



October 30, 2024

Squamish Senior Living Society
38201 3rd Avenue
Squamish, BC V8B 0Z6

E-mail: westwindsseniorliving@shaw.ca

Attention: Laura Modray
Executive Director

Re: REVISED Noise Assessment
38201 3rd Avenue, Squamish, British Columbia
Westwinds Squamish Senior Living
Pinchin File: 334307.000

Pinchin Ltd. (Pinchin) was retained by Squamish Senior Living Society (the Client) to conduct a noise assessment at residential building located at 38201 3rd Avenue, Squamish, British Columbia. Pinchin representatives attended the site on following three occasions to conduct the assessment:

- February 1, 2024
- May 10, 2024
- August 9 to 10, 2024

This report has been prepared to evaluate the noise levels present at the WestWinds building from a potential source originating on the adjacent Shannon Falls Assisted Living residential building; specifically, a neighbouring rooftop HVAC unit facing the south side of the WestWinds building.

An aerial perspective of the shared property line of the two residential buildings is provided in Figure 1, Appendix A. Figure 1 shows the locations of noise-sensitive receptors, and the potential source of significant mechanical noise, a rooftop HVAC unit. Figure 2 in Appendix A provides a view of the neighbouring rooftop HVAC unit as seen from the balcony of unit 514 of the WestWinds building.

1.0 POTENTIAL NOISE SOURCES

Based on the information provided by the Client, the significant potential noise source provided in Figures 1 and 2, includes the following:

- One rooftop HVAC unit located on the neighbouring building.

At the time of the assessment, the Pinchin representative was able to corroborate the direction of the noise source which appeared to originate from the direction of the neighbouring rooftop HVAC unit located on the neighbouring Shannon Falls residential building.



The quality of the noise is mechanical in nature and occurs intermittently. It was communicated to Pinchin by the Client that the noise is consistently more present in the summer months when elevated ambient temperatures are present in the area.

During the August 9-10 assessment, the Pinchin representative on site confirmed that the noise would cycle on/off intermittently, being continuously present for approximately 15 minutes, and switching off for a period of 30 to 40 minutes before coming back on. Tenants of the building communicate that the noise is more noticeable in the early morning hours between 12:30 and 5:30 AM.

Pinchin was able to confirm the presence of the noise during the August 9-10 assessment at Unit 514 between 1:45 and 3:15 AM; Pinchin representatives were not present to measure the sound past 3:15 AM, once the noise had been confirmed and several sound level recordings of the noise had been collected.

It should be noted that there are several other potential noise sources which could cumulatively contribute to the overall noise readings. These sources include, but are not limited to the following:

- Road traffic.
- Pedestrians:
 - Roadside; and
 - Along walkway between both buildings (adjacent to property line).
- Ground-level HVAC unit (Shannon Falls building).
- Laundry vents (Shannon Falls Building).
- Rooftop HVAC units located on commercial buildings at the adjacent strip-mall.
- Internal building noise (internal to Westwinds building):
 - Tenants;
 - Appliances; and
 - HVAC.

The Pinchin investigator was mindful of these potential interferences and made efforts to minimize the contamination of the measurements by these sources as much as possible. These efforts included:

- Instruction to tenants to eliminate sources of noise during collection of measurements at interiors of Units (no speaking / activity, TVs and stereos switched off, etc.).
- Collecting measurements during periods with low or no vehicle / pedestrian traffic.
- Ensuring unit windows were closed (winter measurements).



2.0 POINT OF RECEPTION DESCRIPTION

Residents on the south side of the WestWinds building, with units facing the Shannon Falls building have reported hearing the noise generated by the neighbouring rooftop HVAC unit. This includes a number of residents on all four levels (Levels 2, 3, 4, and 5) facing southward. These residents of the WestWinds building have communicated to the building's management that the noise disrupts the peace and enjoyment of their homes and has affected some of the resident's health by interfering with their sleep, and creating stress and anxiety (self-reporting). In summary, the noise has been reported to negatively impact the overall quality of life the residents who occupy the residential units that face the neighbouring Shannon Falls building.

