

TECH TIP # 35



One of a series of dealer contractor technical advisories prepared by HARDI wholesalers as a customer service.

Building/System Survey Forms

A comfort survey, or in today's vernacular a "building/system audit" is the first step in sizing equipment for a job, adding energy saving devices or simply analyzing a performance problem.

The upper two sample survey sheets appear in HARDI's Introduction to Comfort Cooling.

Each person or company should develop their own list(s) to meet the specific requirements of their individual needs.

These are offered as possible starting points.

Published by the Independent Study Institute, a division of the Heating, Airconditioning & Refrigeration Distributors International. The Institute offers accredited, industry training courses in HVAC/R technology. Direct inquiries to HARDI 3455 Mill Run Drive, Ste. 820, Columbus, OH 43026. Phone 888/253-2128 (toll free) · 614/345-4328 · Fax 614/345-9161

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Samples of Building/System Survey Forms

Existing System Survey

A. HEATING SYSTEM

1. Furnace type: Highboy Lowboy Counterflow Horizontal
2. Supply system: Perimeter Overhead Inside wall
3. Return system: High inside wall Low inside wall Beneath windows
Single return Multiple return
4. Duct type: Radial Loop Trunk duct Extended plenum

B. FURNACE BLOWER

<ol style="list-style-type: none"> 1. <input type="checkbox"/> direct drive <input type="checkbox"/> belt drive 2. Size of blower Diameter _____ inches Width _____ inches 3. Blower pulley Diameter _____ inches 	<ol style="list-style-type: none"> 4. Motor pulley Adjustable? <input type="checkbox"/> Yes <input type="checkbox"/> No Diameter _____ inches 5. Motor Horsepower _____ (HP) Speed _____ (RPM) Phase _____ (PH) Cycle _____ (HZ)
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C. SIZES

1. Size of warm air plenum. h _____ w _____ d _____
2. Number of main ducts: one
dimensions: _____" wide x _____" deep
 two
dimensions: _____" wide x _____" deep
 _____ "wide x _____" deep
3. Number of branch ducts _____
Size of each _____

4. Type of outlets	Quantity	Size
Check		
<input type="checkbox"/> Baseboard	_____	_____ x _____
<input type="checkbox"/> Floor	_____	_____ x _____
<input type="checkbox"/> Wall	_____	_____ x _____
<input type="checkbox"/> Ceiling, Round	_____	_____ x _____
<input type="checkbox"/> Ceiling, Rectangular	_____	_____ x _____

5. Type of inlets	Quantity	Size
Check		
<input type="checkbox"/> Floor	_____	_____ x _____
<input type="checkbox"/> Baseboard	_____	_____ x _____
<input type="checkbox"/> Wall	_____	_____ x _____
<input type="checkbox"/> Ceiling	_____	_____ x _____
<input type="checkbox"/> Baseboard out-of-wall	_____	_____ x _____
<input type="checkbox"/> Other	_____	_____ x _____

6. Distance between outlet of furnace and first duct leaving plenum _____ inches.
7. Distance from furnace to desired location of outdoor airconditioning unit (condenser) _____ ft. _____ inches.
8. If an upflow furnace located in closet, what is distance from top of furnace to top of closet door frame? _____ ft. _____ inches.

D. MISCELLANEOUS

<ol style="list-style-type: none"> 1. Is insulation present on or inside of ductwork? <input type="checkbox"/> yes <input type="checkbox"/> no. If yes, nominal thickness <input type="checkbox"/> 1/2", <input type="checkbox"/> 1" other. 2. Does insulation have vapor barrier on the outside? <input type="checkbox"/> yes <input type="checkbox"/> no 	<ol style="list-style-type: none"> 3. Are there balancing dampers in branches? <input type="checkbox"/> yes <input type="checkbox"/> no 4. Are drain provisions available near furnace? <input type="checkbox"/> yes <input type="checkbox"/> no. 5. Will a condensate pump be needed to dispose of water from cooling coil? <input type="checkbox"/> yes <input type="checkbox"/> no
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Building Thermal Factors Survey

design conditions:

dry bulb	summer	winter
indoor, °F		
outdoor, °F		
difference		

general conditions:

- a direction house faces: N NE E SE S SW W NW
 b house type: 1-story 2-story split level
 c house age: new planned under construction
 existing approximate age _____ years

construction:

- a walls: frame brick veneer masonry
 insulation: none, 1", 2", 3 5/8" _____
 interior partitions: single _____ double _____
 Color - Dark Light
 b ceiling heights: 1st floor _____ 2nd floor _____
 other _____ basement _____ crawl space _____
 c roof: pitched flat vented unvented
 Color - Dark Light
 d ceiling: attic above _____ under occupied floor _____
 insulation: thickness _____
 natural vent attic fan
 e floors: over basement over garage car-port
 over crawl space (vented unvented)
 moisture barrier on ground
 insulation: none, 1", 2", 3 5/8" _____
 slab on ground edge insulation _____
 f windows: single pane double pane or storm sash
 double hung moveable fixed plain
 weatherstripped casement glass block
 certified non-certified

shading:

type	location				
	E	SE	S	SW	W
roof overhang (feet)					
awnings					
trees					
garage, carport, porch					
inside shades					
no shading					

miscellaneous:

- a number of people _____
 b kitchen exhaust fan
 c clothes dryer: vented unvented
 d special customer requirements:
 frequent entertaining
 temperature: _____ summer _____ winter
 e special room treatment:
 workshop game room other
 f unusual lighting or appliance loads

Building Physical Factors Survey

condensing method:

air-cooled waste water cooling tower other

equipment location:

unit: basement utility room attic outdoor

other _____

air-cooled condenser _____

cooling tower _____

cooling tower pump _____

note: Check to determine how and where equipment may be moved to final location—door clearances, narrow halls sharp turns, ceiling heights, etc.

clearance for equipment servicing

controls:

heating only cooling only combination thermostat

plus remote control of fan and reset thermostat only

automatic change-over night setback for heating

utilities:

a electricity: service capacity: amps _____ volts _____

phase _____ cycles _____ adequate inadequate

Distance from entrance panel to desired

location of outdoor air conditioning unit

(condenser) _____ ft. _____ inches.

Distance from location of condenser unit

to desired thermostat location _____ ft.

b water source: city supply well other

maximum water temperature _____ °F

normal available pressure _____ psi

meter size _____ location _____

pipe size, entry _____ " from meter _____ "

available well water _____ gpm

c water disposal:

storm sewer sanitary sewer disposal well

floor drain sump other _____

d condensate disposal:

gravity _____ use condensate pump _____

open floor drain sump other

e gas service:

type: natural mfd mixed L.P.

heating value: _____ Btu/cu ft. _____ sp.gr.

meter location _____

L.P. tank size and location _____

f oil service:

type: _____ htg. value _____ Btu/gal.

tank location and size _____

notes: _____

g chimney:

masonry pre-fab

location _____

flue size (inside) _____

notes: _____