



**Jim Messina**  
**TREC #288, TPCL 13562**

**PO BOX 2302**  
**Sugar Land, TX 77487-2302**  
**281-242-1300**  
**[www.abethouston.com](http://www.abethouston.com)**  
**[abetinspections@gmail.com](mailto:abetinspections@gmail.com)**



**Jody Norris**  
**6018 Bridgeside Lane**  
**Missouri City, TX 77459**

## PROPERTY INSPECTION REPORT

---

**Prepared For:** Jody Norris  
(Name of Client)

**Concerning:** 6018 Bridgeside Lane, Missouri City, TX 77459  
(Address or Other Identification of Inspected Property)

**By:** Jim Messina, Lic #TREC #288 TPCL # 13562 04/04/2017  
(Name and License Number of Inspector) (Date)

\_\_\_\_\_  
(Name, License Number of Sponsoring Inspector)

---

### PURPOSE, LIMITATIONS AND INSPECTOR / CLIENT RESPONSIBILITIES

This property inspection report may include an inspection agreement (contract), addenda, and other information related to property conditions. If any item or comment is unclear, you should ask the inspector to clarify the findings. It is important that you carefully read ALL of this information.

This inspection is subject to the rules ("Rules") of the Texas Real Estate Commission ("TREC"), which can be found at [www.trec.texas.gov](http://www.trec.texas.gov).

The TREC Standards of Practice (Sections 535.227-535.233 of the Rules) are the minimum standards for inspections by TREC-licensed inspectors. An inspection addresses only those components and conditions that are present, visible, and accessible at the time of the inspection. While there may be other parts, components or systems present, only those items specifically noted as being inspected were inspected. The inspector is NOT required to turn on decommissioned equipment, systems, utility services or apply an open flame or light a pilot to operate any appliance. The inspector is NOT required to climb over obstacles, move furnishings or stored items. The inspection report may address issues that are code-based or may refer to a particular code; however, this is NOT a code compliance inspection and does NOT verify compliance with manufacturer's installation instructions. The inspection does NOT imply insurability or warrantability of the structure or its components. Although some safety issues may be addressed in this report, this inspection is NOT a safety/code inspection, and the inspector is NOT required to identify all potential hazards.

In this report, the inspector shall indicate, by checking the appropriate boxes on the form, whether each item was inspected, not inspected, not present or deficient and explain the findings in the corresponding section in the body of the report form. The inspector must check the Deficient (D) box if a condition exists that adversely and materially affects the performance of a system or component or constitutes a hazard to life, limb or property as specified by the TREC Standards of Practice. General deficiencies include inoperability, material distress, water penetration, damage, deterioration, missing components, and unsuitable installation. Comments may be provided by the inspector whether or not an item is deemed deficient. The inspector is not required to prioritize or emphasize the importance of one deficiency over another.

Some items reported may be considered life-safety upgrades to the property. For more information, refer to Texas Real Estate Consumer Notice Concerning Recognized Hazards or Deficiencies below.

THIS PROPERTY INSPECTION IS NOT A TECHNICALLY EXHAUSTIVE INSPECTION OF THE STRUCTURE, SYSTEMS OR COMPONENTS. The inspection may not reveal all deficiencies. A real estate inspection helps to reduce some of the risk involved in purchasing a home, but it cannot eliminate these risks, nor can the inspection anticipate future events or changes in performance due to changes in use or occupancy. It is recommended that you obtain as much information as is available about this property, including any seller's disclosures, previous inspection reports, engineering reports, building/remodeling permits, and reports performed for or by relocation companies, municipal inspection departments, lenders, insurers, and appraisers. You should also attempt to determine whether repairs, renovation, remodeling, additions, or other such activities have taken place at this property. It is not the inspector's responsibility to confirm that information obtained from these sources is complete or accurate or that this inspection is consistent with the opinions expressed in previous

or future reports.

ITEMS IDENTIFIED IN THE REPORT DO NOT OBLIGATE ANY PARTY TO MAKE REPAIRS OR TAKE OTHER ACTIONS, NOR IS THE PURCHASER REQUIRED TO REQUEST THAT THE SELLER TAKE ANY ACTION. When a deficiency is reported, it is the client's responsibility to obtain further evaluations and/or cost estimates from qualified service professionals. Any such follow-up should take place prior to the expiration of any time limitations such as option periods. Evaluations by qualified tradesmen may lead to the discovery of additional deficiencies which may involve additional repair costs. Failure to address deficiencies or comments noted in this report may lead to further damage of the structure or systems and add to the original repair costs. The inspector is not required to provide follow-up services to verify that proper repairs have been made.

Property conditions change with time and use. For example, mechanical devices can fail at any time, plumbing gaskets and seals may crack if the appliance or plumbing fixture is not used often, roof leaks can occur at any time regardless of the apparent condition of the roof, and the performance of the structure and the systems may change due to changes in use or occupancy, effects of weather, etc. These changes or repairs made to the structure after the inspection may render information contained herein obsolete or invalid. This report is provided for the specific benefit of the client named above and is based on observations at the time of the inspection. If you did not hire the inspector yourself, reliance on this report may provide incomplete or outdated information. Repairs, professional opinions or additional inspection reports may affect the meaning of the information in this report. It is recommended that you hire a licensed inspector to perform an inspection to meet your specific needs and to provide you with current information concerning this property.

#### **TEXAS REAL ESTATE CONSUMER NOTICE CONCERNING HAZARDS OR DEFICIENCIES**

Each year, Texans sustain property damage and are injured by accidents in the home. While some accidents may not be avoidable, many other accidents, injuries, and deaths may be avoided through the identification and repair of certain hazardous conditions. Examples of such hazards include:

- malfunctioning, improperly installed or missing ground fault circuit protection (GFCI) devices for electrical receptacles in garages, bathroom, kitchens, and exterior areas;
- malfunctioning arc fault protection (AFCI) devices;
- ordinary glass in locations where modern construction techniques call for safety glass;
- malfunctioning or lack of fire safety features such as, smoke alarms, fire-rated doors in certain locations, and functional emergency escape and rescue openings in bedrooms;
- malfunctioning carbon monoxide alarms;
- excessive spacing between balusters on stairways and porches;
- improperly installed appliances;
- improperly installed or defective safety devices;
- lack of electrical bonding and grounding; and
- lack of bonding on gas piping, including corrugated stainless steel tubing (CSST).

To ensure that consumers are informed of hazards such as these, the Texas Real Estate Commission (TREC) has adopted Standards of Practice requiring licensed inspectors to report these conditions as "Deficient" when performing an inspection for a buyer or seller, if they can be reasonably determined.

These conditions may not have violated building codes or common practices at the time of the construction of the home, or they may have been "grandfathered" because they were present prior to the adoption of codes prohibiting such conditions. While the TREC Standards of Practice do not require inspectors to perform a code compliance inspection, TREC considers the potential for injury or property loss from the hazards addressed in the Standards of Practice to be significant enough to warrant this notice.

Contract forms developed by TREC for use by its real estate licensees also inform the buyer of the right to have the home inspected and can provide an option clause permitting the buyer to terminate the contract within a specified time. Neither the Standards of Practice nor the TREC contract forms requires a seller to remedy conditions revealed by an inspection. The decision to correct a hazard or any deficiency identified in an inspection report is left to the parties to the contract for the sale or purchase of the home.

**INFORMATION INCLUDED UNDER "ADDITIONAL INFORMATION PROVIDED BY INSPECTOR", OR PROVIDED AS AN ATTACHMENT WITH THE STANDARD FORM, IS NOT REQUIRED BY THE COMMISSION AND MAY CONTAIN CONTRACTUAL TERMS BETWEEN THE INSPECTOR AND YOU, AS THE CLIENT. THE COMMISSION DOES NOT REGULATE CONTRACTUAL TERMS BETWEEN PARTIES. IF YOU DO NOT UNDERSTAND THE EFFECT OF ANY CONTRACTUAL TERM CONTAINED IN THIS SECTION OR ANY ATTACHMENTS, CONSULT AN ATTORNEY.**

---

---

**ADDITIONAL INFORMATION PROVIDED BY INSPECTOR**

Present at Inspection:  None  Selling Agent  Listing Agent  Occupant  
Building Status:  Vacant  Owner Occupied  Tenant Occupied  Other  
Weather Conditions:  Fair  Cloudy  Rain Temp: 80  
Water On:  Yes  No  
Electric On:  Yes  No  
Gas On:  Yes  No  
Buyer Present:  Yes  No  
Special Notes: 1,895 Square Feet - Built 2011

---

**INACCESSIBLE OR OBSTRUCTED AREAS**

- Sub Flooring  Attic Space is Limited - Viewed from Accessible Areas
  - Floors Covered  Plumbing Areas - Only Visible Plumbing Inspected
  - Walls/Ceilings Covered or Freshly Painted  Siding Over Older Existing Siding
  - Behind/Under Furniture and/or Stored Items  Crawl Space is limited - Viewed From Accessible Areas
- Mold/Mildew investigations are NOT included with this report; it is beyond the scope of this inspection at the present time. Any reference of water intrusion is recommended that a professional investigation be obtained.

---

**NOTICE: THIS REPORT IS PAID FOR BY AND PREPARED FOR THE CLIENT NAMED ABOVE.  
THIS REPORT IS NOT VALID WITHOUT THE SIGNED SERVICE AGREEMENT AND IS NOT TRANSFERABLE.**

---

**ADDITIONAL INFORMATION PROVIDED BY INSPECTOR**

No intrusive moisture and/or indoor air quality (IAQ) tests were performed as they were beyond the scope of the inspection performed on this date. It should also be noted that various fungi, molds and mildew flourish in such an environment provided by moist and/or water damaged conditions.. A growing concern of many to date includes the adverse affect on indoor air quality and the potential for inherent health hazards with some immuno compromised individuals. Professionals in this specialized field of study, such as one with certification, as CIAQP, CIAQT, CMRS or CIH continue to prove the direct relation of intrusion.. After water enters the fibers of most cellulose-based building materials such as wood, drywall and especially fiberglass or cellulose insulation. The time frame for numerous specific of microbial growth may start in as little as four hours. Thus, the reasoning and logic for immediate proper remediation is absolutely critical for deterring microbial growth if its existence is proven. Due to concerns regarding observations made at the time of the inspection, as specifically noted, should be investigated by only qualified competent IAQ professionals who have specific licensing in this area.

