

AIRCRAFT NOISE STUDY

11629 LAKESHORE ROAD
WAINFLEET, ON
REGION OF NIAGARA

Prepared for:

Mr. Mario Rapino
373 Barton Street
Hamilton, ON
L8E 2L2

Prepared By:



Frank Westaway
Qualified Acoustical Consultant

October 2023
Our File No: 23-4100

dBA ACOUSTICAL CONSULTANTS INC.
P.O Box 32059
1447 Upper Ottawa
Hamilton, ON
L8W 3K0

TABLE OF CONTENTS

1.0 INTRODUCTION.....	Page 3
2.0 SITE DESCRIPTION.....	Page 3
3.0 REGULATORY CONTEXT.....	Page 3
3.1 11631 Burnaby Road.....	Page 4
3.2 11629 Lakeshore Road.....	Page 4
3.3 Noise Monitoring Results.....	Page 4
4.0 INDOOR NOISE LEVELS.....	Page 4
5.0 VENTILATION / WARNING CLAUSES.....	Page 5
6.0 SUMMARY OF RECOMMENDATIONS.....	Page 5
7.0 CONCLUSIONS.....	Page 5
FIGURE 1 – SITE LOCATION	
FIGURE 2 – SITE PLAN	
FIGURE 3 – OVERALL SITE OVERVIEW	
APPENDIX “A”	
Snapshots of Sound Levels September 30 th , 2023	
Snapshots of Sound Levels October 1 st , 2023	
Environmental Noise Guidelines (NPC-300)	
Exterior Wall STC Ratings	

1.0 INTRODUCTION

dBA Acoustical Consultants Inc. has been retained by Mr. Mario Rapino to provide an airport noise study for the proposed land severance and a proposed residential unit on the severed land located at 11629 Lakeshore Road, Wainfleet, Region of Niagara.

The purpose of the study will determine the noise impact from Skydive Burnaby, 11631 Burnaby Road, Wainfleet aircraft that may impact the proposed residential unit, as required for application submission, review and approval by the Region of Niagara.

This study will detail noise impact relative to the site plan and recommend noise control measures necessary (if applicable) to meet Ministry of Environment Conservation and Parks (MECP) Publication NPC-300 entitled “Stationary & Transportation Sources-Approval & Planning guidelines while satisfying the planning requirements of the Region of Niagara.

See attached Figure 1 Site Location.

2.0 SITE DESCRIPTION

Proposed for the severed land is one residential dwelling unit at 11629 Lakeshore Road. The dwelling is approximately 388m south of Lakeshore Road. The end at Port Colborne Airport runway (which is utilized by Skydive Burnaby) is approximately 1km north of the proposed residential dwelling and approximately 770m north of the existing residential dwelling. See attached Figure 2 Site Plan.

3.0 REGULATORY CONTEXT

The MECP Publication NPC-300, Stationary & Transportation Sources-Approval & Planning guidelines defines a point of reception/receptor as *“any point on the premises of a person where the sound or vibration originating from other than those premises are received.”*

The point of reception may be located on any of the following, or zoned for future use, premises including but not limited to the following: residential homes, retirement homes, etc.

The areas surrounding the proposed Residential Development is indicative of a “Class 2 Area” as defined in MECP Publication NPC-300, Stationary & Transportation Sources-Approval & Planning guidelines.

The applicable sound limits are the higher of:

- The existing ambient sound level; or
- The minimum values of Table 1.

No restrictions apply to stationary sources if the one-hour equivalent sound exposure (Leq) is lower than the levels in the following Table 1.

