, Ontario (the Site). This report was prepared in support of the Site Plan Control (SPC) Application submission to the City of Ottawa.

The assessment was based on the Site Plan prepared by Pye & Richards – Temprano & Young Architects Inc. prepared October 10, 2024, included in Appendix A, and was prepared in accordance with the Environmental Noise Control Guidelines (ENCG) published by the City of Ottawa, dated January 2026. The ENCG is based on the Ministry of the Environment, Conservation and Parks (MECP) Noise Guideline “Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning” (Publication NPC-300).

This assessment investigates that potential for noise impacts of the environment onto the Site from nearby transportation sources (i.e. Cranesbill Road) and proposed stationary sources at the Site on surrounding noise-sensitive areas including the school itself. The findings and recommendations needed to comply with the applicable noise guidelines are included herein.

1.1 The Site and Surrounding Area

The Site is bounded by:

- Cranesbill Road to the north with residential, with open space and residential and agricultural land use beyond this.
- Residential land use to the east followed by open space.
- Honeylocust Avenue to the south followed by residential land use.
- Triangle Street to the west with residential land use and greenspace land use further west.

The zoning designation of the area in the immediate vicinity of the Site has been obtained from the City of Ottawa from the existing zoning By-law 2008-250 and a review of the new zoning By-law Draft 1 (April 29, 2024). The Zoning By-law 2008-250 remains in effect.

Proposed changes include the following:

- The Site is currently zoned “I1A” and is proposed to be changed to “INZ”, both of those codes reflect Institutional Zone and no change to land use.
- The residential area to the immediate north, west and south is currently zoned “R3Z” Residential Zones is proposed to be changed to “N3B” Neighbourhood Zone, both reflecting residential land use.
- The residential area to the east is currently zoned “R3YY” Residential Zones and is proposed to be changed to “N3B” Neighbourhood Zone, both reflecting residential land use.
- Parks in the area, currently zoned “O1” Open Space and Leisure Zones are proposed to be “GRN” Greenspace Zones.
- The other currently zoned “O1” Open Space and Leisure Zones is proposed to be “FAC”, Open Space Facility Zones.

- The residential area to the north beyond the open space is currently zoned “R3Z” Residential Zone and is proposed to be zoned “MS2” Mainstreet and Minor Corridor Zones.
- The currently zoned “DR” Development Reserve Zone to the west is proposed to be “FAC” Open Space Facility Zone.

A scaled map showing the Site with respect to the surrounding area in a 1 km radius is provided in Figure 1. A land use zoning designation plan from the City of Ottawa (By-law 2008-250) and the new draft zoning By-law is provided in Figure 2 and Figure 3, respectively.

1.2 The Proposed Development

The assessment was based on the Site Plan prepared by Pye & Richards – Temprano & Young Architects Inc. prepared March 12, 2025, and included in APPENDIX A (Site Plan). The proposed school development includes a site area of 27,149 m² which consists of a main one (1) storey building with a childcare centre, a portable area design to accommodate up to eighteen (18) future portables located to the east of the main building, outdoor play areas and a paved parking area to the northwest, as outlined in the Site Plan.

2 NOISE IMPACT ASSESSMENT CRITERIA

2.1 Transportation Sources and Assessment Criteria

Noise is recognized as a pollutant in the Environmental Protection Act, as uncontrolled noise can affect human activities. Ontario provincial noise control guidelines require that noise concerns are addressed in the planning of any new development.

In land use planning, although elimination or control of the source of pollution is usually a primary objective, there are general limits as to what is practical and technically possible. The City's *Environmental Noise Control Guidelines* (ENCG) follows the MECP's Publication NPC-300, *Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning* for acceptable levels of road, rail and air traffic noise impacting noise-sensitive institutional developments and stationary noise on surrounding noise-sensitive residential areas. These limits are discussed in Section “Part-C – Land Use Planning” of NPC-300 as well as Section 2 and 4 of the ENCG.

The ENCG stipulates that a noise study shall be prepared when a new development is proposed within distances as follows:

- 100 metres from the right-of-way of an existing or proposed road; arterial, major collector, light rail transit, bus rapid transit or transit priority corridor;
- 250 metres from the right-of-way of an existing or proposed highway;
- 300 metres from the right-of-way of a proposed or existing rail corridor or secondary main railway line;
- 500 metres from the right-of-way of a freeway or 400-series provincial highway or principal main railway line; or
- The defined area from the Noise Exposure Forecast (NEF) noise contour of airport/aircraft noise.

2.1.1 Aircraft Sources

The proposed development is located outside the City of Ottawa's International Airport's (Macdonald-Cartier International Airport) Vicinity Development Zone (AVDZ) and outside the Airport Operating Influencing Zone (AOIZ). Therefore, aircraft noise has not been considered in the assessment. The NEF/NEP contour map provided by the City's "Official Plan – Schedule C14 – Land Use Constraints Due to Aircraft Noise" (November 4, 2022) is included in APPENDIX B.

2.1.2 Surface Transportation Noise Sources

The significant sources of noise in the vicinity of the proposed development are transportation noise sources. The road types were identified using the City's "Official Plan – Schedule C4 – Urban Road Network" (November 4, 2022) as provided in APPENDIX B. Cranesbill Road and Triangle Street are located within 100 metres of the Site and are a Major Collector and future collector respectively.

Even though as per City's Official plan shows Triangle Street as a possible future collector, as shown in aerial images and draft plan of subdivision application for the Bradley Common Development this future collector was not included in the plans. Triangle Street remains just a local road, as houses were built along Cranesbill Road and Baldcypress Way sometime after 2018 (Phase 3), and houses are being built along Bliss Crescent (Phase 4) and open space remains between Bliss Crescent and Baldcypress Way where Triangle Road were to have been proposed to continue and connect to Hazledean Road. As these developments were approved and recently either built or in the process, the likelihood of Triangle Road becoming a possible future collect as shown in the Official Plan (Schedule C4) is not likely, and thus not carried forward in the analysis.

Other roads, light rail transit, bus rapid transit, and transit priority corridor, are over 100 metres away from the Site and are not expected to have a significant impact.

Proposed and existing highways are further than 250 metres away from the proposed school. Proposed or existing rail corridor or main railway lines are further than 300 metres away. Freeway and 400-series or principal railway line are further than 500 metres away. Therefore, these transportation noise sources are not included or significant in this assessment.

2.1.3 Road Sources Assessment Criteria

The following Table 1 summarizes the sound level limits for road traffic applicable for the proposed institutional development.

Table 1: ENCG and NPC-300 Road Traffic Indoor Sound Level Criteria for Schools

Area	Time Period	L_{EQ} (dBA) ¹ - Road	Reference
Schools, Daycares	Daytime (07:00 – 23:00)	45	NPC-300 Table C-2, ENGC Table 2.2b

Notes:

¹ Daytime: L_{EQ} 16hr

The NPC-300 and ENCG provides sound level limits in terms of energy equivalent (average) sound levels [L_{EQ}] in units of A-weighted decibels (dBA) at a specific noise-sensitive location. Outdoor areas are not considered noise-sensitive for institutional developments. Therefore, only indoor locations are identified and only during the daytime period.

The building envelope, such as walls, windows and doors, where applicable, should be designed so that the indoor sound levels comply with the sound level limits summarized in Table 1.

2.1.4 Building Component Requirements

To comply with the indoor sound level criteria listed in Table 2, the ENCG and NPC-300 provides guidelines based on predicted sound levels at the façade/plane of window. All buildings are required to comply with the Ontario Building Code (OBC) requirements. If the predicted sound level at façade/plane of window exceeds 65 dBA during the daytime for institutional building, additional considerations such as the type of windows, exterior walls, and doors that can provide noise attenuation must be selected.

Table 2 summarizes requirements for type of building façade construction for institutional purpose buildings.

Table 2: Building Component Requirements for Indoor Spaces

Area	Time Period	L_{EQ} (dBA) ²	Building Component Requirements
Plane of Window ¹	Daytime (07:00 – 23:00)	≤ 65	Building components compliant with Ontario Building Code (OBC)
		> 65	Building components designed/selected to meet Indoor Requirements

Notes:

¹ Plane of Window of an institutional purpose building leading to a noise sensitive room, such as a teacher's lounge, classrooms, etc.

² Daytime: L_{EQ} 16hr

2.2 Stationary Sources and Assessment Criteria

Stationary source is defined in the MECP publication NPC-300 as a source of sound or combination of sources of sound that are included and normally operated within the property lines of a facility. The ENCG states new stationary sources of noise (noise generating) are defined by proximity to existing or approved noise-sensitive developments.

There are stationary noise sources introduced by the proposed school building development which is surrounded by existing residential dwellings. These stationary sources include rooftop mechanical units. Therefore, stationary noise has been included in the study to assess the potential noise impacts of the proposed development on the surrounding noise sensitive land uses and onto itself.

From aerial review and land use review, there are no significant stationary noise sources from the surrounding area that have the potential to impact the proposed school (noise sensitive land use).

For stationary sources, the MECP NPC-300 and ENCG Section 3 provides criteria based on one-hour equivalent sound level. In order to comply with the noise impact from stationary sources, the predicted sound level must comply with the noise guidelines stipulated in NPC-300 and ENCG. Two locations are typically considered: an outdoor location and the plane of window.

Both guidelines provide the sound level limits for noise-sensitive receptors based on the acoustical environment of the area. NPC-300 categorizes the acoustical environment into four classes: Class 1 (urban), Class 2 (semi-urban), Class 3 (rural), or Class 4 (special cases). Based on review of the area using aerial imagery, the general area is urban residential and can be considered as a Class 1. Given that the school only operates during the daytime, Table 3 summarizes the MECP's daytime sound level limit for a Class 1 Area and was used as the applicable sound level limit for the development.

Table 3: ENCG and MECP's Exclusion Limits in dBA

Period	Class 1	
	Plane of Window ¹	Outdoor POR ²
Daytime (07:00 – 19:00)	50	50

Notes:

¹ Plane of Window for an institutional purpose building leading to a noise sensitive room, such as a teacher's lounge, classrooms, etc.

² POR means Point of Reception; representing a point in a receptor location.

3 NOISE IMPACT ASSESSMENT

3.1 Transportation Noise

3.1.1 Road Traffic Data

Road traffic data were obtained from the ENCG and included in APPENDIX B for Cranesbill Road. The data obtained from the ENCG provides future traffic volume, day/night split, commercial vehicle percentages, and posted speed limits for various roadways based on roadway class and number of lanes. The ENCG data represents the future traffic volume and corresponding to a “mature state of development” in the City's Official Plan.

The traffic and road parameters used for sound level predictions are shown in Table 4. The surrounding topography is generally flat and assessed as such.

Table 4: Summary of Road Traffic Data Used in the Transportation Noise Analysis

Road	Road Classification	Traffic Volumes (AADT)	Day/Night Split (%)	Medium Trucks (%)	Heavy Trucks (%)	Posted Speed Limit (KPH)
Cranesbill Road	2-Lane Major Collector	12,000	92/8	7	5	40

3.1.2 Analysis Method

Road traffic sound levels at the proposed development were predicted using Cadna/A, a commercially available noise propagation modelling software. The following parameters were taken into consideration in the model:

- Road alignments and gradients;
- Traffic volumes and design speeds;
- Commercial vehicle percentages for roads;
- Shielding provided by intervening buildings, barriers and/or topographical features; and
- Special details such as barrier and receptor locations, elevations and heights.

The software's Building Evaluation feature was used to predict the sound levels on every façade of the proposed school and portables. The software generates an array of receivers along each building façade producing a comprehensive analysis of where the highest sound levels from road noise will be located on the building.

Cranesbill Road was modelled as a road source using the U.S. FHWA Traffic Noise Model (TNM) noise emission and calculation method implemented by Cadna/A. TNM predictions were equivalent to those made using the MECP prediction software STAMSON, which is an implementation of the ORNAMENT calculation methods recommended in the ENCG. The TNM predictions were validated against the STAMSON predictions; the validation files are included in APPENDIX C.

3.1.3 Results

Based on road traffic data, sound levels were predicted at the proposed school. The Site's building and outdoor classroom location with respect to Cranesbill Road is shown on Figure 4. The predicted sound levels were used to investigate building construction requirements. The highest predicted/estimated sound levels on the façades of the proposed development are summarized in Table 5 and shown on Figure 4.

Table 5: Summary of Predicted Sound Levels due to Road Traffic

POR	Location Description	Approximate Height (m)	Daytime Highest Sound Level L_{EQ} (dBA)
Main School Building	North façade adjacent to Cranesbill Road	4.5	52
Portables	North façade adjacent to Cranesbill Road	1.5	50

3.1.4 Recommendations

As shown in Table 5, the sound levels at the plane of window are below 65 dBA during the daytime hours. Thus wall, door and window glazing assemblies meeting the minimum non-acoustical requirements of the Ontario Building Code (OBC) will be sufficient to meet the applicable indoor sound level limits.

3.2 Stationary Sources

The significant stationary sources of noise are the rooftop HVAC units and condensers. Insignificant sources or sources with negligible sound level contribution off-site include hot water heaters, and small fans associated with washrooms and indoor equipment. Additionally, there is no emergency generators are planned at the Site.

Bus drop-off location is to be located along Honeylocust Avenue and Triangle Street and located outside the school's property boundary (off-site noise source). Therefore, noise associated with the bus drop-off activities are not included in the assessment.

3.2.1 Onsite Noise Sources

A total of six (6) rooftop HVAC units (RTUs), two (2) condensers and one (1) dedicated outdoor air system (DOAS) are planned on the main school building as shown in Figure 5. All six RTUs, both condensers and DOAS unit were conservatively assumed to operate simultaneously for 60 minutes in a predictable worst-case hour during the day. The sound power levels used were under a fan operating at 100% economizer operation, as per mechanical engineer the fan under normal operating conditions would only be running at half speed due to Ottawa climate. Therefore, conservative sound power levels for the RTU units were used in the analysis.

The school operates only during the daytime between 07:00h and 19:00h and assessed as such.

The sound level data used in the assessment is summarized in Table 6 and manufacturer specifications are provided in APPENDIX D.

Table 6: Proposed Stationary Source Sound Data

Source ID ¹	Building	Description	Overall Sound Power Level (dBA)
SS_RTU1c	Proposed 1-Storey Main School Building	HVAC 11T Unit Condenser – Area Serving Kindergarten	84
SS_RTU1e		HVAC 11T Unit Exhaust Air – Area Serving Kindergarten	86
SS_RTU2c		HVAC 6T Unit Condenser – Area Serving Daycare	81
SS_RTU2e		HVAC 6T Unit Exhaust Air – Area Serving Daycare	83
SS_RTU3c		HVAC 11T Unit Condenser – Area Serving Classrooms South	84
SS_RTU3e		HVAC 11T Unit Exhaust Air – Area Serving Classrooms South	87
SS_RTU4c		HVAC 11T Unit Condenser – Area Serving Classrooms West	84
SS_RTU4e		HVAC 11T Unit Exhaust Air – Area Serving Classrooms West	86
SS_RTU5c		HVAC 11T Unit Condenser – Area Serving Classrooms North	84
SS_RTU5e		HVAC 11T Unit Exhaust Air – Area Serving Classrooms North	86
SS_RTU6c		HVAC 11T Unit Condenser – Area Serving Classrooms Gymnasium	84
SS_RTU6e		HVAC 11T Unit Exhaust Air – Area Serving Classrooms Gymnasium	85
SS_CU1A		Air Cooled VRF 10T Condenser	72
SS_CU1B		Air Cooled VRF 10T Condenser	72
SS_DOAS1		Dedicated Outdoor Air System	80

Notes:

¹ Refer to Figure 5 for source locations; locations are referred using these IDs.

