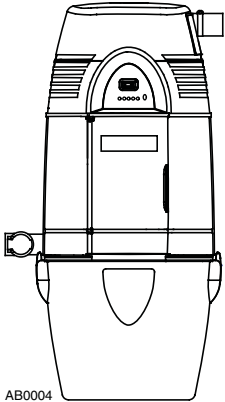


CENTRAL VACUUM SYSTEM

Broan Power Unit Models VX3000C, VX6000C, VX12000C
NuTone Power Unit Models VX475CC, VX550CC, VX1040CC



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Broan-NuTone Canada; Mississauga, Ontario
www.broan.ca or www.nutone.ca 866-882-7626



SYSTEM PLANNING LAYOUT

Central Vacuum Systems consist of a Power Unit, PVC Tubing and Fittings, Wall Inlets, a flexible Hose and various cleaning accessories.

⚠ WARNING

When applicable local regulations comprise more restrictive installation and/or certification requirements, the aforementioned requirements prevail on those of this document and the installer agrees to conform to these at his own expenses.

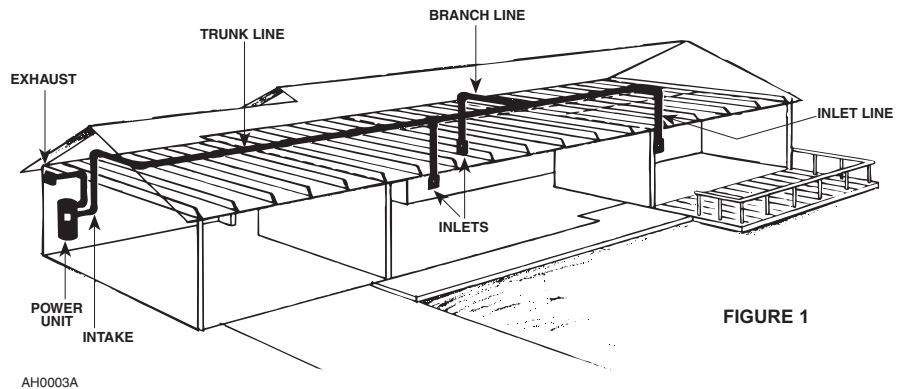
The Power Unit is designed to be wall-mounted away from the living area of the home and connected to the living area by means of permanently installed in-wall tubing, fittings and inlets.

Generally, an installation will require 3 to 4 inlets and 16 to 20 feet (4.9 m to 6.1 m) of tubing per inlet. It is suggested that a floor plan be used to more accurately determine the quantity of materials needed.

Use the following examples as an aid in planning the installation in either new or existing construction. You should be able to adapt the examples shown to your specific home layout.

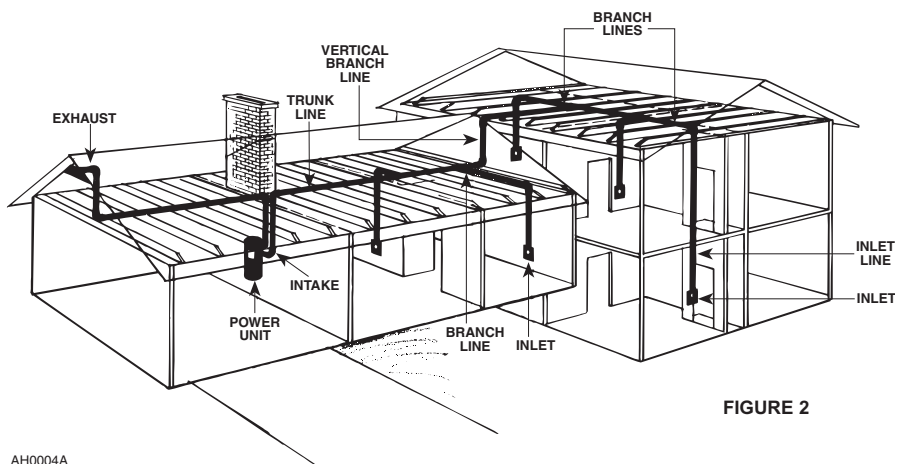
THE RANCH STYLE HOUSE

Here the power unit is mounted in the garage. The intake and exhaust tubing, the only exposed tubing in the installation, runs up the garage wall and into the attic. The trunk line runs horizontally through the attic from the power unit to the farthest inlet location. Branch lines spread throughout the attic, connecting the trunk line to the inlet tubing. Each inlet tube is threaded vertically through an inside wall. Located in hallways and in large rooms, the inlets are placed to provide maximum access to all cleaning areas. Refer to Figure 1.



THE SPLIT-LEVEL HOUSE

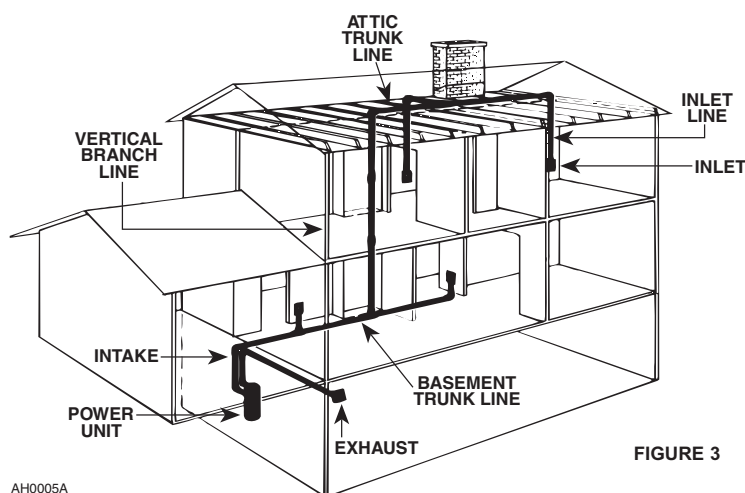
Like the two-story house, the split level installation commonly calls for a two-level trunk line. Here, the power unit is located in the garage. The intake tubing runs exposed up the garage wall and into the ground level section's attic. Two branch lines connect this part of the trunk line to inlet lines which are dropped inside interior walls. A vertical branch line runs to the upstairs attic, where the trunk line branches into a T-shape. This trunk line connects to two upstairs inlet lines and to one inlet line which drops through an upstairs wall and down into the third-level utility room to service this entire level. Refer to Figure 2.



SYSTEM PLANNING LAYOUT (CONTINUED)

THE TWO-STORY HOUSE

A double-trunk line system is commonly used in two-story houses. In the installation shown at right, the power unit is mounted in the basement. The intake tubing runs up the basement wall and connects to the main trunk line, which runs along the unfinished basement ceiling. Two first-floor inlets are connected to the basement trunk line by vertical inlet lines run through interior walls. In the center of the house, a vertical branch line runs from the basement trunk line, through stacked closets, up into the attic. A second trunk line runs across the attic and two branch lines connect to inlet lines which are dropped down through upstairs interior walls. Refer to Figure 3.



AH0005A

FIGURE 3

LOCATING THE POWER UNIT

- Locate the power unit at the lowest possible position away from the general living area in an accessible location for emptying the debris pail.
- When planning, remember the power unit is equipped with an inlet to service a garage, basement, utility room, etc., wherever it is located.
- Locate the power unit within 6 feet (1.82 m) of a grounded electrical outlet. Broan models VX3000C and VX6000C and NuTone models VX475CC & VX550CC power units require a 120 V, 15-amp dedicated branch circuit with a NEMA 5-15R receptacle or 20-amp dedicated branch circuit with a NEMA 5-20R receptacle. Broan model VX12000C and NuTone model VX1040CC power units require a 240 V AC, 20-amp dedicated branch circuit with a NEMA 6-20 receptacle.
- Do not locate the power unit close to a source of extreme heat (i.e., water heater) or in an area with a high ambient temperature (i.e., attic, furnace room).
- If the power unit is located in a closet or a small utility room, make sure the area is well-ventilated (i.e., with door louvers).
- Exhausting the power unit to the outside is recommended for optimal performance. The exhaust should not be vented into a wall, a ceiling or a concealed space in the house. The exhaust line should be vented outside the home using a Model V142 wall cap.

TUBING AND WALL INLET LOCATIONS

1. Locate inlets on interior walls, choosing central locations which allow several rooms to be cleaned from a single inlet using a minimum 30-foot (9.1 m) long hose.
2. The tubing installation should consist of a main trunk line running from the farthest wall inlet to the power unit location, with branch lines running to each additional inlet. Keep all tubing lines as straight as possible and use as few fittings as possible.
3. Beginning at the area farthest from the power unit, choose a tentative inlet location. Measure 30 feet (9.1 m) from the proposed inlet location to the farthest corner of the rooms to be cleaned by that inlet to determine if inlet location is proper. If working from blueprints (or building plans drawn at 1/4" [0.64 cm] = 1 ft [30.48 cm] scale), use a 7½" chain as your guide to determine inlet locations.
4. Locate inlets within six feet (1.8 m) of an electrical receptacle to allow use of optional current-carrying hose.
5. Be sure inlets will not be blocked by doors or furniture.
6. Be sure inlets will not interfere with electrical, plumbing or other mechanical installations.
7. Move tentative inlet location if necessary. Use the same procedure to determine each additional inlet location, always working toward the power unit.

GENERAL INSTALLATION

TOOL LISTING

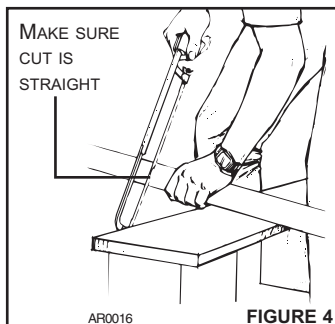
Depending on your installation, you may require the use of these tools. The power tools are recommended to make your installation proceed quickly. Also, plan a mask when cutting ducting (PVC dust) and gloves when using glue.

- Wire Strippers
- Utility Knife
- Knife
- 2 1/2" Hole Saw
- Hammer
- Level
- Drill
- Screwdriver
- Wrench
- Tape Measure
- 1/4" Drill Bit
- 1/2" Drill Bit
- Putty Knife
- Keyhole Saw
- Cold Chisel
- Flashlight
- Electrical Tape
- Safety Glasses
- Hacksaw

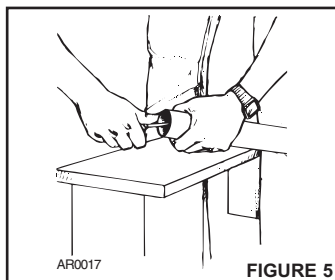
WORKING WITH PLASTIC TUBING

Cutting Tubing

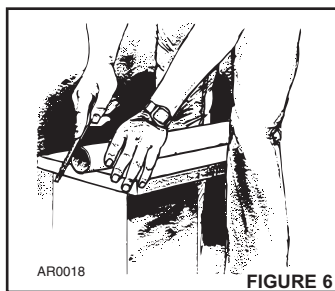
Before you cut a length of tube, accurately measure the length you need. Allow 5/8" (16 mm) of tubing for inserting into fittings and 1 1/2" (38 mm) for placing into flexible tubing. Cut the plastic tubing with a hacksaw, making sure that the cut is exactly square. (You can use a tube cutter if one is available.) Use wire cutters or tin snips to cut flexible tubing, 8" (203 mm) lengths of flexible tubing should not be cut. Refer to Figure 4.



