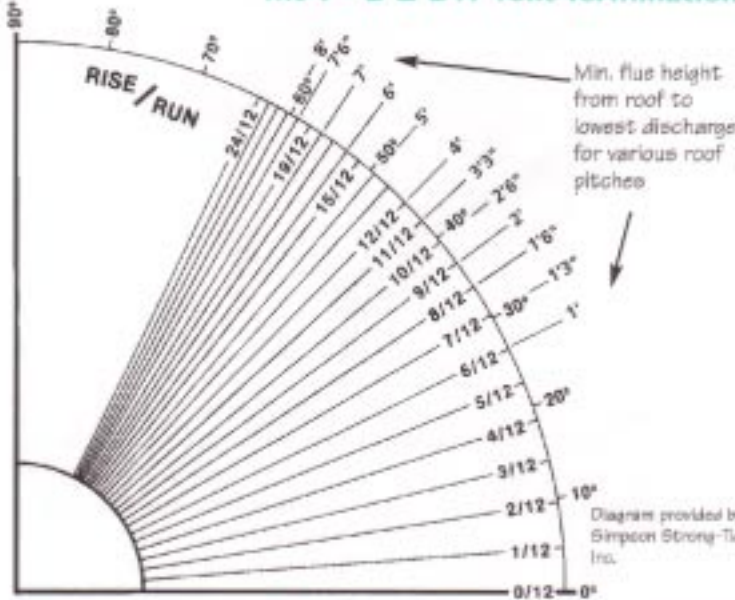


mt-1 • B & BW Vent Terminations



Site/Underground

IRC	UMC
<input type="checkbox"/> Approved plans & permit or building card on site [105.7]	{114.2}
<input type="checkbox"/> Equipment listed and installation instructions on site . . . [1401.1]	{304.1}
<input type="checkbox"/> Energy conservation report [1101.2]	{energy}

Underfloor

Central Forced-Air Furnace

<input type="checkbox"/> On slab (min. 3in.) above grade [1305.1.4.1]	{909.3}
<input type="checkbox"/> Passageway—22in. (30in.) x 30in. or manu. spec. [1305.1.4]	{909.2}
<input type="checkbox"/> Switch at entrance for light at appliance. [1305.1.4.3]	{909.5}
<input type="checkbox"/> Suspended furnace min. 6in. above grade. [1305.1.4.1]	{909.4}
<input type="checkbox"/> Excavation 12in. sides (30in. control side) 6in. below [1305.1.4.2]	{909.4}

See pages 21 and 22 for specific appliance requirements

Duct & Register Layout

<input type="checkbox"/> Clearance to ground 4in. [1601.3.6]	{604.1.2}
<input type="checkbox"/> Joints must be taped or gasketed airtight [1601.3.1]	{602.4}

See page 21 for duct support requirements

mt-2 Clearances		Gas Flue [2426.6.5] (806.4)	Forced Vent [2426.8] (806.1 & 816.5)	DWV [3103] (906)	Enviro.air [n/a] (504.3,5)	Direct Vent [2426.8] (806.6)	Solid Fuel [T1003.1]	Electric Service [3504.1,2] (230-9,24)
<p>A: Vertical clearance from roof to vent top</p> <p>B: Horizontal clearance from roof edge to vent</p> <p>C: Horizontal clearance from wall to vent</p>	A	"B" Vents Flat to 6:12-1' see mt-1	manu. {7' over walkway} manu.	6' 7' over deck {1'}			3' min and 2' above building within 10'	<4:12 slope-8' ≥4:12 slope-3' 4' over eave (A=18')
	B							
	C	"B" Vents 8' to vert. wall or 2' above	2' from adjoining building	1'				
<p>A: Vertical clearance from window top to vent</p> <p>B: Horizontal clearance from window to vent</p> <p>C: Vertical clearance from window bottom to vent</p>	A	1' (no "B" vent)	1'	{2'} {3'}	{3'}	<10kBtu 6" {9"} ≤50kBtu 12" {9"} >50kBtu n/a {12"}		1' (util)
	B	4' (no "B" vent)	4' {1'}	10'	{3'}	<10kBtu 6" {9"} ≤50kBtu 12" {9"} >50kBtu n/a {12"}	n/a	3'
	C	4' (no "B" vent)	4' {1'}	4' {3'}	{3'}	<10kBtu 6" {9"} ≤50kBtu 12" {9"} >50kBtu n/a {12"}	n/a	3'
<p>A: Vertical clearance from air intake to vent</p> <p>B: Horizontal clearance from vent to property line</p> <p>C: Vertical clearance from vent to property line</p>	A		3'	2' {3'}				
	B		10'	10'				
	C		1' {n/a}	4' {3'}				
	property line		n/a {4'}	10' {3'}	n/a {3'}	n/a {4'}		