3.2.2 Analysis Method

In order to estimate the sound levels from stationary sources to the surrounding residential areas, a predictive analysis was completed using a commercially available software package Cadna/A, a computer implementation of the ISO Standard 9613-2 “Acoustics – Attenuation of Sound During Propagation Outdoors”, which takes into account the following:

- Source sound power levels;
- Distance attenuation;
- Source-receptor geometry;
- Ground and air (atmospheric) attenuation; and,
- Temperature and humidity effects on noise propagation.

Key parameters used in the model and sample calculations are provided in APPENDIX E.

3.2.3 Receptors

Off-site Receptors: There are several residential lots surround the Site (north, east, south and west sides) and are considered in this assessment. These buildings were analysed as receptors at the second-floor plane of window (i.e. 4.5 metres above ground) and are described in Table 7. Outdoor points of reception were assessed at standing height of 1.5 metres above ground representing the backyards and are also described in Table 7 and shown in Figure 6

On-site Receptors: In addition to off-site receptors, the Site itself is a receptor. Figure 5 shows the school, inclusive of the proposed building and portables, in relation to onsite stationary noise sources.

3.2.4 Results

3.2.4.1 Impacts of the Proposed Development onto the Surrounding Environment

The overall sound levels of receptors of surrounding residential homes, generated using assumed predictable worst-case operations of the school, are summarized in Table 7 and shown on Figure 6.

Table 7: Summary of Predicted Sound Levels at the Surrounding Noise Sensitive Land Uses due to the Proposed Stationary Sources

POR ID	Description	Location	Receptor Height (m)	Predicted Sound Level (dBA)	Daytime Sound Level Limit (dBA)	Compliance with Limit?
R01_w	Plane of Window	2-Storey Dwelling along Cranesbill Street	4.5	39	50	Yes
R02_w	Plane of Window	2-Storey Dwelling along Cranesbill Street	4.5	41	50	Yes
R03_w	Plane of Window	2-Storey Dwelling along Cranesbill Street	4.5	39	50	Yes
R03_o	Outdoor Point of Reception		1.5	38	50	Yes
R04_w	Plane of Window	2-Storey Dwelling along Cranesbill Street	4.5	39	50	Yes
R04_o	Outdoor Point of Reception		1.5	37	50	Yes
R05_w	Plane of Window	2-Storey Dwelling along Ponderosa Street	4.5	42	50	Yes
R05_o	Outdoor Point of Reception		1.5	39	50	Yes
R06_w	Plane of Window	2-Storey Dwelling along Ponderosa Street	4.5	43	50	Yes
R06_o	Outdoor Point of Reception		1.5	44	50	Yes
R07_w	Plane of Window	2-Storey Dwelling along Ponderosa Street	4.5	44	50	Yes
R07_o	Outdoor Point of Reception		1.5	44	50	Yes
R08_w	Plane of Window	2-Storey Dwelling along Ponderosa Street	4.5	43	50	Yes
R08_o	Outdoor Point of Reception		1.5	44	50	Yes
R09_w	Plane of Window	2-Storey Dwelling along Honeylocust Street	4.5	44	50	Yes
R10_w	Plane of Window	2-Storey Dwelling along Honeylocust Street	4.5	46	50	Yes
R11_w	Plane of Window	2-Storey Dwelling along Honeylocust Street	4.5	49	50	Yes
R11_o	Outdoor Point of Reception		1.5	45	50	Yes
R12_w	Plane of Window	2-Storey Dwelling along Triangle Street	4.5	49	50	Yes
R13_w	Plane of Window	2-Storey Dwelling along Triangle Street	4.5	50	50	Yes
R14_w	Plane of Window	2-Storey Dwelling along Triangle Street	4.5	50	50	Yes
R15_w	Plane of Window	2-Storey Dwelling along Triangle Street	4.5	46	50	Yes
R16_w	Plane of Window	2-Storey Dwelling along Triangle Street	4.5	44	50	Yes
R17_w	Plane of Window	2-Storey Dwelling along Triangle Street	4.5	41	50	Yes

The predicted stationary source sound level of the proposed RTUs and condenser units meets the sound level limits at all receptors.

3.2.4.2 Impacts of the Proposed Development onto Itself

Based on the source sound data provided in Table 6, sound levels were predicted at the most impacted onsite receptors. The highest sound levels on the façades of the proposed development building and portables are summarized in Table 8 and shown in Figure 7.

Table 8: Summary of Predicted Sound Levels at the Site due to the Proposed Stationary Sources

POR	Location	Receptor Height (m)	Predicted Sound Level (dBA)	Daytime Sound Level Limit (dBA)	Compliance with Limit?
School Building	East façade	4.5	46	50	Yes
Portables	West façade	4.5	48	50	Yes

Predicted sound levels are expected to comply with the ENCG and NPC-300 at the proposed building development due to the Site's proposed stationary noise sources as shown in Table 8.

4 RECOMMENDATIONS AND CONCLUSIONS

4.1 Conclusions

WSP Canada Inc. (WSP) was retained by Ottawa Catholic School Board (OSCB), to complete an Environmental Noise Impact Assessment for the proposed Fernbank North Elementary School development to be located at 620 Triangle Street in Nepean, Ontario. This report was prepared in support of the Site Plan Control (SPC) Application submission to the City of Ottawa. The assessment evaluated the potential for noise impact of transportation sources on the proposed elementary school, and stationary sources associated with the Site on nearby residential uses and onto the school itself.

The predicted sound levels were assessed as per the MECP Publication NPC-300 and the City of Ottawa's ENCG requirements. The assessment demonstrates that the Site will comply with the applicable noise guidelines without additional noise control measures and the minimum requirement of Ontario Building Code (OBC).

4.2 Recommendations

Table 9 further summarizes the building recommendations for the proposed school development.

Table 9: Summary of Building Requirements

Building	Building Components (Walls) STC	Building Components (Windows & Doors) STC	Noise Control Measures
1-Storey Main School Building	OBC ¹	OBC ¹	N/A
Portables	OBC ¹	OBC ¹	NPC-216 ²

Notes:

¹ OBC – Meet or exceed the minimum requirement of Ontario Building Code (OBC)

² If portables include air conditioning, where possible, select equipment to comply with noise criteria of MECP Publication NPC-216, Residential Air Conditioning Devices.

Signature Page

WSP Canada Inc.



Carolyn Ropp, B.Sc.

Acoustics, Noise and Vibration Specialist

CR/CDS



Oris delos Santos, M.Eng., P.Eng.

Team Lead & Senior Engineer Acoustics, Noise & Vibration

APPENDIX A

Drawings

MECHANICAL



DRAWING LIST	
SYMBOL	DESCRIPTION
M001	MECHANICAL – DRAWING LIST AND LEGENDS
M002	MECHANICAL – SCHEDULES
M003	MECHANICAL – SCHEDULES
M004	MECHANICAL – SCHEDULES
M005	MECHANICAL – DETAILS
M006	MECHANICAL – DETAILS
M007	MECHANICAL – DETAILS
M008	MECHANICAL – VRF SYSTEM PLANS AND DETAILS
M101A	FIRE PROTECTION – GROUND FLOOR PART A
M101B	FIRE PROTECTION – GROUND FLOOR PART B
M201A	PLUMBING – GROUND FLOOR PART A
M201B	PLUMBING – GROUND FLOOR PART B
M202	PLUMBING – ROOF
M301A	HVAC – GROUND FLOOR PART A
M301B	HVAC – GROUND FLOOR PART B
M302	HVAC – ROOF

GENERAL LEGEND	
SYMBOL	DESCRIPTION
	PIPING/DUCTWORK/EQUIPMENT
	NEW PIPING/DUCTWORK/EQUIPMENT BELOW SLAB

FIRE PROTECTION LEGEND	
SYMBOL	DESCRIPTION
	FIRE EXTINGUISHER C/W MOUNTING BRACKET AND BACKERBOARD
	RECESSED FIRE EXTINGUISHER
	SEMI-RECESSED FIRE EXTINGUISHER
	DRY-TYPE SPRINKLER
	TYPICAL CONCEALED TYPE
	UPRIGHT SPRINKLER
*FIRE PROTECTION ENGINEER TO SUBMIT DETAILED SPRINKLER LAYOUT SHOP DRAWING. SPRINKLER HEADS ON PLANS FOR CONCEPTUAL DESIGN INTENT ONLY.	

CONTROLS LEGEND	
SYMBOL	DESCRIPTION
	LOW VOLTAGE CONTROL WIRING
	THERMOSTAT – LINE VOLTAGE
	TEMPERATURE SENSOR – DDC
	SPEED CONTROLLER
	PRESSURE SENSOR – DDC
	KITCHEN FAN CONTROLLER – TEMPERATURE & HUMIDISTAT
	24V CONTROL RELAY
	CARBON DIOXIDE SENSOR – DDC
	TEMPERATURE SENSOR & WELL
	SOLENOID VALVE (DCW FLUSH)

PLUMBING LEGEND	
SYMBOL	DESCRIPTION
— — — —	PIPING BELOW GRADE/SLAB
—— DCW ——	DOMESTIC COLD WATER PIPING
—— DHW ——	DOMESTIC HOT WATER PIPING
—— DHWR ——	DOMESTIC HOT WATER RECIRCULATION PIPING
—— SAN ——	SANITARY PIPING
—— ST ——	STORM PIPING
—— V ——	VENT PIPING
⌚ FD	FLOOR DRAIN (TYPE)
⊙ RD	ROOF DRAIN (TYPE)
—○—	BRANCH PIPING DOWN
—○	PIPING DOWN
—○	PIPING UP
—┐—	REDUCER
—▶—	FLOW DIRECTION
⋈	PIPE BREAK
⌈	CAP
—┐—	RUNNING P-TRAP
┐	P-TRAP
⊙	DRAIN ASSEMBLY
——HCO	CLEAN OUT
——BCO	WALL CLEAN OUT
——EBCO	FLOOR CLEAN OUT
⌘	ISOLATION VALVES
⌘ PRV	PRESSURE REDUCING VALVE (PRV)
⌘ CBV	CIRCUIT BALANCING VALVE (CBV)
⌘	SOLENOID VALVE
⌘	STRAINER
⌘	CHECK VALVE
⌘	FLEXIBLE CONNECTION
⌘	UNION
⌘	RELIEF VALVE
⌘	DRAIN VALVE C/W CAP & CHAIN
BFP	BACK FLOW PREVENTER (BFP)
⌘	NON-FREEZE HOSE BIBB
⌘ HB	HOSE BIBB
⌘ TSP	ELECTRONIC TRAP SEAL PRIMER W/ BFP AND TIMED SOLENOID
⌘ EW	EMERGENCY EYEWASH STATION (TYPE)
⌘	SEISMIC EXPANSION JOINT
⌘	CONDENSATE PUMP (CP)
⌘	FLOW METER (TYPE)
⌘	REMOTE READ-OUT
⌘	EXPANSION TANK (ET)

HVAC LEGEND	
SYMBOL	DESCRIPTION
	RECTANGULAR DUCTWORK
	ROUND AND OR FABRIC DUCTWORK
	ACOUSTICALLY LINED DUCTWORK (RETURN OR SUPPLY)
	THERMALLY INSULATED DUCTWORK (RETURN OR SUPPLY)
	SILENCER (SIL)
	ROUND DUCTWORK OFFSET
	RECTANGULAR DUCTWORK OFFSET
	DUCTWORK UP
	DUCTWORK DOWN
	RECTANGULAR TO ROUND TRANSITION
	ECCENTRIC RECTANGULAR TO ROUND TRANSITION
	ECCENTRIC TRANSITION
	ROUND TAKE-OFF C/W BALANCING DAMPER
	ROUND TAKE-OFF
	TAKE-OFF C/W BALANCING DAMPER
	TAKE-OFF
	SQUARE SUPPLY DIFFUSER (TYPE)
	LINEAR SUPPLY/RETURN DIFFUSER (TYPE)
	RETURN GRILLE (RG)
	EXHAUST GRILLE (EG)
	TRANSFER GRILLE (TG)
	WALL GRILLE (TYPE)
	LOUVRE (L)
	TRANSFER OPENING (TO)
	ACOUSTICALLY LINED TRANSFER DUCT (TD)
	FIRE DAMPER (FD)
	SMOKE DAMPER (SD)
	COMBINATION FIRE/SMOKE DAMPER
	BALANCING DAMPER (BD)
	BACK DRAFT DAMPER (BDD)
	FLEXIBLE CONNECTION
	TURNING VANES
	MOTORIZED DAMPER
	FABRIC DUCT DIFFUSER (GYM)
	INLINE CABINET FAN (TYPE)
	CABINET FAN C/W UNIT MOUNTED GRILLE (TYPE)
	PROPELLER FAN (PF)
	DUCTED REHEAT COIL C/W BAGNET CONTROLLER (RH)
	DIFFUSER TAG
	DIFFUSER TYPE
	AIRFLOW (L/S)
	DUCT/DUCT CONNECTION SIZE (mm)
	GRILLE TAG
	GRILLE TYPE
	AIRFLOW (L/S)
	DIMENSIONS (mm)

[illegible]

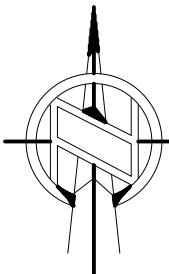
1	ISSUED FOR 75% REVIEW	2025-03-12
REV	REVISION DESCRIPTION	DATE

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SEAL

PROJECT NORTH



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PROJECT

**OCSB FERNBANK NORTH
ELEMENTARY SCHOOL**

620 Triangle Street, Ottawa, ON

DRAWING

MECHANICAL DRAWING LIST AND LEGENDS

PROJECT NO. 2024-682	DRAWING NO. M001
SCALE - AS INDICATED	
DRAWN - G.M.	
CHECKED - R.L.	
PLOT DATE - 03/12/25	
PLOTTED BY -	

PLOT SCALE - 1:1

SHEET SIZE: A1

#xxxxxx

PACKAGED HEAT PUMP ROOFTOP UNIT SCHEDULE WITH HEAT RECOVERY (CONTINUED)																			
CONTINUED ABOVE	TAG	DISCHARGE/RETURN	SOUND POWER LEVEL							RETURN AIR FILTER		SUPPLY AIR FILTER		ELECTRICAL DATA		BASIS OF DESIGN	REMARKS		
			OCTAVE BAND	63	125	250	500	1000	2000	4000	8000	FILTER	TYPE	FILTER	TYPE			FLA/MCA/MOC	V/PH/Hz
	RTU1		92/88	90/86	97/88	87/77	80/75	77/72	74/68	69/63	2" MERV 8	PRE-FILTER	4" MERV 14	PRE-FILTER	27/29/35	575/3/60	AAON RN-011-3-0-GBAC-V0-21-000-A	* EACH C/W INTEGRAL ECM MOTOR CONTROL AND NON-FUSED DISCONNECT, SINGLE POINT ELECTRICAL CONNECTION AND INTERNAL UNIT MOUNTED 120V, 15A GFI RECEPTACLE WIRED BY DIV. 26. * 600 mm HIGH ROOF CURB PER SPECIFICATION * SEE CONDENSER SUPPORT DETAIL * RTU-6 (ONLY) C/W BAS CO2 SENSOR INSTALLED WITHIN RETURN DUCT ACCESSIBLE FROM BELOW.	
	RTU2		86/83	84/81	88/79	84/73	75/71	73/68	70/64	64/60	2" MERV 8	PRE-FILTER	4" MERV 14	PRE-FILTER	39/45/60	208/3/60	AAON RN-006-3-0-GBAC-V0-21-000-A		
	RTU3		94/90	92/88	98/89	91/81	83/78	80/75	77/72	72/67	2" MERV 8	PRE-FILTER	4" MERV 14	PRE-FILTER	28/30/35	575/3/60	AAON RN-011-3-0-GBAC-V0-21-000-A		
	RTU4		92/88	90/86	97/88	87/77	80/75	77/72	74/68	69/63	2" MERV 8	PRE-FILTER	4" MERV 14	PRE-FILTER	27/29/35	575/3/60	AAON RN-011-3-0-GBAC-V0-21-000-A		
	RTU5		92/88	90/86	97/88	87/77	80/75	77/72	74/68	69/63	2" MERV 8	PRE-FILTER	4" MERV 14	PRE-FILTER	27/29/35	575/3/60	AAON RN-011-3-0-GBAC-V0-21-000-A		
RTU6	95/91	93/88	98/89	91/81	83/78	80/75	77/72	72/67	2" MERV 8	PRE-FILTER	4" MERV 14	PRE-FILTER	28/30/35	575/3/60	AAON RN-011-3-0-GBAC-V0-21-000-A				
NOTES:			1. FOR DETAILS REFER TO SPECIFICATIONS. 2. MANUFACTURER NAME & MODEL NUMBER REPRESENTS ACCEPTABLE QUALITY STANDARD ONLY. ALTERNATIVE MATERIALS MAY BE APPROVED AFTER REVIEW OF TECHNICAL INFORMATION BY ENGINEER AND APPROVED VIA ADDENDUM.																