Use a small knife to remove any burrs from the inside of the tube. You can also use steel wool to remove burrs. The burrs must be removed or they may impede air flow or form clogs by snagging hair and carpet thread. See Figure 5.

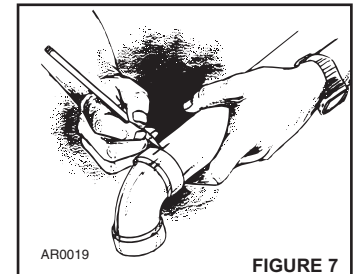


Next, use a file to slightly bevel the outside of the tube so that it will easily slide into the fitting. Use steel wool or a light grained sandpaper to buff the surface of the tube which will be glued. This will clean the tube and assure a good seal. Refer to Figure 6.

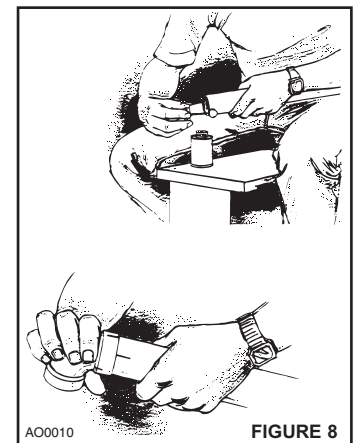


Making a Joint

Insert the tube into the fitting, aligning the two parts as they will be installed. Mark the tube and the fitting so that you can quickly realign the joint. Refer to Figure 7.



Apply cement only to the outside of the tube. Dab the cement generously in an inch-wide (25 mm) band. Insert the tube into the fitting with the alignment marks a quarter turn apart, and then quickly push and turn the fitting to align the marks and spread the cement. Allow one minute for the joint to dry. You may also use electrical tape or duct tape to further seal the joint. Refer to Figure 8.

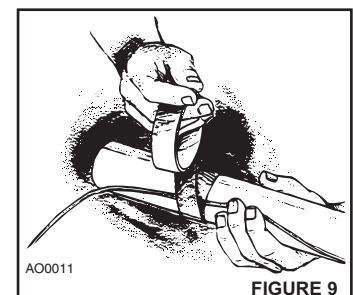


Cementing Flexible Tubing

Make sure the ends of the flexible tubing are even—trim if necessary. When you join flexible tubing to plastic tubing or to an inlet mounting plate, apply cement to both the inside of the flexible tubing and the outside of the plastic tubing or mounting plate tubing ring. Twist the two pieces as you join them to evenly spread the glue. Allow five minutes for the cement to set in flexible tubing. You may also use electrical tape or duct tape to further seal the joint.

Secure Wire to Tubing

The low-voltage power wiring is run along with the tubing. To insure that the wire is secure and will not hang-up in a wall, use electrical tape to attach the wire to the tubing. Tape the wire approximately every 12-18 inches (305 mm - 457 mm). Refer to Figure 9.



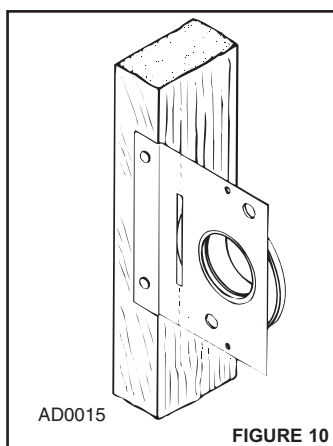
INSTALLATION IN NEW CONSTRUCTION

WALL INLET ROUGH-IN

Models V329, V144 and V141 (For use with V111 Series inlets)

Once the locations for wall inlets have been determined, mount all inlet brackets.

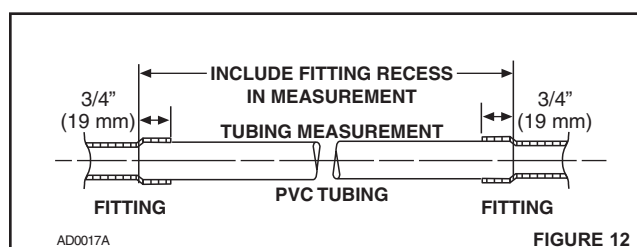
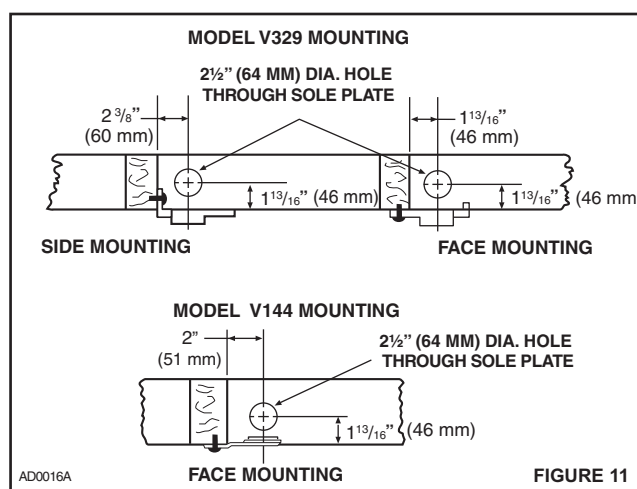
1. Choose the appropriate mounting bracket for the inlet being installed (V329, V144 or V141).
2. To locate bracket on wall stud, measure approximately 18" (457 mm) up from finished floor level. (Height may vary according to individual preference.)
3. When using V144, glue elbow to mounting plate. Attach to stud as shown in Figure 10.



5. Run low-voltage wiring (Model V133) and secure wiring to tubing as tubing is installed. Model V140 Tubing Strap can be used to support long runs of tubing (position near joists) and to clip wire along tubing. Secure tubing to joists or studs. Leave approximately 6" (152 mm) of wire for connection to each inlet.
6. Cut a 2½" (64 mm) diameter hole in sole plate, header or stud directly in line with opening of inlet bracket fitting.

NOTE: Refer to Figure 11 for center line dimensions.

7. Refer to Figure 12. Measure length of tubing needed to connect inlet to trunk line. Allow approximately ¾" (19 mm) of tubing for inserting into fittings.

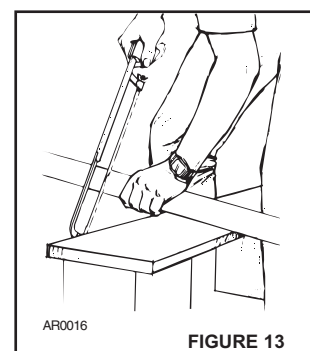


INSTALLING THE TUBING

Use the following installation guidelines when installing tubing.

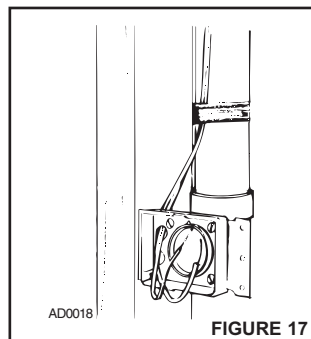
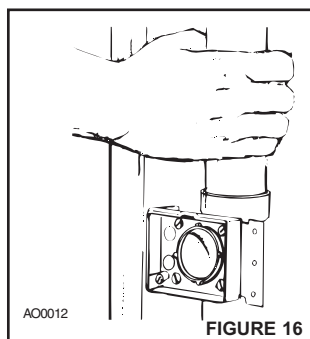
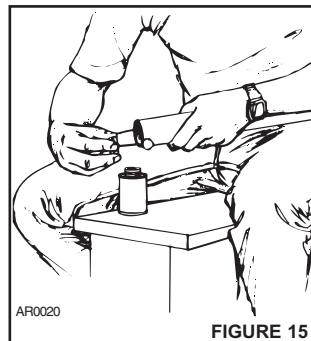
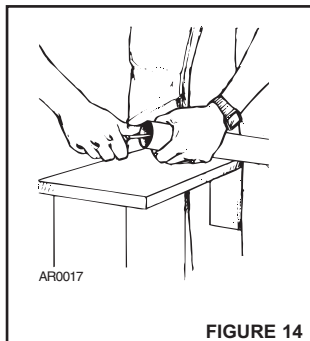
1. Start tubing installation at farthest inlet and work toward the power unit.
2. Tubing run to the power unit should be as straight as possible.
3. When assembling sections with elbows and tees, make sure the curve in the fitting is aligned so that the air flows toward the power unit.
4. Branch lines should always join the trunk line from above or from the same level. Never join a branch line from an angle below the trunk line.

8. Refer to Figure 13. Cut tubing, keeping cut square.



INSTALLATION IN NEW CONSTRUCTION (CONTINUED)

9. Refer to Figure 14. Remove burrs from both inside and outside of tubing.
10. Before cementing, pre-assemble section to inlet fitting, check for proper length.
11. Refer to Figure 15. Apply PVC cement (Model V129) to outside of tubing. Coat tubing approximately 1" (25 mm) back. Make sure to keep cement from inside of tube.
12. Refer to Figure 16. Insert tubing into fitting with a twisting motion to evenly spread cement. Be sure tubing is firmly seated in fitting.
13. If fittings have been attached to tubing at the end opposite the inlet bracket, be sure alignment is proper before cement sets.
14. Refer to Figure 17. Tape wire to tubing to hold in place and insert through hole in inlet bracket.
15. Connect each inlet line and branch line into main trunk line. Complete low-voltage wiring as main trunk line is continued back to power unit.

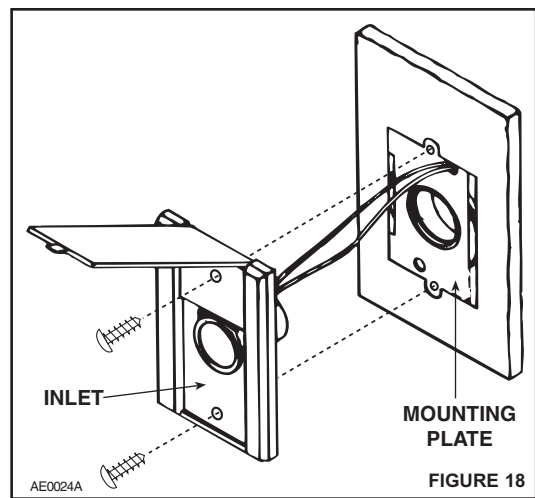


WALL INLET INSTALLATION

V111 Series Wall Inlet (V329, V144 and V141 Rough-in)

Refer to Figure 18.

1. Connect 2-conductor low-voltage wire to terminal screws on back of wall inlet.
2. Align inlet mounting holes with holes in mounting plate.
3. Place inlet into mounting plate and secure with two provided screws.



INSTALLATION IN EXISTING CONSTRUCTION

Use the following procedures for installation in existing construction. Wall inlets in existing construction may be accessed from below (basement or crawl space) or from above (attic). Instructions apply to either method.