**SCOPE**

The scope of the inspection included limited, visual observation at the interior and exterior of the structure; the attic is viewed only from areas determined by the inspection to be safely accessible, and the roof as viewed from the ground. Only those items readily visible and accessible at the time of the inspection were viewed and are included in this report. Any items causing visual obstruction, including, but not limited to furniture, furnishings, floor or wall coverings, foliage, soil, appliances, insulation, etc. were not moved. Only those electrical outlets that were readily accessible were operationally checked.

The basis of our selective opinions will be the apparent performance of that portion of the property actually visible at the time of the inspection. Disassembly or removal of any portion of the structure, mechanical equipment, plumbing equipment, or electrical equipment is beyond the scope of this inspection. There is no warranty or guarantee, either expressed or implied, regarding the habitability, future performance, life, merchantability, workmanship, and/or need for repairs of items inspected.

Built-in appliances and mechanical equipment were operated in at least one, but not necessarily all of their operating modes, where possible. Equipment and materials that are not visible, including structural components, underground plumbing and gas lines, and all other items not normally available for ready viewing, are excluded from the scope of the inspection. If you desire an inspection on the underground plumbing pipes or a hydrostatic test to determine if the plumbing pipes are leaking under the house, then it is recommended that you contact a plumber. No electrical circuit or load analysis was performed on the electrical system.

We make no representation regarding the condition of this property other than as contained in this written report. Any verbal discussions concerning this property that were made at the time of the inspection, and not contained in this written report, are not to be relied upon.

Although this report may include observations of some code violations, total compliance with structural, mechanical, plumbing, electrical codes, specifications, and/or legal requirements are specifically excluded. Although this inspection was made by ABET Inspections, it cannot be considered to be a formal engineering study since no calculations, analysis, or physical testings were performed. If engineering drawings, specifications have been made available during this inspection and if they have been viewed, it is pointed out that all such viewings is strictly cursory, and in no way should our cursory examination be construed as providing engineering judgments concerning the adequacy or acceptability of the drawings/specifications.

It is pointed out that it is possible for latent defects to exist in the structure and its related equipment, underground piping, and systems that are not visible at the time of the inspection, and may not be able to be viewed during a limited visual inspection. ABET Inspections does not claim or warrant that the observations listed in this report represent every condition that may exist. In using the information supplied by this inspection, one must recognize the limitations of a limited, visual inspection, and accept the inherent risk involved.

I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I NI NP D

## I. STRUCTURAL SYSTEMS

### A. Foundations

*Type of Foundation(s):* Post Tension Slab

*Comments:*

*Foundations ( if all crawl space areas are not inspected, provide an explanation). A visible foundation should be maintained completely around the home at all times. At least 4-6" of foundation should be visible to deter water penetration into the home. A constant moisture level should be maintained in the soil around the home to help prevent unnecessary soil expansion and contraction. This can be accomplished by using soaker hoses around the home or through the use of a sprinkler system.*

*Slab-on-ground foundations are the most common type of foundation in the Greater Houston Area for residential foundations. When supported by active or expansive soils, this type of foundation will frequently deflect enough to result in cosmetic damage (usually sheetrock, brick veneer cracking and floor tile cracking) and possibly some minor functional problems such as sticking doors. Any owner of a building founded on a slab-on-ground foundation should be prepared to accept a degree of cosmetic distress and minor functional problems due to foundation movement.*

*The foundation was inspected for any unusual or abnormal signs of structural movement or settling including items listed below. The exterior slab surface was inspected for surface problems including exposed rebar, exposed cable ends, cracks in corners and obstructions or areas where slab was not visible.*

**SUGGESTED FOUNDATION MAINTENANCE & CARE** - *Proper drainage and moisture maintenance to all types of foundations due to the expansive nature of the area load bearing soils. Drainage must be directed away from all sides of the foundation with grade slopes. In most cases, floor coverings and/or stored articles prevent recognition of signs of settlement - cracking in all but the most severe cases. It is important to note, this was not a structural engineering survey nor was any specialized testing done of any sub-slab plumbing systems during this limited visual inspection, as these are specialized processes requiring excavation. In the event that structural movement is noted, client is advised to consult with a Structural Engineer who can isolate and identify causes, and determine what corrective steps, if any, should be considered to either correct and/or stop structural movement.*

**Performance Opinion:** (An opinion on performance is mandatory)

**Note:** *Weather conditions, drainage, leakage and other adverse factors are able to effect structures, and differential movements are likely to occur. The inspectors opinion is based on visual observations of accessible and unobstructed areas of the structure at the time of the inspection. Future performance of the structure cannot be predicted or warranted.*

### Performance

I=Inspected

NI=Not Inspected

NP=Not Present

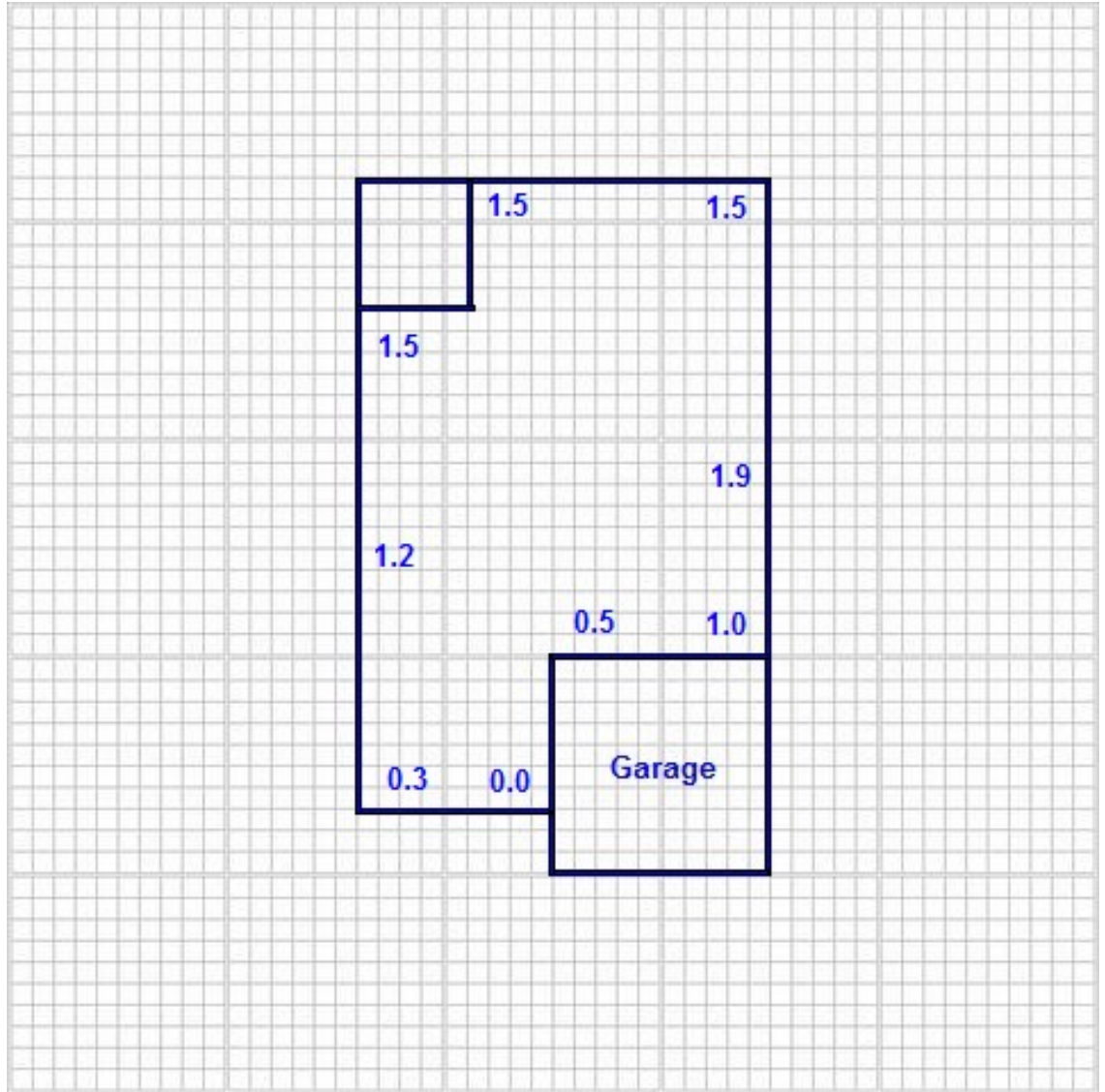
D=Deficient

I NI NP D

No significant structural movement was observed, the foundation appears to be performing the function intended

**Foundation Elevations Readings**

**Note:** Foundation elevation readings are typically measured at exterior walls and exterior corners using a reference point at the front entry door. Measurements on carpet are reduced by 0.5 Inch to adjust for hard surfaces. A compelevel is used for determining elevations.



Foundation slopes approx 1.5" from high elevations along rear wall to low elevations at front wall

**B. Grading and Drainage**

Comments:

The area around the home was inspected for proper grading and drainage. Ideally, the grade



I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I	NI	NP	D
---	----	----	---

away from foundations should fall a minimum of 6" within the first 10'. Grading on many older homes does not meet this standard.

Positive drainage should be maintained around the home at all times. Soil levels should be 4 - 6" below weep holes and wood siding. Areas that hold water near foundation should be filled to prevent ponding. Additional drainage should be installed in problem areas.