DEDICATED OUTDOOR AIR SYSTEM																												
TAG	LOCATION	AREA SERVED	SUPPLY FAN DATA (VSD)				EXHAUST/RETURN FAN DATA (VSD)				ENERGY RECOVERY DATA						ELECTRICAL DATA		SOUND POWER LEVEL (dB)							BASIS OF DESIGN	REMARKS	
			FAN TYPE	AIR FLOW (CFM)	EXTERNAL PRESSURE (NWC)	MOTOR SIZE (HP)	FAN TYPE	AIR FLOW (CFM)	EXTERNAL PRESSURE (NWC)	MOTOR SIZE (HP)	AIR FLOW (CFM)	SUMMER			WINTER			FLA/MCA/MOC	V/PH/Hz	OCTAVE BAND	63	125	250	500	1000			2000
												RECOVERED ENERGY (BTU/H)	L.A.T. (DB/WB)(°F)	EFFICIENCY (DB)	RECOVERED ENERGY (DB/WB)(BTU/H)	L.A.T. (DB/WB)(°F)	EFFICIENCY (%/LATENT %)											
DOAS1	ROOF	W/R EXHAUST	DWDI	2500	0.5	1.5	DWDI	2500	1	1.5	1800	-31,120	78.5/68.6	76.8	207,124 / 41,557	60.71/46.3	87.2/70.0	11.1/13/20	208/3/60	SUPPLY/EXHAUST	92/96	83/88	69/74	65/69	65/69	64/68	TEMPEFF-RG 2000	C/W INTEGRAL VFD'S, DOUBLE WALL CONSTRUCTION, MOTORIZED BACKDRAFT DAMPER (X2), 600mm HIGH ROOF CURB, INTAKE/EXHAUST HOODS
NOTES: 1. FOR DETAILS REFER TO SPECIFICATIONS. 2. MANUFACTURER NAME & MODEL NUMBER REPRESENTS ACCEPTABLE QUALITY STANDARD ONLY. ALTERNATIVE MATERIALS MAY BE APPROVED AFTER REVIEW OF TECHNICAL INFORMATION BY ENGINEER.																												

UNIT NO.	LOCATION	FUNCTION	TYPE	AIR FLOW (CFM)	VRF COOLING			VRF HEATING		DIMENSIONS (W x H x D, in)	WEIGHT (LBS)	ELECTRICAL DATA			BASIS OF DESIGN	REMARKS
					TOTAL COOLING (BTU/H)	SENSIBLE COOLING (BTU/H)	AMBIENT TEMP (°F)	TOTAL HEATING (BTU/H)	AMBIENT TEMP (°F)			MCA	MOP	V/PH/Hz		
FC-100	VESTIBULE V100	FAN COIL	DUCTED CONCEALED CEILING	812	25914	20150	74.7/62.5	35781	66.6	39.4 x 9.6 x 31.5	82	1.8	15A	208/1/60	DAKIN FXSQ30TAVJU	* C/W AIR FILTER AND CABINET KIT, SEE DETAILS * SPACE TEMPERATURE SENSORS SHALL BE STANDARD * BAS SENSOR MATCHING TEMPERATURE SENSORS THROUGHOUT THE BUILDING, BAS SHALL COMMUNICATE ROOM CONDITION TO BACNET GATEWAY AND BACNET GATEWAY SHALL CONTROL EACH VRF FANCOIL.
FC-101	RECEPTION 101	FAN COIL	DUCTED CONCEALED CEILING	812	25914	19900	74.7/62.5	35508	67.2	39.4 x 9.6 x 31.5	82	1.8	15A	208/1/60	DAKIN FXSQ30TAVJU	
FC-103	OFFICE 104	FAN COIL	DUCTED CONCEALED CEILING	600	20608	15033	74.7/62.5	28184	67.4	39.4 x 9.6 x 31.5	82	1.8	15A	208/1/60	DAKIN FXSQ24TAVJU	
FC-104	STAFF LOUNGE 104	FAN COIL	DUCTED CONCEALED CEILING	812	25914	19955	74.7/62.5	35554	67.1	39.4 x 9.6 x 31.5	82	1.8	15A	208/1/60	DAKIN FXSQ30TAVJU	
FC-108	MEETING ROOM 108	FAN COIL	DUCTED CONCEALED CEILING	530	15422	12103	74.7/62.5	21325	66.5	39.4 x 9.6 x 31.5	77	1.6	15A	208/1/60	DAKIN FXSQ18TAVJU	
FC-111	OSR 111	FAN COIL	DUCTED CONCEALED CEILING	530	15422	11899	74.7/62.5	21052	67.3	39.4 x 9.6 x 31.5	77	1.6	15A	208/1/60	DAKIN FXSQ18TAVJU	
FC-136A	RESOR 136A	FAN COIL	DUCTED CONCEALED CEILING	281	8291	6054	74.7/62.5	11010	67.2	21.7 x 9.6 x 31.5	55	0.8	15A	208/1/60	DAKIN FXSQ09TAVJU	
FC-136B	WORK ROOM 136B	FAN COIL	DUCTED CONCEALED CEILING	281	8291	6054	74.7/62.5	10998	67.3	21.7 x 9.6 x 31.5	55	0.8	15A	208/1/60	DAKIN FXSQ09TAVJU	
FC-136	LEARNING COMMONS 136	FAN COIL	DUCTED CONCEALED CEILING	1307	41456	30451	74.7/62.5	57072	66.6	55.1 x 9.6 x 31.5	104	2.8	15A	208/1/60	DAKIN FXSQ48TAVJU	
FC-105	CORRIDOR C105	FAN COIL	DUCTED CONCEALED CEILING	1307	41456	31987	74.7/62.5	58575	64.0	55.1 x 9.6 x 31.5	104	2.8	15A	208/1/60	DAKIN FXSQ48TAVJU	
FC-169	RESOURCE ROOM 169/KITCHEN 170	FAN COIL	DUCTED CONCEALED CEILING	281	8291	6094	74.7/62.5	11032	67.0	21.7 x 9.6 x 31.5	55	0.8	15A	208/1/60	DAKIN FXSQ09TAVJU	
NOTES: 1. FOR DETAILS REFER TO SPECIFICATIONS, INSTALL IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. 2. COMPLETE WITH ACCESS HATCH TO MANUFACTURERS REQUIREMENTS WHERE LOCATED IN DRYWALL CEILINGS, COORDINATE WITH EXACT LOCATIONS WITH INTERFERENCES BY OTHER DIVISIONS.																

AIR COOLED VRF CONDENSING UNIT SCHEDULE																
UNIT NO.	LOCATION	FUNCTION	COOLING		AMBIENT TEMP. (°F)	HEATING		BASIS OF DESIGN		CU – ELECTRICAL DATA		BRANCH SELECTORS				REMARKS
			CORRECTED CAPACITY (BTU/H)	COMBINATION RATIO (%)		CORRECTED CAPACITY (BTU/H)	V/PH/Hz			MCA/MOP	MODEL	QTY	V/PH/Hz	FLA/MCA/MOP		
CU1A	ROOF	VRF HEATING/ COOLING	187,093	154.2	95	47°F –22°F	273,211 274,931	DAIKIN REL0192TAYC A	REL096TAYC	575/3/60	28.5/35	BS-1 BS40S4TWJ BS-2 BSF40S4TWJ BS-3 BS40S4TWJ	1 1 1	208–230/1/60 208–230/1/60 208–230/1/60	–/0.4/15 –/0.4/15 –/0.4/15	*R410A REFRIGERANT AND BRANCH SEISMIC *SEE EXTERIOR CONDENSING UNIT SEISMIC SUPPORT DETAIL (ROOFED IN SLEEPER) *SNOW/WIND HOOD KITS *INTELLIGENT TOUCH MANAGER *BACNET/IP SERVER GATEWAY *BAS ROOM LEVEL TEMPERATURE SENSORS SUPPLIED BY DIV. 25
CU1B	ROOF		REL096TAYCA	575/3/60	28.5/35											
NOTES: 1. FOR DETAILS REFER TO SPECIFICATIONS, INSTALL IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.																

	DXXXXXX
#XXXXX	

PROPELLER FAN SCHEDULE									
TAG	LOCATION	FAN DATA			ELECTRICAL DATA			BASIS OF DESIGN	REMARKS
		FAN DIAMETER (IN)	AIR FLOW (CFM)	FAN SPEED (RPM)	FAN MOTOR (W)	V/PH/Hz	FLA		
PF1 TO PF4	GYMNASIUM	72	9,959	115	26.6	120/1/60	0.64	BIG ASS FANS ES6	* WHITE FINISH C/W CUSTOM LENGTH DOWNRODS SUCH THAT TOP OF FAN BLADES ARE MINIMUM 6 INCHES BENEATH U/S OF OPEN WEB STEEL JOISTS. FANS SHALL NOT HAVE ANY LIGHTING OR UV ACCESSORIES. * PROVIDE BIG ASS FANS BARFON 0-10 V TOUCH SCREEN CONTROL LOCATED WITHIN STORAGE ROOM 159B. PROVIDE FOUR (4) 0-10 V FAN CONTROL MODULES, ONE (1) AT EACH NEW FAN, AND LOW VOLTAGE CONTROL WIRING FROM COMMON FAN CONTROLLER OUT TO CONTROL ALL FOUR (4) FANS AS PER MANUFACTURER INSTALLATION REQUIREMENTS.

NOTES: 1. FOR DETAILS REFER TO SPECIFICATIONS.

2. DISCONNECT SWITCH BY DIV. 26.

3. SPEED CONTROLLER SHALL BE SUPPLIED BY MECHANICAL CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR.

RANGE HOOD SCHEDULE									
TAG	LOCATION	MOUNTING LOCATION (WALL / ISLAND / CABINET)	AIR FLOW (L/s)	STATIC PRESSURE (IN)	SIZE (WIDTH x DEPTH)	ELECTRICAL DATA		BASIS OF DESIGN	REMARKS
						MOTOR SIZE (HP)	V/PH/Hz		
RH1	SERVERY 170	UNDER CABINET	175	0.25	30in X 19.625in	0.18	120/1/60	BROAN BCS330SSC	C/W INTEGRATED BACKDRAFT DAMPER
NOTES: 1. FOR DETAILS REFER TO SPECIFICATIONS.									

0XXXXXXX

PLOT SCALE - 1:1

1
M302

HVAC ROOF

1 : 175

SHEET SIZE: A1

FILE PATH C:\Users\gmacmaster\Documents\2024-682-M_gmacmaster.rvt

GENERAL NOTES

- COORDINATE WITH ALL OTHER TRADES.
- CONTRACTOR TO PROVIDE INTERFERENCE DRAWINGS OF ALL MECHANICAL EQUIPMENT AND DUCTWORK IN CORRIDORS, WASHROOMS, AND SERVICE ROOMS.
- COORDINATE INTERFERENCE DRAWINGS WITH ALL OTHER TRADES.
- PROVIDE FIRE SMOKE DAMPERS WHERE DUCTS PENETRATE FIRE SEPARATIONS. INSTALL IN ACCORDANCE WITH UL/C LISTING. COORDINATE WITH ARCHITECTURAL AND STRUCTURAL ASSEMBLY.
- ALL SUPPLY AIR DUCTWORK SHALL BE THERMALLY INSULATED INCLUDING AT SILENCERS WITH VAPOUR BARRIER.
- ALL RECTANGULAR BALANCING DAMPERS SHALL BE MULTI-OPPOSED BLADE MANUAL DAMPER, 4-WAY SELF ADJUSTING FRAME, LINKAGES, 40 MM STANDOFF AND LOCKING QUADRANT HANDLE AS PER SPECIFICATIONS.
- COORDINATE DUCT ROUTING WITH STRUCTURAL STEEL AND OTHER SYSTEMS AND TRADES.
- ALL TRANSITIONS FROM ROOFTOP UNITS SHALL BE MADE WITHIN THE CURB. TRANSITION SHEET METAL GAUGE SHALL BE SAME AS SILENCER GAUGE METAL MINIMUM SHALL BE 16 GAUGE. TRANSITIONS SHALL BE COORDINATED WITH STRUCTURAL STEEL, SO THAT SILENCERS FIT BETWEEN
- BEAMS AND/OR JOIST. TRANSITIONS SHALL HAVE ACOUSTIC LINING.
- SILENCER SHALL BE AS TIGHT AS POSSIBLE TO UNDERSIDE OF STEEL ROOF DECK. (REFERENCE DETAIL), ALL DUCTWORK BETWEEN RTU & SILENCER SHALL BE MIN 16 GAUGE.
- OFFSETS BRANCH DUCTWORK TO SUIT INTERFERENCES.
- REFERENCE ELECTRICAL DRAWINGS FOR POWER CIRCUIT LOCATIONS FOR BUILDING AUTOMATION SYSTEM, DAMPERS AND TERMINALS.
- ALL THERMOSTATS AND/OR SENSORS TO HAVE ROUGHED CONDUIT IN BLOCK WALL; ENSURE LOCATIONS ARE COORDINATED WITH GENERAL TRADES AND ARCHITECTURAL DRAWINGS.
- PROVIDE CEILING ACCESS DOORS WHERE EQUIPMENT ACCESS IS REQUIRED ABOVE DRYWALL OR HARD FINISH CEILING.
- ALL DUCT HEATERS SHALL BE FLANGED TYPE.
- VRF FAN COILS TO BE INSTALLED AS PER DETAIL & TO MANUFACTURER'S INSTALLATION INSTRUCTIONS. ENSURE FILTER & CONTROL SECTION ACCESS IS MAINTAINED FOR SERVICE.
- DDC CONTROLLER FOR RTUS SHALL BE LOCATED IN CORRIDOR ABOVE ACCESSIBLE SUSPENDED
- SUPPLY AIR DUCT SPLITTING FITTINGS SHALL BE DIVIDED TYPE WITH RADIUS ELBOW WHERE SPACE ALLOWS; ALTERNATIVELY SQUARE ELBOW WITH TURNING VANES. DETERMINE DUCT RATIO BASED ON AIRFLOW VALUES.
- COORDINATE ALL DUCT LOCATIONS WITH OTHER TRADES TO PRESERVE CEILING SPACE AND AVOID UNNECESSARY OFFSETS.
- COORDINATE ALL FLOOR AND WALL PENETRATIONS WITH GENERAL TRADES.
- COORDINATE ALL EQUIPMENT AND DUCT SUPPORTS WITH OTHER TRADES TO MINIMIZE ATTACHMENTS TO STRUCTURE. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR DETAILS.
- THERMALLY INSULATE ALL SUPPLY AIR SILENCERS.



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PROJECT

OCSB FERNBANK NORTH ELEMENTARY SCHOOL

620 Triangle Street, Ottawa, ON

DRAWING

HVAC ROOF

PROJECT NO. 2024-682

SCALE - 1 : 175

DRAWN - GM

CHECKED - RL

PLOT DATE - 03/12/25

DRAWING NO.