TABLE 1 Minimum Sound Level Limits (Class 2 Area)	
Time Period	L _{eq} (dBA)
07:00 - 19:00	50
19:00 - 23:00	50
23:00 – 07:00	45

3.1 PORT COLBORNE AIRPORT/SKYDIVE BURNABY 11631 Burnaby Road, Wainfleet

Port Colborne Airport is a private airport owned and operated by Skydive Burnaby (Mike & Tara Pitt) with one grass runway which is approximately 700m running from north to south. Skydive Burnaby operates 6 days a week and is closed on Tuesdays. They are open from April to October depending on weather conditions. The busiest time of the year Skydive Burnaby is June to August with approximately 17 flights daily. Flights operate between 8am-8pm. In speaking with the owner, Tara Pitt confirmed that only one aircraft can take-off at a time and there are two aircraft utilized for sky diving purposes. The owners mentioned that periodically a slightly larger aircraft will take off and land for private passengers. There are not any nighttime flights. The minimum height of the takeoff and landing is approximately 800 feet above ground. See Figure 3.

3.2 11629 LAKESHORE ROAD, WAINFLEET

Noise monitoring was conducted from September 29th to October 2nd, 2023. The purpose of noise monitoring was to record aircraft takeoffs and landings on the proposed severed lands and proposed residential dwelling. A noise monitor was installed at 11629 Lakeshore Road, with the owner's permission. The noise monitor was in direct line with Skydive Burnaby runway.

3.3 NOISE MONITORING RESULTS

The noise monitor utilized was a Sonitus Systems, Model EM2030, with a tripod and windscreen. The unit was calibrated before and after use. The procedure for noise monitoring is pursuant to MECF NPC-300 Stationary Noise and Transportation guidelines. Weather during the monitoring period was favourable and well within Ministry guidelines.

The results of the noise reading of several aircrafts takes offs and landings are noted in Appendix "A".

The highest noise level recorded during take offs and/or landings was 63 dBA. MECF NPC-300 guidelines regarding Airport Noise Levels are listed in Appendix "A".

Calculations for the STC rating for the proposed residential home and severance area is an STC-28 + Noise Exposure Forecast (NEF) 5 = an overall 33 rating which would require and STC-34 rating. The proposed residential home will require the following noise control measures noted in Table 2.

4.0 INDOOR NOISE LEVELS

Specific building components (walls, windows, doors etc.) are required and confirmed using the STC (Sound Transmission Class) method and NEF requirements and are summarized in Table 2 following, with minimum window, door and wall construction specified throughout the development. The STC values are calculated for each room type, with a minimum of 2 components and based on window to floor ratios of 80% for noise sensitive areas. The attic is required to have a minimum R16 sound insulation value.

TABLE 2 – Recommended Door, Wall, and Window Construction			
LOCATION	Window STC-34 To Be Used	Exterior Wall STC-43	Patio Door Construction STC-33
All Residential Units / Dwellings	Example	Example	Example
Bedroom	34	43	34
Living room	34	43	34

5.0 VENTILATION / WARNING CLAUSES

Ventilation and Warning Clause requirements are required for this project, we would recommend a Type “C” Warning Clause as well as Central Air Conditioning, noted in Table 3 following. It is recommended that the appropriate Warning Clauses be inserted into all Offers and Agreements of Purchase and Sale or Lease.

TABLE 3 - Ventilation and Warning Clause Requirements		
LOCATION	VENTILATION	WARNING CLAUSE
Proposed Home	Central Air Conditioning	Type “C”

6.0 SUMMARY OF RECOMMENDATIONS

The following noise control measures are required for this development:

- Specific Window, Door, and Wall construction as recommended in Table 3.
- Registered Warning Clause Type “C”, (Table 3).
- Attic to have a minimum R16 insulation applied.
- It is recommended that a qualified acoustical consultant certify that the required noise control measures have been incorporated into the builder’s plans prior to issuance of a building permit.
- It is recommended that a qualified acoustical consultant certify that the required control measures have been properly installed prior to an occupancy permit.

7.0 CONCLUSIONS

dBA Acoustical Consultants Inc. has been retained by Mr. Mario Rapino and provided an airport noise study for the proposed land severance and a proposed residential unit on the severed land located at 11629 Lakeshore Road, Wainfleet, Region of Niagara.

The study determined the noise impact from Skydive Burnaby, 11631 Burnaby Road, Wainfleet aircraft that impacted the proposed residential unit, as required for application submission, review and approval by the Region of Niagara.