### Gutters

Damaged downspouts were observed at front corner, and rear corner



### C. Roof Covering Materials

Type(s) of Roof Covering: Composition Shingles

Viewed From: Ground Level & Attic

Comments:

Roof surface was viewed from ground level and from attic space unless noted otherwise due to possible roof surface damage caused by walking on roof and damage to inspector.



I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I	NI	NP	D
---	----	----	---

The roof was visually inspected for excessive wear, damaged or lifted shingles, unusual or abnormal deflection and sagging or roof surface. Flashing and roof jacks were inspected for proper installation, damage and deterioration. Unless otherwise stated, the roof surface was viewed from ground level. The roof was inspected for leakage by viewing readily accessible areas of decking visible from the attic space. Visible and accessible flashing and roof penetration points such as plumbing vent pipes, water heater vent pipes and furnace vent pipes were also inspected from the attic.

A roofing specialist should be contacted if any concerns exist regarding the current condition of the roof covering, life expectancy or the potential for future problems. The client is advised that the opinions related to the roof are based upon limited, visual inspection and should not be considered a guarantee or warranty against future leaks.

**Approximant Age of Roof:**  5-10 Years

Roof surface appears to be original and the same age as the home

Roof surface appears to be in good condition and is performing as intended at the time of inspection

**D. Roof Structures and Attics**

*Viewed From:* Accessible attic walkways several attic areas were inaccessible

*Comments:*

The roof structure was visually inspected from attic walkways and areas deemed to be safe by the inspector. Some areas of attic space were inaccessible. The roof structure was inspected for proper bracing and failed support members. Roof decking was checked for deterioration and signs of water leaks such as stains or rotted wood. Average useful life for composition shingles is approx 20 years.

The attic space was inspected for proper ventilation and insulation. The type of attic insulation and methods of ventilation are listed below.

**Roof Decking**

Type: Tech Shield

Appears to be in good condition and functioning as intended

I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I	NI	NP	D
---	----	----	---



### Insulation

Type: Batts Blown-in

Insulation Type: Fiberglass

Insulation Depth of Insulation\_\_12\_\_ Inches

Approximate Average Thickness of Vertical Insulation: \_\_8\_\_ Inches

Attic insulation appears to be adequate, good condition, and performing as intended



### Attic Ventilation

Soffit Vents - Air Hawks

Attic ventilation appear to be properly installed and adequate

### Attic Walkways and Access

Attic walkways and access appear to be properly installed and adequate

I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I	NI	NP	D
---	----	----	---

- 
- 
- 
- 

**E. Walls (Interior and Exterior)**

*Comments:*

*The interior and exterior wall surfaces of the home were visually inspected from ground level. Interior walls were checked for sheet rock damage, cracking and signs of water penetration. Minor cosmetic flaws and deficiencies are not normally noted. Exterior walls were inspected for deteriorated wood, brick cracks, warping, levelness, proper flashing, caulking and proper installation of materials. Again, cosmetic deficiencies are not normally noted. The type of exterior wall material is listed below.*

**Interior Walls**

- Interior wall surfaces appear to be in overall good condition

**Exterior Walls**

**Brick - Natural Stone - Wood**

- Piping not sealed at exterior wall penetration



- Brick expansion joints not sealed at north + south walls



I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I	NI	NP	D
---	----	----	---

- 

**F. Ceilings and Floors**

*Comments:*

*The ceilings throughout the home were visually inspected for damage, water stains, sagging and previous repair. Minor sheet rock cracks or minor cosmetic deficiencies are not normally noted.*

**Ceilings**

- Ceiling surfaces appear to be in overall good condition

*The floors throughout the home were visually inspected for damage, loose floor decking, cracking and signs of water penetration. The general types of floor coverings are listed below.*

**Floors**

- Floor surfaces appear to be in overall good condition

- 

**G. Doors (Interior and Exterior)**

*Comments:*

*All interior and exterior doors were checked for proper latching and proper fit and operation in door frames. Attic and exterior doors were inspected for proper weatherstripping. Installation of safety glass in exterior doors was verified.*

**Interior Doors**

- All interior doors operate properly and are in overall good condition

**Exterior Doors**

*All exterior doors were inspected for proper operation. Wood frame doors were inspected for wood rot and deterioration. All exterior doors were checked for signs of water penetration.*

- All exterior doors operate properly and are in overall good condition

**Garage Doors**

Type: Metal

- Garage over head doors operate properly and are in good condition

I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I	NI	NP	D
---	----	----	---

**H. Windows**

*Comments:*

All easily accessible windows throughout house were manually operated. The type of windows installed were identified. Windows were visually inspected for breakage, water penetration and caulking. Locks and latches on easily accessible windows were inspected.

Double pane windows were visually inspected for signs of fogging between panes. Identification of failed seals is limited if windows require cleaning. Missing and damaged window screens are noted.

Double Pane Vinyl Frame

Windows operate properly and are in good condition

**I. Stairways (Interior and Exterior)**

*Comments:*

Stairways were inspected for proper installation and location of handrails, baluster installation and spacing and proper dimension of stair tread.

**Interior**

**Exterior**

**J. Fireplaces and Chimneys**

*Comments:*

The fireplace was inspected visually from the interior of the home, attic space and exterior ground level. The firebox, visual flue, damper mechanism, hearth and chimney were inspected.

**Type of Fireplace: Factory**

I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I NI NP D



- Unit not tested - Further evaluation recommended
- Gas fireplace does not come on - Further evaluation recommended

**K. Porches, Balconies, Decks, and Carports**

*Comments:*

- Appears to be in over all good condition

**L. Other**

*Comments:*

**Driveways & Sidewalks**

- Driveway and sidewalks are in good condition

**Thermal Imaging Photos:**

- Thermal imaging photos show that the insulation is performing as intended



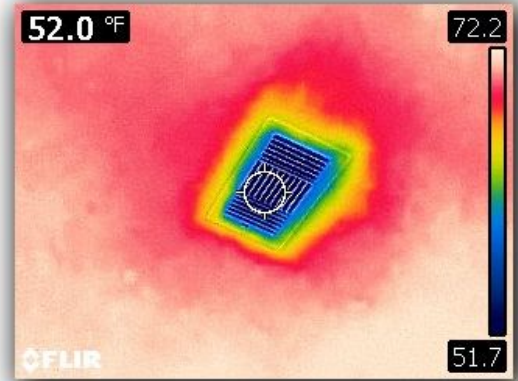
I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I	NI	NP	D
---	----	----	---



## II. ELECTRICAL SYSTEMS

- 
- 
- 
- 

### A. Service Entrance and Panels

*Comments:*

*The breaker box was visually inspected. The location, brand and amperage of the panel are noted. The panel was checked for deficiencies related to proper breaker sizing, grounding, physical damage, proper access and clearances, absence of trip ties on 240V circuits, missing knock outs, labeling and loose or missing dead front panels.*

*Overhead services are inspected for proper height, clearances, condition of overhead wiring and condition of weatherhead.*

**Panel Type:** Square D

**Panel Size:** 150 AMP

**Type of Wire:** Copper

**Breaker Box Location:** Garage Interior Wall

Underground Service

A/C condensing unit #1:

Specifies max amp breaker of 40 and a 40 amp breaker is in use

I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I NI NP D



Breaker box is installed correctly and in overall good condition

**Sub Panels**  Not Present

**Panel Type:** [Panel Type](#)

**Panel Size:** [Panel Size](#)

**Type of Wire:** [Type of Wire](#)

**Breaker Box Location:** [Breaker Box Location](#)

**B. Branch Circuits, Connected Devices, and Fixtures**

*Comments:*

*Electrical outlets, switches, fixtures and fans were inspected throughout house where readily accessible. Furniture and household items were not moved in order to check electrical items. Electrical outlets were checked for proper wiring relating to grounding, polarity and power to outlets. Presence of ground fault protection (GFCI) at kitchen counter, bathroom, exterior, laundry sink, wet bar, and jacuzzi tub locations were verified. All GFCI circuits were inspected for proper function. The type of electrical wiring is noted - Copper or Aluminum. Deficiencies relating to equipment disconnects, switches, receptacles, wiring, wiring terminations, junction boxes, light fixtures and ceiling fans are noted.*

*The presence or absence of arc fault protection to undesignated outlets throughout house was inspected. The presence of smoke detectors in bedrooms and hallways was inspected. The door bell was checked for proper operation and physical damage.*

*Smoke and / or Fire alarms are now required on each floor or level of home, in each bedroom and in hallways leading to bedrooms*

*Type of Wiring:*

I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I	NI	NP	D
---	----	----	---

Copper

**Fixtures**

Fluorescent light fixtures not working properly at utility room

**Ground Fault Circuit Interrupt Safety Protection**

Kitchen:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Location:
Bathrooms:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Location:
Exterior:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Location:
Garage:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Location:
Wet Bar:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Location:
Laundry:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Location:
Pool/Spa:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Location:

**Arc Fault Circuit Protection: Please see Addendum for further explanation.**

Arc Fault Circuit Protection is present on undesignated outlets

**Smoke and Fire Alarms**

Smoke alarms are present in all required locations

**III. HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS**

**A. Heating Equipment**

*Comments:*

*The type of heating systems and energy sources of units is noted.*

*Heating systems were inspected for proper operation, physical damage, proper location and clearances, venting, proper gas line installation, proper access and walkways.*

*Gas furnaces were inspected for obvious gas leaks, rusted burner chambers, gas shut off valve, vent pipe termination and vibration*