The WestWinds unit closest to the reportedly disruptive neighbouring HVAC unit is Unit 514. The approximate distance of the Unit 514 balcony to the neighbouring HVAC unit is 16 meters. While the disrupting noise has been detected at all southern units of the WestWinds building which are adjacent to the shared property line, the noise is reportedly the loudest at Unit 514.

For the purposes of this noise assessment, Pinchin collected noise recordings in three general representative areas:

- At south-facing balconies (exterior).
- Inside south-facing Units (interior).
- At several ground-level locations adjacent to the shared property line (exterior).

3.0 NOISE CRITERIA

The current noise bylaw in-place within the Municipality of Squamish refers only to construction-related noises, Specifically, the bylaw reads as follows.

Under the District of Squamish Noise Regulation Bylaw No. 2312, 2014, it is an offence for Construction Noise to be made from construction activity:

- **Weekdays:** before 7 a.m. or after 8 p.m.
- **Saturday:** before 8 a.m. or after 7 p.m.
- **Sunday and statutory holidays:** before 10 a.m. or after 4 p.m.

“Construction Noise” means any noise, sound or vibration made on or associated with a construction site, including on one’s own property:

- *in carrying on work in connection with the construction, reconstruction, alteration, repair, or demolition of any building structure or thing;*
- *in carrying on any excavation, filling or other operation; or*



- *in moving, or operating any machine, engine or equipment.*

Noise Bylaws in the surrounding rural areas, known as Electoral Areas A, B, C, and D, are enforced by the Squamish-Lillooet Regional District (SLRD). The municipality of Squamish is bordered on all sides by Electoral Area D. The SLRD Noise Bylaw No. 1590-2018 for Electoral Area D includes the following prohibitions.

Section 4.0 – General Prohibitions

4.1 - No person shall make, cause to be made, or continue to make any noise or sound in Electoral Area D “which unduly disturbs the quiet, peace, rest, enjoyment, comfort, or convenience of the neighbourhood or of reasonable persons at or near the source of such noise or sound.”

Section 5.0 – Specific Prohibitions

5.1 - Without limiting the generality of the prohibitions contained in Section 4 of this Bylaw, no person shall cause or permit the following to occur.

Specific Prohibition	Monday - Saturday	Sunday & Statutory Holiday
<i>Any amplified music or singing or speech or sounds made by instrument, radio, stereophonic equipment or other device which is audible outside the premises on the real property from where the music or speech originates which disturbs the quiet, peace, rest, enjoyment, comfort or convenience of individuals or the public outside of the following hours, unless written approval is obtained from an Authorized Person</i>	<i>Before 8:00am or After 10:00pm</i>	<i>Before 8:00am or After 10:00pm</i>
<i>Any construction noise or vibration, which disturbs the quiet, peace, rest, enjoyment, comfort or convenience of individuals or the public outside of the following hours, unless written approval is obtained from an Authorized Person</i>	<i>Before 7:00am or After 8:00pm</i>	<i>Before 10:00am or After 4:00pm</i>



5.2 - The following noises are prohibited:

- a) motor vehicles without a functional muffler;
- b) excessive vehicle noise such as excessive use of horn, revving of engines, squealing of tires, unattended car alarms, air horns, engine brakes, or exhaust noise;
- c) unreasonably loud or excessive noise.

It should be noted that only Bylaw or RCMP Officers have the jurisdiction to determine what noises are “unreasonably loud or excessive” as described in Section 5.2 of this bylaw.

Since the Squamish Municipal and Squamish-Lillooet Regional District Noise Bylaws do not provide specific noise criteria for the operation of stationary noise sources, Pinchin adopted the noise criteria outlined in the Noise Control Bylaw established in the neighbouring municipality of West Vancouver for reference; specifically, West Vancouver Noise Control Bylaw 4404, 2005 (NCB 4404).

As listed in Part 6.1.5 (a) (ii) of NCB 4404, noises or sounds which are deemed to “disturb the quiet, peace, rest, enjoyment, comfort or convenience of individuals or the public and are prohibited” include the following:

- Any Contiguous Sound that exceeds the following Sound Levels at the Point of Reception.