mt-3 • Combustion Air Openings and Ducts					
Btu	opening size ^a	Inside air ^a		Outside air openings	
		cu. ft. min. (sq.ft.)	1 in./2,000 Btu/hr.	1 in./4,000 Btu/hr.	
30K	100sq.in.	1,500 (188)	15sq.in.	7.5sq.in.	
40K		2,000 (250)	20sq.in.	10sq.in.	
50K		2,500 (313)	25sq.in.	12.5sq.in.	
60K		3,000 (375)	30sq.in.	15sq.in.	
80K		4,000 (500)	40sq.in.	20sq.in.	
100K		5,000 (625)	50sq.in.	25sq.in.	
125	125sq.in.	6,250 (781)	62.5sq.in.	31.3sq.in.	
150	150sq.in.	7,500 (938)	75sq.in.	37.5sq.in.	

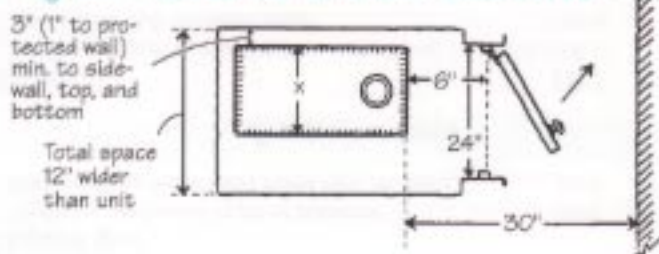
a. Ordinary (non-tight) construction only
b. Req'd opening between confined space & unconfined space
c. Square footage for an 8ft. ceiling
A confined space is defined as <50cu.ft. per thousand Btu's.

Area of a Circle	
Dia.	Area (sq.in.)
3"	7
4"	12.6
5"	20
6"	28
7"	38.5
8"	50.3
9"	63.6
10"	78.5
12"	113
14"	154
16"	201

Forced-Air Furnace

- Not open to bedroom or bathroom, EXC [1701.4, 2406.2] {904.5}
- Direct vent or elec. furnace OK bedroom or bath [2406.2X] {904.5X}
- Furnace room—passageway min. 24in. wide ... Fig.m1 [1305.1.2] {903.0}
- Work space 30in. deep to height of unit or min. 30in. ... [1305.1] {903.0}
- Total space must be 12in. wider than furnace ... Fig.m1 [1305.1.1] {904.1}
- Combustion chamber—6in. min. to closed door Fig. m1 [1305.1.1] {904.7}
- Return >10ft. min. from combustion Fig. m2 [1602.3X2,2440.5-4X] {906.6.5X}
- Receptacle req'd within 25ft. [3801.11] {309.0}

Fig. m1 • Forced-Air Unit Min. Clearances



Underfloor

- On slab [min. 3in.] above grade [1305.1.4.1] {909.3}
- Suspended furnace min. 6in. above grade. [1305.1.4.1] {909.4}
- Passageway—22in. (30in.) x 30in. or manu. spec. [1305.1.4] {909.2}
- Access door max. distance 20ft. to equip. [1305.1.4] {909.2}
- Switch at entrance for light at appliance. [1305.1.4.3] {909.5}

Attic

- Access—22in. x 30in. (or dimension of appliance) [1305.1.3] {908.0}
- Max. distance from opening 20ft. [1305.1.3.] {908.0}
- Solid floor from access door min. 24in. wide [1305.1.3] {908.0}
- Min. 30in. deep platform in front of firebox [1305.1.3] {908.0}
- Upright furnace req's 5ft. headroom [n/a] {908.0}
- Lighting outlet switched at access door near furnace [1305.1.3.1] {908.0}

Garage

- Any flame or sparking devices ≥18in. above floor [1307.3, 2408.2] {308.0}
- Duct through fire-resistive wall must be 26ga. [309.1.1] {604.2}
- No duct openings into garage [309.1.1] {n/a}
- Protection from impact [1307.3.1] {308.0}