*Type of System: Central*

*Energy Source: Gas*

**System #1: Attic**

Manufacturer: Lennox

I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I NI NP D



Heating equipment is in overall good condition and functioning properly

**B. Cooling Equipment**

*Comments:*

*The type of A/C units and sizes of units is noted. The number of A/C systems and areas of the home the systems are zoned to is also noted. A/C systems are operated when the external ambient temperature exceeds 60 degrees. The systems are inspected for adequate cooling and performance as determined by the inspector. In most cases a temperature drop of the system is used to measure performance. Temperature drop measurements are listed below. Systems are inspected for adequate clearance, access to equipment, adequate walkways and adequate service platform. Attic equipment is checked for excessive vibration, proper drainage and visible rust in drain pans. Condensing units are inspected for adequate clearances, cleanliness, physical condition, vibration, levelness and elevation above grade level. Electrical connections and condition of refrigerant lines is also inspected.*

*Type of System: Central*

**Unit #1:** **Manufacturer: Lennox 3 1/2 Ton - 2011**  
 Supply Air Temp: 52 °F      Return Air Temp: 71 °F      Temp. Differential: 19 °F

I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I NI NP D



No electric disconnect within sight of unit - Wrong side of fence



Lack of GFCI near unit for technician

Secondary drain pan is rusted





I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I NI NP D

- 

**C. Duct Systems, Chases, and Vents**

*Comments:*

*Duct systems are inspected for general condition, damage, missing insulation, proper elevation and strapping. The type of ductwork is noted. Improper sizing of ductwork or return air openings may also be noted. Air filters and air registers are also inspected.*

**Type of Ducting:** Flex Ducting

- Appears to be in overall good condition and is functioning properly

**IV. PLUMBING SYSTEMS**

- 

**A. Plumbing Supply, Distribution Systems and Fixtures**

*Comments:*

*The location of the water meter, location of the house shut off valve, water pressure to the house and type of plumbing piping is noted. All faucets and plumbing fixtures were operated manually and inspected for proper operation and leakage where accessible. Visible plumbing beneath sinks or vanities was also inspected for general condition and leakage. In most cases shut-off valves beneath sinks were not operated due to the risk of causing leakage. Tub and shower enclosures were inspected for proper caulking, condition of tiles and water penetration.*

*Location of water meter:*  Street

*Location of main water supply valve:*

- Garage interior wall



*Static water pressure reading:* 70

- Below **40 PSI**       Above **80 PSI**  
 Pressure below **40 PSI** inadequate



I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I	NI	NP	D
---	----	----	---



**Supply Piping Type**  
Pex Piping

**Kitchen Sink and Faucet**

In overall good condition and functioning as intended

**Bathroom Sinks and Faucet**

Low water pressure at left side master vanity sink and hall bath vanity sink

**Bathtubs and Showers**

In overall good condition and functioning as intended

**Commodes**

In overall good condition and functioning as intended

I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I	NI	NP	D
---	----	----	---

:

**Washing Machine Connections**

In overall good condition and functioning as intended



Washing machine were connected - leakage not inspected

**Exterior Plumbing**

In overall good condition and functioning as intended

**B. Drains, Wastes, and Vents**

*Comments:*

*Drains are tested by running a normal amount of water from associated fixtures. Underground or under-slab drain systems were not inspected.*

**DRAIN PIPING TYPE: PVC**

Drains appear to be functioning as intended

**C. Water Heating Equipment**

*Comments:*

*The location, capacity and energy source of water heaters is noted.*

*Water heaters were inspected for general physical condition, obvious leakage, proper operation, appropriate locations and proper clearances. Units are also inspected for presence of drain pans*

I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I NI NP D

and drain lines, presence of temperature and pressure relief valve, proper type of vent pipes and termination of vent pipes. Gas lines and Gas shut-off valves were also inspected.

Energy Source: Gas

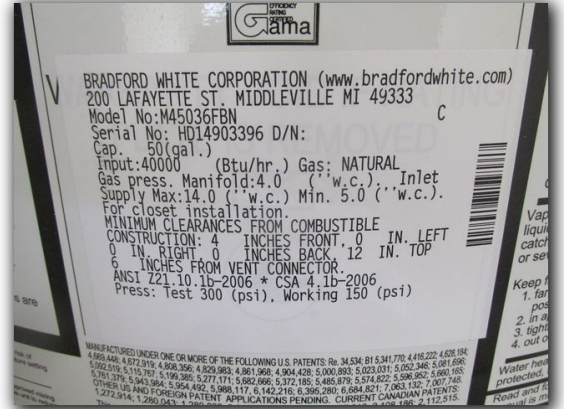
Capacity:

Brands:Bradford White

Location 1: Garage

Capacity: 40

Year: 2011



Water heater appears to be in good condition and functioning as intended

**D. Hydro-Massage Therapy Equipment**

Comments:

Jacuzzi tubs were inspected for proper operation and obvious active leakage. Absence of visible access for service and absence of GFCI protection is noted if applicable.

**E. Other**

Comments:

**V. APPLIANCES**

**A. Dishwashers**

Comments:

Dishwasher was operated through a complete normal cycle during the time of inspection. The unit was inspected for deficiencies in mounting, performance and general condition. The presence of a back-flow prevention device is also inspected.

**Brand: Whirlpool**

**Finish: Black**

Appears to be in overall good condition and functioning as intended

I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I NI NP D



**B. Food Waste Disposers**

*Comments:*

*The garbage disposal was inspected for proper operation, physical condition, rust, vibration, mounting, leakage and damage to components.*

**Brand:** Insinkerator

Appears to be good condition and functioning as intended



**C. Range Hood and Exhaust Systems**

*Comments:*

*Vent hoods and exhaust systems were inspected for proper operation, mounting, and physical condition. The type, condition and termination point of the vent pipe was also inspected.*

Appears to be functioning as intended at the time of inspection

I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I	NI	NP	D
---	----	----	---

- 

**D. Ranges, Cooktops, and Ovens**

*Comments:*

*Gas or Electric cook-tops are inspected for proper function and physical condition. Burners are checked on both High and Low settings. Ranges are inspected for presence of an anti-tip device.*

*Ovens are operated on both bake and broil settings and are pre-heated to 350 degrees. Self cleaning and timer operations are not inspected. Proper function of oven doors and mounting of unit is also inspected.*

**Brand:** Whirlpool

**Finish:** Black

**Range Type:** Gas

- Appears to be in overall good condition and functioning as intended



- Absence of anti-tilt device

**Oven(s):**

**Brand:** Whirlpool

**Finish:** Black

**Oven Type:** Gas

- Appears to be in overall good condition and functioning as intended

- 

**E. Microwave Ovens**

*Comments:*

*Microwave ovens are inspected for proper operation by boiling a small amount of water. The unit is checked for proper mounting and physical condition.*

I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I NI NP D

**Brand:** Whirlpool

**Finish:** Black

**Microwave Type:** Electric

Appears to be in overall good condition and functioning as intended



**F. Mechanical Exhaust Vents and Bathroom Heaters**

*Comments:*

*Exhaust fans are operated and checked for proper function, vibration and vent pipe termination.*

Appears to be in overall good condition and functioning as intended

**G. Garage Door Operators**

*Comments:*

*Garage door openers are inspected for proper mounting, function and presence of photo electric sensors. Doors are opened and closed using the manual button. In most cases remote control units are not inspected.*

**Brand:** Genie

Appears to be in overall good condition and functioning as intended



I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I	NI	NP	D
---	----	----	---



- 
- 
- 
- 

**H. Dryer Exhaust Systems**

*Comments:*

*Dryer vents are inspected for missing or damaged components, termination to exterior, a screened exterior cover and presence of smooth metal duct.*

- Appears to be in overall good condition and functioning as intended

- 
- 
- 
- 

**I. Other**

*Comments:*

**Doorbell and Chimes**

- Appears to be in overall good condition and functioning as intended

**VI. OPTIONAL SYSTEMS**

- 
- 
- 
- 

**A. Landscape Irrigation (Sprinkler) Systems**

*Comments:*

*Sprinkler systems are inspected by operating the system manually on all zones. The system is checked for presence of a rain sensor, back-flow device and shut-off valve.*

All zones operated in manual mode only - Timers not checked for automatic operation

**Controller Type:** Hunter

**Number of zones:** 5

- Appears to be in good condition and functioning as intended

I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I NI NP D



- 
- 
- 
- 

**B. Swimming Pools, Spas, Hot Tubs, and Equipment**

Comments:

The type of pool and type of filter is noted.

Pumps, pool cleaner pumps, lights, blowers and heaters are operated and inspected for proper function. Deficiencies in drains, motor grounding, GFCI circuits, piping leaks and pool surface and structure are inspected.

Type of Construction: [Pool Construction Types](#)

Pool Heater Type: [Energy Sources](#)

Mechanical	Good	Repair	Replace	Notes
Main Pump				
Heater				
Filter				
Piping				
<b>Electrical</b>				
Controllers				
Grounding				
GFCI				
Lights				
Wiring				
<b>Structural</b>				

I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I NI NP D

Plaster				
Deck				
Tile				
Drains				
Drain Covers				

**C. Outbuildings**

Comments:

**D. Private Water Wells** (A coliform analysis is recommended)

Type of Pump: Water Pump Types

Type of Storage Equipment: Water Storage Equipment

Proximity To Known Septic System: \_\_\_\_\_

Comments:

**DEFICIENCIES FOUND IN:**

**E. Private Sewage Disposal (Septic) Systems**

Type of System: Septic Systems

Location of Drain Field:

PROXIMITY TO ANY KNOWN WELLS OR UNDERGROUND WATER SUPPLY: \_\_\_\_\_

Comments:

**DEFICIENCIES FOUND IN:**

**F. Other**

Comments:



**DISCOUNT on PEST CONTROL!**

**ABET Inspections** would like to thank you for your business by offering you a 10% discount on your first Pest Control Treatment with **ABET Termite & Pest Control.**

**The best time to treat is BEFORE you move in.**

This service includes spraying the foundation and eaves of the exterior of your home, the baseboards of the interior, plus the interior of your garage and attic. The chemicals we use are all organic and safe to you, your pets, children and the environment.