M302

PLOTTED BY -

3/12/2025 9:48:25 AM

APPENDIX B

Traffic Data

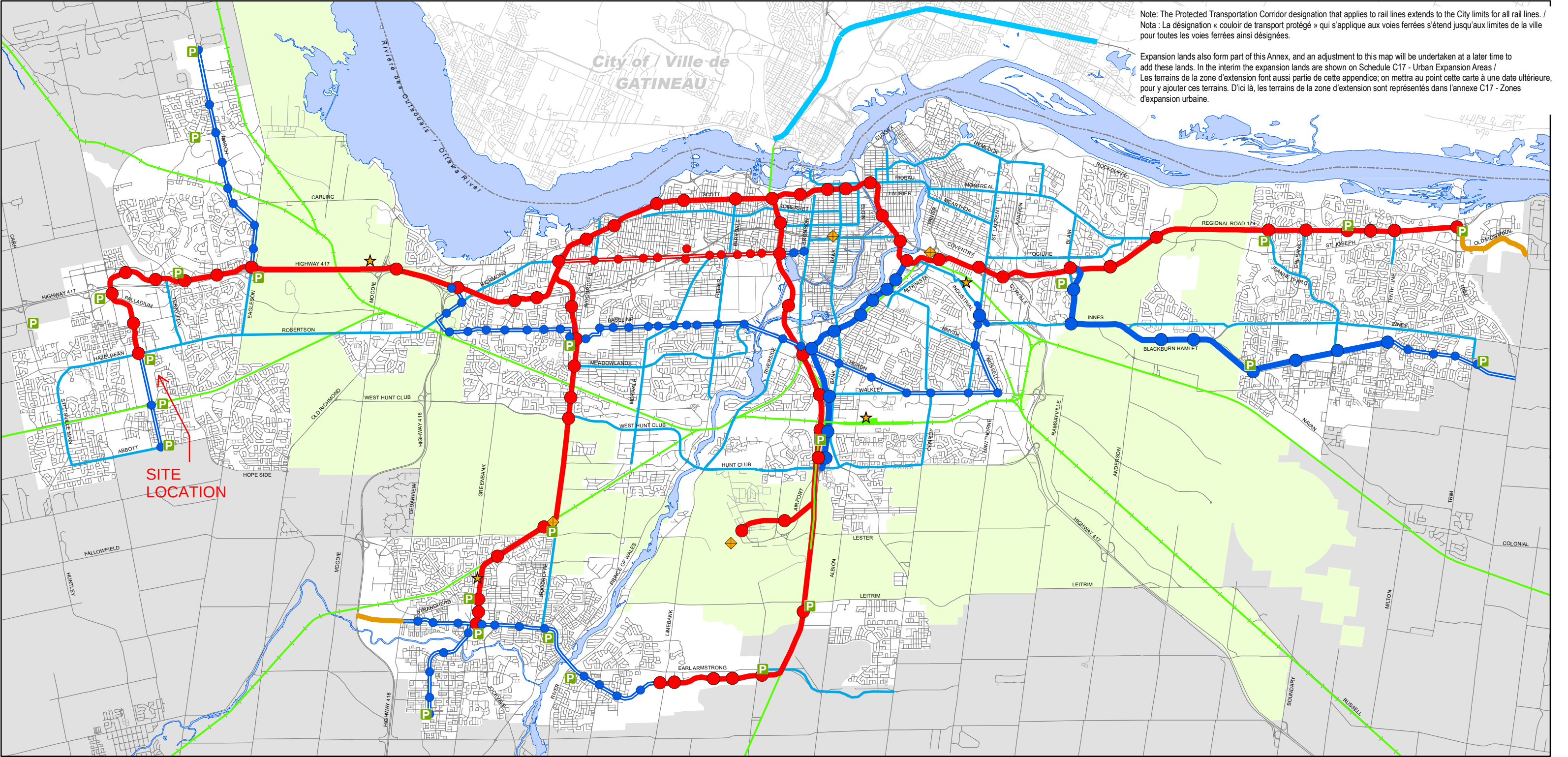
Appendix B: Table of Traffic and Road Parameters To Be Used For Sound Level Predictions

Table B1 Traffic And Road Parameters To Be Used For Sound Level Predictions

Row Width (m)	Implied Roadway Class	AADT Vehicles/Day	Posted Speed Km/Hr	Day/Night Split %	Medium Trucks %	Heavy Trucks % ¹
NA ²	Freeway, Queensway, Highway	18,333 per lane	100	92/8	7	5
37.5-44.5	6-Lane Urban Arterial-Divided (6 UAD)	50,000	50-80	92/8	7	5
34-37.5	4-Lane Urban Arterial-Divided (4-UAD)	35,000	50-80	92/8	7	5
23-34	4-Lane Urban Arterial-Undivided (4-UAU)	30,000	50-80	92/8	7	5
23-34	4-Lane Major Collector (4-UMCU)	24,000	40-60	92/8	7	5
30-35.5	2-Lane Rural Arterial (2-RAU)	15,000	50-80	92/8	7	5
20-30	2-Lane Urban Arterial (2-UAU)	15,000	50-80	92/8	7	5
20-30	2-Lane Major Collector (2-UMCU)	12,000	40-60	92/8	7	5
30-35.5	2-Lane Outer Rural Arterial (near the extremities of the City) (2-RAU)	10,000	50-80	92/8	7	5
20-30	2-Lane Urban Collector (2-UCU)	8,000	40-50	92/8	7	5

¹ The MOE Vehicle Classification definitions should be used to estimate automobiles, medium trucks and heavy trucks.

² The number of lanes is determined by the future mature state of the roadway.



Note: The Protected Transportation Corridor designation that applies to rail lines extends to the City limits for all rail lines. /
Nota : La désignation « couloir de transport protégé » qui s'applique aux voies ferrées s'étend jusqu'aux limites de la ville pour toutes les voies ferrées ainsi désignées.

Expansion lands also form part of this Annex, and an adjustment to this map will be undertaken at a later time to add these lands. In the interim the expansion lands are shown on Schedule C17 - Urban Expansion Areas /
Les terrains de la zone d'extension font aussi partie de cette annexe; on mettra au point cette carte à une date ultérieure, pour y ajouter ces terrains. D'ici là, les terrains de la zone d'extension sont représentés dans l'annexe C17 - Zones d'expansion urbaine.

**RAPID TRANSIT
TRANSIT LEVEL OF SERVICE 'A'**

O-Train - Grade Separated Crossings
Transitway - Grade Separated Crossings

TRANSIT LEVEL OF SERVICE 'B'

O-Train - At-Grade Crossings
Transitway - At-Grade Crossings

TRANSIT PRIORITY

Transit Priority Corridor

**TRANSPORT EN COMMUN RAPIDE
NIVEAU DE SERVICE A**

O-Train - passages étagés
Transitway - passages étagés

NIVEAU DE SERVICE B

O-Train - passages à niveau
Transitway - passages à niveau

PRIORITÉ AU TRANSPORT EN COMMUN

Corridor donnant priorité au transport en commun

Park and Ride
O-Train Station
Transitway Station
Conceptual Future Transit Corridor
Protected Transportation Corridor
Inter-regional Stations
Rail Yard
Rail Corridor
Gatineau RapiBus - grade-separated

Parc-O-Bus
Station de l'O-Train
Station de la Transitway
Avenir conceptuel - Couloir de transport en commun
Couloir de transport protégé
Stations interrégionales
Cour de tirage pour trains
Couloir ferroviaire
RapiBus de Gatineau en site propre

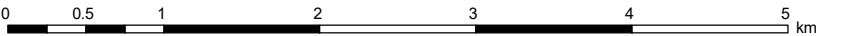


Official Plan / Plan officiel
Schedule C2 - Transit Network
ULTIMATE

**Annexe C2 Réseau de Transport
ABSOLU**

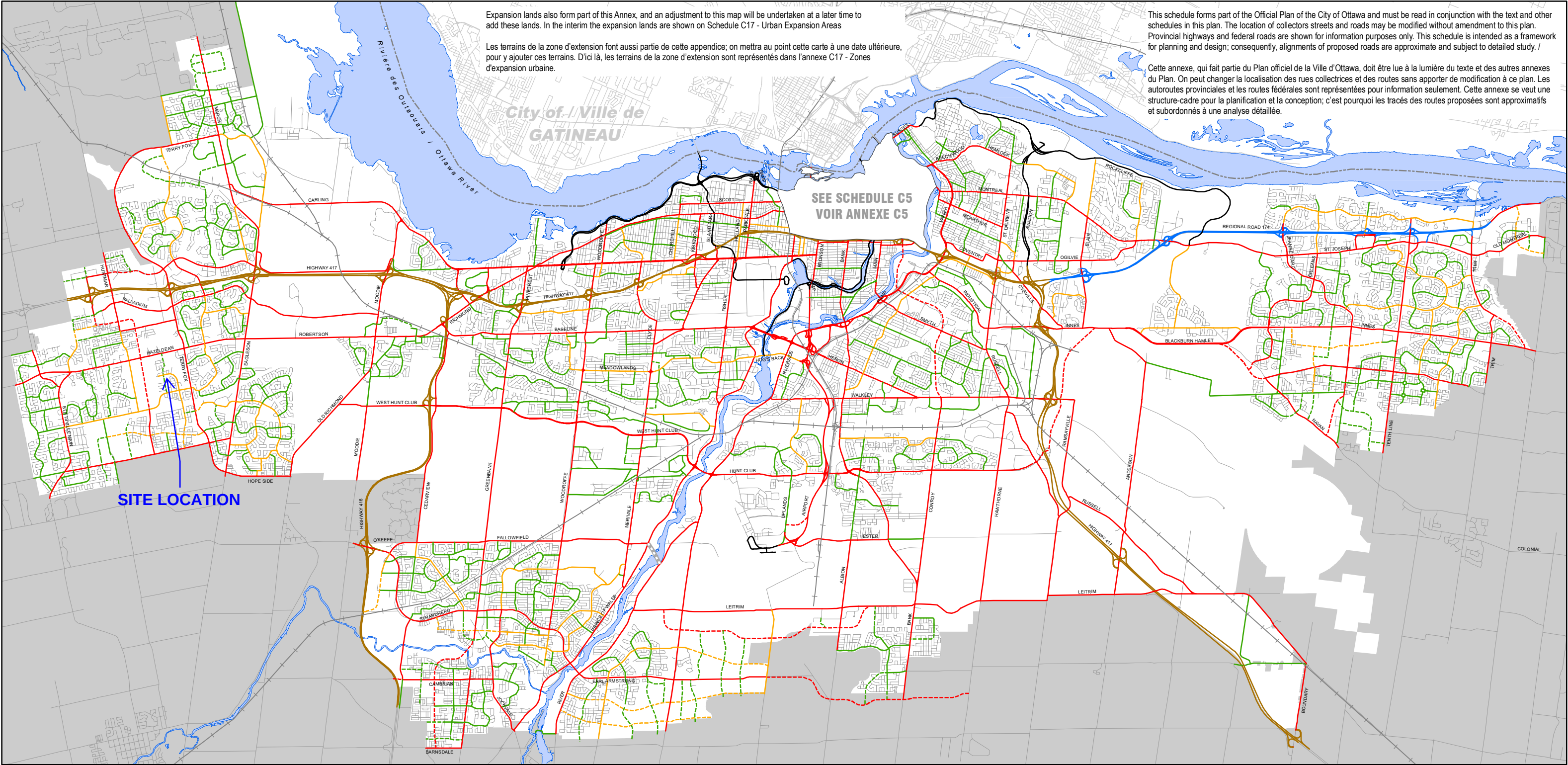
Approved on November 4, 2022
Approuvé le 4 novembre 2022

Consolidation and Amendments / Consolidation et amendements



*Note: The intensity of transit priority (e.g., continuous bus lanes or isolated transit priority measures) shall be as designated in the Transportation Master Plan.

*Nota : D'autres renseignements sur la priorité accordée au transport en commun (p. ex. voies d'autobus continues ou mesures prioritaires de transport en commun isolées) seront publiés dans le Plan directeur des transports.



Expansion lands also form part of this Annex, and an adjustment to this map will be undertaken at a later time to add these lands. In the interim the expansion lands are shown on Schedule C17 - Urban Expansion Areas

Les terrains de la zone d'extension font aussi partie de cette annexe; on mettra au point cette carte à une date ultérieure, pour y ajouter ces terrains. D'ici là, les terrains de la zone d'extension sont représentés dans l'annexe C17 - Zones d'expansion urbaine.

This schedule forms part of the Official Plan of the City of Ottawa and must be read in conjunction with the text and other schedules in this plan. The location of collectors streets and roads may be modified without amendment to this plan. Provincial highways and federal roads are shown for information purposes only. This schedule is intended as a framework for planning and design; consequently, alignments of proposed roads are approximate and subject to detailed study. /

Cette annexe, qui fait partie du Plan officiel de la Ville d'Ottawa, doit être lue à la lumière du texte et des autres annexes du Plan. On peut changer la localisation des rues collectrices et des routes sans apporter de modification à ce plan. Les autoroutes provinciales et les routes fédérales sont représentées pour information seulement. Cette annexe se veut une structure-cadre pour la planification et la conception; c'est pourquoi les tracés des routes proposées sont approximatifs et subordonnés à une analyse détaillée.

- Arterial - Existing — Artère - Établie
- Arterial - Future (alignment defined) - - - - - Artère - Future (alignement déterminée)
- Major Collector - Existing — Grande collectrice - Établie
- Major Collector - Future - - - - - Grande collectrice - Future
- Collector - Existing — Collectrice - Établie
- Collector - Future - - - - - Collectrice - Future
- River Crossing (corridor undefined) - - - - - Traversée de rivière (couloir non défini)

- Provincial Highway — Route provinciale
- Federally Owned Road — Chemins de propriété fédéral
- City Freeway — Autoroute municipale



Official Plan / Plan officiel

Schedule C4 - Urban Road Network
Annexe C4 Réseau routier urbain

Approved on November 4, 2022
Approuvé le 4 novembre 2022

Consolidation and Amendments / Consolidation et amendements



APPENDIX C

STAMSON Validation Files

Filename: FERN.te Time Period: Day/Night 16/8 hours
Description: Fernbank School North Facade (Daytime)

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

Car traffic volume : 9715/845 veh/TimePeriod *
Medium truck volume : 773/67 veh/TimePeriod *
Heavy truck volume : 552/48 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12000
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: FERN (day/night)

Angle1 Angle2 : -20.00 deg 50.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 110.00 / 110.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF

Results segment # 1: FERN (day)

Source height = 1.50 m

ROAD (0.00 + 52.96 + 0.00) = 52.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	50	0.00	65.72	0.00	-8.65	-4.10	0.00	0.00	0.00	52.96

Segment Leq : 52.96 dBA

Total Leq All Segments: 52.96 dBA

FF

Results segment # 1: FERN (night)

Source height = 1.50 m

ROAD (0.00 + 45.36 + 0.00) = 45.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
-20	50	0.00	58.12	0.00	-8.65	-4.10	0.00	0.00	0.00	45.36
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Segment Leq : 45.36 dBA

Total Leq All Segments: 45.36 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 52.96

(NIGHT): 45.36

FF

FF

APPENDIX D

Supporting Information

Rooftop RTU Unit Information

Make:	AAON
ID & Model #:	RTU1, RTU3, RTU4, RTU5 and RTU6: RN-011-4-H60E-3GB RTU2: RN-006-8-0-E60E03KB
Volume Flow Rate (cfm)	4200, 2500, 4900, 4200, 4200, 5100
Use:	Kindergarten, Daycare, Classrooms South, Classrooms West, Classrooms North, Gynmasium
Data Used:	Manufacturer Specifications provided by Aaon
Location:	Located on the roof the school.
Notes:	Drawings & Model ID: RTU1 to RTU6

RTU Sound Power Levels ¹

	Sound Power (dBA)								Total (dBA)
	63	125	250	500	1K	2K	4K	8K	
RTU-1, Rooftop Condenser Fan (RN-011, 2 fans)	92	87	83	82	78	74	71	70	84
RTU-1, Rooftop Exhaust Fan (1 fan)	87	86	87	84	78	76	73	68	85
RTU-2, Rooftop Condenser Fan (RN-006, 1 fan)	89	84	80	79	75	71	68	67	80
RTU-2, Rooftop Exhaust Fan (1 fan)	82	83	83	81	76	73	70	66	82
RTU-3, Rooftop Condenser Fan (RN-011, 2 fan)	92	87	83	82	78	74	71	70	84
RTU-3, Rooftop Exhaust Fan (1 fan)	88	87	89	86	80	78	75	70	87
RTU-4, Rooftop Condenser Fan (RN-011, 2 fan)	92	87	83	82	78	74	71	70	84
RTU-4, Rooftop Exhaust Fan (1 fan)	92	89	96	87	82	80	78	72	85
RTU-5, Rooftop Condenser Fan (RN-011, 2 fan)	89	84	80	79	75	71	68	67	80
RTU-5, Rooftop Exhaust Fan (1 fan)	87	86	87	84	78	76	73	68	85
RTU-6, Rooftop Condenser Fan (RN-011, 2 fan)	92	87	83	82	78	74	71	70	84
RTU-6, Rooftop Exhaust Fan (1 fan)	86	86	86	82	78	76	74	69	85

Notes:

¹ See attached Manufacturer Specs provided in Appendix D.