This study detailed noise impact relative to the site plan and recommended noise control measures necessary to meet Ministry of Environment Conservation and Parks (MECP) Publication NPC-300 entitled “Stationary & Transportation Sources-Approval & Planning guidelines while satisfying the planning requirements of the Region of Niagara.

FIGURE 1 SITE LOCATION



FIGURE 2 SITE PLAN

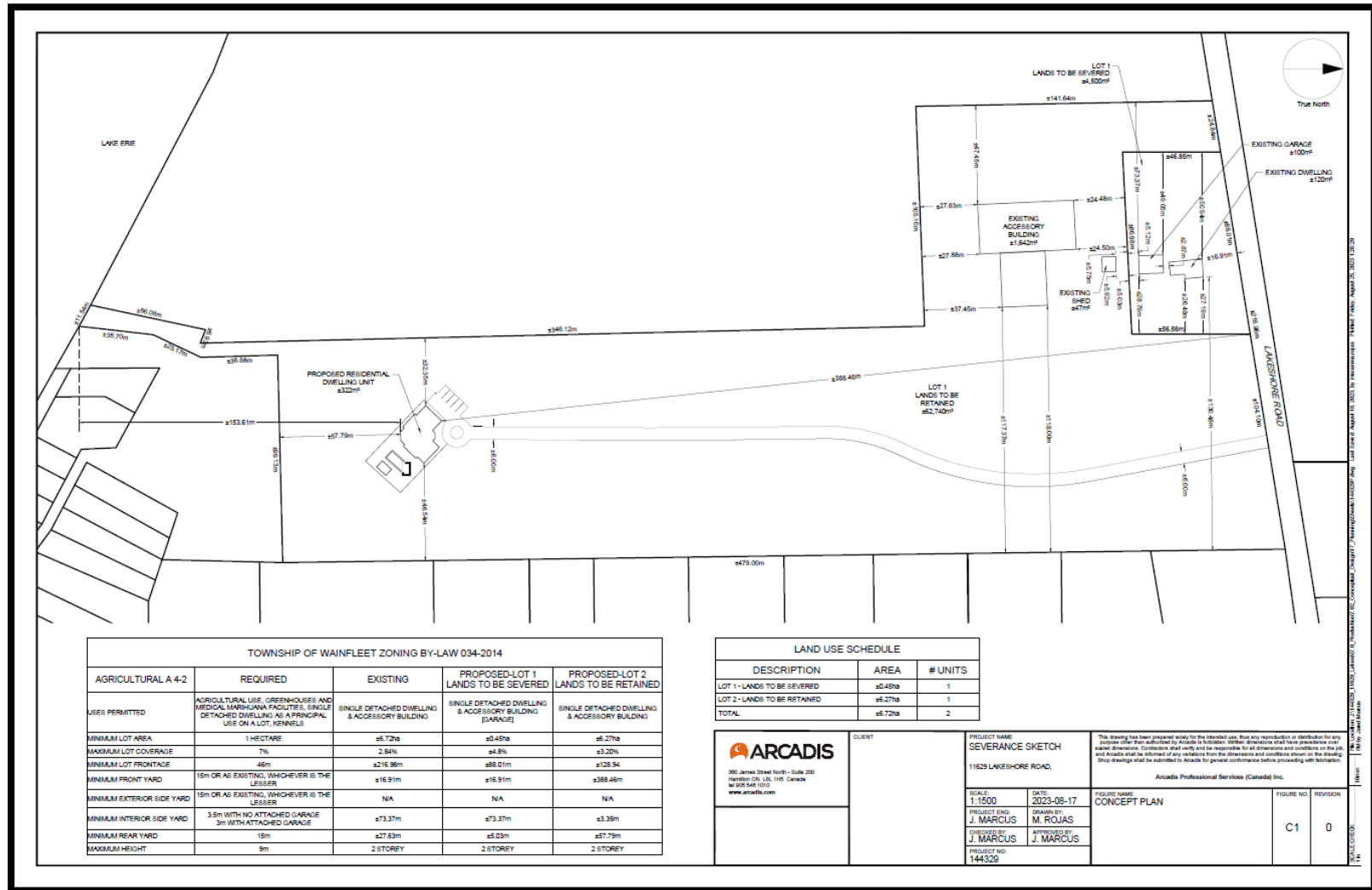
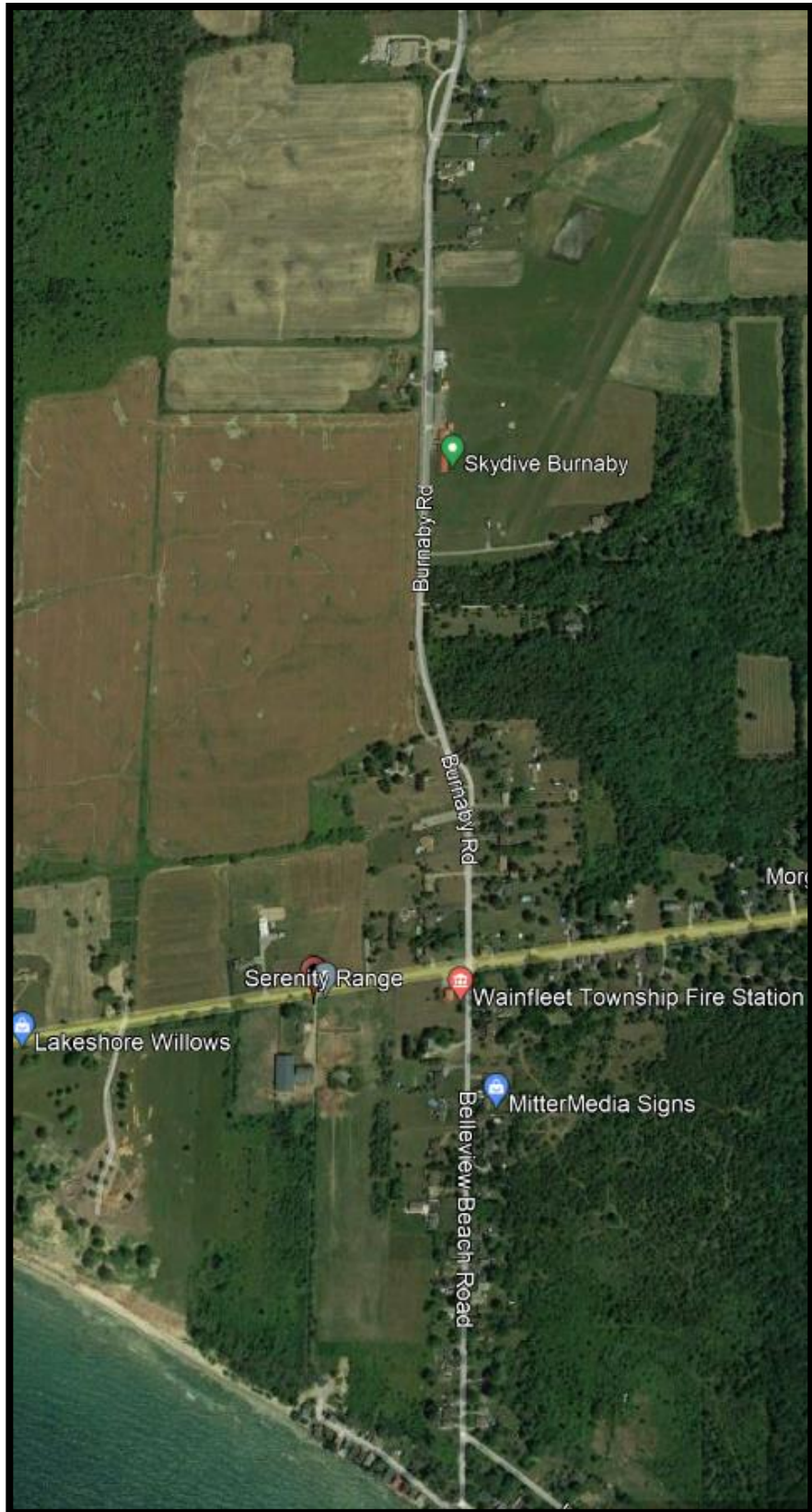