Starting from farthest wall inlet location, install each inlet as described below. Working back toward power unit, connect each inlet line and branch line into main trunk line. See pages 2 and 3. Complete low-voltage wiring as main trunk line is continued back to power unit. Mount power unit and complete wiring. See pages 18 and 19.

LOCATING ACCESS KEYS IN EXISTING CONSTRUCTION

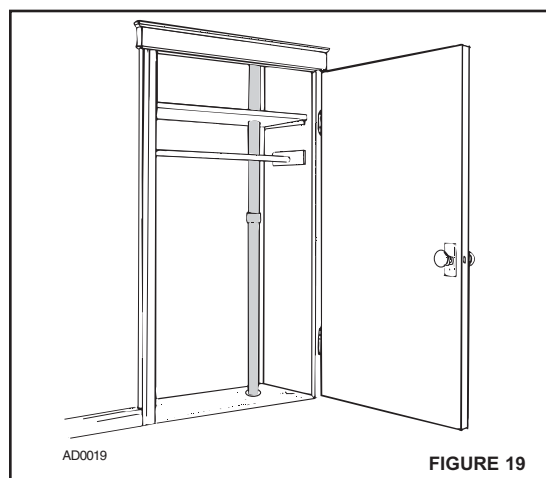
Unless your home is a ranch-style house where a single trunk line can run directly through the attic or basement, you should first investigate your house to find the key to running your tubing from level to level. Look for an accessible area free from obstructions that will accommodate the 2" (51 mm) tubing.

If you understand how your existing home is constructed, it can be relatively easy to find access routes to run the tubing. Refer again to the illustrations on pages 2 and 3 as you consider your home construction.

Some of the keys you might find in your home are illustrated here.

Stacked Closets or Laundry Chute

Many homes will have an upstairs closet located directly above a downstairs closet. It is easy to run the tubing from one floor level to another inside these stacked closets. In these installations the tubing is often left exposed inside the closets. Refer to Figure 19. A laundry chute could also provide access from basement to upper floors. You may also want to consider running exposed tubing through cabinets or cupboards.



AVOIDING IN-WALL OBSTACLES

The tubing which connects the inlet into the trunk line is threaded through interior partition walls. After you've chosen an inlet location, make sure the wall doesn't contain some hidden obstacle which will prevent you from running tubing to the inlet.

Exterior Walls. The insulation in these walls will prevent you from running tubing through them.

Electrical Wiring. Wiring may not obstruct your tubing, but you should always make sure that tubing does not damage the wiring. Electrical outlets and wall switches are signs of wiring.

Ductwork. Avoid choosing a section of wall that contains ducting. If you see signs of ductwork—such as floor or ceiling registers—move your inlet location to another section of the wall.

Plumbing. Plumbing may or may not prevent you from running tubing through a wall. If you must choose a plumbing wall for an inlet location, be extremely careful when making a cutout in the wall.

Wall Studs. Make sure your location is between wall studs. Locate studs by tapping walls, looking for electrical outlet (usually fastened to studs), or noticing finishing nails in the floor molding.

INLET TUBING INSTALLATION

When your planning is complete, you will have to determine where all the inlets and the power unit will be located. You have mapped out the location of your trunk line and found the access you need to run vertical tubing from one level of your house to another level. You should have acquainted yourself with the methods of joining plastic tubing and acquired the tools you will need to install your Broan or NuTone Central Vacuum System. Now, you can begin installation.

The first step is to install the inlet tubing which connects the wall inlets to the branch lines. As explained before, the inlet lines run inside interior walls. You will find access to these walls through your attic or basement. Briefly, you want to find the exact location in the wall, drill an access hole through the wall plate or header, and insert the tubing into the wall cavity.

This part of your installation requires close observation and careful measurements. Take your time and make sure you accurately line up your access holes with the locations you've chosen for your wall inlets.

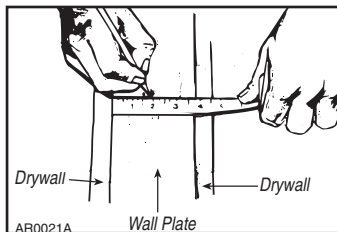
Locating Attic Access Holes

Drill the access holes directly above the inlet location. To accurately locate the access hole, you must find the space between wall studs where the inlet is to be located. Observe the area around the inlet location. Look for references you might be able to find in the attic: electrical wiring, ductwork, doorways, etc. Measure and note the distance from these references to the inlet location.

INSTALLATION IN EXISTING CONSTRUCTION (CONTINUED)

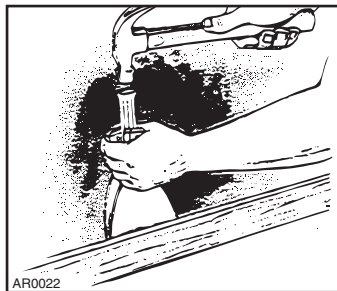
Enter the attic and find the inlet wall. Have a helper downstairs knock on the top of the wall right above the inlet location; locate the general area by following the sound. Most likely, you will have to clear away insulation. Ask your helper to continue knocking until you locate the area between wall studs directly above the inlet location.

Next, measure the thickness of the wall. Mark the exact center of the wall where you will drill the access hole. Remember that the access hole must be placed exactly in the center of the wall.



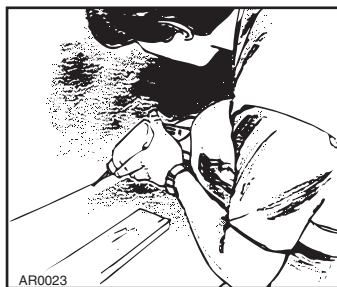
Locating Basement Access Holes

To locate access holes in the basement, remove the toe molding or baseboard at the base of the inlet wall. Carefully loosen the molding or baseboard by inserting the blade of a putty knife behind it. Force another putty knife between the first knife and the baseboard or wall.



Gently hammer a cold chisel between the two knife blades, prying the loosened molding away from the baseboard or the baseboard away from the wall.

Directly below the inlet location, drill a 1/16" (1.6 mm) reference hole through the floor into the basement. (If you are drilling through carpet, use an awl to slightly open the weave. This will keep the carpet from wrapping itself around the drill bit.) Insert a piece of scrap wire or a clothes hanger into the reference hole so you can easily find the hole in the basement.

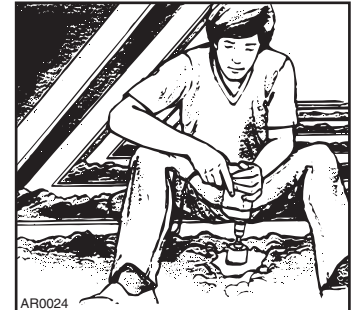


Once you've found the location in the partition wall, you must center the access hole in the middle of the wall. Measure half the thickness of the wall and mark the center of the wall where you will drill the access hole. If you cannot see the plate, you can determine this measurement from upstairs. At the nearest doorway, measure the thickness of the wall, including the baseboard.

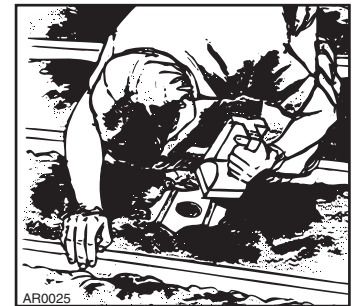
In the basement measure a distance equal to half the thickness of the wall, using the reference hole as a starting point.

Drilling the Access Holes

Once you are certain that you've located the center of the wall directly above the inlet location, use a 2 1/2" (64 mm) hole saw to cut the access hole through the wall plate or header and into the wall cavity. (A 1/2" [13 mm] drill is recommended.) Carefully remove the drill from the hole.



Now, use a flashlight to inspect the wall cavity through the access hole. Make sure no hidden obstacles will interfere with the tube installation. (If this inspection reveals an obstacle, find a new inlet location.) Repeat this procedure in your attic or basement until your access holes are drilled.



Assembling the Inlet Tubing

Once you've drilled the access holes, you assemble the inlet tubing and insert it into the wall cavity. Refer to "Working With Plastic Tubing" section on page 4 before you begin to assemble the inlet lines.

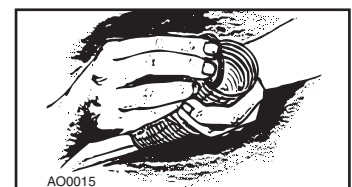
Select a section of plastic tubing and an 8" (203 mm) section of the flexible inlet tubing. Apply cement to the outside of the plastic tubing and to the inside of the flexible tubing. Join the two pieces together and allow five minutes for them to dry.



Cut a piece of low-voltage wire which is long enough for the complete inlet line, allowing 6" (152 mm) for connections to the inlet wall plate. Secure the wire to the tubing with electrical tape.



Tuck the 6" (152 mm) wire lead inside the flexible tubing so that it will not snag inside the wall.



INSTALLATION IN EXISTING CONSTRUCTION (CONTINUED)

If space permits, you can assemble the entire inlet line by joining two sections of tubing with a stop coupling before dropping the assembly into the access hole. (Remember to only glue the outside of the tubing when joining two pieces of PVC tubing.) Oftentimes, tight attic spaces require you to begin your drop and then join the second section of tubing. Of course, the order of assembly, and the length of tubing required, depend on your attic space and your wall height.



Whatever the case, insert the completed inlet line into the access hole and thread it down inside the wall. The inlet line should be long enough so that it extends above the joists in the attic; at this height, it can be easily connected to the branch and truck lines. When cutting the inlet tubing to length, remember that your inlet will be placed 18" (458 mm) above the floor.



For a basement installation, assemble the tubing to the inlet flexible tubing in the same way and insert it into the access hole. A basement inlet line is necessarily shorter because it must only reach 18" (458 mm) from the floor to the inlet. Most of the time, basement inlet lines are more easily installed by two people after the inlet hole has been cut in the interior wall. See "Installing the Inlet." Complete all your inlet lines, and then proceed to your inlet installations.



WALL INLET INSTALLATION

The wall inlet design allows you to work outside the wall—where assembly is easy and all the parts you need are accessible. First, you make a cutout into the wall and locate the flexible tubing attached to the inlet line which you previously threaded into the wall. Then, you attach the flexible tubing to the inlet mounting plate, assemble the other inlet parts, and make the wiring connections. You place the inlet assembly into the wall cutout, sandwiching the wall between the inner and outer parts, and secure the inlet tightly to the wall with two screws.

Assemble and install the wall inlet as shown in the illustrations and as explained in the next few pages. Be careful and patient as you make your first cutout and install your first inlet—following the procedure step by step—and the other inlets will be easy to install in very little time.

Making the Wall Inlet Cutout

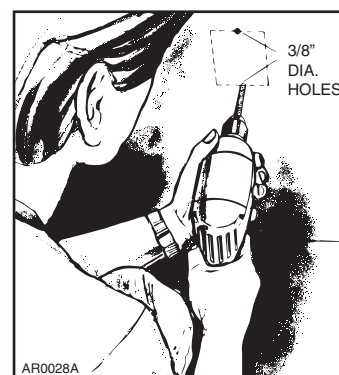
The wall inlet should be located 18" (458 mm) on-center from the floor and directly in line with the attic or basement inlet tubing hole you have already drilled in the wall plate or header. The wall inlet cutout must be exactly 3 $\frac{7}{8}$ " (98 mm) high by 2 $\frac{7}{8}$ " (73 mm) wide. It is crucial that you make an accurate cutout, and we have supplied a template to help you.



