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Making buildings perform better

Got AC? Incorporating Heat Pumps into Your Communities

**FAQs for Association Managers & Homeowners:
Key Elements of an Effective Installation Protocol**

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What is the Noise Level?

Expected noise levels depend on four key factors:

1. The system is sized correctly
2. The system is installed correctly
3. The system is maintained correctly
4. The end user understands the system's normal operating noise levels



***When issues arise,
one or more of these
factors may be
contributing***



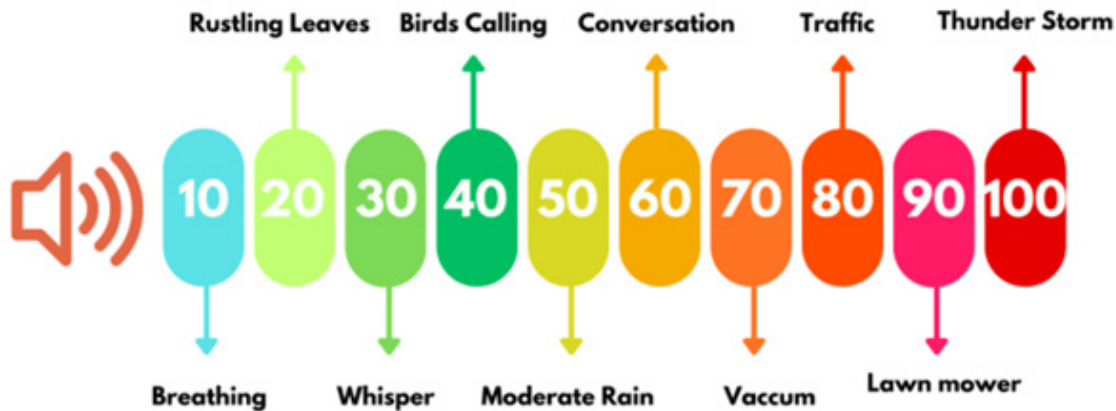
Typical Noise Levels (dB)

- Single-zone: Outdoor unit: 31 – 45 dBA; Indoor unit: 25 – 35 dBA
- Multi-zone: Outdoor unit: 48 – 55 dBA; Indoor unit: 25 – 35 dBA
- Whole-house ducted central air: Outdoor unit: 59 – 75 dBA

Noise levels can vary greatly for grouped units due to operational hours, compressor types, individual temperature settings, and meeting the four prerequisites.



What Will It Sound Like Next to an Adjacent Unit or Building?



Resulting sound pressure level at the distance listed.

Manufacturer's Sound Power Rating	3'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	60'	70'	80'	90'	100'
56	52	46	43	40	38	37	35	34	33	32	31	29	28	27	26	
58	54	48	45	42	40	39	37	36	35	34	33	31	30	29	28	
60	56	50	47	44	42	41	39	38	37	36	35	33	32	31	30	
62	58	52	49	46	44	43	41	40	39	38	37	35	34	33	32	
64	60	54	51	48	46	45	43	42	41	40	39	37	36	35	34	
66	62	56	53	50	48	47	45	44	43	42	41	39	38	37	36	
68	64	58	55	52	50	49	47	46	45	44	43	41	40	39	38	
70	66	60	57	54	52	51	49	48	47	46	45	43	42	41	40	
72	68	62	59	56	54	53	51	50	49	48	47	45	44	43	42	
74	70	64	61	58	56	55	53	52	51	50	49	47	46	45	44	
76	72	66	63	60	58	57	55	54	53	52	51	49	48	47	46	
78	74	68	65	62	60	59	57	56	55	54	53	51	50	49	48	
80	76	70	67	64	62	61	59	58	57	56	55	53	52	51	50	
82	78	72	69	66	64	63	61	60	59	58	57	55	54	53	52	
84	80	74	71	68	66	65	63	62	61	60	59	57	56	55	54	
86	82	76	73	70	68	67	65	64	63	62	61	59	58	57	56	
88	84	78	75	72	70	69	67	66	65	64	63	61	60	59	58	
90	86	80	77	74	72	71	69	68	67	66	65	63	62	61	60	
92	88	82	79	76	74	73	71	70	69	68	67	65	64	63	62	