Period	Sound Level
During the Day*	55 dBA
During the Night**	45 dBA

* “Day” means the period of time from 0700 hours (7:00 a.m.) to 1800 hours (6:00 p.m.) on each week day or Saturday and from 0900 hours (9:00 a.m.) to 1800 hours (6:00 p.m.) on a Sunday or holiday

** “Night” means the period of time from 1800 hours (6:00 p.m.) on one day to 0700 hours (7:00 a.m.) on the next and from 1800 hours (6:00 p.m.) on one day to 0900 hours (9:00 a.m.) on the next day when the latter is a Sunday or a holiday

4.0 METHODOLOGY

Short-term noise measurements, between one and five minutes, were collected using a Type 1 TSI Quest SoundPro DL Sound Level Meter with 1/3 octave analysis capability. Measurements were collected at specific locations to identify predominant noise sources and to identify areas where noise levels regularly exceed 55 dBA during the day and 45 dBA at night.

All noise monitoring equipment was calibrated before the survey.



5.0 NOISE SAMPLE RESULTS AND FINDINGS

Noise data collected from the three site visits has been included in Appendix II.

5.1 Data Summary

Noise measurements across all sample locations increased between the initial assessment on February 1, 2024, and at the subsequent assessment on May 10, 2024. The average increase between the two assessments was 24.5 dBA. On Feb 1, 2024, five locations were recorded to have daytime noise levels above 55 dBA. The number of locations observed with sound levels above 55 dBA increased to 25 during the May 10 assessment.

During the August 9-10 assessment, when the noise was able to be verified in the early morning hours, Pinchin collected noise measurements at three locations within Unit 514 under two conditions; with the HVAC unit presumed to be running, and with the unit presumed to be off (and noting that other potential noise sources were not impactful in the opinion of the investigator).

Location within Unit 514	Time	Sound Level Measurement (dBA)	
		HVAC Off	HVAC On
Balcony	2:16 AM	48.0	60.8
Dining Area (window closed)	2:28 AM	-	39.7
Dining Area (window open)	2:36 AM	-	44.5
Bedroom (window open)	2:01 AM	40.0	-

The measurement collected on the balcony of Unit 514 when the HVAC unit was presumed to be on, was observed to be 12.8 dBA higher than when the HVAC unit had cycled off. Given that sound level is measured logarithmically, with loudness doubling every ten decibels, the qualitative difference in sound level when the unit cycle on, could be perceived to be at least twice than when the unit was off.

The night-time measurement at the balcony of Unit 514 while the HVAC unit was running was observed to be 5.8 dBA higher than the permissible day-time noise in the City of West Vancouver, and 15.8 dBA higher than the permissible night-time noise.

In addition, the Pinchin representative collected noise measurements in Unit 424, which is located on the east end of the building. The measurements were collected while the HVAC unit was presumed to be running. Two separate measurements at the balcony were recorded at 47.3 and 47.4 dBA.



6.0 CONCLUSIONS

An assessment of the noise presumably generated by the neighbouring HVAC unit was conducted on three occasions. Measurement results indicate that general sound levels were higher during the assessment conducted on May 10, 2024, relative to the to the initial assessment conducted on February 1, 2024.

During the third assessment conducted on August 9-10, 2024, when the Pinchin representative and the tenant of Unit 514 were able to confirm the presence of the noise which was described as affecting the south-facing tenants of WestWinds, several measurements which were collected when the neighbouring HVAC unit was presumed to be running were found to be above day-time and night-time noise level criteria established by the neighbouring municipality of West Vancouver. The noise was confirmed to be present during the early morning hours, when tenants are typically sleeping.

It is therefore reasonable to conclude that the noise levels above the referenced criteria, presumably originating from the rooftop HVAC unit of the neighbouring Shannon Falls Assisted Living building, would pose a disturbance to a number of residents on the south facing side of WestWinds Seniors residence.

However, as previously noted only a Bylaw Officer or RCMP member can make the determination of whether or not the noise can be deemed as disturbing.

7.0 TERMS AND LIMITATIONS

This work was performed subject to the Terms and Limitations presented or referenced in the proposal for this project.

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.



8.0 CLOSURE

Should you have any questions or concerns regarding the contents of this letter, please contact the Project Manager at 604.238.2927 or msheridan@pinchin.com.

Sincerely,

Pinchin Ltd.