AAON Standard Condenser Fan Radiated Sound Levels

Updated 10/26/2018

			Sound Pressure Level in a Hemispherical Free Field									Dist (ft)
			5									
Fans Dia RPM			Sound Power Level									
			63	125	250	500	1000	2000	4000	8000	LwA	
RQ 2 & 3 Ton	Inlet	1 30 850	79	74	72	70	66	62	59	59	72	68
	Outlet		81	77	71	71	67	62	59	58	73	62
	Total		83	79	74	73	69	65	62	61	75	61
RQ 4-6 Ton & RN 6 & 7 Ton	Inlet	1 30 1085	85	79	77	75	71	68	65	64	77	73
	Outlet		86	83	76	76	72	68	65	63	78	66
	Total		89	84	80	79	75	71	68	67	80	69
RN 8 & 10 Ton	Inlet	1 30 1085	92	86	85	82	78	75	72	71	84	80
	Outlet		94	90	83	83	79	75	72	71	85	73
	Total		96	91	87	86	82	78	75	74	88	76
RN 09 & 11 Ton	Inlet	2 30 1085	88	82	80	78	74	71	68	67	80	76
	Outlet		89	86	79	79	75	71	68	66	81	69
	Total		92	87	83	82	78	74	71	70	83	72
RN 13-20 Ton	Inlet	2 30 1085	95	89	88	85	81	78	75	74	87	83
	Outlet		97	93	86	86	82	78	75	74	88	76
	Total		99	94	90	89	85	81	78	77	91	79
RN 25 & 30 Ton	Inlet	3 30 1085	97	91	89	87	83	80	77	76	89	85
	Outlet		98	95	88	88	84	80	77	75	90	78
	Total		101	96	92	91	86	83	80	79	92	81
RN 26,31 & 40 Ton	Inlet	4 30 1085	98	92	91	88	84	81	78	77	90	86
	Outlet		100	96	89	89	85	81	78	77	91	79
	Total		102	98	93	92	88	84	81	80	94	82
RN 50,60 & 70 Ton	Inlet	6 30 1085	100	94	92	90	86	83	80	79	92	88
	Outlet		101	98	91	91	87	83	80	78	93	81
	Total		104	99	95	94	89	86	83	82	95	84
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	80
	Outlet		92	86	87	87	86	85	85	78	92	80
	Total		95	89	90	90	89	88	88	81	95	83
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	83
	Outlet		95	89	90	90	89	88	88	81	95	83
	Total		98	92	93	93	92	91	91	84	98	86
RZ 145-180	Inlet	12 30 1170	97	91	92	92	91	90	90	83	97	85
	Outlet		97	91	92	92	91	90	90	83	97	85
	Total		100	94	95	95	94	93	93	86	100	88
RZ 200-240	Inlet	16 30 1170	98	92	93	93	92	91	91	84	98	86
	Outlet		98	92	93	93	92	91	91	84	98	86
	Total		101	95	96	96	95	94	94	87	101	89

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



18.5" STAR Plenum

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094
AAONEcat32 Ver. 4.335 (SN: 6114768-ZAY41M85)

JOB INFORMATION:

Job Name: OCSB New Riverside South
Job Tag: RTU1 Kindergarden
Rep Firm: 850
Date: 06/20/2023

WHEEL SPECIFICATION:

Max RPM: 2,200
Diameter x Qty: 18.5 in. x 1
CFM: 4200
Tip Speed: 7,449 FPM
Inertia: 3 WR²

OPERATING CONDITIONS:

Air Flow: 4,200 CFM
Static Pressure: 1.64 in. Wg.
Relief Dampers DP: 0.35 in. Wg.

TSP: 1.99 in. Wg.
Site Altitude: 0.00 Ft
TSP @Sea Level: 1.99 in. Wg.

MOTOR SELECTION:

Rated HP / Bypass: 3 / No
Frame Size: 182T
Nominal RPM: 1760
VAC/PH/HZ: 575/3/60
Efficiency: Premium / 0.895
Enclosure Type: ODP
Max Inertial Load: 29 WR²

FAN PERFORMANCE:

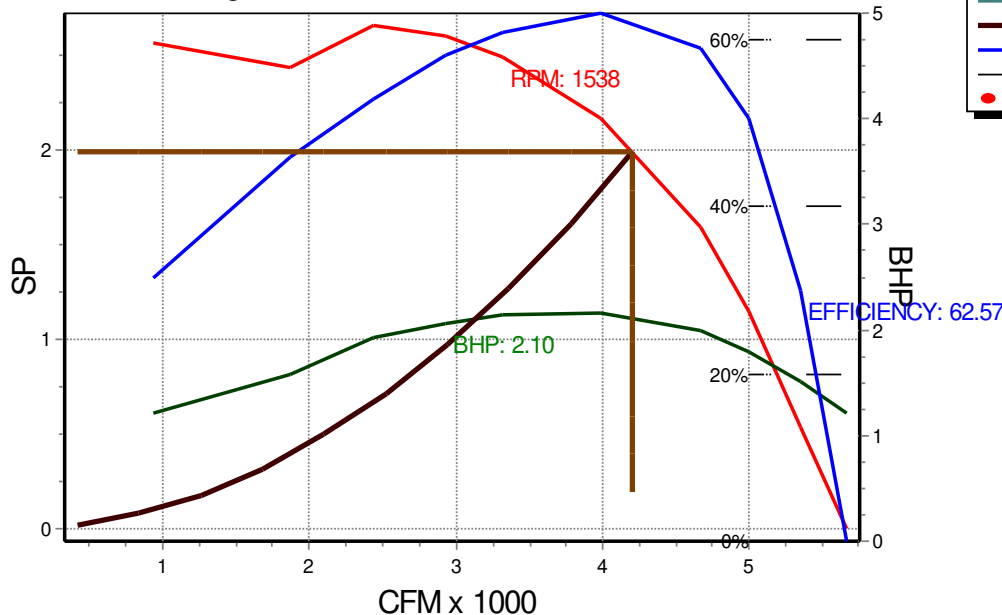
RPM: 1538
BHP: 2.10
Efficiency: 62.6%
In/Out Velocity: 2132/1654 FPM
Plenum Out Velocity: 70 FPM

FAN SOUND POWER (Inlet/Outlet):

Octave Band:		(Re 10 ⁻¹² watts)						
1	2	3	4	5	6	7	8	
87	86	87	84	78	76	73	68	
87	86	87	84	78	76	73	68	

SOUND POWER A-Weighted: 88 / 88 dB

Exhaust Fan Model: RM185 @ 1538 RPM and 100% Width
Design Conditions: 4200 CFM @ 1.99" SP





15.0" STAR Plenum

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094
AAONEcat32 Ver. 4.335 (SN: 6114768-ZAY41M85)

JOB INFORMATION:

Job Name: OCSB New Riverside South
Job Tag: RTU2 DAYCARE
Rep Firm: 850
Date: 06/20/2023

WHEEL SPECIFICATION:

Max RPM: 2,200
Diameter x Qty: 15.0 in. x 1
CFM: 2500
Tip Speed: 6,955 FPM
Inertia: 3 WR²

OPERATING CONDITIONS:

Air Flow: 2,500 CFM
Static Pressure: 1.30 in. Wg.
Relief Dampers DP: 0.31 in. Wg.

TSP: 1.61 in. Wg.
Site Altitude: 0.00 Ft
TSP @Sea Level: 1.61 in. Wg.

MOTOR SELECTION:

Rated HP / Bypass: 2 / No
Frame Size: 145T
Nominal RPM: 1760
VAC/PH/HZ: 208/3/60
Efficiency: Premium / 0.865
Enclosure Type: ODP
Max Inertial Load: 27 WR²

FAN PERFORMANCE:

RPM: 1771
BHP: 1.13
Efficiency: 56.3%
In/Out Velocity: 1269/984 FPM
Plenum Out Velocity: 42 FPM

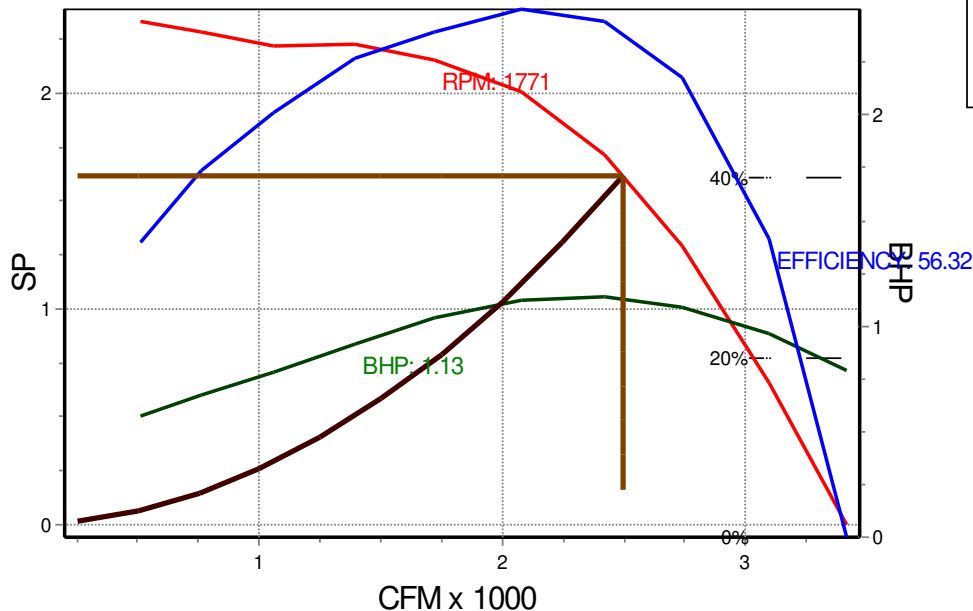
FAN SOUND POWER (Inlet/Outlet):

Octave Band: (Re 10⁻¹² watts)

1	2	3	4	5	6	7	8
82	83	83	81	76	73	70	66
82	83	83	81	76	73	70	66

SOUND POWER A-Weighted: 83 / 83 dB

Exhaust Fan Model: RM150 @ 1771 RPM and 100% Width
Design Conditions: 2500 CFM @ 1.61" SP





18.5" STAR Plenum

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094
AAONEcat32 Ver. 4.335 (SN: 6114768-ZAY41M85)

JOB INFORMATION:

Job Name: OCSB New Riverside South
Job Tag: RTU3 CLASSROOMS
Rep Firm: SOUTH
Date: 850
06/20/2023

WHEEL SPECIFICATION:

Max RPM: 2,200
Diameter x Qty: 18.5 in. x 1
CFM:
Tip Speed: 4900
Inertia: 8,151 FPM
3 WR²

OPERATING CONDITIONS:

Air Flow: 4,900 CFM
Static Pressure: 1.75 in. Wg.
Relief Dampers DP: 0.35 in. Wg.

TSP: 2.10 in. Wg.
Site Altitude: 0.00 Ft
TSP @Sea Level: 2.10 in. Wg.

MOTOR SELECTION:

Rated HP / Bypass: 3 / No
Frame Size: 182T
Nominal RPM: 1760
VAC/PH/HZ: 575/3/60
Efficiency: Premium / 0.895
Enclosure Type: ODP
Max Inertial Load: 29 WR²

FAN PERFORMANCE:

RPM: 1683
BHP: 2.66
Efficiency: 60.9%
In/Out Velocity: 2487/1929 FPM
Plenum Out Velocity: 82 FPM

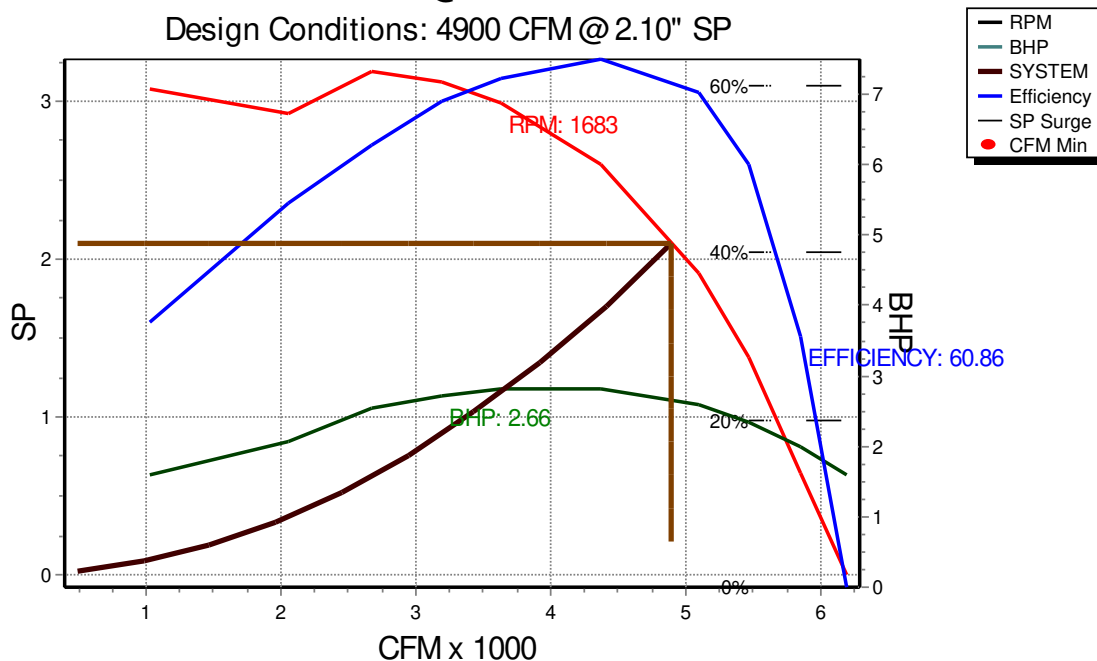
FAN SOUND POWER (Inlet/Outlet):

Octave Band: (Re 10⁻¹² watts)

1	2	3	4	5	6	7	8
88	87	89	86	80	78	75	70
88	87	89	86	80	78	75	70

SOUND POWER A-Weighted: 90 / 90 dB

Exhaust Fan Model: RM185 @ 1683 RPM and 100% Width
Design Conditions: 4900 CFM @ 2.10" SP





18.5" STAR Plenum

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094
AAONEcat32 Ver. 4.335 (SN: 6114768-ZAY41M85)

JOB INFORMATION:

Job Name: OCSB New Riverside South
Job Tag: RTU4 CLASSROOMS
Rep Firm: WEST
Date: 850
06/20/2023

WHEEL SPECIFICATION:

Max RPM: 2,200
Diameter x Qty: 18.5 in. x 1
CFM:
Tip Speed: 4200
Inertia: 7,449 FPM
3 WR²

OPERATING CONDITIONS:

Air Flow: 4,200 CFM
Static Pressure: 1.64 in. Wg.
Relief Dampers DP: 0.35 in. Wg.