Place the template against the wall so that it is 18" (458 mm) on-center from the floor. Use a level along the top edge of the template to make sure it is square to the wall. Mark your wall for the cutout by tracing around the inside of the template. Then use your pencil to mark the screw hole locations through punched holes at the top and bottom of the template. Remove the template from the wall.

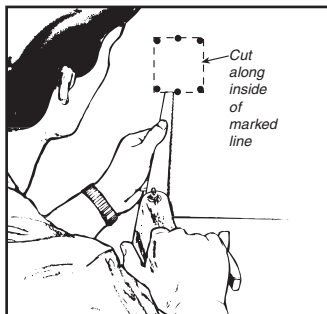
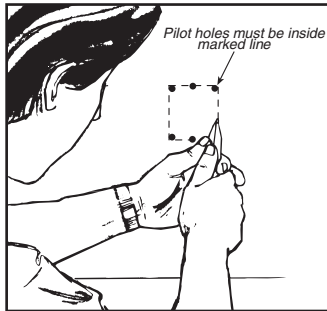


Use an awl or ice pick to punch pilot holes where you marked the two hole locations. Now, drill two 3/8" (10 mm) diameter holes, using the pilot holes as the centers. Make sure to locate and drill these holes exactly as marked with the template.



INSTALLATION IN EXISTING CONSTRUCTION (CONTINUED)

Also drill four pilot holes in the four corners of the marked area. Make sure these holes are located inside the marked line. Then, using a utility knife, score along the inside of the marked line. For plaster walls, score the plaster deeply, being careful to stay inside the marked line. Next, use a keyhole saw or a sabersaw to make the cutout. Again, be extremely careful to cut along the inside of the marked line.

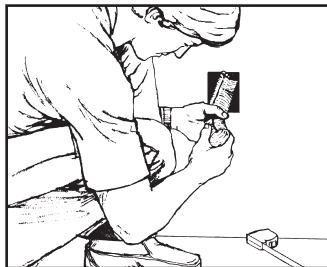


CAUTION

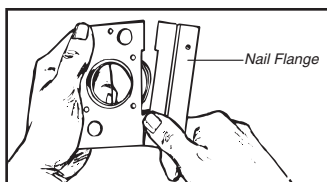
When cutting into plaster walls, make sure the plaster is firm and secure around the cutout area.

Attaching the Inlet Mounting Plate

Reach through the inlet hole and locate the inlet tubing. Raise it up inside the wall until you locate the inlet tubing. If the inlet is connected from the basement, have a helper insert the inlet tubing into the access hole until you can see the flexible tubing. Then, pull the flexible tubing through the inlet hole and remove the low-voltage wiring from inside the tube. If the end of the flexible tubing is not even, trim it so that it is exactly even.



Now, remove the nail flange (used for new construction) from the inlet mounting plate. Use pliers to bend this flange along the scored lines until you can break it off.



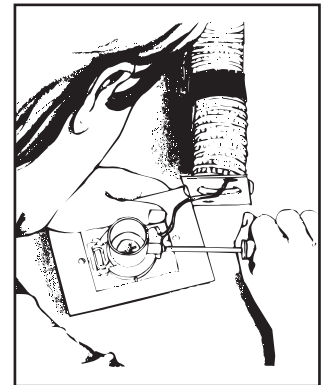
Apply cement to both the inside of the flexible tubing and to the outside of the mounting plate's tube ring. Insert the mounting plate's tube ring in the flexible tubing and twisting the pieces as you join them to spread the cement, and align the mounting plate in a vertical position.



Hold the assembly in a place for a few minutes as the cement sets; allow five minutes for the cement to completely dry.

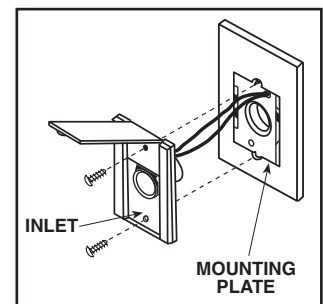


Now, strip the ends of the two low-voltage wires, and then connect the wires to the screw terminals on the back of the inlet cover. Make sure the wires are tightly secured under the terminal screws. When the wiring is complete, assemble the inlet cover to the tube guard and mounting plate. Insert the top screw through the entire inlet assembly until the screw engages the mounting plate.



Completing the Inlet Assembly

Once you have attached the mounting plate to the flexible tubing, pull the low-voltage wire through the top wiring hole in the mounting plate.



INSTALLATION IN EXISTING CONSTRUCTION (CONTINUED)

Installing the Inlet

When you place the inlet into the wall cutout, the mounting plate and tube guard slip inside the wall; the inlet cover remains on the outside.

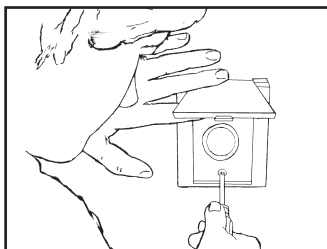
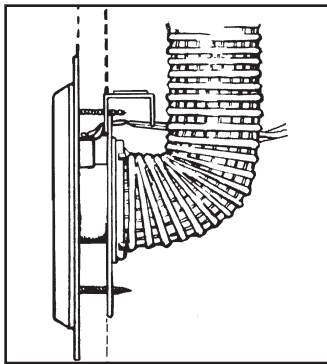
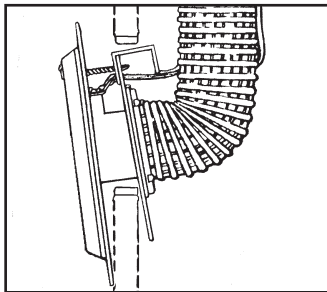
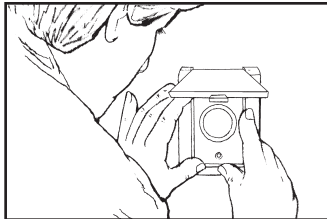
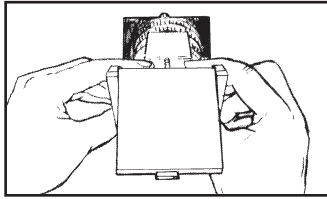
Holding the inlet assembly between your thumbs and fingers, angle the bottom of the mounting plate into the cutout. Push the assembly downward until you have clearance at the top of the cutout.

Push the top of the mounting plate into the cutout and lift the assembly upward until the top screw seats in the predrilled hole. At this point, the wall should be sandwiched between the mounting plate and the frame plate.

Insert the bottom screw into the inlet cover and through the other parts. Give the screw a few turns until it firmly engages in the mounting plate. Now, level and slightly lower the assembly. Make sure the wall is sandwiched between the inner and outer parts— you'll be able to feel if mounting plate is firmly centered on the inside of the wall.

Hold the inlet in place and gradually tighten down each screw a little bit at a time. (If you completely tighten down one screw at a time, the mounting plate may pull away from the wall at the loose end and slip back into the cutout.)

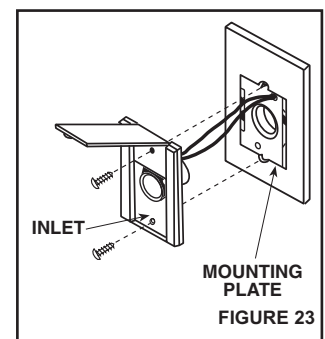
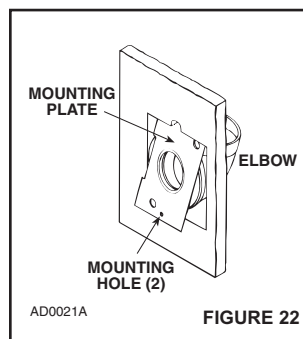
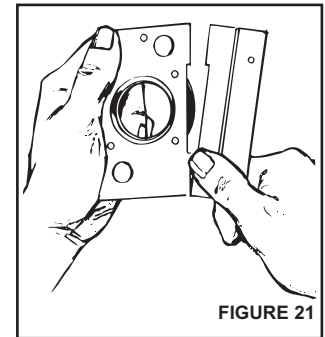
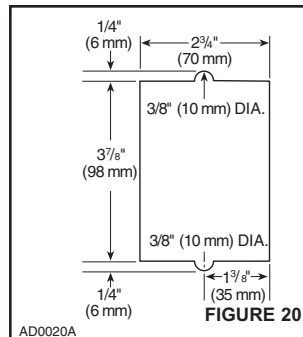
Complete all your wall inlet installations in this manner. If your cutouts are accurate, each wall inlet will install more quickly and easily.



V111 Series Wall Inlet Installation (V329, V144 and V141 Rough-in)

1. Make cutout according to dimensions in Figure 20.
2. Refer to Figure 21. Break off nail plate at scored line.
3. Refer to Figure 22. Glue elbow to mounting plate, place assembly into cutout, and attach elbow to tubing inside the wall.
4. Make sure mounting holes are exactly at top and bottom.
5. Connect 2-conductor low-voltage wire to terminal screws on back of wall inlet.
6. Refer to Figure 23. Align inlet mounting holes with mounting plate holes, place inlet into mounting plate, and secure with provided screws.

NOTE: If V122 shorter radius elbow is used, it may be necessary to use the short mounting screw to avoid interference with elbow.