Prepared by:

Reviewed by:

Martin Sheridan, CIH, CRSP
Project Manager, OHS

Chris Taylor, EET, ROHT
Senior Occupational Health and Safety
Consultant

Encl.: Appendix I – Figures 1 and 2
Appendix II – Noise Measurement Data

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Template: Master Noise Impact Study Letter, ERC, July 18, 2024

APPENDIX I
Figures 1 and 2
(2 Pages)



Figure 1 - Aerial view of shared southern property line between WestWinds (38201 3 Avenue, Squamish) and Shannon Falls (38225 3 Avenue, Squamish) residential buildings and distance from potential identified noise source and receptor (Image: Google Earth – Accessed September 3, 2024).



Figure 2 – View of neighbouring rooftop HVAC unit atop the Shannon Falls Residential Building from the balcony of WestWinds Unit 514.

APPENDIX II
Noise Measurement Data
(5 Pages)



Table 1 – Summary of Results of Short-Term Area Noise Sampling on February 1, 2024

Sample Number	Measurement Description	Time	Average Noise Level (dBA)	Range of Sound Pressure Levels (dBA)
1	Near fire hydrant (at southern property line)	09:34 am	58.8	70 to 52
2	Walkway - East End (at southern property line)	09:38 am	59.1	66.1 to 55
3	Opposite to the ground air unit (at southern property line)	09:41 am	56.6	63 to 54.5
4	Walkway – Middle of the building (at southern property line)	09:45 am	52.8	55.4 to 50.4
5	Walkway – Opposite to laundry dryer vent (at southern property line)	09:47 am	51.2	53.6 to 50.2
6	Walkway – Between west end and dryer vent (at southern property line)	09:50 am	48.7	51.8 to 46.5
7	Walkway – West end (at southern property line)	09:54 am	46.7	54.4 to 45.5
8	Unit 514 – Window (Middle of the building)	10:16 am	37.2	42.1 to 36.2
9	Unit 514 – Balcony (Middle of the building)	10:14 am	52	55 to 50.0
10	Unit 502 – Window (West end)	10:20 am	32.3	38.1 to 30.1
11	Unit 502 – Balcony (West end)	10:22 am	47.5	52.7 to 44.6
12	Unit 524 – Window (East end)	10:27 am	35.6	45 to 32.6
13	Unit 524 – Balcony (East end)	10:29 am	61.1	64 to 55
14	Unit 424 – Window (East end)	10:33 am	38	46.8 to 35.2
15	Unit 424 – Balcony (East end)	10:36 am	54	57.4 to 52.2
16	Unit 414 – Window (Middle of the building)	10:40 am	36.2	38.8 to 35.3
17	Unit 414 – Balcony (Middle of the building)	10:39 am	50.8	56.9 to 49.5
18	Unit 402 – Window (West end)	10:43 am	34.9	38.8 to 34.1



Noise Measurement Tables

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Appendix II

Sample Number	Measurement Description	Time	Average Noise Level (dBA)	Range of Sound Pressure Levels (dBA)
19	Unit 402 – Balcony (West end)	10:45 am	44	46.2 to 43.0
20	Unit 202 – Window (West end)	10:52 am	37.2	50.6 to 33.7
21	Unit 202 – Balcony (West end)	10:49 am	46.3	56.3 to 43.5
22	Unit 214 – Window (Middle of the building)	10:57 am	40.3	43.3 to 38.2
23	Unit 214 – Balcony (Middle of the building)	10:59 am	50.4	53.4 to 49.4
24	Unit 224 – Window (East end)	11:06 am	43.3	44.3 to 38.5
25	Unit 224 – Balcony (East end)	11:04 am	55.9	60.8 to 54.7

Note: Unit 524, 424, and 224 balconies are slightly affected by traffic noise on the adjacent road

Table 2 – Summary of Results of Short-Term Area Noise Sampling on May 10, 2024

Sample Number	Measurement Description	Time	Average Noise Level (dBA)	Range of Sound Pressure Levels (dBA)
1	Near fire hydrant (at southern property line)	09:50 am	72.2	74.4 to 71.7
2	Walkway - East End (at southern property line)	09:51 am	73.3	77.3 to 72.3
3	Opposite to the ground air unit (at southern property line)	09:53 am	73.2	74.8 to 68.3
4	Walkway – Middle of the building (at southern property line)	09:56 am	73.9	74.2 to 71.1
5	Walkway – Opposite to laundry dryer vent (at southern property line)	09:58 am	70.9	72.9 to 70.4
6	Walkway – Between west end and dryer vent (at southern property line)	10:01 am	70.6	79.9 to 69.9
7	Walkway – West end (at southern property line)	10:02 am	70.4	71.1 to 69.9