**To schedule your appointment**

[Call 281.242.1300](tel:281.242.1300)

**License # TPCL 13562**

**APPROVED BY THE TEXAS REAL ESTATE COMMISSION (TREC) P.O. BOX  
12188, AUSTIN, TX 78711-2188  
TEXAS REAL ESTATE CONSUMER NOTICE CONCERNING HAZARDS OR  
DEFICIENCIES**

Each year, Texans sustain property damage and are injured by accidents in the home. While some accidents may not be avoidable, many other accidents, injuries, and deaths may be avoided through the identification and repair of certain hazardous conditions. Examples of such hazards include:

- improperly installed or missing ground fault circuit protection (GFCI) devices for electrical receptacles in garages, bathrooms, kitchens, and exterior areas;
- improperly installed or missing arc fault protection (AFCI) devices for electrical receptacles in family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreations rooms, closets, hallways, or similar rooms or areas;
- ordinary glass in locations where modern construction techniques call for safety glass;
- the lack of fire safety features such as smoke alarms, fire-rated doors in certain locations, and functional emergency escape and rescue openings in bedrooms;
- excessive spacing between balusters on stairways and porches;
- improperly installed appliances;
- improperly installed or defective safety devices; and
- lack of electrical bonding and grounding.

To ensure that consumers are informed of hazards such as these, the Texas Real Estate Commission (TREC) has adopted Standards of Practice requiring licensed inspectors to report these conditions as "Deficient" when performing an inspection for a buyer or seller, if they can be reasonably determined.

These conditions may not have violated building codes or common practices at the time of the construction of the home, or they may have been "grandfathered" because they were present prior to the adoption of codes prohibiting such conditions. While the TREC Standards of Practice do not require inspectors to perform a code compliance inspection, TREC considers the potential for injury or property loss from the hazards addressed in the Standards of Practice to be significant enough to warrant this notice.

Contract forms developed by TREC for use by its real estate licensees also inform the buyer of the right to have the home inspected and can provide an option clause permitting the buyer to terminate the contract within a specified time. Neither the Standards of Practice nor the TREC contract forms requires a seller to remedy conditions revealed by an inspection. The decision to correct a hazard or any deficiency identified in an inspection report is left to the parties to the contract for the sale or purchase of the home.

This form has been approved by the Texas Real Estate Commission for voluntary use by its licensees. Copies of TREC rules governing real estate brokers, salesperson and real estate inspectors are available from TREC. Texas Real Estate Commission, P.O. Box 12188, Austin, TX 78711-2188, 512-936-3000 (<http://www.trec.texas.gov>)

## **ADDENDUM: FOUNDATION MAINTENANCE**

The following information is taken from the Post Tensioning Institute textbook describing the Design and Construction of Post Tensioned Slab-on-Ground<sup>1</sup> foundation systems. The article refers to Post-Construction conditions. Slab on ground foundations with steel reinforcement will perform similarly to a post tensioned system. The information is also helpful in maintaining all residential foundations.

Planting flower beds or shrubs next to the foundation and keeping these areas flooded will generally cause a net increase in soil moisture content and result in soil expansion around the foundation perimeter in that vicinity. Planting shade trees closer to the structure than a distance equal to half the mature height of the tree will allow the tree roots to penetrate beneath the foundation and withdraw moisture from the soil; the result will be soil shrinkage in the region of the roots. Redirecting surface runoff channels or swales by the owner can result in improper drainage as detailed above. To minimize movement in soils due to post construction factors that are not climate related, the following homeowner's maintenance procedures are recommended.

- I. Initial landscaping should be done on all sides adjacent to the foundation and drainage away from the foundation should be provided and maintained.
- II. Watering should be done in a uniform, systematic manner equally as possible on all sides of the foundation to keep the soil moist. Areas of soil that do not have ground cover may require more moisture, as they are more susceptible to evaporation. Ponding or trapping of water in localized areas adjacent to the foundations can cause differential moisture levels in subsurface soils.
- III. Studies have shown that trees within 20 feet of foundations have caused differential movements in foundations. These trees will require more water in periods of drought and in some cases a root injection system may be required to maintain moisture equilibrium.
- IV. During extreme hot and dry periods, close observations should be made around foundations to insure that adequate watering is being provided to keep soil from separating and pulling back from the foundations.

## **ADDENDUM: ROOF FLASHING METHODS**

The following text is taken from the International Residential Code for One and Two Family Dwellings describing the methods acceptable for flashing asphalt shingles to roof details.

R905.2.8.4 Sidewall flashing. Flashing against a vertical sidewall shall be by the step- flashing



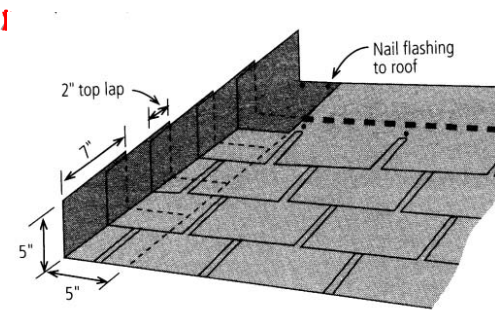
method.

R905.2.8.5 Other flashing. Flashing against a vertical front wall, as well as soil stack, vent pipe and chimney flashing, shall be applied according to asphalt shingle manufacturer's printed instructions.

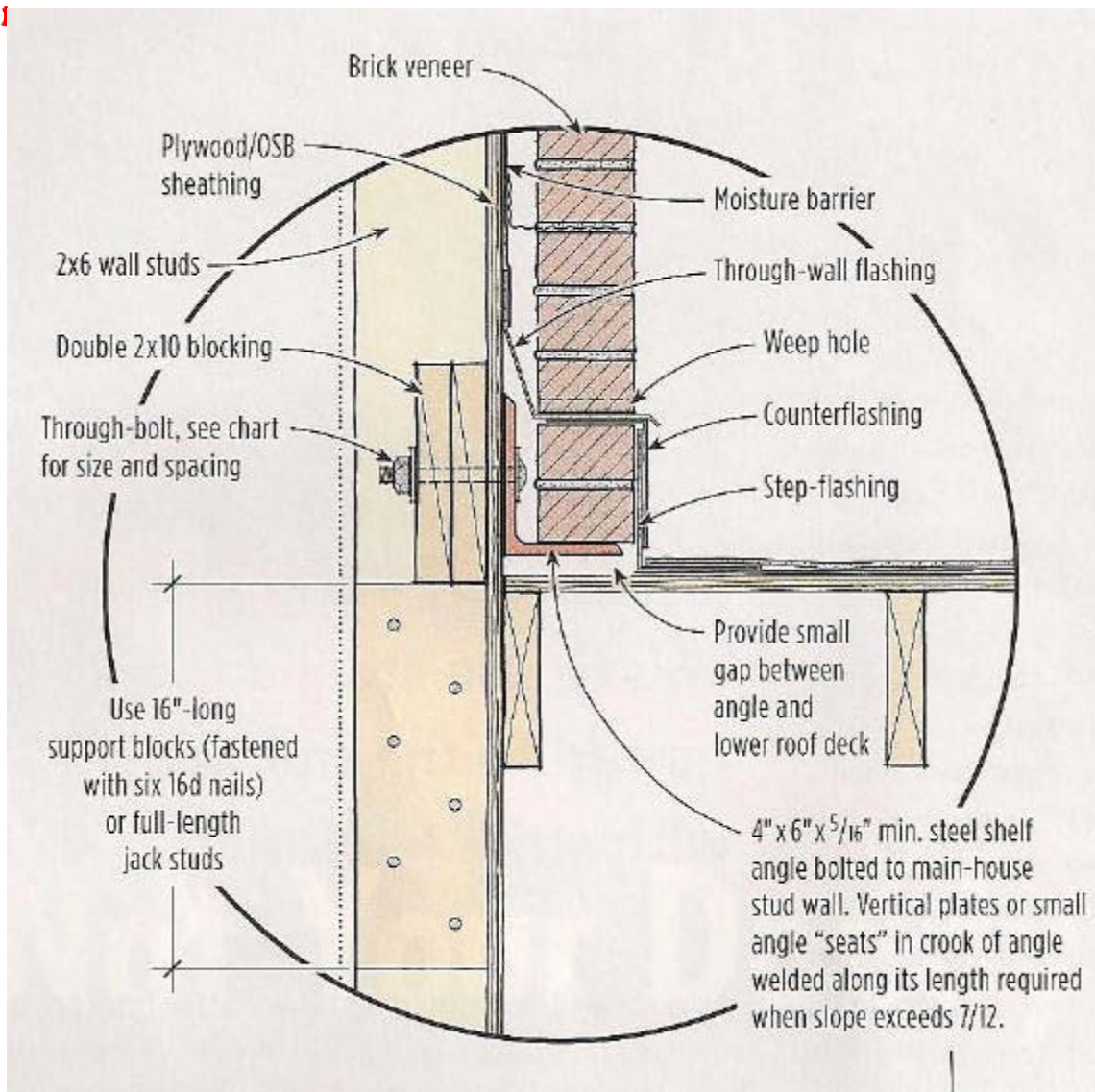
The following is taken from the Residential Asphalt Roofing Manual published by The Asphalt Roofing Manufacturers Association Chapter VII.

### Flashing Against Vertical Sidewalls

Roof planes that butt against vertical walls at the end of a shingle course are best protected by metal “flashing shingles” placed over the end of each course. The method is called “step flashing” The metal flashing shingles are rectangular, 10” long and 2” wider than the expected face of the of the roof shingles...Each Flashing unit is placed just up the roof from the exposed edge of the shingle that will overlap it so that it is not visible when the overlapping shingles is in place.



When brick veneer is extended and supported above a roof deck, moisture can penetrate through the mortar and brickwork. The drainage plane behind the brick must be flashed to allow water to be discharge to the top of the roof surface and not below the level of the shingles. The following drawing details a method of flashing the brick veneer weep area.