Combustion Air

General

- Ducts min. cross-section dimension 3in. [2407.10,11] {704.1.2}
- No dampers in combustion air ducts [1701.3,2407.15] {704.2}
- Return ≥10ft. min. from combustion Fig. m1 [1602.3X2,2440.5-4X] {906.6.5X}
- Joist/stud space duct OK if max. 1 fire stop removed [2407.15X] {704.1.1X}
- Screened (except in attic) with 1/8in. mesh [1703.6] {702.3}
- Screens prohibited in duct to attic [1703.4, 2407.15] {704.3}
- Area of louvers—metal x 75%, wood x 25% [1701.5, 2407.14] {702.3, local}

Inside Source (non-tight construction only)

Unconfined space drawing from indoors:

- Unconfined space is >50cu.ft./1000Btu/hr. [202,2403] {223.0}
- Infiltration suff. source to unconfined space Fig. m2 [1702.1,2407.10] {701.1}

Confined space drawing from indoors:

- Min. 100sq.in. ea. or 1sq.in./1000Btu Fig. m3 [1702.2,2407.10] {703.4.2}
- Openings in upper and lower 12in. ... Fig. m3 [1702.2,2407.10] {702.1}

Fig. m2

Infiltration from unconfined space in ordinary construction



Fig. m3



Two openings freely communicating with unconfined space, min. 100sq.in. each

Outside Source

Tight construction:

- Confined space is <50cu.ft./1000Btu/hr. [202,2403] {205.0}

From underfloor:

- Only lower opening connected to underfloor area [1703.2,2407.11.1] {703.1.2}
- Foundation vents supplying underfloor area min. 2x required combustion air openings (min. 200sq.in.) [1703.5] {703.2.1}
- Crawl space must meet min. building code standard clearance (18in. between earth and joists) [323.1] {703.2.2}

Fig. m4

Two vertical ducts each 1sq.in./4,000Btu



Fig. m5



One opening to vented attic, one to crawl-space each 1 sq.in./4,000Btu

- Min. 1sq.in./4,000Btu/hr. each Fig. m5 [1703.2.1,2407.11] {7-1}

From Attic:

- Attic height must be min. 30in. [n/a] {703.1.2.1}
- Min. vent area 1sq.in./4,000Btu/hr. ea. Fig. m4 [1703.2.1,2407.11] {7-1}
- Opening sleeved to 6in. above joist/26ga. sheet [1703.4.2,2407.15] {703.1.2.3}
- No screens [1703.4.4,2407.15] {704.3}
- Maintain duct separation to source. [1703.2,2407.15] {704.1.6}

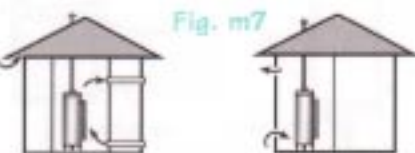
Fig. m6

Two horizontal ducts, min. 1sq.in./2,000Btu each



Fig. m7

Two openings in exterior wall min. 1sq.in./4,000Btu each



*IRC Chapter 17 is for oil, Chapter 24 for natural or LP gas

Gas

- Meter**
- ☐ Gas meter—access opening min. 22in. x 24in.[n/a] {1209.5}
 - ☐ Main shutoff valve ahead of meter[2419.2] {1209.3}
 - ☐ Valve outside and readily accessible[2419.1,3,2419.3] {1209.3}
 - ☐ [Test 1.5x working psig & min. 3psig 10 minutes] ... [2416.4.1] {n/a}
 - ☐ [Test—10psig (6in. mercury) 15 minutes][n/a] {1204.3.2}

- Individual appliance shutoff valves**
- ☐ Separate from appliance, accessible, ahead of union[2419.5] {1211.16}
 - ☐ Max. 6ft. (3ft.) from appliance[2419.5] {1211.18}
 - ☐ May be inside wall furnace access panel[2434.1] {1211.18}

- Gas connectors**
- ☐ Sizing[2421.1.2] {T12-9,10}
 - ☐ Max. 3ft. long (max. 6ft. for stove or dryer)[2421.1.2] {1212X1}
 - ☐ Not pass through bldg. or appliance wall[2421.1.2] {1212X2}
 - ☐ Valve immediately ahead of & sized to connector[2421.1.2] {1212X3}
 - ☐ Alum. alloy—dry interiors only[2421.1] {1212X5}
 - ☐ Gas hose (<15ft.) for listed outdoor portable appliances [2421.1] {1212X7}

