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.state.tx.us.

The TREC Standards of Practice (Sections 535.227-535.231 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 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 warrant ability 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.

<table>
<thead>
<tr>
<th>Prepared For:</th>
<th>Our Valued Customer</th>
<th>(Name of Client)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concerning:</td>
<td>123 Your Future Home Street, Round Rock, Texas 78665</td>
<td>(Address or Other Identification of Inspected Property)</td>
</tr>
<tr>
<td>By:</td>
<td>Example Inspector: TREC License # 6024 11/04/2009</td>
<td>(Name and License Number of Inspector) (Date)</td>
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<tr>
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<td>(Name, License Number and Signature of Sponsoring Inspector, if required)</td>
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</table>
In this report, the inspector will note which systems and components were Inspected (I), Not Inspected (NI), Not Present (NP), and/or Deficient (D). General deficiencies include inoperability, material distress, water penetration, damage, deterioration, missing parts, 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 as Deficient may be considered life-safety upgrades to the property. For more information, refer to Texas Real Estate Consumer Notice Concerning Recognized Hazards, form OP-I.

This property inspection is not an 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 action, nor 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.

ADDITIONAL INFORMATION PROVIDED BY INSPECTOR

Weather Conditions: Warm, Sunny, Dry
House Faces: West
VISUAL INSPECTION AGREEMENT

THIS AGREEMENT SUPERCEDES ALL PREVIOUS COMMUNICATIONS

Property: 123 Your Future Home Street
Round Rock, Texas  78665

Client: Our Valued Customer
Address: 1122 Street I Am Moving From
Austin, Texas  78704

Phone: (512) 123-4567

Real Estate Company: Your Realtor Company
Inspection Fee: $350.00
Additional Fees: $40.00
Tax: $0.00
Total: $365.00

Agent: Your Realtor
Paid By: The Customer
Date Paid: 19 Oct 2009
Payment Method: Visa
Report Provided To: The Customer and Realtor

1. THIS AGREEMENT, made and entered into on this 4th day of November 2009, by and between the above named Client and the undersigned, an independently owned and operated Franchisee of Pillar To Post Inc., hereafter referred to as “Inspector”. inspector will conduct a visual inspection of the Property only. The inspection is performed in accordance with the Standards of Practice of the Texas Real Estate Commission (TREC) 22 TAC §§535.227 - 535.233. This is not a Building Code inspection, title examination, nor a By-law compliance inspection. The Inspector does not offer an opinion as to the advisability or inadvisability of the purchase of the property, its value or its potential use. The inspection fee is based on a single visit to the property; additional fees may be charged for any subsequent visits required by the Client. If the Inspector is called upon to prepare for litigation or give testimony as a result of the inspection, additional fees shall be charged at the Inspector's then current hourly rate for any time spent, including, but not limited to, research, consultation, additional inspection time, preparation of reports, travel, time waiting to testify, and court appearances.

2. The Client will receive a written report of Inspector's observations of the accessible features of the Property. Subject to the terms and conditions stated herein, the inspection includes the visual examination of the home's exterior including roof and chimney, structure, electrical, heating and cooling systems, insulation, plumbing, and interior including floors, walls, ceiling and windows; it is a reasonable effort to disclose the condition of the house based on a visual inspection. Additionally, Inspector will functionally operate major built-in appliances. Conditions beyond the scope of the inspection will not be identified. No engineering services are offered.