**x**

## **ADDENDUM: FOLDING ATTIC STAIRWAYS**

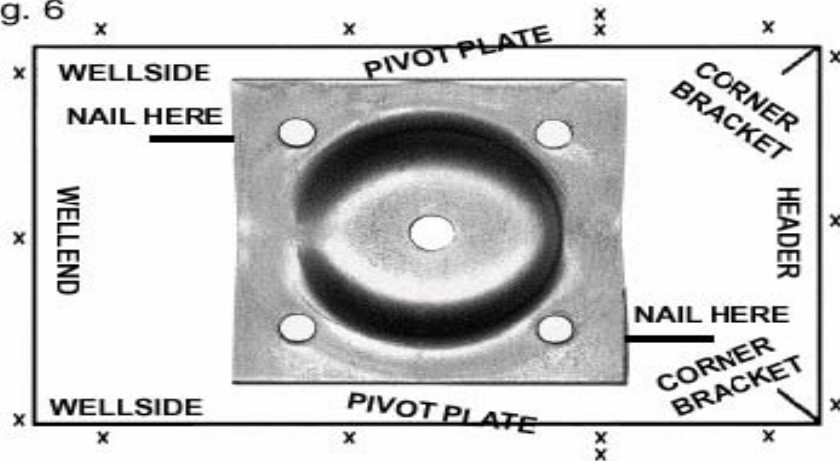
The following information is taken from the Memphis Staircase Company's installation instructions for their stairways. Other manufacturers provide similar instructions for their products. An improperly installed stairway may create a serious hazard to persons using the stairs. A complete installation instruction manual is shipped with all manufacturers' stairways and their specific instructions should be followed.

### **STEP 5**

Carefully lower the stairway and unfold the stairway sections. **DO NOT STAND ON THE STAIR AT THIS TIME. USE STEP LADDER OR EXTENSION LADDER. (REFER TO CAUTION IN STEP 3.)** Nail the sides (well sides) of the stairway to the rough opening joists using 16d nails or 1/4 X 3" lag screws only. Use of other fasteners such as finish nails, staples, sheet rock or deck type screws can cause sudden, catastrophic failure, and should never be used. Nailing must be completed by placing the nails in the pre-punched holes in the pivot plate on the spring arms and in the pre-punched holes in the spring brackets at the hinge header. It is important that these nails be placed as instructed. (Refer to Fig. 6 for placement of nails or screws.) Finish by placing at least sixteen 16d nails, or 1/4 X 3" lag screws (see Fig. 7), at positions shown on diagram. These nails or screws must go through the two well sides, well end and hinge header into the rough opening joists. Remove the temporary slats and the 8d common nails used for temporary support. Install the finish molding which is to be furnished by the installer.

**x**

Fig. 6

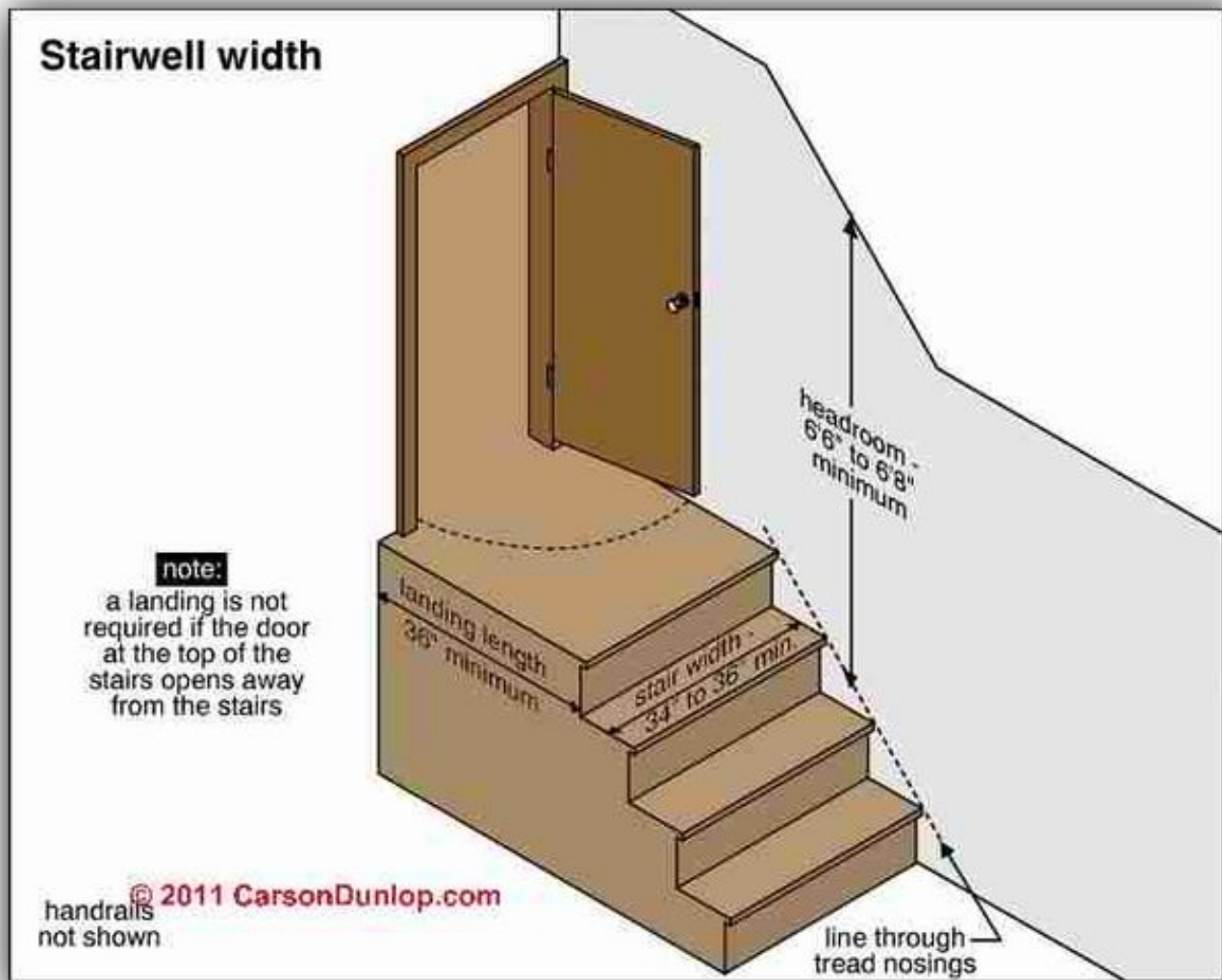


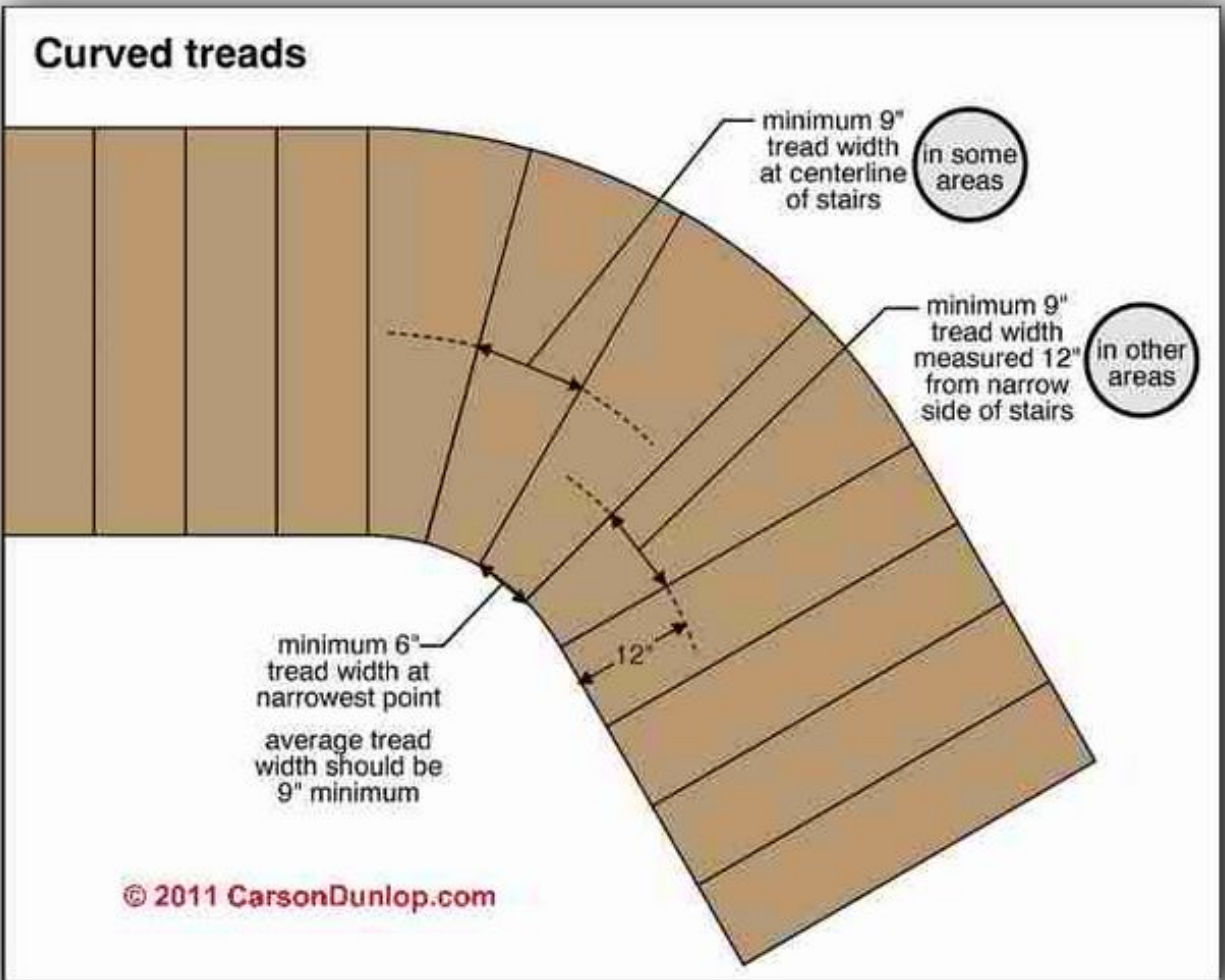
X Indicates recommended location of nails or screws

Fig. 7



## ADDENDUM: STAIRCASE DESIGN









x



## ADDENDUM: ELECTRICAL GFCI CIRCUITS

The National Electrical Code is authored by the National Fire Protection Association. The “code” is used as the minimum standard for electrical systems in the United States. Portions of the “code” were adopted and included in the International Residential Code for One and Two Family Dwellings which was adopted in the State of Texas as the minimum standard for residential wiring.