- Liquid gas**
- ☐ Appliance not located in pit or basement[n/a] {1213.5,6}
 - ☐ Bldg. openings below relief valves min. 5ft. horiz.[n/a] {1213.9}

Appliances

- General**
- ☐ Install appliances to manufacturer instructions . .[1307.1,2408.1] {304.1}
 - ☐ Heat source each habitable room[303.6] {local}

- Clothes Dryer**
- ☐ Connectors flex. [must be metal] max. 8ft. [6ft.] [1501.1,2437.5] {504.3.2.1}
 - ☐ Connector not concealed in construction[1501.1,2437.5] {504.3.2.1}
 - ☐ Duct must be smooth metal inside[1501.1,2437.5] {504.3.2.1}
 - ☐ No screws in airflow[1501.1,2437.3] {504.3.1}
 - ☐ 4in. min. duct [elec. = appliance outlet size] ... [1501.2,2437.5] {504.3.2}
 - ☐ [14ft. inc. two 90° bends minus 2ft. per add'l. 90°] [n/a] {504.3.2.2}
 - ☐ [25ft. minus 2½ft. per 45° bend or 5ft. per 90°] [1501.3,2437.5.1] {n/a}
 - ☐ No mixing with or passage through other systems [1501.1,2437.3] {504.3.1}
 - ☐ End outside in backdraft damper & no screens . .[1501.1,2437.3] {504.3.1}

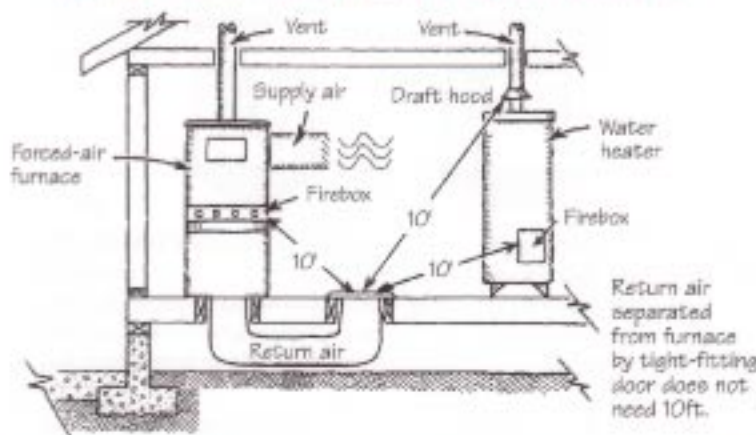
- Bathroom Fan**
- ☐ Min. 3ft. from building openings or PL[302.2] {504.5}

- Range**
- ☐ Vert. clearance to combustibles 30in.[1901.1] {917.1}
 - ☐ [Vert. clearance 24in. to 28ga. metal over ½in. millboard] [n/a] {917.1}
 - ☐ Reduced clearance OK per manufacturer labeling. ... [1901.1] {917.2}
 - ☐ Gas connector max. 6ft.[2421.1.2] {UPC:1212X1}
 - ☐ Gas valve immediately ahead of connector[2421.1.2] {UPC:1212X3}

- Range Hood Ducts**
- ☐ Terminate outside min. 3ft. from opening or PL [302.2,1502.1] {504.5}
 - ☐ Smooth interior, metal[1502.1] {504.2}
 - ☐ Backdraft damper req'd[1502.1] {504.1}

- Broiler/BBQ**
- ☐ 24in. to combustibles[1504.1] {918.0}
 - ☐ Duct to outside in [28ga.] metal[1504.1] {918.0}
 - ☐ [Terminate—min. 18in. above roof] [n/a] {918.0}
 - ☐ [100cfm/sq.ft. exhaust fan, hood intake] [n/a] {918.0}
 - ☐ [1hr. shaft req'd, 1in. shaft space vented to outside] [n/a] {918.0}

Fig. m8 • Don't Mix Return & Combustion Air



Ducts

- General**
- ☐ 2 story max. vert. riser on factory-made duct[1601.2] {604.2}
 - ☐ Fireblock between floors[602.8,1601.3.3] {n/a}
 - ☐ Firestop damper between occupancies as per manu. [321.3] {606.2}
 - ☐ No duct openings into garage[309.1.1] {n/a}
 - ☐ Min. 26ga. sheet steel in attached garage[309.1.1] {n/a}