TSP: 1.99 in. Wg.
Site Altitude: 0.00 Ft
TSP @Sea Level: 1.99 in. Wg.

MOTOR SELECTION:

Rated HP / Bypass: 3 / No
Frame Size: 182T
Nominal RPM: 1760
VAC/PH/HZ: 575/3/60
Efficiency: Premium / 0.895
Enclosure Type: ODP
Max Inertial Load: 29 WR²

FAN PERFORMANCE:

RPM: 1538
BHP: 2.10
Efficiency: 62.6%
In/Out Velocity: 2132/1654 FPM
Plenum Out Velocity: 70 FPM

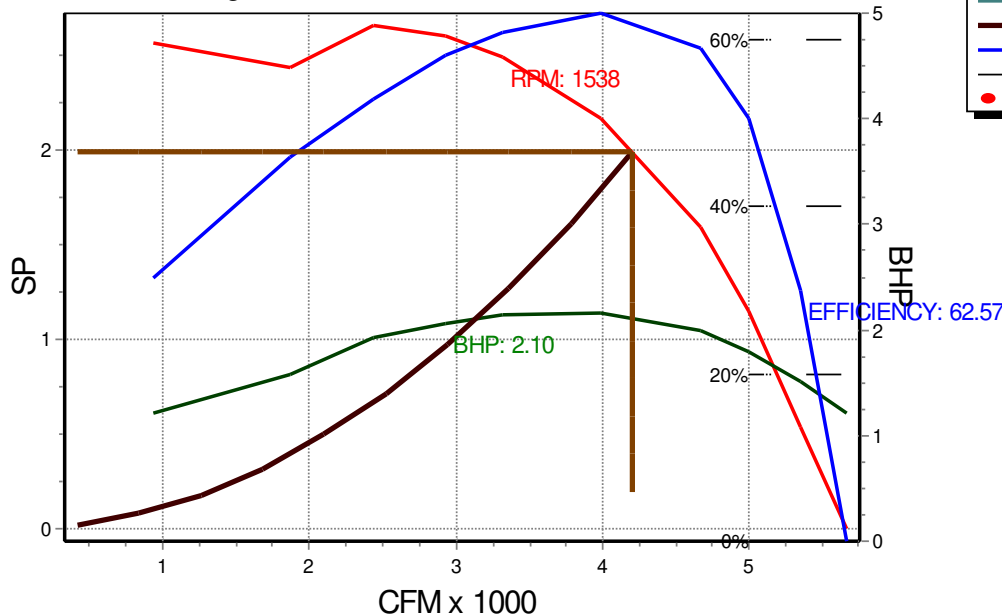
FAN SOUND POWER (Inlet/Outlet):

Octave Band: (Re 10⁻¹² watts)

1	2	3	4	5	6	7	8
87	86	87	84	78	76	73	68
87	86	87	84	78	76	73	68

SOUND POWER A-Weighted: 88 / 88 dB

Exhaust Fan Model: RM185 @ 1538 RPM and 100% Width
Design Conditions: 4200 CFM @ 1.99" SP





18.5" STAR Plenum

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094
AAONEcat32 Ver. 4.335 (SN: 6114768-ZAY41M85)

JOB INFORMATION:

Job Name: OCSB New Riverside South
Job Tag: RTU5 CLASSROOMS
Rep Firm: NORTH
Date: 850
06/20/2023

WHEEL SPECIFICATION:

Max RPM: 2,200
Diameter x Qty: 18.5 in. x 1
CFM:
Tip Speed: 4200
Inertia: 7,449 FPM
3 WR²

OPERATING CONDITIONS:

Air Flow: 4,200 CFM
Static Pressure: 1.64 in. Wg.
Relief Dampers DP: 0.35 in. Wg.

TSP: 1.99 in. Wg.
Site Altitude: 0.00 Ft
TSP @Sea Level: 1.99 in. Wg.

MOTOR SELECTION:

Rated HP / Bypass: 3 / No
Frame Size: 182T
Nominal RPM: 1760
VAC/PH/HZ: 575/3/60
Efficiency: Premium / 0.895
Enclosure Type: ODP
Max Inertial Load: 29 WR²

FAN PERFORMANCE:

RPM: 1538
BHP: 2.10
Efficiency: 62.6%
In/Out Velocity: 2132/1654 FPM
Plenum Out Velocity: 70 FPM

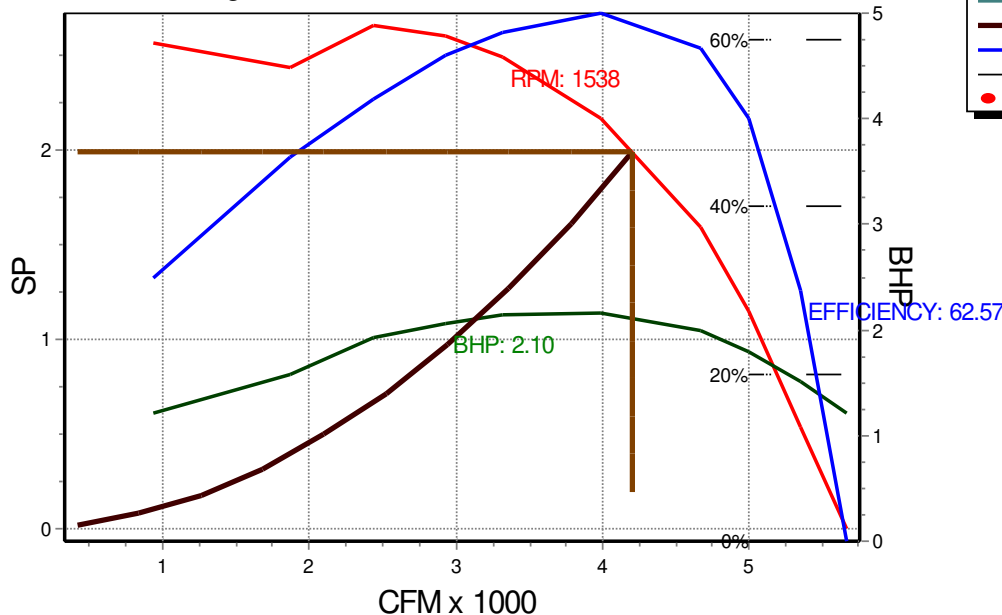
FAN SOUND POWER (Inlet/Outlet):

Octave Band: (Re 10⁻¹² watts)

1	2	3	4	5	6	7	8
87	86	87	84	78	76	73	68
87	86	87	84	78	76	73	68

SOUND POWER A-Weighted: 88 / 88 dB

Exhaust Fan Model: RM185 @ 1538 RPM and 100% Width
Design Conditions: 4200 CFM @ 1.99" SP





18.5" STAR Plenum

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094
AAONEcat32 Ver. 4.335 (SN: 6114768-ZAY41M85)

JOB INFORMATION:

Job Name: OCSB New Riverside South
Job Tag: RTU6 GYMNASIUM
Rep Firm: 850
Date: 06/20/2023
06/20/2023

WHEEL SPECIFICATION:

Max RPM: 2,200
Diameter x Qty: 18.5 in. x 1
CFM: 2756
Tip Speed: 7,628 FPM
Inertia: 7,628 FPM

OPERATING CONDITIONS:

Air Flow: 2,756 CFM
Static Pressure: 1.78 in. Wg.
Relief Dampers DP: 0.35 in. Wg.

TSP: 2.13 in. Wg.
Site Altitude: 0.00 Ft
TSP @Sea Level: 2.13 in. Wg.

MOTOR SELECTION:

Rated HP / Bypass: 2 / No
Frame Size: 145T
Nominal RPM: 1760
VAC/PH/HZ: 575/3/60
Efficiency: Premium / 0.865
Enclosure Type: ODP
Max Inertial Load: 27 WR²

FAN PERFORMANCE:

RPM: 1575
BHP: 1.60
Efficiency: 57.9%
In/Out Velocity: / FPM
Plenum Out Velocity: 46 FPM

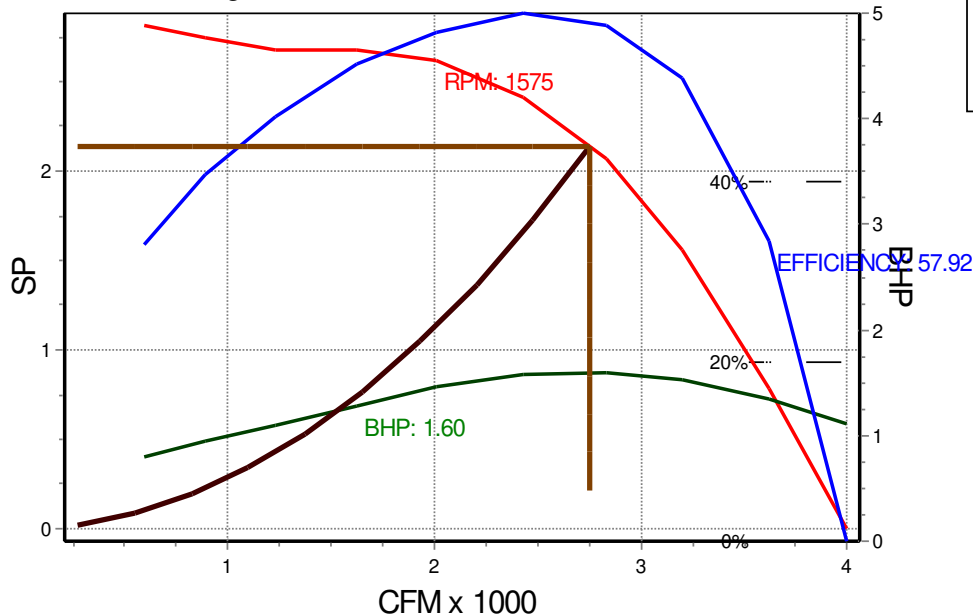
FAN SOUND POWER (Inlet/Outlet):

Octave Band: (Re 10⁻¹² watts)

1	2	3	4	5	6	7	8
86	86	86	82	78	76	74	69
86	86	86	82	78	76	74	69

SOUND POWER A-Weighted: 87 / 87 dB

Exhaust Fan Model: RM185B70 @ 1575 RPM and 100% Width
Design Conditions: 2756 CFM @ 2.13" SP





Air Cooled VRF Condensing Unit Information

Make:	Daikin
ID & Model:	RELQ192TAYCA
Cooling (tons):	10 Ton
Data Used:	Manufacturer Specifications provided by Daikin.
Location:	Located on the roof the school.
Notes:	Drawings & Model ID: CU1A and CU1B

Exhaust Fan Sound Power Levels ¹

	Sound Power (dBA)								Total
	63	125	250	500	1K	2K	4K	8K	(dBA)
CU1A/CU1B	76	72	70	72	65	58	52	47	79

Notes:

¹ See attached Manufacturer Specs provided in Appendix D.

Engineering Data

Design Manual

RELQ-TATJA, 208 / 230 V

RELQ-TAYDA, 460 V

RELQ-TAYCA, 575 V

Heat Recovery 60 Hz

R-410A



VRV
Aurora Series

9.3 RELQ-TAYCA

Outdoor unit model No.			RELQ72TAYCA	RELQ96TAYCA	RELQ120TAYCA
Power supply			3 phase, 575 V, 60 Hz	3 phase, 575 V, 60 Hz	3 phase, 575 V, 60 Hz
★1 Cooling capacity	Nominal	Btu/h (kW)	72,000 (21.1)	96,000 (28.1)	120,000 (35.2)
	Rated		69,000 (20.2)	92,000 (27.0)	114,000 (33.4)
★2 Heating capacity	Nominal	Btu/h (kW)	81,000 (23.7)	108,000 (31.7)	135,000 (39.6)
	Rated		77,000 (22.6)	103,000 (30.2)	129,000 (37.8)
Casing color			Ivory White (5Y7.5/1)	Ivory White (5Y7.5/1)	Ivory White (5Y7.5/1)
Dimensions: (H × W × D)		in. (mm)	66-11/16 × 48-7/8 × 30-3/16 (1,694 × 1,242 × 767)	66-11/16 × 48-7/8 × 30-3/16 (1,694 × 1,242 × 767)	66-11/16 × 48-7/8 × 30-3/16 (1,694 × 1,242 × 767)
Heat exchanger			Cross Fin Coil	Cross Fin Coil	Cross Fin Coil
Compressor	Type		Hermetically Sealed Scroll Type	Hermetically Sealed Scroll Type	Hermetically Sealed Scroll Type
	Volume	m³/h	12.7	17.5	23.1
	Number of revolutions	r/min	3,738	3,294	4,350
	Motor output × number of units	kW	3.9 × 1	5.0 × 1	6.6 × 1
	Starting method		Soft Start	Soft Start	Soft Start
Fan	Type		Propeller Fan	Propeller Fan	Propeller Fan
	Motor output	kW	0.7 × 2	0.7 × 2	0.7 × 2
	Airflow rate	cfm (m³/min)	7,283 (206)	7,989 (226)	8,806 (249)
	Drive		Direct Drive	Direct Drive	Direct Drive
Connecting pipes	Liquid pipe	in. (mm)	φ3/8 (9.5) C1220T (Brazing Connection)	φ3/8 (9.5) C1220T (Brazing Connection)	φ1/2 (12.7) C1220T (Brazing Connection)
	Suction gas pipe	in. (mm)	φ3/4 (19.1) C1220T (Brazing Connection)	φ7/8 (22.2) C1220T (Brazing Connection)	φ1-1/8 (28.6) C1220T (Brazing Connection)
	High / Low pressure gas pipe	in. (mm)	φ5/8 (15.9) C1220T (Brazing Connection)	φ3/4 (19.1) C1220T (Brazing Connection)	φ3/4 (19.1) C1220T (Brazing Connection)
Weight		lbs (kg)	727 (330)	793 (360)	793 (360)
Sound pressure level (Reference data)		dB (A)	60 (65 ★3)	61 (67 ★3)	63.5 (67 ★3)
Sound power level (Reference data)		dB	79	80.5	84.5
Safety devices			High Pressure Switch, Fan Driver Overload Protector, Overcurrent Fuse, Inverter Overload Protector, Leak Detecting Device	High Pressure Switch, Fan Driver Overload Protector, Overcurrent Fuse, Inverter Overload Protector, Leak Detecting Device	High Pressure Switch, Fan Driver Overload Protector, Overcurrent Fuse, Inverter Overload Protector, Leak Detecting Device
Defrost method			Deicer	Deicer	Deicer
Capacity control		%	10.7-100	9.4-100	8.6-100
Refrigerant	Refrigerant name		R410A	R410A	R410A
	Charge	lbs (kg)	25.8 (11.7)	25.8 (11.7)	25.8 (11.7)
	Control		Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Standard accessories			Installation Manual, Operation Manual, Connection Pipes, Clamps	Installation Manual, Operation Manual, Connection Pipes, Clamps	Installation Manual, Operation Manual, Connection Pipes, Clamps