The following text is taken from the 1996 edition of the code as it pertains to branch circuits. It is common practice for homebuilders to provide (1) one GFCI circuit for all the bathroom outlets. Generally speaking this is an acceptable means of providing shock protection in wet locations. When multiple outlets are connected in one circuit the loading of the outlets must be calculated so that the maximum allowable load is not exceeded. The following is the text from the “code”.

The NEC section 210-21 states: Outlet devices shall have an ampere rating not less than the load to be served and shall comply with (a) and (b) below.

(b)(2) Where connected to a branch circuit supplying two or more receptacles or outlets, a receptacle shall not supply a total cord and plug connected load in excess of the maximum specified in table 21021(b)(2)

**Table 210-21(b)(2)**

**Maximum Cord and Plug Connected Load to Receptacle**

<b>Circuit Rating Amperes</b>	<b>Receptacle Rating Amperes</b>	<b>Maximum Load Amperes</b>
<b>15 or 20</b>	15	12
<b>20</b>	20	16
<b>30</b>	30	24

The NEC section 210-23 also states that: “In no case shall the load exceed the branch circuit ampere rating. An individual branch circuit shall be permitted to supply any load for which it was rated. A branch circuit supplying two or more outlets or receptacles shall supply the loads specified according to its size in (a) through (d) below and summarized in Section 210-24 and Table 210-24.”

(a) 15 and 20 Ampere Branch Circuits. A 15 or 20 ampere branch circuit shall be permitted to supply lighting units, other utilization equipment, or a combination of both. The rating of any one cord and plug connected utilization equipment shall not exceed 80 percent of the branch-circuit ampere rating. The total rating of utilization equipment fastened in place shall not exceed 50 percent of the branch circuit ampere rating where lighting units, cord and plug connected utilization equipment not fastened in place, or both, are also supplied.

The following language is taken from the International Electrical Code 2006 Edition. Although the IRC electrical sections may not be adopted by your local community, the intent of the NEC for wiring of One and Two Family Dwellings is contained in the IRC.

E3601.2 Branch-circuit and feeder ampacity. Branch-circuit and feeder conductors shall have ampacities not less than the maximum load to be served. Where a branch circuit or a feeder supplies continuous loads or any combination of continuous and non-continuous loads, the minimum branch-circuit or feeder conductor size, before the application of any adjustment or correction factors, shall have an allowable ampacity equal to or greater than the non-continuous load plus 125 percent of the continuous load.

Therefore when a home is wired where 2 or more full bathrooms are supplied by one circuit, there is a risk that the 20 ampere circuit provided will not handle the load applied. Hair dryers and curling irons can draw between 8 to 10 amperes each. With multiple baths the chance of multiple dryers or irons being used at the same time should be expected and the electrical system should accommodate such usage. The lack of accommodation is in direct violation of the intent of the NEC and the IRC.

## **ADDENDUM: ARC FAULT CIRCUIT INTERRUPTER**

### **(AFCI) FACT SHEET**

The “AFCI” is an arc fault circuit interrupter. AFCIs are newly-developed electrical devices designed to protect against fires caused by arcing faults in the home electrical wiring.

#### **THE FIRE PROBLEM**

Annually, over 40,000 fires are attributed to home electrical wiring. These fires result in over 350 deaths and over 1,400 injuries each year.

Arcing faults are one of the major causes of these fires. When unwanted arcing occurs, it generates high temperatures that can ignite nearby combustibles such as wood, paper, and carpets. Arcing faults often occur in damaged or deteriorated wires and cords. Some causes of damaged and deteriorated wiring include puncturing of wire insulation from picture hanging or cable staples, poorly installed outlets or switches, cords caught in doors or under furniture, furniture pushed against plugs in an outlet, natural aging, and cord exposure to heat vents and sunlight.

#### **HOW THE AFCI WORKS**

Conventional circuit breakers only respond to overloads and short circuits; so they do not protect against arcing conditions that produce erratic current flow. An AFCI is selective so that normal arcs do not cause it to trip. The AFCI circuitry continuously monitors current flow through the AFCI. AFCIs use unique current sensing circuitry to discriminate between normal and unwanted arcing conditions. Once an unwanted arcing condition is detected, the control circuitry in the Ault, Singh, and Smith, “[1996 Residential Fire Loss Estimates](#)”, October 1998, U.S. Consumer Product Safety Commission, Directorate for Epidemiology and Health Sciences.

AFCI trips the internal contacts, thus de-energizing the circuit and reducing the potential for a fire to occur. An AFCI should not trip during normal arcing conditions, which can occur when a switch is opened or a plug is pulled from a receptacle.

Presently, AFCIs are designed into conventional circuit breakers combining traditional overload and short-circuit protection with arc fault protection. AFCI circuit breakers (AFCIs) have a test button and look similar to ground fault circuit interrupter (GFCI) circuit breakers. Some designs combine GFCI and AFCI protection. Additional AFCI design configurations are anticipated in the near future.

It is important to note that AFCIs are designed to mitigate the effects of arcing faults but cannot eliminate them completely. In some cases, the initial arc may cause ignition prior to detection and circuit interruption by the AFCI.

The AFCI circuit breaker serves a dual purpose – not only will it shut off electricity in the event of an “arcing fault”, but it will also trip when a short circuit or an overload occurs. The AFCI circuit breaker provides protection for the branch circuit wiring and limited protection for power cords and extension cords. Single-pole, 15- and 20- ampere AFCI circuit breakers are presently available.

#### WHERE AFCIs SHOULD BE USED

The 1999 edition of the National Electrical Code, the model code for electrical wiring adopted by many local jurisdictions, requires AFCIs for receptacle outlets in bedrooms, effective January 1, 2002. Although the requirement is limited to only certain circuits in new residential construction, AFCIs should be considered for added protection in other circuits and for existing homes as well. Older homes with aging and deteriorating wiring systems can especially benefit from the added protection of AFCIs. AFCIs should also be considered whenever adding or upgrading a panel box while using existing branch circuit conductors.

#### INSTALLING AFCIs

AFCI circuit breakers should be installed by a qualified electrician. The installer should follow the instructions accompanying the device and the panel box.

In homes equipped with conventional circuit breakers rather than fuses, an AFCI circuit breaker may be installed in the panel box in place of the conventional circuit breaker to add arc protection to a branch circuit. Homes with fuses are limited to receptacle or portable-type AFCIs, which are expected to be available in the near future, or AFCI circuit breakers can be added in separate panel boxes next to the fuse panel box.

#### TESTING AN AFCI

AFCIs should be tested after installation to make sure they are working properly and protecting the circuit. Subsequently, AFCIs should be tested once a month to make sure they are working properly and providing protection from fires initiated by arcing faults.

A test button is located on the front of the device. The user should follow the instructions accompanying the device. If the device does not trip when tested, the AFCI is defective and should be replaced.

#### AFCIs vs. GFCIs

The AFCI should not be confused with the GFCI or ground fault circuit interrupter. The GFCI is designed to protect people from severe or fatal electric shocks while the AFCI protects against fires caused by arcing faults. The GFCI also can protect against some electrical fires by detecting arcing and other faults to ground but cannot detect hazardous across-the-line arcing faults that can cause fires.

A ground fault is an unintentional electric path diverting current to ground. Ground faults occur when current leaks from a circuit. How the current leaks is very important. If a person's body provides a path to ground for this leakage, the person could be injured, burned, severely shocked, or electrocuted.

The National Electrical Code requires GFCI protection for receptacles located outdoors; in bathrooms, garages, kitchens, crawl spaces and unfinished basements; and at certain locations such as near swimming pools. A combination AFCI and GFCI can be used to satisfy the NEC requirement for GFCI protection only if specifically marked as a combination device.

### **ADDENDUM: ATTIC INSTALLATIONS**

The following is taken from the International Residential Code for One and Two Family Dwellings defining the proper means of installation for appliances installed in the attic space of a home. The typical appliances installed in an attic are gas furnaces, air conditioning equipment and water heaters.

M1305.1.3 Appliances in attics. Attics containing appliances requiring access shall be provided with an opening and a clear and unobstructed passageway large enough to allow removal of the largest appliance, but not less than 30 inches (762 mm) high and 22 inches (559 mm) wide and not more than 20 feet (6096 mm) in length when measured along the centerline of the passageway from the opening to the appliance. The passageway shall have continuous solid flooring in accordance with Chapter 5 not less than 24 inches (610 mm) wide. A level service space at least 30 inches (762 mm) deep and 30 inches (762 mm) wide shall be present along all sides of the appliance where access is required. The clear access opening dimensions shall be a minimum of 20 inches by 30 inches (508 mm by 762 mm), where such dimensions are large enough to allow removal of the largest appliance.