- Return Air**
- ☐ Sufficient area volume = 25% open to area served OR ..[1602.3] {906.6.4}
 - ☐ [Hallway must have three doors to area served] [n/a] {906.6.4X}
 - ☐ Not from bathroom, kitchen, closet, or garage[1602.3] {906.6.6}
 - ☐ Source ≥10ft. from combustion chamber or fireplace [1602.3X3] {906.6.5}
 - ☐ Duct min. size 2sq.in./KBtu output rating[2440.2] {906.3}

- Installation**
- ☐ Duct to ground min. 4in. clearance[1601.3.6] {604.1.2}
 - ☐ Duct in or under concrete—min. encasement 2in.[1601.1.2] {604.1}
 - ☐ Joints must be airtight[1601.3.1] {602.4}
 - ☐ Manufactured ducts taped with UL-181 tape[1601.3.1] {602.4}
 - ☐ Flex duct support 1½in. strap every 4ft. or manu. [1601.3.2] {604.4}
 - ☐ Flex duct flame spread max. 25, smoke rating max. 50 [1601.2.1] {605}
 - ☐ Metal duct min. support every 10ft.[1601.3.2] {T6-5}

- Insulation in Unconditioned Space**
- ☐ R5 inside building, R8 outside[1103.3] {n/a}
 - ☐ Insulate boots & connectors (1in. fiberglass = R2)[1103.3] {T6-4}
 - ☐ [Heat zone I,II (temperate except Calif.) R2.1] [n/a] {T6-4}
 - ☐ [Heat zone III (cold & Calif.) R4.2] [n/a] {T6-4}

mt-4 • Return or Supply Main Duct Sizing

Btu	50K	60K	80K	100K	125K	150K	200K
Gravity sq. in. ^a	280	336	448	560	700	840	1120
Gravity round duct ^a	20in.	22in.	24in.	30in.	30in.	36in.	42in.
Blower sq. in. ^b	80	96	128	160	200	240	320
Blower round duct ^b	12in.	12in.	14in.	16in.	16in.	18in.	22in.

a. Gravity unit req's 7sq.in. per thousand Btu/hr. output (906.3)
 b. Forced-air furnace req's 2sq.in. per thousand Btu/hr. output (2440.2) (906.3)

Direct Vent Wall Heater

Flue Terminations

- 0-10K Btu/hr. min. 6in. clearance to bldg. openings ... [2426.8] (Ø)
- 0-50K Btu/hr. min. 12in. [9in.] ... [2426.8] (806.6)
- 12in. clearance to ground [and 4ft. to PL] ... mt-2 [2426.8] (806.6)

Forced-Vent Furnace

- Flue must be gas tight ... [2424.10, 2426.3.3] (816.2)
- No natural and forced-vent to common flue ... [2426.3.3] (816.3)

Condensing Furnace (High Efficiency)

- Condensate drain required ... [2426.9] (310.1)
- Not drain to public way ... [2426.8] (310.1)
- Drain pipe min. 3/4in. with 1/8in./ft. slope ... [n/a] (310.1)
- May drain to indirect receptor (lav. tailpiece, tub overflow) [n/a] (310.1)

Room Heater (Freestanding)

- Secure to floor ... [1307.2] (916.1)
- Vented heater min. 12in. to door swing (36in. below projection) ... [manu.] (916.1)
- Flame safeguard (pilot safety) req'd ... [2444.1] (manu.)
- [Unvented heater not sole heat source] ... [2443.2] (Ø)

Fireplace with Gas Appliance

- Glass doors ... [local,energy] [local,energy]
- Factory-built chimney req's spark arrester ... [manu.] (812.1)
- Damper blocked open ... [1004.4] (912.1.2)
- Req'd valve ≤6 ft (4ft.) of fireplace and in same room. ... [2419.5] (1211.17)
- Decorative logs with pilots must have pilot safety ... [2431.2] (912.1.4)

Air Conditioning

- Evaporator downstream of furnace ... [1411.2] (905.0)
- Working space min. 30in. x 30in. ... [1305.1] (305.0)
- Condensate:
 - Condensate may not drain to public way ... [1411.3] (310.1)
 - Drain pipe min. 3/4in. with 1/8in./ft. slope ... [n/a] (310.1)
 - May drain to indirect receptor (lav. tailpiece, tub overflow) [n/a] (310.1)
 - Secondary drain & pan req'd if equip. above framing [1411.3.1] (310.2)