- Exceeds Industrial zone objective standards
- Exceeds Residential zone objective standards (Nighttime)
- Exceeds Commercial zone objective standards
- Exceeds Residential zone objective standards (Daytime)

Noise Level Analysis

- As part of evaluating HVAC solutions, the board referred to Air Conditioning Heating and Refrigeration Institute's (AHRI) standard 275, "Application of Sound Rating Levels of Outdoor Unitary Equipment"
- Washington State code limits noise levels to 55 db before 10pm and 45 db after 10pm
- "End Units" are located approximately 25 feet¹ away
- External units produce sound mostly unidirectionally
- For the purposes of analysis, "property line" is the exterior wall of an adjacent unit

1. Buildings 5 and 7 are slightly closer together and require additional analysis
2. Depending on the location of the external unit, an additional 3 db reflective surface factor may be added

AHRI Distance Factors

Table 4. Distance Factor ²																
D, m	1	1.5	2	3	4	6	8	12	16	24	32	48				
DF Value, dB	8	12	14	18	20	24	26	30	32	36	38	42				

- Distance is a natural and highly effective dissipator of noise
- The distance between end units, for example, reduces noise levels by approximately 25db. Therefore a unit with a sound pressure rating of 60 would reduce to 35-38db at the exterior wall of the adjacent building², the sound level in a quiet library
- Landscaping and barriers between patios also act as noise reducers
- Each unit is required to independently pass code inspection to ensure compliance with noise limits**

Refrigeration Phaseout

In 2026, the HVAC industry will undergo significant changes, including a mandatory phase-out of standard refrigerants.

Should Homeowners Wait Until the Phase-Out Occurs Before Ordering Equipment?

Not necessarily, but there may be benefits to doing so:

- **Energy Efficiency:** New refrigerants are 20–30% more energy efficient.
- **Reduced Maintenance Costs:** The phase-out will lead to higher repair costs due to scarcity of older refrigerants.



What Happens If Homeowners Recently Purchased Equipment with Older Refrigerants? Am I Forced to Upgrade?

No, you can continue using existing equipment until the end of its useful life, but maintenance may become costlier due to the phase-out.



Do the Lines Go Through the Wall?

Yes

Can We Run the Lines on the Outside of the Building?

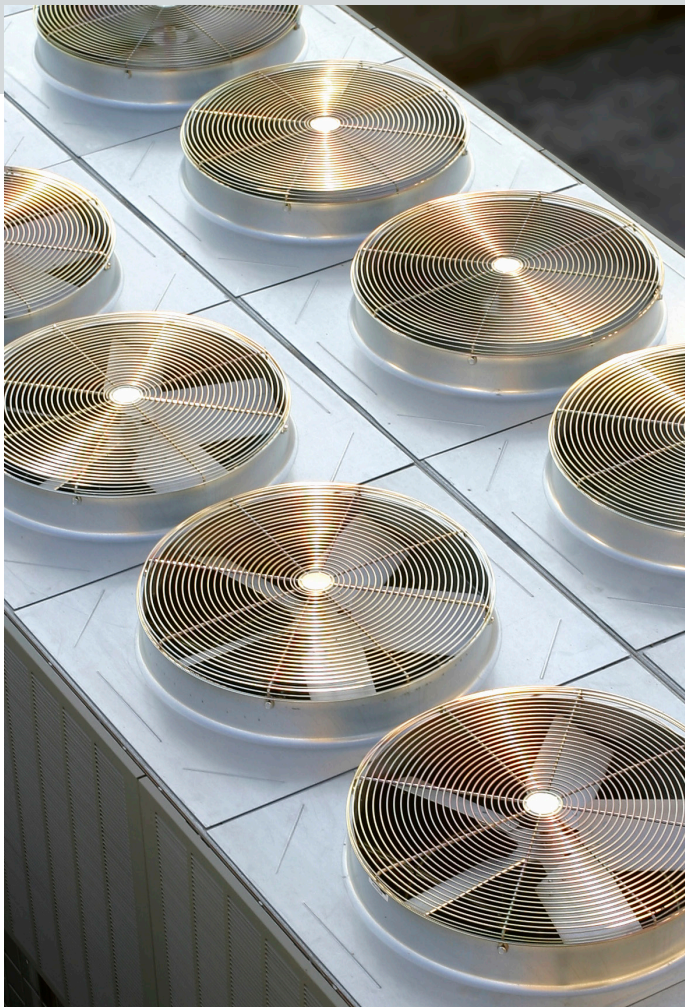
Yes; however, we generally discourage this approach in common-interest communities. Exterior line sets can affect the building's architectural appearance and may interfere with future maintenance and repairs to exterior walls, roofs, decks, and other building-envelope components.