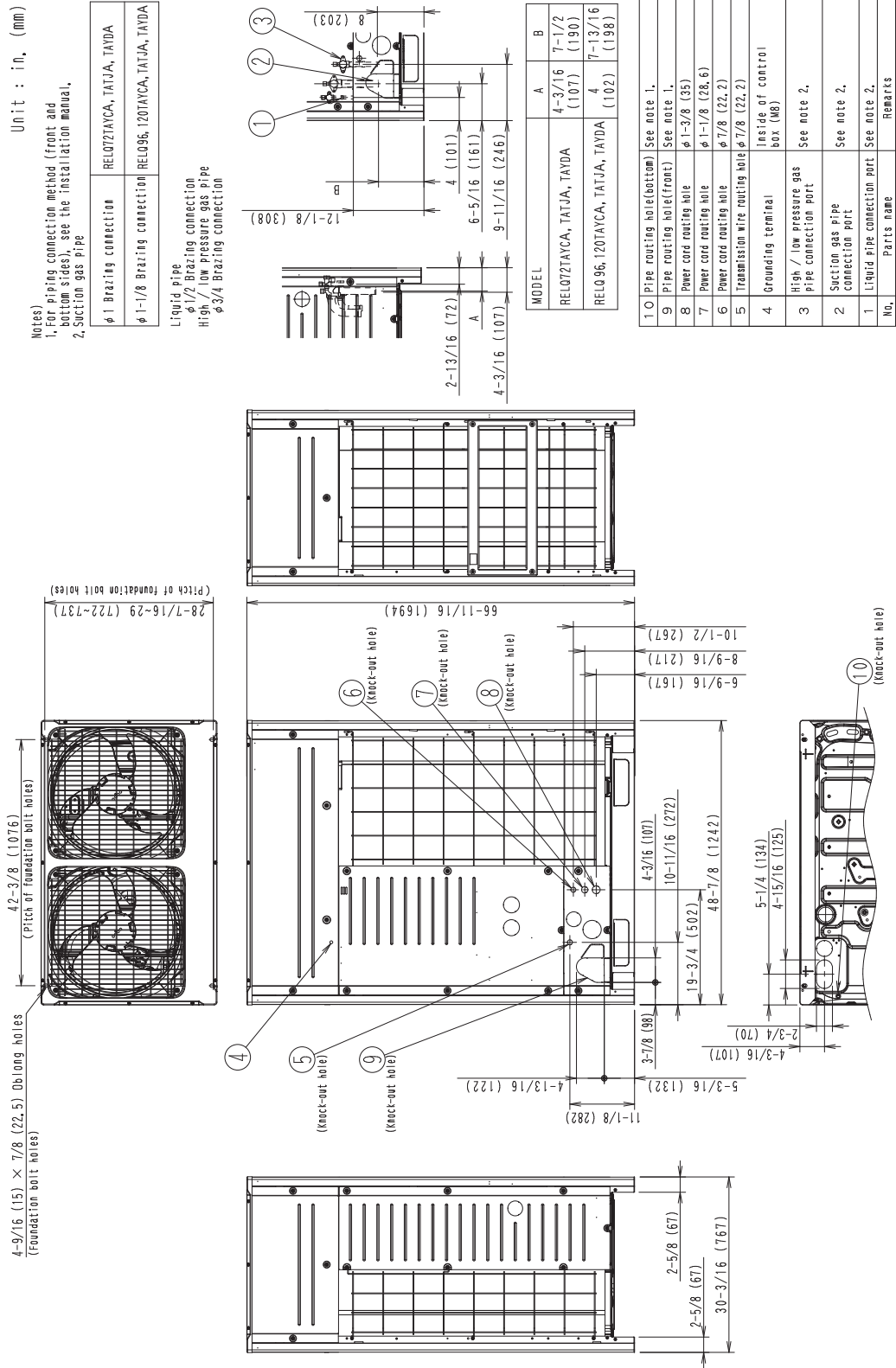
Notes:

- ★1 Indoor temp.: 80°FDB (26.7°CDB) , 67°FWB (19.4°CWB) / Outdoor temp.: 95°FDB (35.0°CDB) / Equivalent piping length: 25 ft. (7.6 m), level difference: 0 ft. (0 m).
- ★2 Indoor temp.: 70°FDB (21.1°CDB) / Outdoor temp.: 47°FDB (8.3°CDB) , 43°FWB (6.1°CWB) / Equivalent piping length: 25 ft. (7.6 m), level difference: 0 ft. (0 m).
- ★3 Sound pressure level may increase during heating operation at ambient temps below 41°F (5°C) value in parenthesis is the max sound pressure at those conditions.

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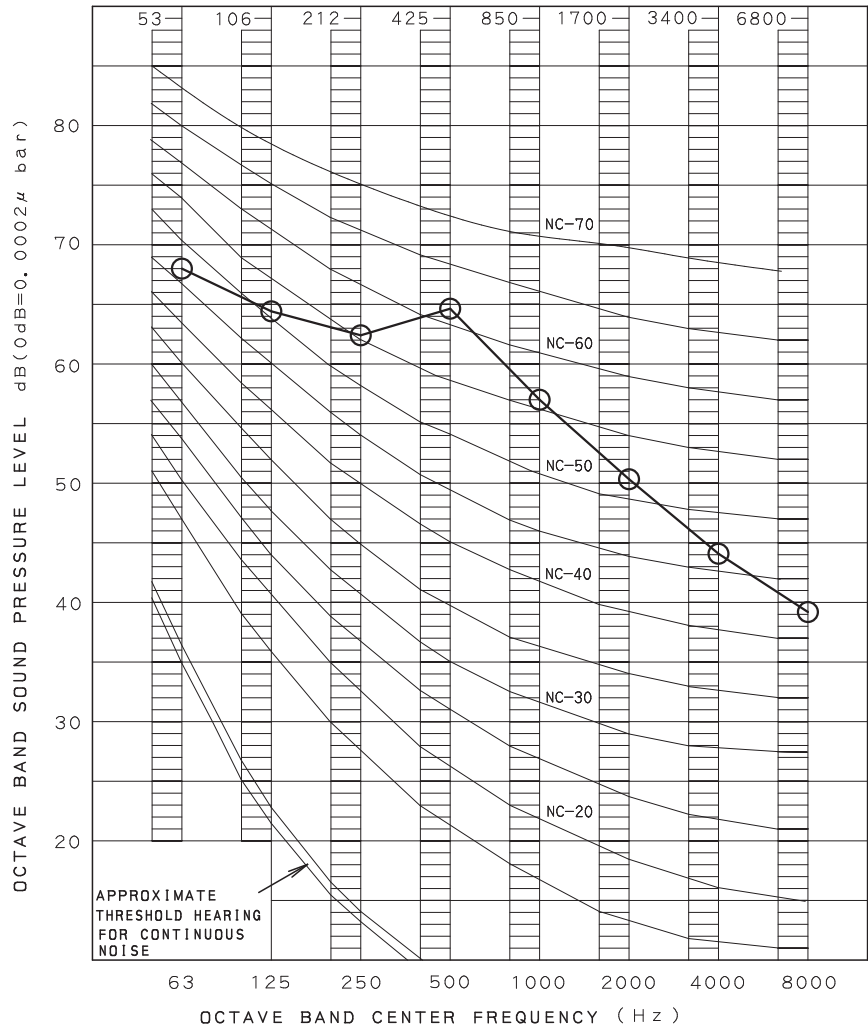
10.Dimensions

RELQ72-120TATJA / TAYDA / TAYCA



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RELQ120TATJA / TAYDA / TAYCA



OVER ALL (dB)

OPERATING CONDITIONS

SCALE	60Hz
A	63. 5

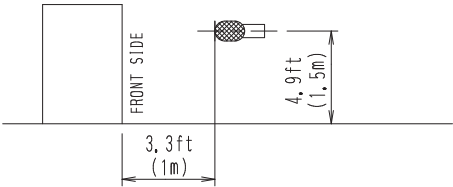
POWER SOURCE 208/230V, 460V, 575V 60Hz

(B, G, N IS ALREADY RECTIFIED)

MEASURING PLACE

LOCATION OF MICROPHONE

ANECHOIC CHAMBER(CONVERSION VALUE)



NOTE : THE OPERATING SOUND IS MEASURED IN ANECHOIC CHAMBER,
IF IT IS MEASURED UNDER THE ACTUAL INSTALLATION CONDITIONS,
IT IS NORMALLY OVER THE SET VALUE DUE TO ENVIRONMENTAL NOISE
AND SOUND REFLECTION.



Dedicated Outdoor Air System (DOAS) Information

Make:	Tempeff
ID & Model:	RG 2000
Flow Rate (cfm):	2500
Data Used:	Manufacturer Specifications provided by
Location:	Located on the roof the school.
Notes:	Drawings & Model ID: DOAS_1

Exhaust Fan Sound Power Levels¹

	Sound Power (dBA)								Total
	63	125	250	500	1K	2K	4K	8K	(dBA)
DOAS_1	60	63	75	74	74	75	66	58	80

Notes:

¹ See attached Manufacturer Specs provided in Appendix D.

Project	Riverside South ES				Line In							
Tag(s)	ERV-1				Voltage	208-3-60						
Agent	HTS Canada				FLA	10.7	AMPS					
Job Number	0				AMPACITY	12	AMPS					
					MAX.NON-TIME DELAY FUSE	25	AMP					
					MAX.TIME DELAY FUSE	15	AMP					
					MAX.CIRCUIT BREAKER	20	AMP					
					MIN.WIRE SIZE	#14	AWG					
Short Circuit Current Rating:		5KA										

Model		
RG 2000		
Approximate Weight	1789 KG	3954 LBS
Heaviest Shipping Section	1053 KG	2327 LBS
Approx. Curb Weight	249 KG	548 LB
Outdoor		

Fans	
Supply air fan: ANPA 14	
X1	
Exhaust air fan: ANPA 14	
X1	

Technical data		
Input data	Sup. air	Exh. air
Total volume (SCFM)	2500	2500
HX Air volume (SCFM)	2500	2500
Filter	Merv 10 (2")	None
	-	-
External pressure drop (in. W.C)	0.50	1.00

Output data		
Filter air velocity (fpm)	450	0
Design pressure drop filter (in W.C)	0.50	0.00
HX air velocity (fpm)	431	431
Pressure drop heat exch. (in W.C)	0.63	0.63
Pressure drop HX filter (in W.C)	0.00	0.00
Heating Coil 1 Pressure Drop (in W.C)	0.00	0.00
Heating Coil 2 Pressure Drop (in W.C)	0.00	0.00
Cooling Coil Pressure Drop (in W.C)	0.00	0.00
Auxillary Pressure Drop (in W.C)	0.00	0.00
Backdraft dampers pressure drop (in W.C)	0.00	0.00
Louver/Hood pressure drop (in W.C)	0.00	0.00
Intake/discharge pressure drop (in W.C)	0.02	0.02
Static pressure (in W.C)	1.65	1.65

Fan speed (rpm)	1830	1830	Per fan
Max (rpm)	3460	3460	
Fan efficiency (%)	71.97	71.97	
Required BHP	1.03	1.03	
Motor efficiency (%)	86.5	86.5	
Motor power rating (hp)	1.50	1.50	
Motor RPM	1755	1755	
Motor Operating Frequency (Hz)	63	63	

Standard Features

2" Foam injected panels
All sections come with hinged access doors and locking latches
Multi-Damper switchover section complete with actuators
SS Drain Pans under Heat Exchanger(s) w/ 1"NPTConnections
Galvanized Heat Exchanger Frames
Galvanized damper blades, damper rods and axles
18Ga Roof & Gutters
Hoods

Power and energy demand					
Input data	Calculated				
	Winter		Summer		
	DB	WB	DB	WB	
Design outdoor temp. (°F)	-16.00		-16.6	90.0	72.0
Desired supply air temp. winter (°F)					
Exhaust air temperature (°F)	72.0		54.0	75.0	62.5
Output data					
Efficiency (across unit) (%)	87.2%		70.0%	76.8%	0.0%
Supply air temp. after unit (°F)	60.73		46.3	78.5	68.6
Recovered energy across unit (BTUH)	207,179		41,557	-31,120	0

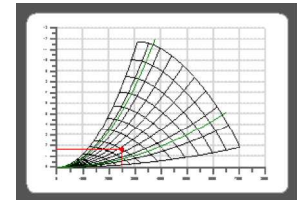
Additional Features

Exterior Casing: 24 Ga G90 Galv
Interior Casing: 24 Ga G90 Galv
Exterior paint: PowderCoat (Other)
1.5 HP WEG TEFC Premium Eff. 4 Pole 145T Frame
1.5 HP WEG TEFC Premium Eff. 4 Pole 145T Frame
SA Drive: FC-102-P1K1-T2-131F0697
RA Drive: FC-102-P1K1-T2-131F0697
1in. Seismic Spring Isolation
SA Pre-Filter: Dafco Merv 10 (2") 400 HC
Insulated Shutoff Dampers with 2 position Belimo actuator
Single point power
Non-fused Disconnect
Low Limit
4" 10Ga Baseframe
24" Roof Curb
Insulated Curb (2" Fiberglass)
Aluminum Wheel & cone all fans

Customer	Description
Project	Our Ref.
Your Ref.	

Input data			
Volume	2500 CFM	Temperature	68.0 °F
Static Pressure	1.65 In.W.G.	Altitude	0 ft
		Density	0.075 lb/cu.ft
		Free Inlet - Free Outlet	

Selected Fan ANPA14 -	Catalogue data		
	n Max	Pw Max	J
	l/min	BHP	lb ft ²
	4000		5.22



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
	1.89	1.65	0.24	6699	1830	71.97	62.84	1.03			0.00

(*)Theoric value calculated taking into account the dynamic pressure at the impeller outlet

(**)Theoric value, calculated at the impeller outlet

fm[Hz]	63	125	250	500	1000	2000	4000	8000	Tot.	
Lw3 Total Sound Power Level in the inlet duct- Lwi Inlet Duct Sound Power Level includes the effect of duct end correction										
Level Lw3	dB/dB(A)	78 / 52	71 / 55	75 / 66	69 / 66	65 / 65	65 / 66	56 / 57	51 / 50	81 / 72
Lw5 Inlet Total Sound Power Level - Lwmi Inlet Sound Power Level (free inlet) do not includes the effect of duct end correction										
Level Lw5	dB/dB(A)	69 / 43	67 / 51	80 / 72	76 / 73	69 / 69	66 / 68	64 / 65	60 / 59	83 / 77
Lw6 Total Sound Power Level at the free outlet - Lwmo Outlet Sound Power Level (free outlet) do not includes the effect of duct end correction										
Level Lw6	dB/dB(A)	87 / 60	80 / 63	84 / 75	78 / 74	74 / 74	74 / 75	65 / 66	60 / 58	89 / 81

Certificates	
 Comefri USA Inc. certifies that the ANPA14 - shown here is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and 311 and comply with the requirements of the AMCA Certified Ratings Program. Performance ratings include to effects of spring dampers and does not include the effects of appurtenances (accessories). Power rating (kW or BHP) does not include trasmission losses. Free inlet Lw5, LwA5 sound power levels shown are in decibels, referred to 10 ⁻¹² watts calculated per AMCA International Standard 301. Air and free inlet Lw5, LwA5 sound performances shown are for installation type A: Free inlet - Free outlet. The AMCA Certified Ratings Seal applies to air performance and to free inlet Lw5, LwA5 sound power levels. The AMCA Certified Ratings Seal does not apply either to in-duct inlet Lw3, LwA3 sound or outlet Lw6, LwA6 sound.	