Kiln (Noncommercial)

- Max. interior volume 20cu.ft. ... [n/a] (920.1)
- Base 2in. thick masonry 12in. beyond base of kiln. ... [n/a] (920.5.1)
- Clearance min. 18in. to noncombustibles, 36in. combustibles[n/a] (920.5.1)
- Control side clearance 30in. min. ... [n/a] (920.5.1)
- Provide makeup air equal volume to exhaust ... [n/a] (920.5.4)

Floor Furnaces

Underfloor Area

- Access min. 22in. x 30in. [18in. x 24in.] within 20ft. ... [1305.1.4] (913.2)
- Trap door access must have min. 30in. height ... [n/a] (913.2)
- May not be on concrete slab ... [2435.2] (913.3)
- May not project into habitable space ... [2435.5.6] (913.1)

Excavation Clearances

- 6in. to ground (2in. if factory sealed) ... [2435.4] (913.3)
- 12in. to sides, 18in. [30in.] to control side ... [2435.4] (913.3)

Above Floor

- Flat-register type min. 6in. from wall ... [2435.2] (913.1)
- Not in doorway and 12in. from door swing ... [2435.2] (913.1)
- 2 adjoining sides must have 18in. [24in.] clearance ... [2435.2] (913.1)
- Wall-register type min. 6in. to sidewall ... [2435.2] (913.1)
- Draperies min. 12in. [projections min. 5ft. above] ... [2435.2] (913.1)

mt-5 • Heat Pump Return & Supply Main Duct Sizing							
AC or Heat Pump Btu's	24K	30K	36K	42K	48K	60K	90K
Blower sq. in.	144	180	216	252	288	360	540
Blower round duct	14in.	16in.	18in.	18in.	20in.	22in.	26in.
Central AC & heat pumps req. 6sq.in. per 1000Btu/hr. output [1602.2] [906.3]							

Flue

General (Gravity Gas)

- Install per manu. instructions and listing ... [2426.6.1] (803.1)
- Induced-draft can be "gravity vent" ... [2426.6.8.1] (816.1)
- Min. 5ft. height from collar (except wall furnace) ... [2426.6.6] (806.2)
- Min. termination 12ft. from base of wall furnace ... [2426.6.6] (806.3)
- Bends 45° max. except one of 60° ... [2426.6.4] (805.1)
- Size-min. 7sq.in. or 3in. diameter ... [T2427.2(1)] (808.0)
- Size-max. 7x diameter of vent collar or draft hood ... [2427.2.8] (n/a)
- No solid fuel and gas in same vent ... [2426.5.6.1] (802.4)
- Flue supported from ground needs 2in. conc. pad min. ... [manu.] (804.0)
- Sheet metal shield [to 2in.] above insulation in attic ... [2425.4] (804.0)

Connector

- No single-wall in attic or cold or concealed space ... [2426.7.6] (815.1)
- Uninsulated connector ≤75% of vert. vent ... [2426.10.9] (815.2.2.7)
- Insulated connector (type B) ≤100% of vert. vent ... [2426.10.9] (815.2.2.7)
- Slope min. 1/4in./ft. toward appliance ... [2426.10.8] (805.2)
- Sheet metal screws to appliance vent collar ... [2426.10.7] (815.1)
- {3} Sheet metal screws at connection to vent ... [2426.10.12] (815.1)
- Min. clear to combustible for single wall is 6in. ... [T2426.7.7] (T3-3)
- Single-wall may not pass through floor or wall ... [2426.10.15] (815.2.2.6)

Multiple Appliances Vented in Common

- Multiple connectors join as high as possible in room [2426.10.3.4] (815.3.2.7)
- All connectors must enter on same floor ... [n/a] (809.1)
- Connectors staggered where they enter ... [n/a] (809.2)
- Flue must equal largest connector +50% of others [2426.10.3.4] (809.3)

Termination Clearances

"B" Vents

- 2ft. above vert. surface within 8ft. ... [2426.6.5] (806.4)
- Min. 1ft. above low-slope (≤6:12) roof ... mt-1 [Fig.2426.6.5] (T8-1)