3. This Inspection Report is based on the condition of the Property existing and apparent as of the time and date of the inspection. Not all conditions may be apparent on the inspection date due to weather conditions, inoperable systems, inaccessibility of areas of the Property, etc. A defect that was apparent on any date prior to the inspection date may not be apparent on the inspection date. Without dismantling the house or its systems, there are limitations to the inspection. Throughout any inspection, inferences are drawn which cannot be confirmed by direct observation. Clues and symptoms often do not reveal the extent or severity of problems. Therefore, the inspection and subsequent Inspection Report may help reduce the risk of purchasing the property; however, an inspection does not eliminate such risk nor does the Inspector assume such risk. While some of the less important deficiencies are addressed, an all inclusive list of minor building flaws is not provided. Inspector is neither responsible nor liable for the non-discovery of any patent or latent defects in materials, workmanship, or other conditions of the Property, or any other problems which may occur or may become evident after the inspection time and date. Inspector is neither an insurer nor guarantor against defects in the building and improvements, systems or components inspected. Inspector makes no warranty, express or implied, as to the fitness for use or condition of the systems or components inspected. Inspector assumes no responsibility for the cost of repairing or replacing any unreported defects or conditions, nor is Inspector responsible or liable for any future failures or repairs.
4. Unless prohibited by applicable law, Inspector and its employees are limited in liability to the fee paid for the inspection services and report in the event that Client or any third party claims that Inspector is in any way liable for negligently performing the inspection or in preparing the Inspection Report, for any breach or claim for breach of this Visual Inspection Agreement or for any other reason or claim. The inspection report is provided solely for the benefit of the Client and may not be relied upon by any other person. The Inspector will not review any other inspection report prior to preparing the Inspection Report provided pursuant to this Agreement unless a copy of the prior report is provided to the Inspector prior to the beginning of the inspection. The Client shall not rely on any other inspection report prepared at any time by the Inspector that is not prepared for or addressed to the Client.

5. Inspections are done in accordance with TREC Standards 22 TAC §§535.227 - 535.233, are visual, and are not technically exhaustive. The following items are specifically excluded from the inspection: water softening systems, security systems, telephone and cable TV cables, timing systems, underground or concealed pipes, sewer lines, septic systems, electrical lines and circuits, central vacuum systems, central air conditioning when outside temperature is below 60°F, and any other condition, item, system or component which by the nature of their location are concealed or otherwise difficult to inspect or which the Inspector cannot visually examine. Excluded is the assurance of a dry basement or crawl space; also excluded is the assurance that double and triple pane glazing seals in windows are intact. Inspector will not dismantle any component or system; full evaluation of the integrity of a heat exchanger requires dismantling of the furnace and is beyond the scope of a visual inspection.

6. Inspector will not conduct geological tests; will not inspect inaccessible or concealed areas of the Property; will not enter dangerous areas of the Property; will not inspect for environmental concerns such as hazardous substances or gasses, including but not limited to, radon gas, asbestos, formaldehyde; or for pests such as wood destroying organisms, insects, rodents; fungus including but not limited to mold and mildew.

7. Inspector examines a representative sample of components that are identical and numerous, such as electrical outlets, bricks, shingles, windows, etc., and does not examine every single one of these identical items, therefore, some detectable deficiencies may go unreported.

8. The inspection excludes defects such as cracking, leaking, surface discolorations, or landslides resulting from hidden defects, including but not limited to, water leaks, land subsidence, or other geological problems. The inspection also excludes merely cosmetic features, including but not limited to, paint, wall coverings, carpeting, floorings, paneling, lawn, and shrubs. The Inspector is not required to determine property boundary lines or encroachments.

9. Any controversy or claim between the parties hereto, arising directly or indirectly out of, connected with, or relating to the interpretation of this Agreement, the scope of the services rendered by Inspector, the Inspection Report provided to the Client by Inspector, or as to any other matter involving any act or omission performed under this Agreement, or promises, representations or negotiations concerning duties of the Inspector hereunder, shall be submitted to arbitration in accordance with the applicable rules of Construction Arbitration Services, Inc. Each party to the dispute shall be responsible for their own costs for the arbitration process. The dispute shall be submitted to a sole arbitrator who is knowledgeable and familiar with the professional home inspection industry. Judgment on any award may be entered in any court having jurisdiction, and the arbitration decision shall be binding on all parties. Unless applicable law requires otherwise, arbitration shall occur in the county or judicial district in which the Inspector's principal place of business is located. Secondary or consequential damages are specifically excluded. In the event that any dispute arises out of the Inspection or Inspection Report, and proceedings are commenced by the Client, if the Client is unsuccessful in maintaining the claim, then the Client shall be liable to the Inspector for all charges, expenses, costs and legal fees (on a lawyer and client basis) incurred by the Inspector on a complete indemnity basis, including a reasonable fee for all the time spent by the Inspector or Inspector's personnel in investigating, research, preparation for, and attendance at court hearings and examinations. Unless prohibited by applicable law, any claims must be presented within one (1) year from the date of the inspection; Inspector shall have no liability for any claims presented more than one (1) year after the date of the inspection.