APPENDIX E

Cadna Output

Receivers

Name	Sel.	M.	ID	Level Lr		Limit. Value		Land Use			Height	Coordinates		
				Day	Night	Day	Night	Type	Auto	Noise Type		X	Y	Z
				(dBA)	(dBA)	(dBA)	(dBA)				(m)	(m)	(m)	(m)
Plane of Window R01			SSOFF_R01_w	39.3	-80.2	50.5	0.0				4.50	429611.65	5014940.33	4.50
Plane of Window R02			SSOFF_R02_w	40.6	-80.2	50.5	0.0				4.50	429637.90	5014968.05	4.50
Plane of Window R03			SSOFF_R03_w	38.8	-80.2	50.5	0.0				4.50	429668.93	5015000.05	4.50
Outdoor Point of Reception R03			SSOFF_R03_o	37.9	-80.2	50.5	0.0				1.50	429661.75	5014994.95	1.50
Plane of Window R04			SSOFF_R04_w	38.5	-80.2	50.5	0.0				4.50	429740.83	5014999.67	4.50
Outdoor Point of Reception R04			SSOFF_R04_o	37.3	-80.2	50.5	0.0				1.50	429750.27	5014991.11	1.50
Plane of Window R05			SSOFF_R05_w	41.5	-80.2	50.5	0.0				4.50	429787.77	5014953.27	4.50
Plane of Window R06			SSOFF_R06_w	43.2	-80.2	50.5	0.0				4.50	429821.67	5014912.38	4.50
Outdoor Point of Reception R06			SSOFF_R06_o	43.9	-80.2	50.5	0.0				1.50	429818.19	5014909.38	1.50
Plane of Window R07			SSOFF_R07_w	43.9	-80.2	50.5	0.0				4.50	429844.56	5014884.73	4.50
Outdoor Point of Reception R07			SSOFF_R07_o	44.4	-80.2	50.5	0.0				1.50	429841.22	5014882.31	1.50
Plane of Window R08			SSOFF_R08_w	43.1	-80.2	50.5	0.0				4.50	429869.63	5014858.78	4.50
Outdoor Point of Reception R08			SSOFF_R08_o	43.7	-80.2	50.5	0.0				1.50	429864.63	5014854.60	1.50
Plane of Window R09			SSOFF_R09_w	44.1	-80.2	50.5	0.0				4.50	429863.96	5014815.69	4.50
Plane of Window R10			SSOFF_R10_w	46.2	-80.2	50.5	0.0				4.50	429832.87	5014789.52	4.50
Plane of Window R11			SSOFF_R11_w	48.7	-80.2	50.5	0.0				4.50	429789.39	5014755.28	4.50
Outdoor Point of Reception R11			SSOFF_R11_o	44.5	-80.2	50.5	0.0				1.50	429804.78	5014767.16	1.50
Plane of Window R12			SSOFF_R12_w	48.6	-80.2	50.5	0.0				4.50	429742.69	5014766.17	4.50
Plane of Window R13			SSOFF_R13_w	50.0	-80.2	50.5	0.0				4.50	429723.20	5014787.81	4.50
Plane of Window R15			SSOFF_R15_w	46.3	-80.2	50.5	0.0				4.50	429678.56	5014838.80	4.50
Plane of Window R16			SSOFF_R16_w	43.9	-80.2	50.5	0.0				4.50	429655.17	5014869.92	4.50
Plane of Window R17			SSOFF_R17_w	41.0	-80.2	50.5	0.0				4.50	429629.19	5014901.19	4.50
Outdoor Point of Reception R05			SSOFF_R05_o	39.2	-80.2	50.5	0.0				1.50	429783.99	5014950.85	1.50
Plane of Window R14			SSOFF_R14_w	50.2	-80.2	50.5	0.0				4.50	429707.09	5014809.09	4.50

Point Sources

Name	Sel.	M.	ID	Result. PWL			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Height	Coordinates		
				Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night	(dB)	(Hz)		(m)	X	Y	Z
				(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)		(min)	(min)	(min)				(m)	(m)	(m)	(m)
Air Cooled VRF Condenser 1			SS_CU1A	71.6	71.6	71.6	Lw	COND_VRF		0.0	0.0	0.0				60.00	0.00	0.00	0.0	(none)	0.10	g	429750.21	5014830.17	5.89
Air Cooled VRF Condenser 2			SS_CU1B	71.6	71.6	71.6	Lw	COND_VRF		0.0	0.0	0.0				60.00	0.00	0.00	0.0	(none)	0.10	g	429749.26	5014831.31	5.89
RTU-1 11T Condenser (2 fan)			SS_RTU1c	83.9	83.9	83.9	Lw	COND_RTU_RN011		0.0	0.0	0.0				60.00	0.00	0.00	0.0	(none)	0.10	g	429743.92	5014837.73	6.08
RTU-1 11T Exhaust Fan			SS_RTU1e	85.5	85.5	85.5	Lw	EF_RTU_1		0.0	0.0	0.0				60.00	0.00	0.00	0.0	(none)	1.50	g	429745.12	5014837.03	5.60
RTU-2 6T Condenser (1 fan)			SS_RTU2c	80.9	80.9	80.9	Lw	COND_RTU_RN006		0.0	0.0	0.0				60.00	0.00	0.00	0.0	(none)	0.10	g	429735.65	5014854.73	5.93
RTU-2 6T Exhaust Fan			SS_RTU2e	82.5	82.5	82.5	Lw	EF_RTU_2		0.0	0.0	0.0				60.00	0.00	0.00	0.0	(none)	1.50	g	429735.15	5014853.68	5.60
RTU-3 11T Condenser (2 fan)			SS_RTU3c	83.9	83.9	83.9	Lw	COND_RTU_RN011		0.0	0.0	0.0				60.00	0.00	0.00	0.0	(none)	0.10	g	429767.40	5014838.97	6.08
RTU-3 11T Exhaust Fan			SS_RTU3e	87.4	87.4	87.4	Lw	EF_RTU_3		0.0	0.0	0.0				60.00	0.00	0.00	0.0	(none)	1.50	g	429766.57	5014837.67	5.60
RTU-4 11T Condenser (2 fan)			SS_RTU4c	83.9	83.9	83.9	Lw	COND_RTU_RN011		0.0	0.0	0.0				60.00	0.00	0.00	0.0	(none)	0.10	g	429794.79	5014821.08	6.08
RTU-4 11T Exhaust Fan			SS_RTU4e	85.5	85.5	85.5	Lw	EF_RTU_4		0.0	0.0	0.0				60.00	0.00	0.00	0.0	(none)	1.50	g	429793.57	5014821.90	5.60
RTU-5 11T Condenser (2 fan)			SS_RTU5c	83.9	83.9	83.9	Lw	COND_RTU_RN011		0.0	0.0	0.0				60.00	0.00	0.00	0.0	(none)	0.10	g	429759.87	5014816.27	6.08
RTU-5 11T Exhaust Fan			SS_RTU5e	85.5	85.5	85.5	Lw	EF_RTU_5		0.0	0.0	0.0				60.00	0.00	0.00	0.0	(none)	1.50	g	429758.69	5014817.08	5.60
RTU-6 11T Condenser (2 fan)			SS_RTU6c	83.9	83.9	83.9	Lw	COND_RTU_RN011		0.0	0.0	0.0				60.00	0.00	0.00	0.0	(none)	0.10	g	429780.09	5014808.58	6.08
RTU-6 11T Exhaust Fan			SS_RTU6e	84.8	84.8	84.8	Lw	EF_RTU_6		0.0	0.0	0.0				60.00	0.00	0.00	0.0	(none)	1.50	g	429781.24	5014807.87	5.60
Dedicated Outdoor Air System			SS_DOAS1	79.5	79.5	79.5	Lw	DOAS_1		0.0	0.0	0.0				60.00	0.00	0.00	3.0	(none)	0.10	g	429757.61	5014831.24	6.11

Sound Level Library

Name	ID	Type	1/3 Oktave Spectrum (dB)											Source	
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
Roof Top Unit Condenser Unit	COND_RTU_RN006	Lw			89.0	84.0	80.0	79.0	75.0	71.0	68.0	67.0	80.8	91.1	Aaon RN-006 (RTU2)
Roof Top Unit Condenser Unit	COND_RTU_RN011	Lw			92.0	87.0	83.0	82.0	78.0	74.0	71.0	70.0	83.8	94.1	Aaon RN-011
Roof Top Unit Condenser Unit	COND_RTU_RN030	Lw			101.0	96.0	92.0	91.0	86.0	83.0	80.0	79.0	92.5	103.1	Aaon RN-030
Roof Top Unit Exhaust Fan	EF_RTU_1	Lw			87.0	86.0	87.0	84.0	78.0	76.0	73.0	68.0	85.4	92.5	Aaon RN-011-4-0-H60E-3GB
Roof Top Unit Exhaust Fan	EF_RTU_2	Lw			82.0	83.0	83.0	81.0	76.0	73.0	70.0	66.0	82.4	88.8	Aaon RN-006-8-0-E60E-3KB (RTU2)
Roof Top Unit Exhaust Fan	EF_RTU_3	Lw			88.0	87.0	89.0	86.0	80.0	78.0	75.0	70.0	87.4	94.0	Aaon RN-011-4-0-H60E-3GB (RTU3)
Roof Top Unit Exhaust Fan	EF_RTU_4	Lw			87.0	86.0	87.0	84.0	78.0	76.0	73.0	68.0	85.4	92.5	Aaon RN-011-4-0-H60E-3GB (RTU4)
Roof Top Unit Exhaust Fan	EF_RTU_5	Lw			87.0	86.0	87.0	84.0	78.0	76.0	73.0	68.0	85.4	92.5	Aaon RN-011-4-0-H60E-3GB (RTU5)
Roof Top Unit Exhaust Fan	EF_RTU_6	Lw			86.0	86.0	86.0	82.0	78.0	76.0	74.0	69.0	84.7	91.7	Aaon RN-011-4-0-E60E-36B (RTU6)
Air Cooled Condensing Unit	COND_VRF	Lw			76.0	72.2	70.3	72.2	65.0	58.3	52.0	47.0	71.5	79.4	Daikin RELQ192ATCA

Name	ID	Type	1/3 Oktave Spectrum (dB)													Source	
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin			
DOAS	DOAS_1	Lw			60.0	63.0	75.0	74.0	74.0	75.0	66.0	58.0	79.5	80.8	Tempeff RG 2000 Comefri ANPA14		

Receiver

Name: Plane of Window R15

ID: SSOFF_R15_w

X: 429678.56 m

Y: 5014838.80 m

Z: 4.50 m

Point Source, ISO 9613, Name: "RTU-1 11T Exhaust Fan", ID: "SS_RTU1e"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
366	429745.12	5014837.03	5.60	0	D	A	85.5	0.0	0.0	0.0	0.0	47.5	0.4	-2.3	0.0	0.0	6.0	0.0	0.0	33.9

Point Source, ISO 9613, Name: "RTU-3 11T Exhaust Fan", ID: "SS_RTU3e"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
378	429766.57	5014837.67	5.60	0	D	A	87.4	0.0	0.0	0.0	0.0	49.9	0.5	-2.5	0.0	0.0	2.1	0.0	0.0	37.4
382	429766.57	5014837.67	5.60	1	D	A	87.4	0.0	0.0	0.0	0.0	50.2	0.5	-2.5	0.0	0.0	11.1	0.0	2.1	26.0
385	429766.57	5014837.67	5.60	1	D	A	87.4	0.0	0.0	0.0	0.0	59.1	1.1	-2.5	0.0	0.0	9.6	0.0	15.0	5.1

Point Source, ISO 9613, Name: "RTU-1 11T Condenser (2 fan)", ID: "SS_RTU1c"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
388	429743.92	5014837.73	6.08	0	D	A	83.9	0.0	0.0	0.0	0.0	47.3	0.4	-2.3	0.0	0.0	0.0	0.0	0.0	38.4

Point Source, ISO 9613, Name: "RTU-2 6T Exhaust Fan", ID: "SS_RTU2e"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
390	429735.15	5014853.68	5.60	0	D	A	82.5	0.0	0.0	0.0	0.0	46.3	0.4	-2.4	0.0	0.0	0.0	0.0	0.0	38.1

Point Source, ISO 9613, Name: "RTU-5 11T Exhaust Fan", ID: "SS_RTU5e"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
402	429758.69	5014817.08	5.60	0	D	A	85.5	0.0	0.0	0.0	0.0	49.4	0.5	-2.5	0.0	0.0	4.8	0.0	0.0	33.3

Point Source, ISO 9613, Name: "RTU-2 6T Condenser (1 fan)", ID: "SS_RTU2c"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
404	429735.65	5014854.73	5.93	0	D	A	80.9	0.0	0.0	0.0	0.0	46.5	0.4	-2.4	0.0	0.0	0.0	0.0	0.0	36.4

Point Source, ISO 9613, Name: "RTU-5 11T Condenser (2 fan)", ID: "SS_RTU5c"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
406	429759.87	5014816.27	6.08	0	D	A	83.9	0.0	0.0	0.0	0.0	49.5	0.5	-2.6	0.0	0.0	0.0	0.0	0.0	36.4
418	429759.87	5014816.27	6.08	1	D	A	83.9	0.0	0.0	0.0	0.0	49.7	0.5	-2.5	0.0	0.0	0.0	0.0	2.0	34.1
421	429759.87	5014816.27	6.08	1	D	A	83.9	0.0	0.0	0.0	0.0	50.7	0.6	-2.5	0.0	0.0	12.4	0.0	4.8	17.9

Point Source, ISO 9613, Name: "RTU-3 11T Condenser (2 fan)", ID: "SS_RTU3c"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
450	429767.40	5014838.97	6.08	0	D	A	83.9	0.0	0.0	0.0	0.0	50.0	0.6	-2.5	0.0	0.0	1.7	0.0	0.0	34.2
463	429767.40	5014838.97	6.08	1	D	A	83.9	0.0	0.0	0.0	0.0	59.0	1.2	-2.5	0.0	0.0	0.0	0.0	8.7	17.5

Point Source, ISO 9613, Name: "Dedicated Outdoor Air System", ID: "SS_DOAS1"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
467	429757.61	5014831.24	6.11	0	D	A	79.5	0.0	0.0	3.0	0.0	49.0	0.6	-2.4	0.0	0.0	0.0	0.0	0.0	35.3

Point Source, ISO 9613, Name: "RTU-4 11T Exhaust Fan", ID: "SS_RTU4e"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
470	429793.57	5014821.90	5.60	0	D	A	85.5	0.0	0.0	0.0	0.0	52.3	0.6	-2.5	0.0	0.0	16.3	0.0	0.0	18.8
481	429793.57	5014821.90	5.60	1	D	A	85.5	0.0	0.0	0.0	0.0	59.0	1.1	-2.5	0.0	0.0	0.0	0.0	9.1	18.6

Point Source, ISO 9613, Name: "RTU-6 11T Exhaust Fan", ID: "SS_RTU6e"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
503	429781.24	5014807.87	5.60	0	D	A	84.8	0.0	0.0	0.0	0.0	51.6	0.7	-2.7	0.0	0.0	15.7	0.0	0.0	19.5

Point Source, ISO 9613, Name: "RTU-6 11T Condenser (2 fan)", ID: "SS_RTU6c"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
517	429780.09	5014808.58	6.08	0	D	A	83.9	0.0	0.0	0.0	0.0	51.5	0.6	-2.7	0.0	0.0	11.5	0.0	0.0	23.0

Point Source, ISO 9613, Name: "RTU-4 11T Condenser (2 fan)", ID: "SS_RTU4c"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
529	429794.79	5014821.08	6.08	0	D	A	83.9	0.0	0.0	0.0	0.0	52.4	0.7	-2.5	0.0	0.0	10.8	0.0	0.0	22.5
533	429794.79	5014821.08	6.08	1	D	A	83.9	0.0	0.0	0.0	0.0	59.0	1.2	-2.5	0.0	0.0	0.0	0.0	8.7	17.5

Point Source, ISO 9613, Name: "Air Cooled VRF Condenser 2", ID: "SS_CU1B"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
555	429749.26	5014831.31	5.89	0	D	A	71.6	0.0	0.0	0.0	0.0	48.0	0.2	-2.3	0.0	0.0	0.0	0.0	0.0	25.7

Point Source, ISO 9613, Name: "Air Cooled VRF Condenser 1", ID: "SS_CU1A"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
559	429750.21	5014830.17	5.89	0	D	A	71.6	0.0	0.0	0.0	0.0	48.2	0.2	-2.3	0.0	0.0	0.0	0.0	0.0	25.5



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