Forced Vents or Exterior Appliances with Integral vents

- Min. 3ft. above forced-air inlet within 10ft. ... [2426.8] (806.6)
- 4ft. below or side and 1ft. above window or door ... [2426.8] (806.6)
- Min. 1ft. from [above] any building opening ... [2426.8] (816.5)

Forced Draft (Condensing Furnaces)

- Positive-pressure systems must be gas-tight ... [2424.10, 2426.3.3] (816.2)
- Size per manu. instructions ... [2426.6.8.2] (802.5)
- Slope plastic horiz. plastic vent 1/4in./ft. to appliance ... [2426.9] (802.5)
- Supports for horiz. plastic max. 4ft. apart. ... [T2605.1] (UPCT3-2)
- Supports should allow thermal expansion/contraction [2426.6.9] (802.5)

Gas Vent Entering Masonry Chimney

- Enter min. 12in. [6in.] from bottom ... [2424.9] (813.2.6)
- Must be lined [if >1 side on exterior] with clay or metal [2426.5.2] (813.2)
- Cross-sectional area not >7x {4x} size of gas vent ... [2427.2.8] (813.2.2)

mt-6 Heat Requirement Rule of Thumb				
	Old house, poor insulation		New house, good insulation	
Watts	2/cu.ft.	15/sq.ft. ^a	1.25/cu.ft.	10/sq.ft. ^a
Btu	6.75/cu.ft.	55/sq.ft. ^a	4.25/cu.ft.	35/sq.ft. ^a
<small>a. Sq. ft. numbers based on a room with an 8ft. ceiling Watts x 3.41 = Btu/hr. • Btu/hr. x .2931 = Watts</small>				

Wall Furnaces

Clearances

- From sidewall—6in. unless listed for less[2434.1] [914.1]
- From door swing—12in.[2434.4] [914.1]
- Below structural projections, including windows—18in. ...[2434.3] [914.1]

Installation

- Header height per manu.[2434.1] [807.1]
- Hold-down plate screwed to header[2434.1] [807.1]
- Cut top and floor plates flush to stud[2434.1] [807.2]
- No ducts attached to wall furnaces[2434.5] [914.3]

Flue

- BW vent terminate min. 12ft. above bottom of furnace ..[2426.6.6] [806.3]
- Follow manu. requirement for stud-bay depth[2434.1] [304.1]
- Base plate from flue manu.[2434.1] [807.1]
- Spacers from manu. installed to specs[2434.1] [807.3]
- Metal barrier to perforated or metal lath or bldg paper ...[manu.] [807.3]
- Ventilate first ceiling plate above unit ORFig. m9 [manu.] [807.6]
- Vent stud bay above furnace within 12in. of ceiling[manu.] [807.5]
- Firestop spacers all ceiling plates after 1st plate ... Fig. m9 [manu.] [807.6]
- Sleeve into attic 12in. &>2in.
below sheathing EXCFig. m10 [manu.] [807.5]
- Sleeve not req'd if furnace >1 floor below attic[manu.] [807.5]
- Existing building—open one wall side for inspection[2426.5.5] [807.8]
- No offsets in wall[manu.] [807.9]

Fig. m9 • Wall Furnace Flue (BW Vent)

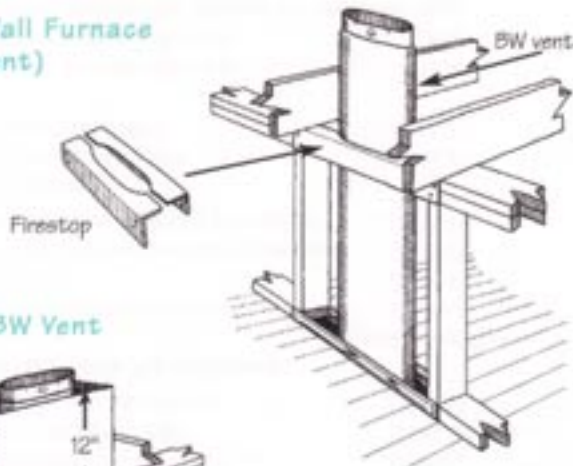
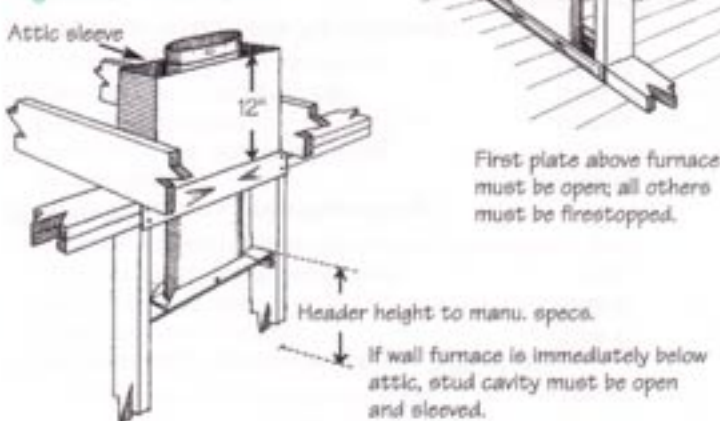