10. The Inspector shall have the right to examine the subject matter and area of any claim or potential claim against the Inspector arising herefrom and the right to offer a resolution prior to Client's performance of any remedial measures (except in the event of an emergency, or to protect for personal safety, or to reduce or avoid damage to property) The right of examination herein is a condition precedent to the commencement of any claim by the Client against the Inspector for any reason including negligence or breach of any term hereof. The Client shall not file or commence any claim against the Inspector in any jurisdiction until he has notified the Inspector of his complaint and made reasonable efforts to afford the Inspector an opportunity to complete such examination.

11. This Agreement and the documents referred to herein constitute the entire Agreement between the parties hereto, and supersede any and all prior representations, discussions, or agreements, whether written or oral. No amendment, change, or variance from this Agreement shall be binding on either party unless mutually agreed to, in writing, and signed by the parties hereto. If any provision of this Agreement is held invalid or unenforceable by any court of final jurisdiction, it is the intent of the parties that all other provisions of this Agreement be construed to remain fully valid, enforceable, and binding on the parties.

12. THE INSPECTION REPORT DOES NOT CONSTITUTE A WARRANTY, GUARANTEE OR INSURANCE POLICY OF ANY KIND. THERE ARE NO WARRANTIES MADE AGAINST ROOF LEAKS, WET BASEMENTS, OR MECHANICAL BREAKDOWNS. THE REPORT IS A PROFESSIONAL OPINION BASED ON A VISUAL INSPECTION OF THE ACCESSIBLE AREAS AND FEATURES OF THE PROPERTY AS OF THE DATE AND TIME OF THE INSPECTION AND IS NOT A LISTING OF REPAIRS TO BE MADE. THE REPORT IS NOT AN ASSESSMENT NOR IS IT AN APPRAISAL. NEITHER THE INSPECTOR NOR PILLAR TO POST INC. IS ASSOCIATED WITH ANY SELLER, BUYER, CONTRACTOR, LAWYER OR REALTOR. INSPECTOR AND ITS EMPLOYEES ARE LIMITED IN LIABILITY TO THE FEE PAID FOR THE INSPECTION SERVICES AND REPORT.
13. THE INSPECTION PROCESS IS A TWO PART SYSTEM: THE VERBAL SURVEY AND THE REPORT. AS SUCH, THIS REPORT IS NOT TRANSFERABLE TO THIRD PARTIES AS IT WILL NOT CLEARLY CONVEY THE INFORMATION HEREIN. THIS REPORT IS PREPARED BY INSPECTOR AT YOUR REQUEST, ON YOUR BEHALF, AND FOR YOUR USE AND BENEFIT ONLY; THIS REPORT AND ANY MEMORANDA OR INFORMATION PROVIDED TO YOU PURSUANT TO THIS INSPECTION AGREEMENT ARE NOT TO BE USED, IN WHOLE OR IN PART, OR RELEASED TO ANY OTHER PERSON WITHOUT INSPECTOR'S PRIOR WRITTEN PERMISSION. CLIENT HEREBY AGREES TO INDEMNIFY, DEFEND AND HOLD HARMLESS INSPECTOR AND PILLAR TO POST INC. IF, THROUGH THE UNAUTHORIZED DISTRIBUTION OF THIS REPORT, ANY THIRD PARTY BRINGS A CLAIM AGAINST INSPECTOR OR PILLAR TO POST INC. RELATING TO THE INSPECTION OR INSPECTION REPORT.