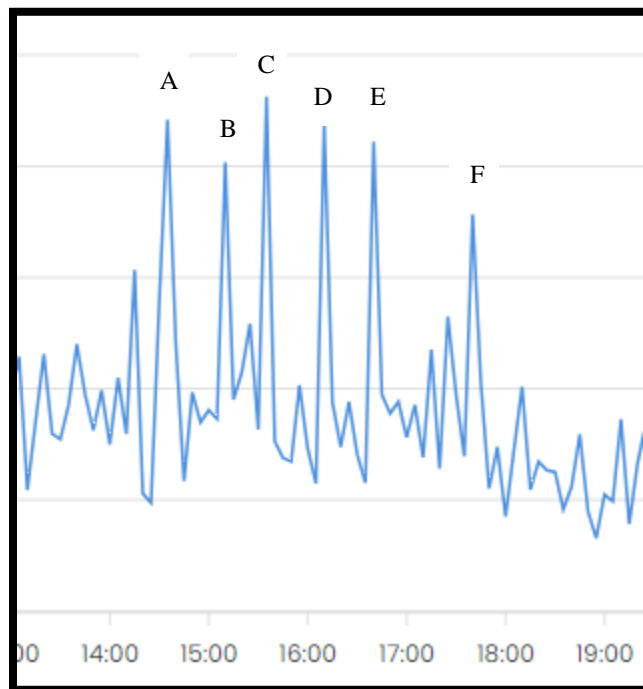
FIGURE 3 OVERALL SITE OVERVIEW



APPENDIX “A”

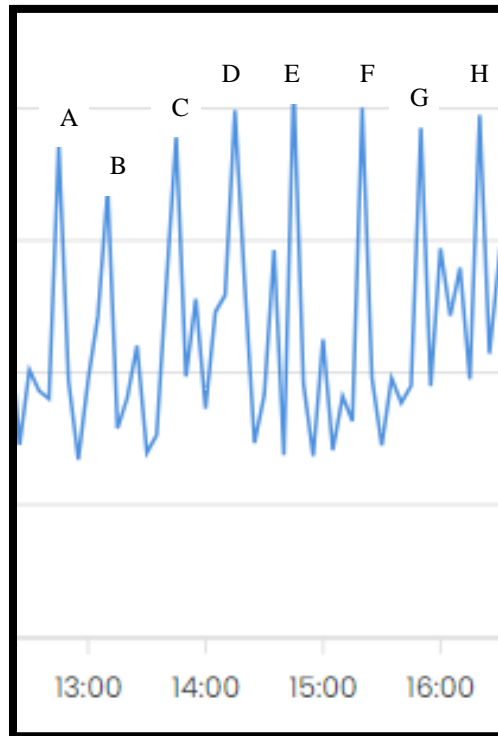
SNAPSHOTS

SOUND LEVELS AT 11629 LAKESHORE ROAD SATURDAY SEPTEMBER 30th, 2023



A – 62 dBA 2:35pm
B – 60 dBA 3:10pm
C – 63 dBA 3:35pm
D – 62 dBA 4:10pm
E – 61 dBA 4:40pm
F – 58 dBA 5:40pm

SOUND LEVELS AT 11629 LAKESHORE ROAD SUNDAY OCTOBER 1st, 2023



- A – 58 dBA 12:45pm
- B – 57 dBA 1:10pm
- C – 59 dBA 1:45pm
- D – 60 dBA 2:15pm
- E – 61 dBA 2:45pm
- F – 60 dBA 3:20pm
- G – 59 dBA 3:50pm
- H – 60 dBA 4:20pm

Environmental Noise Guideline - Stationary and Transportation Sources - Approval and Planning (NPC-300)

C3.4 Air Traffic Noise

C3.4.1 Method

Aircraft noise impact assessment is based on Noise Exposure Forecast/Noise Exposure Projection (NEF/NEP) contours determined by methods approved by Transport Canada.