Fig. m10 • BW Vent



Final

- Heat source each habitable room[303.6] [local]
- Equipment listed and installations instructions on site ..[1401.1] [304.1]
- Packing materials removed[1401.1] [304.1]
- Vent caps and flashings in place[1804.2.1, 2426.6.5] [806.1]

Water Heater

General

- | | IRC | UPC |
|--|------------|--------------|
| <input type="checkbox"/> Unions req'd within 12in.[2801.3] | [2801.3] | [609.5] |
| <input type="checkbox"/> Full-bore water valve onlyFigs. p10 & p11 [2903.9.2] | [2903.9.2] | [605.2] |
| <input type="checkbox"/> Hot and cold pipe insulated within 5ft.[n/a] | [n/a] | [energy] |
| <input type="checkbox"/> Insulate hot water recirculating pipes[energy] | [energy] | [energy] |
| <input type="checkbox"/> Min. R12 integral (no blanket)[energy] | [energy] | [energy] |
| <input type="checkbox"/> Electric req's in-sight or lockable disconnect.[T4001.5] | [T4001.5] | [NEC422-31b] |

Flue Also see "Termination Clearances" p. 22

- Draft hood or barometric damper in appliance space. [1802.1] [521]
- Min. height 5ft. above draft hood.[1804.2.3, 2426.6.6] [517.2]
- Only one draft hood.[1801.1, 2425.5] [501.0]
- No single-wall in cold space[2426.7.6] [514.3]

Access & Working Space

- Working space by firebox 30in. x 30in. min.[1305.1] [511.5]
- Must be able to remove water heater[1305.1] [511.0]
- Min. door size 24in. by 30in. high OR[1305.1.2] [511.1]
- Trap door 22in. x 30in. [30in. x 30in.] OR[1305.1.3, 4] [511.3]
- Passageway min. 24in. wide, solid floor,
max. 20ft. long[1305.1.3, 4] [511.3, 4, 5]

Location

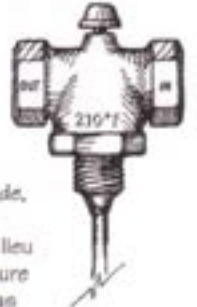
- Prohibited in bedroom, bathroom, clothes closet, or area open to same except direct-vent or electric appliance[2005.2] [509.0]
- Over framing req's watertight pan w/1in. [1/4in.] drain [2801.5] [510.7]
- In garage—burner/heating element must be
18in. above floor[2801.6] [510.1]
- In garage—protected from vehicle damage[1307.3.1] [510.3]
- On grade—3in. pedestal req'd[1305.1.4.1] [510.6]
- SDC D1 & D2 [3 & 4]—strap upper & lower third with
min. 4in. clearance to controls[1307.2] [510.5]

Pressure & Temperature Relief Line

- Temperature-pressure relief required[2803.1] [506.2, 608.3]
- Drain ends outside ≤6in. [6in.–24in.] from ground [2803.6.1] [608.5]
- 1/2in. min., no trap, no reduction, no thread on end [2803.6.1] [608.5]
- Drain line may not run uphill[2803.6.1] [608.5]
- Watts 210 also req's pressure relief valve Figs. m11 & m12 [2803.1] [Ø]

Fig. m11 • Pressure Relief

Fig. m12 • Watts 210



When a water heater is below grade, a Watts 210-style temperature-relief gas shutoff may be used in lieu of the required integral temperature and pressure-relief valve so long as it is installed in conjunction with an approved pressure-relief device that relieves outside the building. As with any "approved" device, these must be installed to manufacturer's spec.