14. RELATIONSHIPS/THIRD PARTY PROVIDERS. PILLAR TO POST INC. MAY HAVE AN AFFILIATION WITH THIRD-PARTY SERVICE PROVIDERS ("TPSP") IN ORDER TO OFFER VALUE-ADDED SERVICES TO CLIENTS. PILLAR TO POST INC. AND THE INSPECTOR MAY RECEIVE COMPENSATION FOR SUCH SERVICES. PILLAR TO POST INC. MAY ALSO ARRANGE FOR THESE TPSPs TO SEND LITERATURE OR MAKE POST-INSPECTION CONTACT WITH THE CLIENT. BY EXECUTING THIS AGREEMENT, THE CLIENT EXPRESSLY CONSENTS TO THE DISCLOSURE OF CLIENT'S PERSONAL INFORMATION TO PILLAR TO POST INC. AND TPSPs. IF CLIENT DOES NOT WISH TO RECEIVE LITERATURE FROM OR BE CONTACTED BY TPSPs, CLIENT SHALL SIMPLY NOTIFY THE INSPECTOR.

15. THE INSPECTOR MAY COLLECT DATA WHICH MAY BE USED BY THE INSPECTOR, AND WHICH MAY BE PROVIDED TO PILLAR TO POST INC. FOR USE BY PILLAR TO POST INC. THE COLLECTED DATA WILL PRIMARILY CONSIST OF DATA RELATING TO THE VISUAL INSPECTION CONDUCTED, BUT MAY ALSO CONSIST OF OTHER DATA RELATING TO THE PROPERTY INSPECTED, CLIENT AND/OR CLIENT REPRESENTATIVE PERSONAL AND CONTACT INFORMATION, AND DEMOGRAPHIC DATA. THE INSPECTOR AND PILLAR TO POST INC. MAY USE COLLECTED DATA TO PERFORM ANALYSIS, IMPROVE BUSINESS PROCESSES, IMPROVE THE PILLAR TO POST INC. INSPECTION EXPERIENCE, AND OBTAIN FEEDBACK FROM CLIENTS AND CLIENT REPRESENTATIVES. THE INSPECTOR AND PILLAR TO POST INC. MAY ALSO PROVIDE COLLECTED DATA TO THIRD-PARTY SERVICE PROVIDERS ("TPSP") IN ORDER TO OFFER VALUE-ADDED SERVICES TO CLIENTS, AS DESCRIBED IN THIS AGREEMENT. THE INSPECTOR AND/OR PILLAR TO POST INC. MAY PROVIDE AGGREGATED COLLECTED DATA, BUT NOT INDIVIDUAL COLLECTED DATA OR PERSONAL INFORMATION, TO THIRD PARTIES. OTHER THAN INTERACTION WITH TPSPs AND AGGREGATED DATA, THE INSPECTOR AND PILLAR TO POST INC. WILL NOT SELL OR RENT THE COLLECTED DATA TO ANYONE, OR SHARE THE COLLECTED DATA WITH ANY THIRD PARTY EXCEPT AS NECESSARY TO FULFILL CLIENT REQUESTS. BY EXECUTING THIS AGREEMENT, THE CLIENT EXPRESSLY CONSENTS TO THE COLLECTION AND USE OF DATA BY THE INSPECTOR AND PILLAR TO POST INC. AS DESCRIBED HEREIN.

16. Schedules indicated below and attached form part of this agreement. In the event of any conflict between a schedule and the provisions of this agreement, the provisions of the schedule will apply to the extent of the conflict.

Attached Schedules: N/A

By initialing here (_______), you authorize us to distribute copies of the Report to the real estate agents directly involved in this transaction, who are not designated beneficiaries of the Report, intended or otherwise.