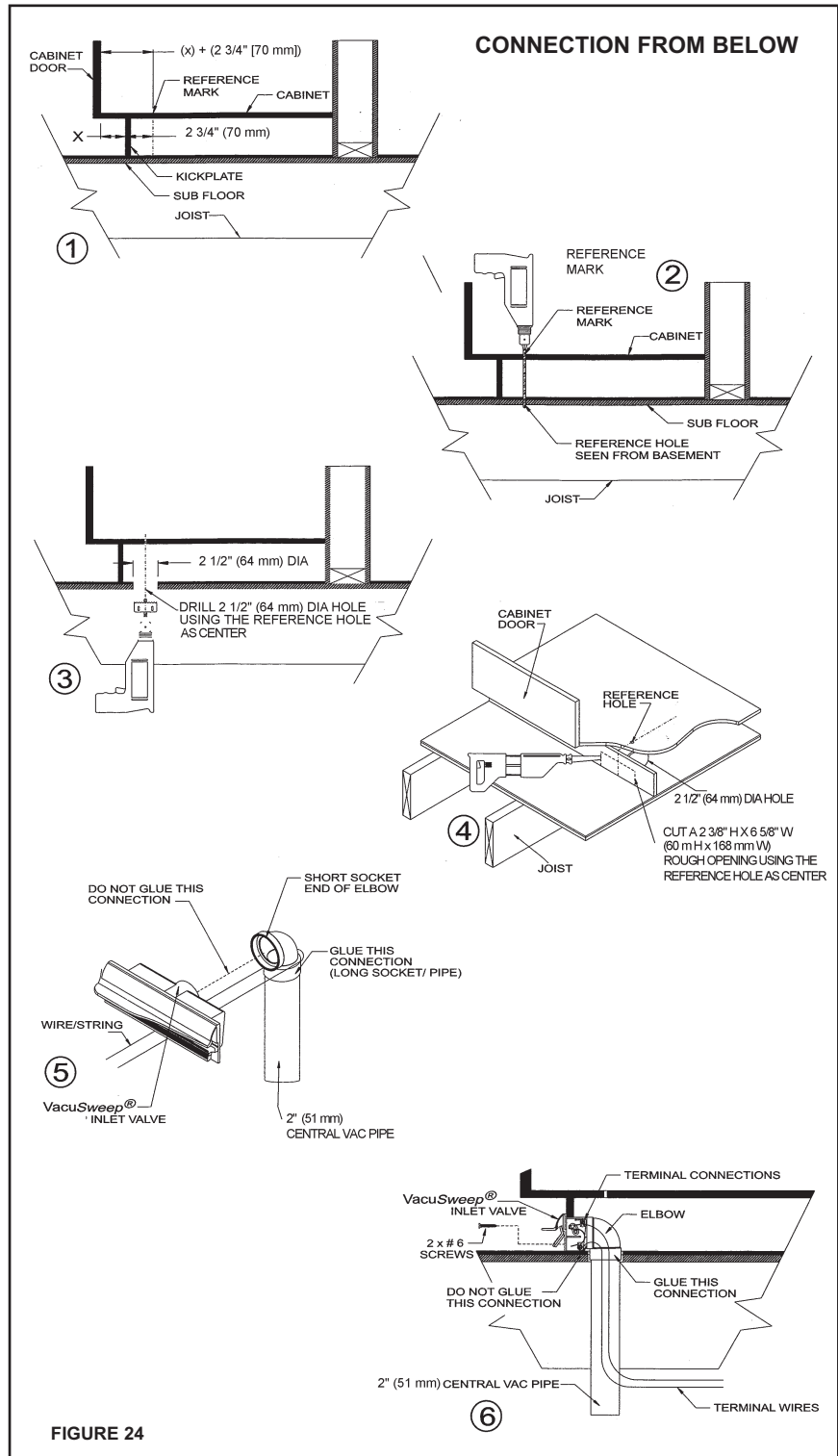


VACUSWEEP® INLET VALVE INSTALLATION

CONNECTION FROM BELOW

Refer to Figure 24.

1. Turn the power to the vacuum unit OFF. Measure distance (X) between the kickplate face and the inside edge of the cabinet. Then add 2 3/4" (70 mm) to the measured distance. Refer to Figure 24-1. Measure out the new distance (X + 2 3/4" [70 mm]) from the cabinet door, to the reference mark.
2. Drill a small reference hole straight down through to the basement. Refer to Figure 24-2. Locate the reference hole in the basement and verify that there are no obstructions within 2" (51 mm) of either side and 4" (102 mm) behind.
3. Cut a 2 1/2" (64 mm) diameter hole from the basement up into the base of the counter using the reference hole as a center. Refer to Figure 24-3.
4. Using the reference hole as a center, cut a 2 3/8" H x 6 5/8" W (60 mm H x 68 mm W) rough opening in the kickplate face. Refer to Figure 24-4.
5. Glue the long socket of the tight elbow (part no. V382XS) onto a section of 2" (51 mm) central vacuum tube. Make the terminal connections to the VacuSweep Inlet Valve by sliding the low-voltage wire into wire clips. Turn the power to the vacuum unit ON to test the connection. After successful completion of the test, turn power to the vacuum unit OFF. Wrap a piece of wire/string around the pipe. Using the wire/string to temporarily hold the pipe and elbow in place, insert the VacuSweep Inlet Valve into the cabinet base and elbow. **DO NOT** glue this connection (Designed for friction fit). Refer to Figure 24-5.
6. Remove the wire/string. With the door in an open position, secure the VacuSweep Inlet Valve to the cabinet base using no. 6 screws. Refer to Figure 24-6. **Ensure that the spring on the electrical connector has 1/8" (3 mm) clearance to rough opening.** Continue with remainder of central vacuum connections. When the vacuum system is complete, turn the power to the vacuum unit ON.



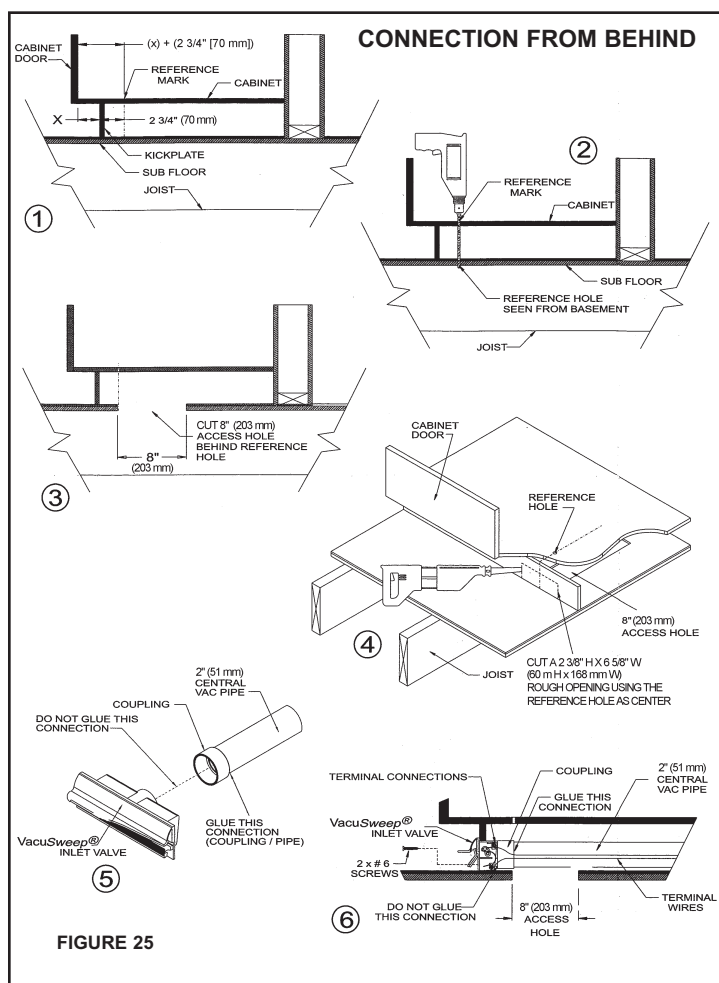
VACUSWEEP® INLET VALVE INSTALLATION (CONTINUED)

CONNECTION FROM BEHIND

Refer to Figure 25.

1. Turn the power to the vacuum unit OFF. Choose a location under the cabinet for the VacuSweep Inlet Valve so that it can be connected to the central vacuum tube. Measure distance (X) between the kickplate face and the inside edge of the cabinet. Then, add 2 3/4" (70 mm) to the measured distance. Refer to Figure 25-1. Measure out the new distance (X + 2 3/4" [70 mm]) from the cabinet door, to the reference mark.
2. Drill a small reference hole straight down through to the basement. Refer to Figure 25-2. Locate the reference hole in the basement and verify that there are no obstructions.
3. Using a reciprocating saw, cut an access hole in the floor under the cabinet and approximately 8" (203 mm) behind the location of the VacuSweep Inlet Valve reference hole so that the VacuSweep Inlet Valve can be connected to vacuum tube by reaching through the access hole. Refer to Figure 25-3.

4. Using the reference hole as a center, cut a 2 3/8" H x 6 5/8" W (60 mm H x 168 mm W) rough opening in the kickplate face. Refer to Figure 25-4.
5. Insert a coupling (part no. V127) onto the rear of the housing. **DO NOT** glue this connection (Designed for friction fit). Refer to Figure 25-5. Make the terminal connections to the VacuSweep Inlet Valve by sliding the low-voltage wire into wire clips. Turn the power to the vacuum unit ON to test the connection. After successful completion of the test, turn power to the vacuum unit OFF. Insert the VacuSweep Inlet Valve into the cabinet base and tube.
6. With the door in an open position, secure the VacuSweep Inlet Valve to the cabinet base using no. 6 screws. Refer to Figure 25-6. Ensure that the spring on the electrical connector has 1/8" (3 mm) clearance to rough opening. From the basement reach through the access hole and glue a section of 2" (51 mm) central vacuum tube to the coupling. Continue with remainder of central vacuum connections. When the vacuum system is complete, turn the power to the vacuum unit ON.



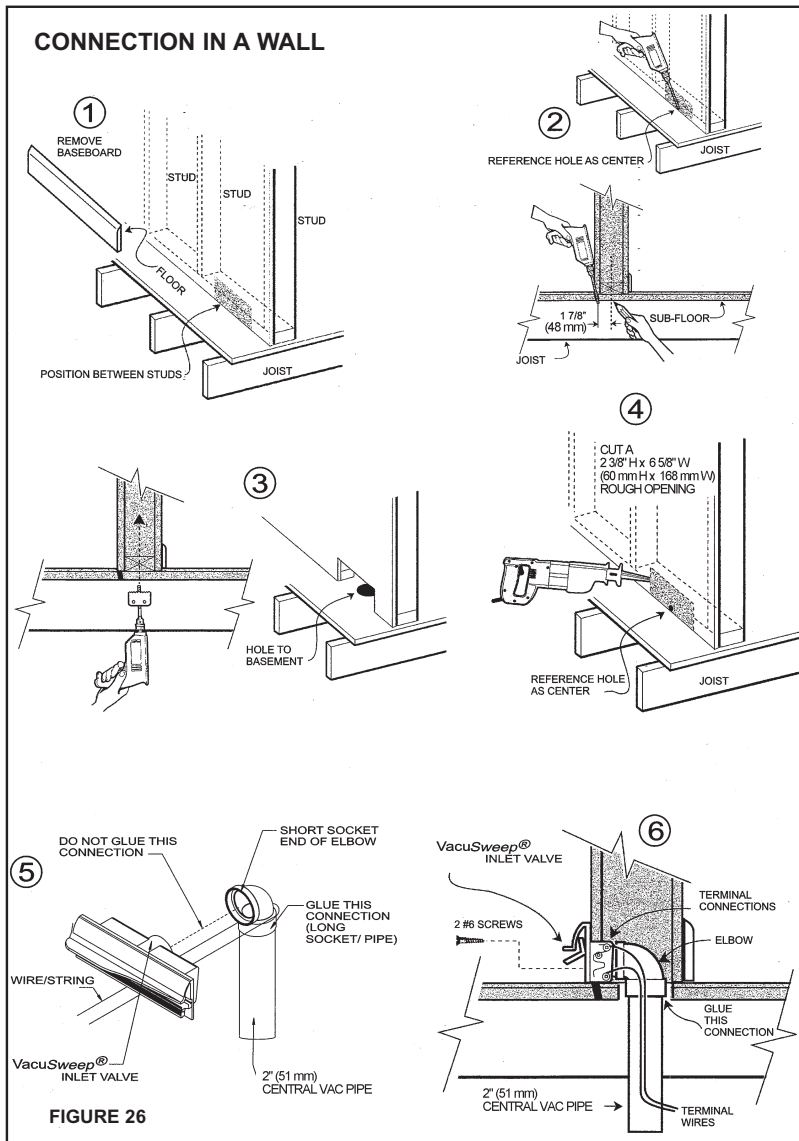
CONNECTION IN A WALL

Refer to Figure 26 on page 14.