Will I Have to Upgrade My Electrical Panel?

It depends on the current panel capacity and system requirements. In many cases, you may be able to use the power from a nearby heater to run a mini-split system. However, there are additional rules to follow for a legal installation.

- **20–25 amp circuits** are typically sufficient for standard setups.
- **Hyper Heat systems** may require service upgrades. We generally don't recommend these systems for retrofits unless the electrical panel can support the added load.
- If your existing panel is fully loaded, **tandem breakers** can be used to free up space for a separate dedicated circuit.



You don't want to see work like this:



Installation Protocol

A good installation protocol:

- Evaluates and applies all federal, state and local jurisdictional code requirements
- Evaluates and describes each unit type for proper and approved placement of outdoor and indoor equipment
- Evaluates existing utilities
- Evaluates clearances
- Evaluates wall cladding and roof types
- Provides an application
- Provides a homeowner checklist
- Provides a list of inspections
- Provides a set of details for each condition that equipment may interface with
- Provides a list of basis of design performance specifications for equipment and accessory products for waterproofing and trim outs
- Provides homeowner operational guidance
- Provides homeowner maintenance regimen
- Provides a list of prequalified vendors

Impact on the Homeowner

When obtaining electrical, mechanical, and refrigeration permits through the Authority Having Jurisdiction (AHJ), the following inspections are typically required or recommended:

- Non-AHJ Inspection: Review of through-wall line set penetration waterproofing before covering.
- AHJ Electrical Inspection: Ensures proper wiring.
- AHJ Mechanical Inspection: Verifies compliance with mechanical system standards.

Please note: Existing heating will be offline for 1-2 days during the initial hookup.

Most retrofit heat pump installations take 3–7 business days, depending on the amount of finish restoration required.

Homeowners can expect:

- Typical construction noise
- Selective impacts to interior finishes if trenching for line sets is required