I hereby authorize the inspection of this Property having read and understood this Agreement:

_________________________________________________                  Signature of Client or Client's Representative
Date Signed (mm/dd/yyyy)

_________________________________________________                  Signature of Authorized Inspector.

Example Inspector

 Licence No.: TREC License # 6024

Spoke with Seller [ ] Yes [ ] No                Inspection Time: 04-Nov-2009 02:00 PM

Franchisee: SAMS Professional Inspections Inc,  
Address: 216 Oak Bend
Liberty Hill, Texas  78642 4561
Visual Property Inspection

123 Your Future Home Street
Round Rock, Texas 78665

Prepared for :
Our Valued Customer
1122 Street I Am Moving From
Austin, Texas 78704
Phone No. : (512) 123-4567

Inspected by :
Example Inspector
216 Oak Bend
Liberty Hill, Texas 78642 4561
Phone: (512) 515-0021 Fax: (512) 515-0951 Email: austinnorth@pillartopost.com
I. STRUCTURAL SYSTEMS

A. Foundations

Type of Foundation(s): Concrete Slab Type Construction

Comments:

Foundation is a slab on grade and visually appears to be performing it's intended function at the time of the inspection.

Some portions of the foundation were visually concealed from view and could not be inspected.

Maintenance tip: Positive drainage away from the structure is critical to the intended performance of the foundation. Trees and shrubs around the foundation can affect soil moisture content and thus the foundation. Standard recommendations state that trees and shrubs be planted away from the foundation or that root barriers be installed to prevent roots from getting under the slab. Poor drainage away from the slab, or pooling/standing against it can also affect foundation performance. If for any reason water pools at any location near the foundation for any extended period of time (24 consecutive hours or more), drainage corrections will have to be made.

General Foundation Comments:

The TREC inspector for this inspection is not a professional engineer. The opinions given on the performance of this structure's foundation are based on the knowledge and experience of the inspector and may be subjective and may vary from the opinions of other inspectors. The inspector makes comments comprised of opinion and not fact, determinations that are factual are available via specialized qualified and licensed engineering studies, which are beyond the scope of this inspection. Future performance of the foundation is not warranted.

If you note any changes/observations from this report at a later date from what has been reported herein, a re-assessment should be made by a qualified and licensed engineer/foundation contractor and appropriate action taken. The foundation inspection performed was cursory and limited to visual observations of accessible/visible exterior and interior structural components of the house at the time of the inspection. No foundation measurements (elevation or otherwise) have been made or are within the visual scope of this inspection.

B. Grading and Drainage - Comments:

Grading and drainage visually appear to be performing their intended function by moving water away from the home at the time of the inspection.

One low area in the grading next to the foundation at the rear of the home by the fireplace. Recommend adding backfill as needed to reduce possible standing water and related issues.

Maintenance tip: It is standard practice and recommendation to maintain soil levels
I. STRUCTURAL SYSTEMS

a minimum of six (6) to eight (8) inches below the top of the slab and graded away from the slab, at a minimum rate of six (6) inches per every 10 feet, to promote positive drainage and to prevent water from pooling/standing around the foundation area(s). Standard soil levels will also reduce possible moisture exposure and help detect insect/pest activity.

C. Roof Covering and Materials

Type(s) of Roof Covering: Asphalt/Composition Type Shingle
Viewed From: Binoculars from Ground, some limitations.
Comments:
Flashing at the lower shed type roof area on the chimney above the rear living room window does not appear to be installed properly and could leak. Recommend repairing this condition as needed to reduce possible leaks and related issues.
Roof covering is a composition shingle construction type.
Visual inspection by viewing from the ground with binoculars due to height limitations making roof hazardous to access and walk.

Other than where noted, roof covering appears to be in overall sound condition and functioning as intended at time of inspection. Typical life expectancy of asphalt composition shingles is approximately 15 - 20 years.

D. Roof Structure & Attic

Viewed From: Attic opening with limitations
Approximate Average Depth of Insulation: 8-12 inches
Approximate Average Thickness of Vertical Insulation: 5-6 inches
Comments:
Excessive day light seen in the attic where the front gable meet the lower roof at the south west corner.

Larger than normal gaps noted between the soffits and roofs at the base of the gables and some bird nest are already built in the attic in these areas.

Recommend repairing these areas as needed to reduce possible leaks and reduce further pest intrusion to the attic.
Roof structure and attic are in overall sound condition and appear to be performing as intended at the time of the inspection.