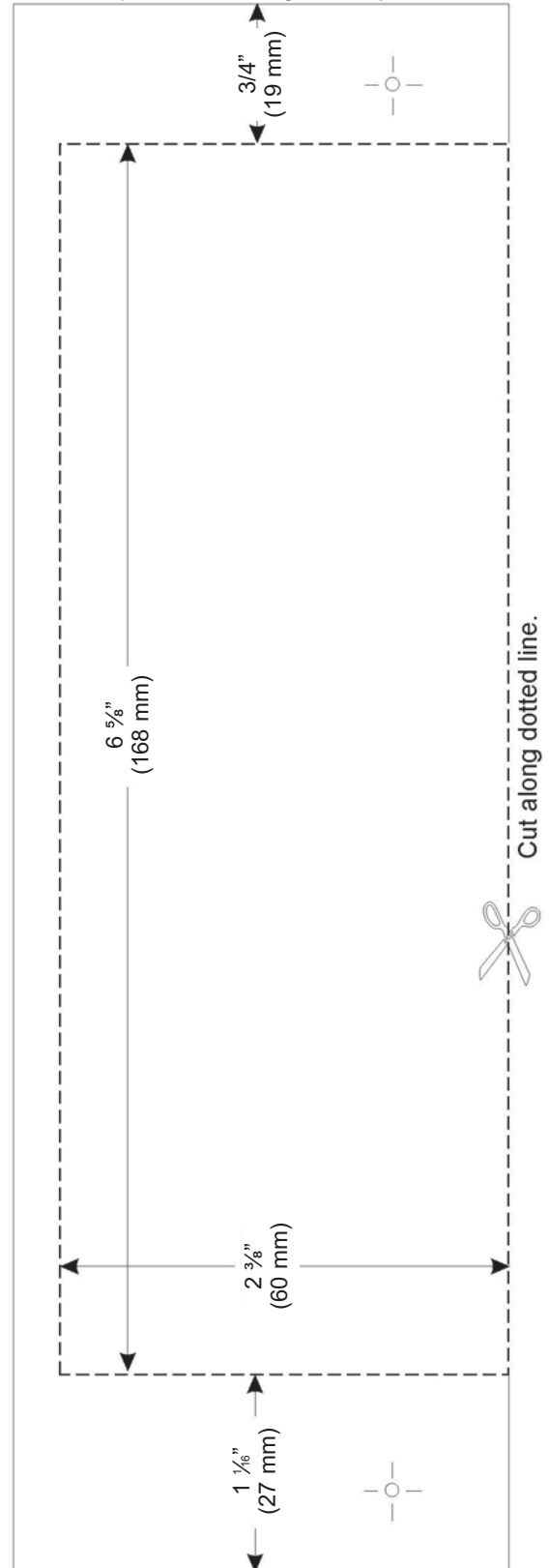
1. Turn the power to the vacuum unit OFF. Remove the baseboard and locate studs in the wall where VacuSweep Inlet Valve will be installed. Locate a position where the inlet will be clear of vertical studs and have free access either up or down dependent on location of central vacuum connection to the rest of the system. Refer to Figure 26-1.
2. Holding the drill at a 45° angle and as close to the wall as possible, between located studs, drill a small reference hole through the floor and subfloor. Locate this reference hole from beneath and measure over approximately 1 7/8" (48 mm) to center of base plate of wall. Ensure you have 1 1/2" (38 mm) clearance from any obstacles if connecting from below. Refer to Figure 26-2.
3. If installation is from below use a 2 1/2" (64 mm) diameter hole saw to remove wood floor and base plate, sufficient to locate VacuSweep Inlet Valve centered over the reference hole. Refer to Figure 26-3.
4. Using the reference hole as a center, cut a 2 3/8" H x 6 5/8" W (60 mm H x 168 mm W) rough opening in the wall and baseboard. Refer to Figure 26-4.

VACUSWEEP® INLET VALVE INSTALLATION (CONTINUED)

5. Glue the long socket of the tight elbow (part no. V382XS) onto a section of 2" (51 mm) central vacuum tube. Make the terminal connections to the VacuSweep Inlet Valve by sliding the low-voltage wire into wire clips. Turn the power to the vacuum unit ON to test the connection. After successful completion of the test, turn power to the vacuum unit OFF. Wrap a piece of wire/string around the tubing. Using the wire/string to temporarily hold the pipe and elbow in place, insert the VacuSweep Inlet Valve into the opening at the base of the wall and elbow. **DO NOT** glue this connection (Designed for friction fit). Refer to Figure 26-5.
6. Remove the wire/string. With the door in an open position, secure the VacuSweep Inlet Valve to the wall using no. 6 screws. Refer to Figure 26-6. **Ensure that the spring on the electrical connector has 1/8" (3 mm) clearance to rough opening.** Continue with remainder of central vacuum connections. When the vacuum system is complete, turn the power to the vacuum unit ON.



VacuSweep Inlet Valve Rough-in Template



TUBING SYSTEM ASSEMBLY

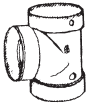
Once you have installed all your inlets, you can complete the network of tubing that connects your inlets to the power unit. This network consists of the following parts:



90° Elbows – Used for connecting the inlet lines to the branch lines. Also used for making smooth 90° turns in branch lines or trunk lines.



45° Elbows – Used for a 45° tubing turn in branch or trunk lines.



90° Tees – Used to connect branch lines to the trunk lines.



Stop Couplings – Used to join two lengths of tubing.



Flexible Tubing – Used to bypass obstacles or to make difficult S-turns in branch lines. This tubing is supplied in a 36" (914 mm) length; it is not the same as the inlet flex tube.



PVC Tubing – 5' (1.5 m) or 10' (3 m) straight sections of tubing used for inlet, branch and trunk lines.

Use the tubing and fittings to run branch lines from the inlet tubing to a main trunk line. Begin at the farthest inlet from the power unit and work your way toward the power unit. When you assemble sections with elbows and tees, make sure the curve in the fitting is aligned so that the air flows toward the power unit.

Assemble the entire network of tubing and fittings, making sure every joint is accurately cut and aligned. Then, go back and cement all the joints. You may run the wiring and make the wiring connections after the network is assembled and cemented, or you may make the wiring connections as you assemble the network. Use the method that best suits your needs.

Beginning the Trunk Line

Start the inlet line which is farthest from the power unit. Place 90° elbow onto a section of tubing and align it with the inlet tubing at the height it will run across the attic joists. Mark the inlet tubing where the elbow will join, allowing 5/8" (16 mm) for the tubing that inserts into the fitting's collar.



Now, cut the inlet tubing at the marked line. Make sure the cut is straight and even. Attach the elbow and check its fit. Then, insert the first section of tubing into the other end of the elbow.



Joining Straight Lengths of Tubing

Both branch lines and the trunk lines may require lengths of tubing longer than sections supplied. Use stop couplings to join two straight lengths of tubing. Insert one end of the tubing into the stop coupling; join the second length of tubing into the other end of the stop coupling. Stop couplings are also used to join long vertical branches which run from one level to another level of a house.



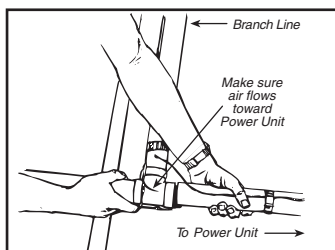
TUBING SYSTEM ASSEMBLY (CONTINUED)

Connecting a Branch Line

A branch line connects the inlet line to the trunk line. Follow the methods previously described for aligning, marking and cutting the inlet tubing. Attach a 90° elbow and run tubing from the inlet line to the trunk line.



To align and measure the branch line, attach a 90° tee fitting to the trunk line. Make sure the tee connects with the air flow going toward the power unit. Align, measure, and mark the branch line for inserting it into the tee fitting. Then, cut the branch line to length and insert it into the tee. Check to make sure the cut is straight and even. Connect the next section of tubing to the out-take side of the tee fitting. Continue the trunk line until you come to another branch line junction point.



Circumventing an Obstacle

Whenever possible the branch lines should connect to the trunk line in straight paths. The fewer turns in a tubing system, the more efficient air flow. Accordingly, you should locate the inlets to avoid zig-zags in the branch lines. But, sometimes, when you just can't avoid an obstacle, you are required to construct the tubing around it.

In the example illustrated here, you might run the branch line at an angle to avoid a chimney. Then, once the branch line has run past the chimney, you can use a 45° elbow to turn the branch line back perpendicular to the trunk line. Again, the branch line and the trunk line connect with a 90° tee.

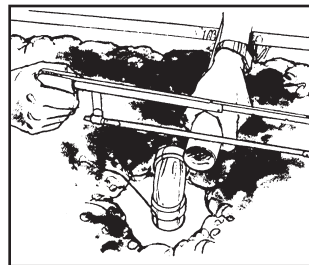


You can also use a piece of flexible tubing to run a branch line around an obstacle. See "Using Flexible Tubing," on page 17.

Completing the Trunk Line

Continue to run the trunk line toward the power unit, connecting all branch lines as you go along. Again, make sure you connect all fittings with the air flow toward the power unit.

Bring the trunk line to the access hole you have drilled for the power unit's intake tube. Place a 90° elbow over the hole and cut the trunk line to fit into this final elbow. Allow 5/8" (16 mm) of tubing to fit into the elbow's collar. Connect the elbow to the trunk line so that it aligns over the intake access hole. You will make the intake tube connection itself after you have installed the power unit.



When you are satisfied that all fittings and tubing are aligned for maximum air flow, make sure that all your cuts are square and that all joints are tight. Then, prepare the tubing and cement the joints as described in "Working With Plastic Tubing," page 4.

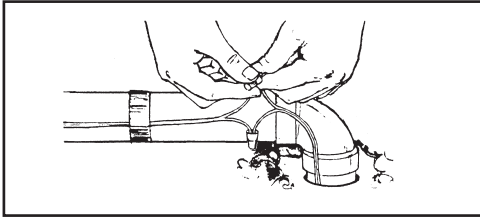
Connecting the Low-Voltage Wiring

Ideally, you will run the wiring and make all the wiring connections after you have completed the tubing system. Of course, the inlet wiring must be run at the time the inlet tubing is threaded through the walls.

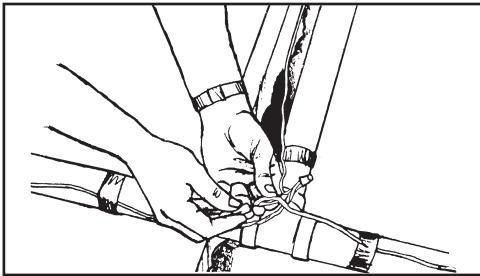
TUBING SYSTEM ASSEMBLY (CONTINUED)

Run the low-voltage wiring along the trunk line; at approximately 12"-18" (305 mm - 457 mm) intervals, use electrical tape to secure the wire to the tubing. Then, run wiring along the branch lines from the inlet lines to the trunk line. Also secure this wiring with electrical tape.