### **SECTION R501 GENERAL**

R501.1 Application. The provisions of this chapter shall control the design and construction of the floors for all buildings including the floors of attic spaces used to house mechanical and/or plumbing fixtures and equipment. R501.2 Requirements. Floor construction shall be capable of accommodating all loads according to Section R301 and of transmitting the resulting loads to the supporting structural elements.

### **ADDENDUM: GAS PIPE SEDIMENT TRAP**

The following text is the requirements for gas piping to major appliances. The text is taken from the gas piping section of the International Residential Code for One and Two Family Dwellings. The code is defined as the minimum standard for construction.

G2418.4 (408.4) Sediment trap. Where a sediment trap is not incorporated as a part of the gas utilization equipment, a sediment trap shall be installed as close to the inlet of the equipment as practical. The sediment trap shall be either a tee fitting with capped nipple in the bottom opening of the run of the tee or other device approved as an effective sediment trap. Illuminating appliances, ranges, clothes dryers, and outdoor grills need not be so equipped.

### **ADDENDUM: HVAC – RETURN AIR DUCT SIZING**

In order for a forced air heating or cooling system to function efficiently, a minimum quantity of airflow must be circulated through the system. The standard airflow requirements for a cooling system are 400 CFM (cubic feet per minute) per ton (12,000 BTU) of air conditioning. For a heat pump system the standard airflow requirement is 450 CFM. For example a nominal 3-ton a/c system would need to circulate 1200 CFM and a heat pump of the same capacity would require 1350 CFM of airflow.

When an air conditioner is installed with a duct system that restricts the airflow below these levels the capacity decreases and the operating expenses will increase. The mechanical components of the system may also be damaged by the additional stress applied to the moving parts.

Most residential duct systems are designed by using the "equal friction" method. Errors may occur if the velocity expected in the return air ducts is not "checked". Most design authorities limit the velocity in the return air ductwork to between 700 and 900 feet per minute. This method not only helps to reduce noise in the return air chase but also assures the designer that the appropriate airflow requirements will be met.

The chart below compares the different methods of sizing the ductwork.

Duct Size	Area	IRC1	IRC2	Carrier <sup>3</sup>	ASHRAE <sup>4</sup>
12" flex	113 Sq. in	56,000 BTU	18,000 BTU	625 CFM	700 CFM
14" flex	154 Sq. in	77,000 BTU	25,000 BTU	825 CFM	950 CFM
16" flex	200 Sq. in	100,000 BTU	33,300 BTU	1100 CFM	1250 CFM
18" flex	254 Sq. in	127,000 BTU	42,333 BTU	1400 CFM	1600 CFM
20" flex	314 Sq. in	157,000 BTU	52,000 BTU	1700 CFM	1900 CFM

Wall chase areas are to meet the requirements of the International Residential Code columns in the chart and the minimum square inch requirement. Filter grilles are to be sized using a maximum velocity across the filter of 300 feet per minute.

<sup>1</sup> IRC refers to the International Residential Code for One and Two Family Dwellings return air chase sizing requirements for Heating Systems. 2 sq. in. per 1000 BTU

<sup>2</sup>IRC refers to the International Residential Code for One and Two Family Dwellings return air chase sizing requirements for Heat Pumps or Cooling Systems. 6 sq. in. per 1000 BTU.

<sup>3</sup> Carrier refers to the Carrier Air Conditioning Co. Design Manual. Recommended return air velocity of 800 feet per minute.

<sup>4</sup> ASHRAE refers to the American Society of Heating, Refrigeration and Air Conditioning Engineers. Recommended return air velocity of 900 feet per minute.

### **ADDENDUM: WATER HEATER SAFETY PAN**

Water heaters installed in attics or other locations are to be installed in such a manner as to protect the structure from damage due to water leakage. An appropriately sized pan and drain line must be provided. When multiple heaters are provided, each heater should be provided with separate pans and drain lines. Attached below is the language of the International Residential Code for One and Two Family Dwellings 2000 defining the pan and drain pipe requirements.

P2801.5 Required pan. Where water heaters or hot water storage tanks are installed in locations where leakage of the tanks or connections will cause damage, the tank or water heater shall be installed in a galvanized steel pan having a minimum thickness of 24 gage (0.016 inch) (0.4 mm) or other pans listed for such use.

P2801.5.1 Pan size and drain. The pan shall be not less than 1.5 inches (38 mm) deep and shall be of sufficient size and shape to receive all dripping and condensate from the tank or water heater. The pan shall be drained by an indirect waste pipe having a minimum diameter of 1 inch (25.4 mm) or the outlet diameter of the relief valve, whichever is larger.

P2801.5.2 Pan drain termination. The pan drain shall extend full-size and terminate over a suitably located indirect waste receptor or shall extend to the exterior of the building and terminate not less than 6 inches (152 mm) and not more than 24 inches (610 mm) above the adjacent ground surface.



## **ADDENDUM: WHIRLPOOL TUBS**

The following is the text from the International Residential Code for One and Two Family dwellings relating to the approved method of installing whirlpool tubs.

### **IRC 2000**

**WHIRLPOOL BATHTUBS P2720.1** Access panel. A door or panel of sufficient size shall be installed to provide access to the pump for repair and/or replacement.

**P2720.2** Piping drainage. The circulation pump shall be accessibly located above the crown weir of the trap. The pump drain line shall be properly graded to ensure minimum water retention in the volute after fixture use. The circulation piping shall be installed to be self-draining.

**P2720.3** Leak testing. Leak testing and pump operation shall be performed in accordance with the manufacturer's installation instructions.

**P2720.4** Manufacturer's instructions. The product shall be installed in accordance with the manufacturer's installation instructions.

### **IRC 2006**

**WHIRLPOOL BATHTUBS P2720.1** Access to pump. Access shall be provided to circulation pumps in accordance with the fixture manufacturer's installation instructions. Where the manufacturer's instructions do not specify the location and minimum size of field fabricated access openings, a 12-inch by 12-inch (304 mm by 304 mm) minimum size opening shall be installed to provide access to the circulation pump. Where pumps are located more than 2 feet (609 mm) from the access opening, an 18-inch by 18-inch (457 mm by 457 mm) minimum size opening shall be installed. A door or panel shall be permitted to close the opening. In all cases, the access opening shall be unobstructed and be of the size necessary to permit the removal and replacement of the circulation pump.

## **ADDENDUM: RANGE HOOD DUCTWORK**

Residential Range Hoods when vented must be ducted to the exterior with approved fire resistant material. Improper ductwork can spread fire to the cabinets and wall cavities creating an extremely hazardous condition. Attached below are the prescribed methods of installing ductwork in accordance with the International Residential Code for One and Two Family Dwellings.

**SECTION M1502 RANGE HOODS** M1502.1 General. Range hoods shall discharge to the outdoors through a single-wall duct. The duct serving the hood shall have a smooth interior surface, shall be airtight and shall be equipped with a backdraft damper. Ducts serving range hoods shall not terminate in an attic or crawl space or areas inside the building. Exception: Where installed in accordance with the manufacturer's installation instructions, and where mechanical or natural ventilation is otherwise provided, listed and labeled ductless range hoods shall not be required to discharge to the outdoors.

M1502.2 Duct material. Single-wall ducts serving range hoods shall be constructed of galvanized steel, stainless steel or copper. Exception: Ducts for domestic kitchen cooking appliances equipped with down draft exhaust systems shall be permitted to be constructed of schedule 40 PVC pipe provided that the installation complies with all of the following:

1. The duct shall be installed under a concrete slab poured on grade,
2. The underfloor trench in which the duct is installed shall be completely backfilled with sand or gravel,
3. The PVC duct shall extend not greater than 1 inch (25.4 mm) above the indoor concrete floor surface,
4. The PVC duct shall extend not greater than 1 inch (25.4 mm) above grade outside of the building, and
5. The PVC ducts shall be solvent cemented.

## **ADDENDUM: GAS PIPE SLEEVE**

The 2000 Edition of the International Residential Code for One and Two Family Dwellings defines the means and methods for safely routing a gas pipe below a floor or slab area in a residence. Improperly installed piping materials may be subjected to ground movement forces or impact damage that may cause the pipe to leak. The collection of flammable gasses under a slab creates a substantial risk of fire or explosion. The following defines the prescribed methods of routing gas pipe.

G2414.11 Piping underground beneath buildings. Piping installed underground beneath buildings is prohibited except where the piping is encased in a conduit of wrought iron, plastic pipe, or steel pipe designed to withstand the superimposed loads. Such conduit shall extend into an occupiable portion of the building and, at the point where the conduit terminates in the building, the space between the conduit and the gas piping shall be sealed to prevent the possible entrance of any gas leakage. If the end sealing is capable of withstanding the full pressure of the gas pipe, the conduit shall be designed for the same pressure as the pipe. Such conduit shall extend not less than 4 inches (102 mm) outside the building, shall be vented above grade to the outdoors, and shall be installed so as prevent the entrance of water and insects. The conduit shall be protected from corrosion in accordance with Section G2414.8.

G2415.7 (404.7) Above-ground piping outdoors. All piping installed outdoors shall be elevated not less than 31/2 inches (152 mm) above ground and where installed across roof surfaces, shall be elevated not less than 31/2 inches (152 mm) above the roof surface. Piping installed above ground, outdoors, and installed across the surface of roofs shall be securely supported and located where it will be protected from physical damage. Where passing through an outside wall, the piping shall also be protected against corrosion by coating or wrapping with an inert material. Where piping is encased in a protective pipe sleeve, the annular space between the piping and the sleeve shall be sealed.

G2415.8 (404.8) Protection against corrosion. Metallic pipe or tubing exposed to corrosive action, such as soil condition or moisture, shall be protected in an approved manner. Zinc coatings (galvanizing) shall not be deemed adequate protection for gas piping underground. Ferrous metal exposed in exterior locations shall be protected from corrosion in a manner satisfactory to the code official. Where dissimilar metals are joined underground, an insulating coupling or fitting shall be used. Piping shall not be laid in contact with cinders.