Attic was viewed from hatch and approximately 80% of the attic was observed at the time of the inspection.

Ceiling insulation is blown cellulose approximately 8 to 10 inches deep. Attic was accessed through hatch in up hallway.

Attic construction shows truss type design and construction methods, trusses are
I. STRUCTURAL SYSTEMS

built from engineered designs.

Some portions of the attic were inaccessible or unsafe to access at the time of the inspection.

E. (Walls (Interior & Exterior)) - Comments:

Loose siding noted on the south side of the home.

One piece of lap siding has slipped above the right side of the garage roof.

Recommend repairing as needed to reduce possible leaks and related issues.

Except for the conditions noted interior and exterior walls are in sound condition and visually appear to be functioning as intended at the time of the inspection.

Exterior wall surfaces are a combination of brick veneer and composite siding.

Random moisture meter testing was performed on interior walls and ceilings. Other than where noted, no activity was detected during the inspection.

Cosmetic issues are not within the scope of the visual inspection.

Maintenance tip: Sealing/caulking is recommended as part of an ongoing maintenance program. Sealing and caulking of exterior jambs at masonry junctions, threshold and curb areas, exterior siding and trim, fascia, wall exits, and window areas to name a few, will help reduce possible water penetration and weather related deterioration.

Limitation: Home is occupied and several areas of the home/structure (walls, closets etc) could not be visually observed due to the storage of materials/boxes and other items. Movement or rearranging items within the home and around the structure is not within the visual scope of the inspection.

F. Ceilings and Floors - Comments:

Except for minor cosmetic issues, all ceiling and floors in the home visually appear to be in relatively sound condition at the time of the inspection.

Random moisture meter readings were taken around the home at the time of the inspection, other than where noted no activity was detected at the time of the inspection.

Cosmetic issues are not usually reported or within the scope of the inspection.

G. Doors (Interior & Exterior) - Comments:

Except for minor cosmetic issues, all interior and exterior doors in the home
### I. STRUCTURAL SYSTEMS

Visually appear to be in relatively sound condition at the time of the inspection. Cosmetic issues are not within the scope of the inspection.

- **H. Windows - Comments:**
  
  Stationary window on the front of the home has leaked in the past and appears to be repaired. Some damage noted to the interior of the sheetrock around the window. New flashing has been installed and window was tested for moisture and none was found at the time of the inspection.
  
  Trim around the window on the rear of the home to the south of the chimney is rotted.

  Recommend contractor evaluate all issues and repairing all rotted wood and monitoring the front window and repair as or if needed should leaking continue to occur.

  Except for the conditions noted, all windows in the home visually appear to be in sound condition at the time of the inspection.

  Except for conditions noted, the windows are thermal pane or double pane and appear overall in sound condition.

  Thermo-pane type insulated windows present in the home. While every effort is made to visually determine the condition of the gas seal for the glass, certain weather, dirt and dust or daylight conditions will limit this ability. Should the window(s) visually start to show signs of fogging or inner condensation, recommend contacting a qualified window contractor and or the manufacturer for service and repair, some manufacturers may offer lifetime guarantees.

- **I. Stairways (Interior & Exterior) - Comments:**
  
  Stairway is in sound condition at the time of the inspection.

- **J. Fireplace/Chimney - Comments:**
  
  Some minor rot noted to the chimney trim on the home. Recommend repairing or replacing all rotted wood as needed.

  Draw of fireplace was not tested and not within the scope of the inspection. Gas starter mechanism checked and appears to be functioning as designed at the time of the inspection. Fireplace and chimney are in sound condition at time of the inspection.

- **K. Porches, Balconies, Decks, and Carports - Comments:**
  
  All porches/decks on home are in sound condition and performing as intended at the time of the inspection.