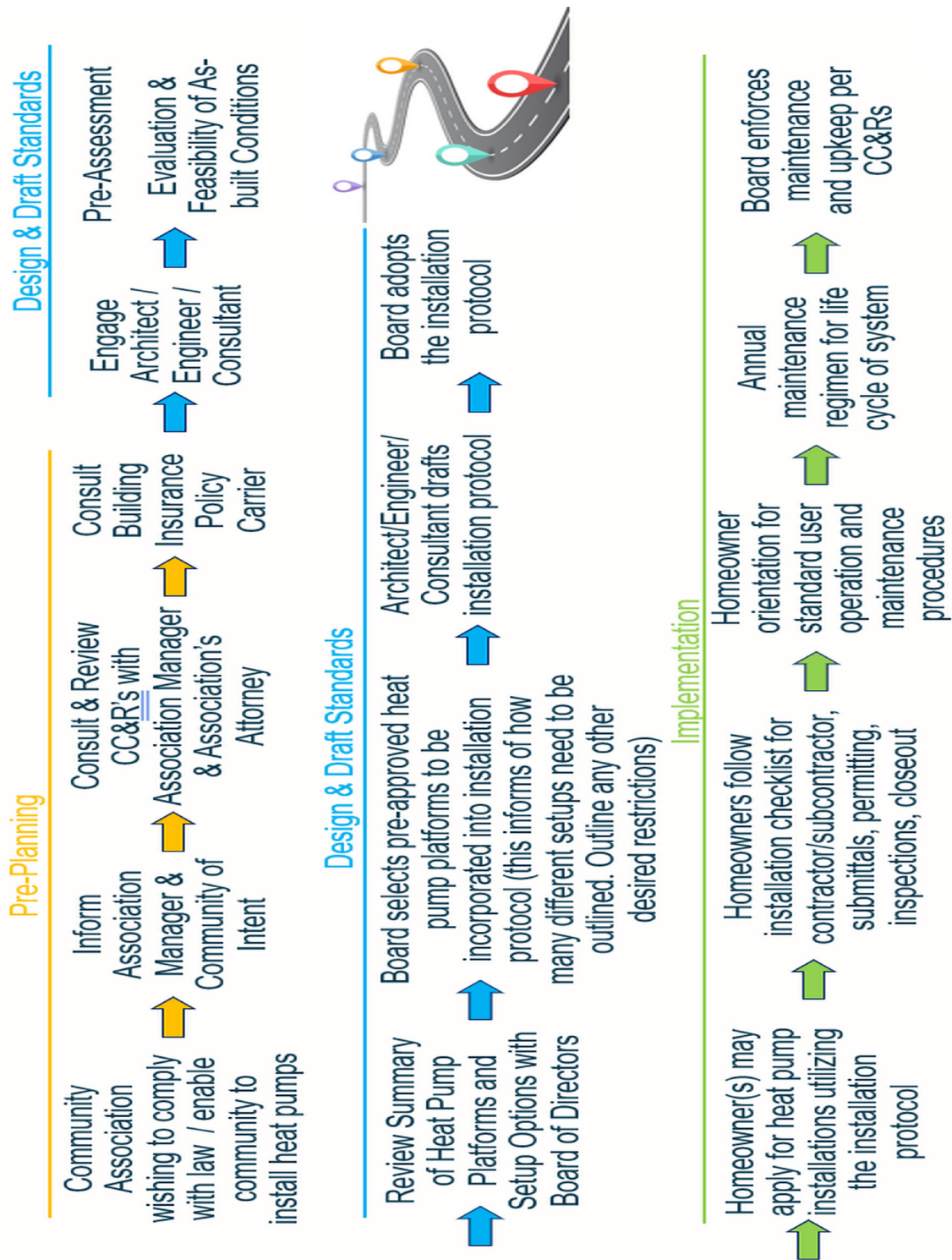


Is There an Ideal Time for Association Managers or Communities to Develop and Implement a Heat Pump Protocol?

Developing a heat pump protocol can be done at any time of the year. The drafting process typically takes 2–3 weeks, depending on the complexity and available resources. Adopting the protocol into the community's CC&Rs requires a Board quorum.

For homeowners, the ideal time to install a heat pump—when they can get the most value—is during the non-peak AC season (November through April). However, many homeowners tend to wait until after the first heat wave to act.

Protocol-to-Installation-to-Operations Roadmap



Why Choose ABB for Your Installation?

At ABB, we specialize in ensuring that your heat pump installation is seamless, compliant with all codes, and suited to your building's unique needs. From design consultation to final installation, our licensed experts provide a turnkey solution that provide year-round comfort and enhanced property value.

Expertise

Our team of experts understands the unique challenges of installing and retrofitting heat pumps in condos.

Compliance

We ensure your project adheres to all local regulations and codes.

Efficiency

Our guidelines optimize installation for maximum energy efficiency and serviceability for both the heat pump and the adjacent building components.

Minimized Disruption

We prioritize minimizing disruptions to residents during the installation process.

About Allana Buick & Bers, Inc. (ABB)

Allana Buick & Bers, Inc. (ABB) is a multidisciplinary architectural-engineering firm providing building systems, enclosure, and construction consulting services. For nearly 40 years, ABB has helped building owners evaluate existing conditions, develop practical solutions, and manage complex building improvement projects from investigation and design through construction.

Our integrated expertise allows us to consider heat pump upgrades in the context of the entire building—including mechanical systems, building enclosure conditions, constructability, and long-term performance.

**Contact ABB to discuss your heat
pump upgrade or retrofit project.**
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