At the joint of the inlet line and the branch line, make a two-wire connection. Use wire nuts to make the connections and insulate each connection with electrical tape.



At the junction of every branch line and the trunk line, cut the trunk line wire and connect it to the branch line wire. Connect this wiring in groups of threes—one branch wire, one in-coming trunk line wire, and one out-going trunk line wire. Insulate all wire connections with electrical tape.



Complete all wiring connections up to the power unit's intake access hole. You will make this connection when you mount and connect the power unit. If, for some reason, you want to connect the wire as you go along, make the same two-wire and three-wire connections where required.

Assembling a Basement Trunk Line

Basically, the tubing network is assembled the same way for a basement installation. Begin the trunk line at the farthest inlet line from the power unit. Measure and cut the inlet tubing to the length required to align the trunk line with the joists or ceiling. Cement the inlet tubing and connect at 90° elbow. Then, run the trunk line until you reach a branch line junction point.

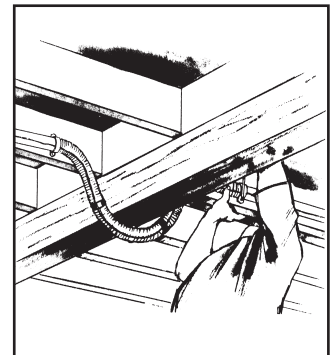
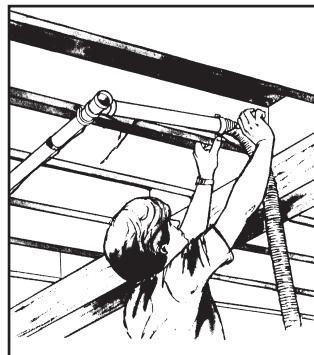


Attach the tubing to the joists or ceiling with either perforated metal or support strapping. Make all branch line connections in the same way you would an attic installation. Make sure that all branch lines enter the trunk line at an angle that is at least level with the trunk line. Make sure all the fittings are oriented so the air flows toward the power unit. Complete the trunk line to the power unit location.



Using Flexible Tubing

Flexible tubing may be used to circumvent an obstacle or to make a difficult turn. In the example illustrated here, the flexible tubing is used in order to run a branch line under a support beam. Attach this tubing to the PVC tubing, cementing only the outside of the PVC tubing as you would for a hard-fitting connection. Whenever you use the flexible tubing, you must secure both ends of it with support strapping.



POWER UNIT INSTALLATION

Refer to Page 3 for information on locating the power unit.

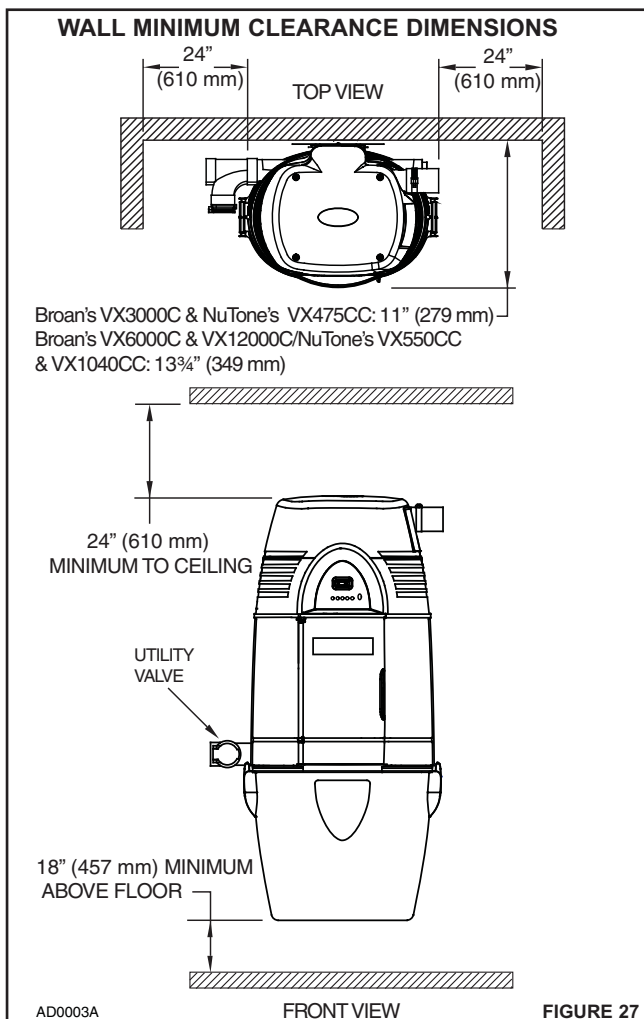
⚠ WARNING
Do not install outdoors.

CAUTION
For all models, DO NOT REMOVE either of the TOP red cap plugs that are glued to the unit. Removing these glued plugs will damage the unit. Only remove and use the outlets covered by the green BOTTOM plugs.

MOUNTING

This section refers to Figures 27 and 28.

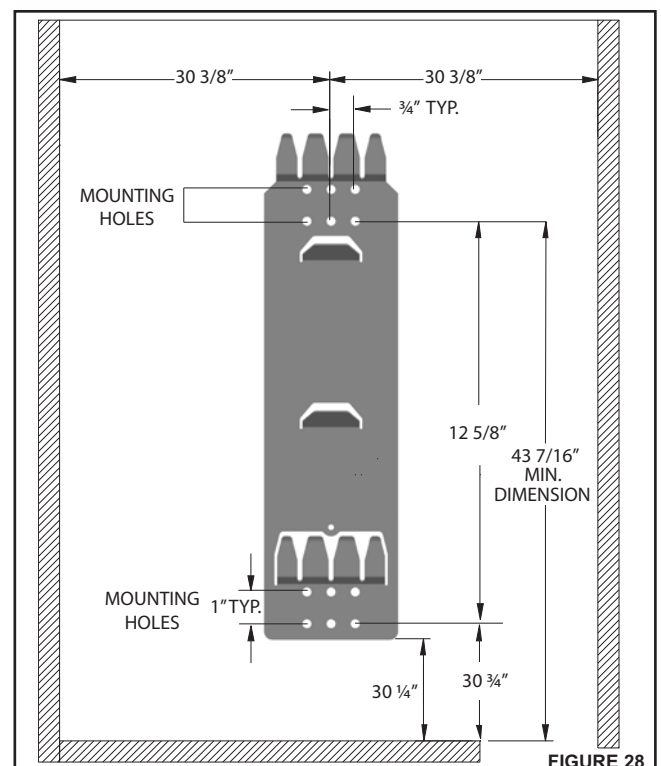
Your power unit mounts to the wall using a mounting system. The wall mounting bracket, provided with your power unit, mounts to the wall. It has 4 fingers at the top and 4 others at the bottom. The power unit has 4 upper openings and 4 lower openings which are designed to slide onto the fingers of the wall mounting bracket. Be sure to follow the instructions below for proper installation.



1. Locate power unit within six feet (1.82 m) of a grounded electrical outlet. Broan VX3000C & VX6000C and NuTone VX475CC & VX550CC power units require a 120V, dedicated 15-amp branch-circuit with a NEMA 5-15R receptacle or a dedicated 20-amp branch circuit with a NEMA 5-20R receptacle. Broan VX12000C and NuTone VX1040CC power units require a 240 VAC, dedicated 20-amp branch circuit with a NEMA 6-20R receptacle.
2. Refer to Figure 27 to maintain minimum wall clearance dimensions.
3. Position and install the wall mounting bracket with the provided screws. Refer to Figure 28 for proper mounting dimensions.

CAUTION
Make sure to fix the wall mounting bracket with the screws directly onto a stud for a solid installation.

4. Using the mounting screws provided, fix the mounting bracket on the wall through two upper and two lower mounting holes.
5. Prior to installing the power unit onto the wall, you must do the wiring, see page 19 for more details.
6. Hang power unit onto wall mounting bracket. Make sure both upper and lower mounting openings on the back of the power unit are engaged with corresponding wall bracket fingers. Pull down the power unit to secure.
7. Open the door on the front side of the power unit. Make sure the cyclonic filter is properly seated. See Homeowners Guide for reference. Close the door.



POWER UNIT INSTALLATION (CONTINUED)

TUBING CONNECTIONS AT POWER UNIT

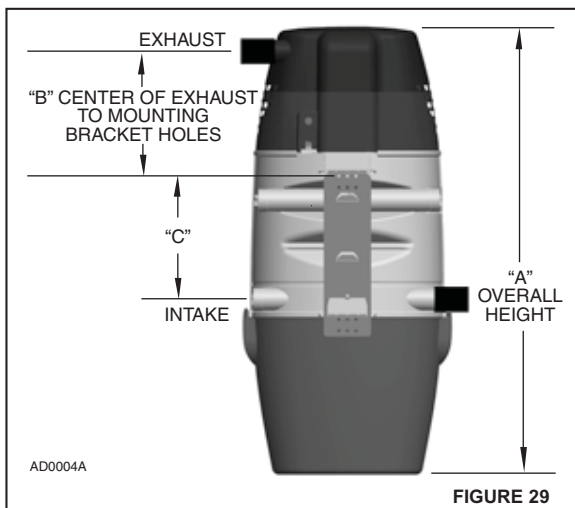
This section refers to Figure 29.

Your power unit is capable of being connected to the intake vacuum trunk line from either side. Select the intake connection to be used. Some installations may require the connection into both intakes. The power unit has 4 intake connections, which 2 of them are factory capped.

CAUTION

Broan VX3000C, VX6000C & VX12000C and NuTone VX475CC, VX550CC & VX1040CC power units will attach to the lower intake connections. See Figure 29. Utility valve can be installed on either side.

1. Using rubber coupling and hose clamp provided, attach the utility valve assembly to the vacuum trunk line feeding into the power unit. The utility valve can be installed on the left or right hand side.
2. Cap off the unused intake tube with the plastic cap provided.
3. Attach exhaust tube to power unit using rubber coupling and hose clamp provided (if vented to the outside).
4. Make sure all tubing connections are air tight.
5. The exhaust should NOT be vented into a wall, ceiling or concealed space in the house. It is recommended to vent the vacuum exhaust air to the outside of the house. Exterior vented exhaust lines should be terminated using Model V142 wall caps.



DIMENSIONAL CHART

Broan Models	VX3000C	VX6000C	VX12000C
NuTone Models	VX475CCC	VX550CC	VX1040CC
A	36 9/16"	39 9/16"	39 9/16"
B	11"	11"	11"
C	10 7/8"	10 7/8"	10 7/8"

WIRING

This section refers to Figure 30 and Figure 31 on page 20.