Where the noise impact exceeds the applicable limits, warning clauses and mitigation measures for indoor spaces such as architectural design, special building components and/or central air conditioning may be required. The indoor NEF/NEP values, specified in Table C-4 and Table C-10, are related to the outdoor values and the acoustical insulation provided by the building. The indoor NEF values can be calculated by converting the indoor sound levels, expressed as $L_{eq}(24)$ (dBA), using the expression $NEF = L_{eq}(24) - 32$ dBA.

Section 1.6.7.2 of the 2005 Provincial Policy Statement, Reference [26](#), establishes the applicable development criterion. With the exception of redevelopment or infilling, Section 1.6.7.2 of the 2005 Provincial Policy Statement, Reference [26](#), prohibits new residential development and other sensitive land uses in aircraft noise zones above the NEF/NEP 30 contour. The noise impact on the proposed noise sensitive land use is determined based on the location of the noise sensitive land use with respect to the official NEF/NEP contours. NEF/NEP contours are usually available for major civil aviation airports from the airport authority. The more restrictive of the NEF and NEP contours would apply.

C3.4.2 Outdoor Limit

Table C-3 gives the aircraft noise limit in terms of an NEF/NEP value in any outdoor area, including the OLA. The limit applies to the entire 24-hour period. The distance separation from the airport and, consequently, the location of the noise sensitive land use with respect to the NEF/NEP contours, is the only measure that controls the outdoor noise impact.

Time Period	NEF/NEP
24-hour	30

C3.4.3 Indoor Limits

Indoor aircraft noise limits in terms of NEF/NEP values for the indicated type of indoor space are provided in Table C-4. These limits apply to the indoor spaces with the windows and doors closed for the entire 24-hour period.

Type of Space	Indoor NEF/NEP*
Living/dining/den areas of residences, hospitals, schools, nursing/retirement homes, daycare centres, etc.	5
Sleeping quarters	0

* The indoor NEF/NEP values in Table C-4 are used to determine acoustical insulation requirements based on the NEF/NEP contour maps.

<https://www.ontario.ca/page/environmental-noise-guideline-stationary-and-transportation-sources-approval-and-planning#section-8>

EXTERIOR WALL STC RATINGS

EXTERIOR WALL STC RATINGS

Wall Configuration	EW1	EW2	EW3	EW4	EW1R	EW2R	EW3R	EW5	EW4R	EW6	EW7 EW5R	EW8
STC Rating	38	40	43	46	47	48	49	54	55	57	58	62

Source: National Research Council, Division of Building Research

NOTES:

- 1 The common structure of walls EW1 to EW5 is composed of 12.7mm gypsum board, vapour barrier and 38x89 mm studs with 50 mm (or thicker) mineral wool or glass fibre batts in inter-stud cavities.
 - EW1 denotes the common structure, plus sheathing, plus wood siding or metal siding and fibre backer board
 - EW2 denotes the common structure, plus rigid insulation (25 to 30 mm), and wood siding or metal siding and fibre backer board.
 - EW3 denotes simulated mansard with the common structure, plus sheathing, 28 X89 mm framing, sheathing and asphalt roofing material
 - EW4 denotes the common structure, plus sheathing and 20 mm stucco.
 - EW5 denotes the common structure, plus sheathing, 25 mm air space, 100mm brick veneer.
 - EW6 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25 to 50 mm), 100 mm back-up block 100 mm face brick.
 - EW7 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25 to 50 mm), 140mm back-up block, 100 mm face brick.
 - EW8 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25 to 50 mm), 200 mm concrete.
- 2 R signifies the mounting of the interior gypsum board on resilient clips.
- 3 An exterior wall conforming to rainscreen design principles and composed of 12.7 mm gypsum board, 100 mm concrete block, rigid insulation (25 to 50 mm), 25 mm air space, and 100 mm brick veneer has the same STC as EW6.
- 4 An exterior wall described in EW1 with the addition of rigid insulation (25 to 50 mm) between the sheathing and the external finish has the same STC as EW2.