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Sample Number	Measurement Description	Time	Average Noise Level (dBA)	Range of Sound Pressure Levels (dBA)
8	Unit 514 – Window (Middle of the building)	10:28 am	62.9	75.9 to 44.3
9	Unit 514 – Balcony (Middle of the building)	10:31 am	72.0	74.6 to 71.6
10	Unit 502 – Window (West end)	10:19 am	74.9	74.8 to 71.4
11	Unit 502 – Balcony (West end)	10:21 am	71.0	73.3 to 68.0
12	Unit 524 – Window (East end)	10:38 am	65.4	80.8 to 44.3
13	Unit 524 – Balcony (East end)	10:40 am	71.5	72.0 to 71.3
14	Unit 424 – Window (East end)	10:44 am	70.6	81.4 to 44.3
15	Unit 424 – Balcony (East end)	10:47 am	73.1	76.3 to 71.8
16	Unit 414 – Window (Middle of the building)	10:51 am	80.2	79.5 to 73.8
17	Unit 414 – Balcony (Middle of the building)	10:53 am	70.9	73.7 to 66.8
18	Unit 402 – Window (West end)	11:00 am	73.6	76.9 to 73.1
19	Unit 402 – Balcony (West end)	11:03 am	72.8	84.3 to 71.6
20	Unit 202 – Window (West end)	11:08 am	64.9	81.1 to 44.3
21	Unit 202 – Balcony (West end)	11:10 am	71.5	72.2 to 70.0
22	Unit 214 – Window (Middle of the building)	11:17 am	72.4	78.0 to 72.0
23	Unit 214 – Balcony (Middle of the building)	11:20 am	71.0	72.6 to 70.8
24	Unit 224 – Window (East end)	11:24 am	69.4	72.5 to 55.7
25	Unit 224 – Balcony (East end)	11:27 am	72.0	74.7 to 68.2

Note: Unit 524, 424, and 224 balconies are felt to be slightly affected by traffic noise on the road.



Table 3 – Summary of Results of Short-Term Area Noise Sampling on August 9, 2024

Sample Number	Measurement Description	Time	Neighbouring HVAC Unit (On / Off)	Average Noise Level (dBA)
1	Unit 424 – Window (East end)	01:04 am	On	43.9
3	Unit 424 – Balcony (East end)	01:14 am	On	47.3
4	Unit 514 – Balcony (Middle of the building)	01:28 am	Off, then On (Mixture)	58.7
5	Unit 514 – Bedroom, Window Open (Middle of the building)	02:01 am	Off	40.0
6	Unit 514 – Balcony (Middle of the building)	02:16 am	Off	48.0
7	Unit 514 – Balcony (Middle of the building)	02:20 am	On	60.8
8	Unit 514 – Near Dining Area Window, Window Closed (Middle of the building)	02:28 am	On	39.7
9	Unit 514 – Near Dining Area Window, Window Open (Middle of the building)	02:36 am	On	44.5
10	Unit 424 – Balcony (East end)	03:02 am	On	47.4
11	Unit 424 – Near Dining Area Window, Window Closed (East end)	03:08 am	On	40.7

Table 4 – Summary of Results of Short-Term Area Noise Sampling on August 10, 2024

Sample Number	Measurement Description	Time	Neighbouring HVAC Unit (On / Off)	Average Noise Level (dBA)
12	Near fire hydrant (at southern property line)	09:40 am	On	58.7
13	Opposite to the ground air unit (at southern property line)	09:44 am	On	66.7
14	Walkway – Middle of the building (at southern property line)	09:48 am	On	54.4



Noise Measurement Tables

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Sample Number	Measurement Description	Time	Neighbouring HVAC Unit (On / Off)	Average Noise Level (dBA)
15	Walkway – Opposite to laundry dryer vent (at southern property line)	09:52 am	On	50.2
16	Walkway – West end (at southern property line)	09:56 am	On	49.4