Grounding Instructions – This appliance must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current, to reduce the risk of electric shock. This appliance is equipped with a cord having an equipment-grounding conductor and grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

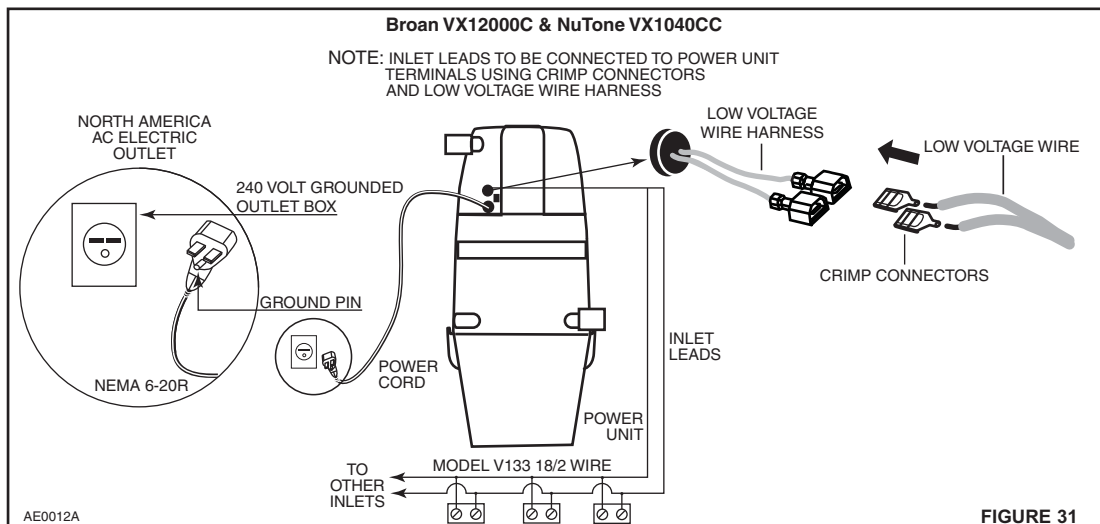
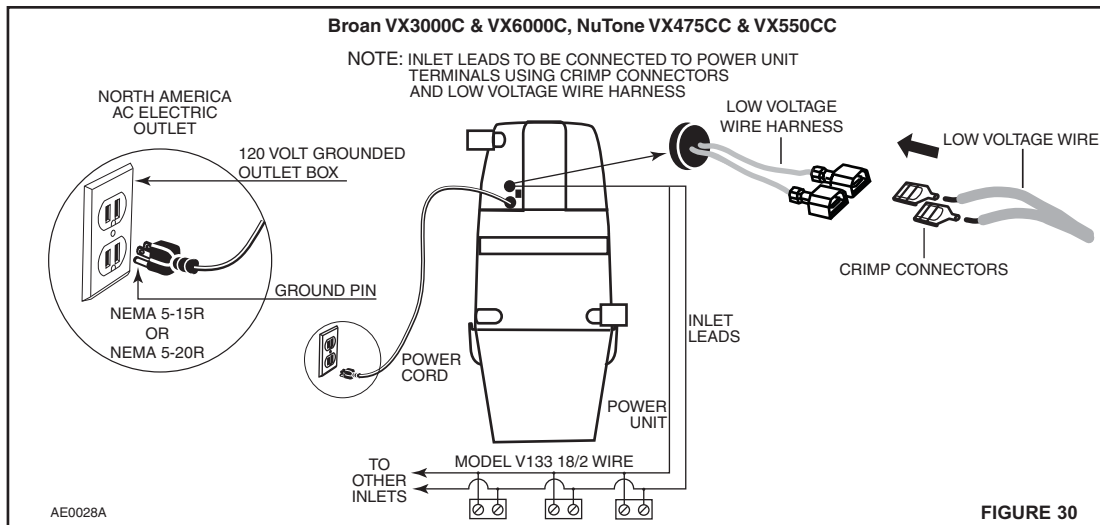
⚠ WARNING

Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or service person if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the appliance—if it will not fit the outlet, have a proper outlet installed by a qualified electrician.

Broan VX3000C & VX6000C and NuTone VX475CC & VX550CC are for use on a standard 120 V AC, dedicated 15-amp branch circuit with a NEMA 5-15R receptacle or a dedicated 20-amp branch circuit with a NEMA 5-20R receptacle. For Broan VX12000C and NuTone VX1040CC power units, a nominal 240VAC, dedicated 20-amp branch circuit with NEMA 6-20R receptacle is required. Make sure that the appliance is connected to an outlet and has a grounding attachment plug that looks like the plug shown in either Figure 30 or 31 (on page 20) depending on model. No adapter should be used with this appliance.

WIRING (CONTINUED)

- 1 Using crimping pliers, connect low voltage wire (18 gauge, 2-conductors, model V133) to crimp connectors.
2. Connect the low voltage wire to the low voltage wire harness located at the back of the power unit, the use of long nose pliers is recommended.
3. The power unit is equipped with a 6 foot grounded cord. Ensure power cord is plugged into a properly grounded receptacle.



FINAL SYSTEM CHECK

Be sure all inlets are closed. Check switch on power unit for manual on/off operation. Check that indicator light on control panel of power unit is lit and is in green mode.

Check each wall inlet to be sure contacts activate power unit when hose is inserted and switched on, if applicable. If the central vacuum hose is not available at the time, a short piece of wire can be used to short contacts in wall inlet to

activate power unit. Check each wall inlet and tubing connection for air leaks. Check power unit for leaks around inlet tube and debris pail.

Store the owner's manual with the cleaning tools and accessories.

Now it's time to enjoy the benefits of a Broan or NuTone Central Vacuum System. See Homeowner's Manual for operating and care information.

TROUBLESHOOTING GUIDE

Read before calling Service Center

Trouble	Possible Cause	Possible Remedy
<p>1. Loss or decrease of vacuum occurs.</p>	<p>1a. Debris pail is completely full.</p>	<p>1a. Empty debris pail as described on page 3 of the Homeowners Guide.</p>
	<p>1b. Obstruction in the hose. A blockage in the hose can be determined by inserting the hose into any wall inlet and, while power unit is running, check each additional inlet for normal suction by holding the palm of your hand over the open inlet. If normal suction is felt at all other inlets, insert the hose into a second inlet. If the blockage still exists it is located in the hose. However, if the blockage does not occur when the hose is changed, the blockage is probably located in the tubing system leading to the original inlet.</p>	<p>1b. Insert handle end of hose into utility valve at power unit. Turn unit on. This will reverse normal air flow through the hose and dislodge any clogs.</p>
	<p>1c. Obstruction in the tubing system inside the walls.</p>	<p>1c. Insert hose end into any inlet with power unit running, place the palm of your hand over the opposite end of the hose. When you can feel the suction increase, hold your hand over the hose end for a few seconds and then quickly remove your hand. This procedure repeated several times should clear the obstruction. If the blockage is not cleared, contact your nearest Service Center.</p>
	<p>1d. Wall inlet cover not properly sealed.</p>	<p>1d. Check all wall inlet covers to be sure they are closed and sealed tightly.</p>
	<p>1e. Exhaust tubing or vent clogged.</p>	<p>1e. Inspect and remove any blockages.</p>
<p>2. Power unit does not start, or shuts off during normal operation with no LED showing red or illuminated.</p>	<p>2a. Defective inlet. Check other wall inlets.</p>	<p>2a. Replace defective wall inlet.</p>
	<p>2b. Thermoprotector has been activated OR there is a tripped circuit breaker on the unit.</p>	<p>2b. Turn unit off for 20 minutes then plug unit back in. If unit does not start, look for the tripped circuit breaker behind the unit, a white button has popped up, push it back to reset it. If circuit breaker trips again, unplug your unit and contact your local Service Center.</p>
	<p>2c. Blown fuse or tripped circuit breaker on house electrical panel.</p>	<p>2c. Replace fuse or reset circuit breaker on wall panel.</p>
	<p>2d. Defective hose.</p>	<p>2d. Replace hose as required.</p>
	<p>2e. Microprocessor Lockup. Note: This would apply only to Broan VX6000C & VX12000C and NuTone VX550CC & VX1040CC.</p>	<p>2e. 1) Push <i>Reset</i> button while unit is engaged OR 2) Unplug unit completely for 60 seconds.</p>
	<p>2f. Low line voltage.</p>	<p>2f. Contact your local electricity distributor.</p>
<p>3. Power unit fails to stop when the hose is removed.</p>	<p>3a. An electrical short has occurred somewhere in the system.</p>	<p>3a. A complete check of all wall inlets and power unit low voltage control lead connections. Turn system off by removing fuse or tripping circuit breaker at house fuse box.</p>
	<p>4. For Broan VX6000C & VX12000C and NuTone VX550CC & VX1040CC. All lights on control panel flash when unit is first plugged in.</p>	<p>4a. Two or more hoses may be plugged into the system.</p>

WARRANTY

BROAN-NUTONE CANADA INC.

CENTRAL VACUUM POWER UNIT LIMITED LIFETIME WARRANTY

Broan-NuTone Canada warrants to the original consumer purchaser that its central vacuum power unit will be free from defects in materials and workmanship for as long as you own your home in which it was originally installed with the exception of the motor and electronic components which will be warranted for five (5) years. The first year of this warranty covers the parts and labor in an authorized service center. THERE ARE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

During these time periods, Broan-NuTone Canada will, at its option, repair or replace the power unit or part without charge, which is found to be defective under normal use and service. THIS WARRANTY DOES NOT APPLY TO THE INSTALLATION OR THE PARTS USED IN THE INSTALLED TUBING SYSTEM. All central vacuum hoses, electric or air-driven brushes, filters, attachments and accessories are warranted for one (1) year from the original purchase date with the exception to consumables such as light bulbs and belts.

This warranty does not cover (a) normal maintenance and service or (b) any products or parts which have been subject to misuse, negligence, accident, improper maintenance or repair (other than by Broan-NuTone Canada or an authorized representative), faulty installation or installation contrary to recommended installation instructions.

The duration of any implied warranty is limited to the period as specified for the express warranty.

BROAN- NUTONE CANADA'S OBLIGATION TO REPAIR OR REPLACE, AT BROAN-NUTONE CANADA'S OPTION, SHALL BE THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY. BROAN-NUTONE CANADA SHALL NOT BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES ARISING OUT OF OR IN CONNECTION WITH PRODUCT USE OR PERFORMANCE. Please do not return your unit to place of purchase. Please visit www.broan.ca or www.nutone.ca for your closest authorized service center. You may also call 1-888-882-7626 for the name of an authorized representative in your area. This warranty supersedes all prior warranties.

To qualify for warranty service, you must notify Broan-NuTone Canada at the address or telephone number stated below. We will then forward you the authorized service depot in your area. You will be required to present evidence of the original purchase date.

Date of Installation

Builder or Installer

Model Number and Product Description

IF YOU NEED ASSISTANCE OR SERVICE:

For the location of your nearest Broan-NuTone Canada Inc. dealer:

Dial Toll Free: **1-888-882-7626**

Please be prepared to provide:

Product model number • Date and proof of purchase • The nature of the difficulty

Broan-NuTone Canada Inc.

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