- **L. Other - Comments:**
II. ELECTRICAL SYSTEMS

A. Service Entrance and Panels - *Comments:*

- Main electrical panel and service entrance located at north west side of the home. Main panel has a maximum rating of 225 AMPs. Main entrance service wires are aluminum. Other circuits are copper with aluminum sub feeds. Service is underground. Ground wire noted.
- Cold water bond not located. Panel is in sound condition and wired in a professional manner at the time of the inspection.
- Sub panel located at east wall of garage. Sub panel is rated for a max of 125 AMPs. Sub Panel entrance feed is aluminum of proper size. All other branch circuits are copper. Sub-Panel is in sound condition and wired in a professional manner at the time of the inspection.
- Non-standard screws being used to hold inner security cover, screws have sharp points and can pose a wire intrusion issue. Recommend replacing with appropriate screws as needed.

B. Branch Circuits, Connected Devices and Fixtures

*Type of Wiring Copper Branch with Aluminum Feed
Comments:*

- No Ground Fault Circuit Interrupt protection noted or GFCI not tripping in the up hall bath. Recommend installation of GFCI receptacles/protection in standard areas to reduce risk of electrical shock and promote best overall safety practice.
- All kitchen GFCI passed mechanical and electrical testing at the time of the inspection and reset in the kitchen.
- All exterior and garage GFCI passed mechanical and electrical testing at the time of the inspection and reset in the garage.
- All working bath GFCI passed mechanical and electrical testing at the time of the inspection and reset in the powder bath.
- All interior branch wiring appears to be copper and is in good condition.
- Other than noted, the electrical branch systems are in sound condition and performing as intended at the time of the inspection.
- Smoke detector(s) responded to manual test. Detectors were located in standard locations, one each in the bedroom and one outside sleeping.

Brinks Security provides our customers with a free alarm assessment in homes that have alarm systems, or have been pre-wired for a security system. Regardless if the home has a pre-existing alarm system, Brinks Home Security will contact you at the phone numbers provided with information and a special alarm discount.
II. ELECTRICAL SYSTEMS

System offer. Brinks pays us a scheduling fee for this service as part of the Pillar To Post nationwide agreement.

III. HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS

A. Heating Equipment

Type of System: Forced Air
Energy Source: Natural Gas
Comments:
Furnace is a Goodman brand natural gas located in up hall closet. Unit functional test has a return air temp of 78 and a supply air temp of 110 for a differential of 32°F.
Heat differential of between 30 and 40 F is considered normal.

Unable to inspect heat exchanger as it is a sealed unit. Dismantling of the furnace is required to thoroughly inspect the heat exchanger for cracks and is outside the scope of this inspection.

Maintenance Tip: Check filter monthly - service when dirty

B. Cooling Equipment

Type of System: Forced Air
Comments:
Primary condensate lines are draining next to foundation. Recommend extending away from foundation to reduce possible issues and promote positive water movement away from foundation areas.

AC differential is a little marginal, only 14 degrees was obtained at the best and larger than normal differences noted between the supply air temps on different ducts. Recommend HVAC technician evaluate as needed to determine the condition and efficiency of the unit.
AC system is a Goodman located on the north side of the home. Unit has an RLA rating of (unable to read the data) for an approx cooling capacity of 3 to 3 1/2 tons.
Unit has a max fuse rating of 40 AMPS. A/C system: Return air tested at 75 degrees F. Supply air tested at 61 degrees F. A difference of 14 degrees F. 15 to 20 Degrees F is considered normal differential.

RLA rating divided by 7 can usually provide an approximate size in tons, but however, this methodology is only approximate at best and for informational purposes only. Some newer heating and cooling systems are much more efficient and may not adhere to the RLA rating formula, always consult with a licensed HVAC technician for proper sizing and manufacturers recommendations which is beyond the scope of the visual inspection.

Maintenance tip: Introduce a couple of tablespoons of bleach into primary condensate line to avoid smells.
III. HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS

condensate drain service port approximately every 6 months to keep line clear and promote intended drainage. Take special care not to spill bleach liquids into the secondary pan, as bleach can damage the protective galvanized coating.

Tip: Recommend changing filters per manufacturers recommendations (or approximately every 30 days) to reduce associated issues and promote best overall efficiency of the system.

Tip: HVAC Filters can become very dirty during the periods of moving out and moving into the home, it is advised to check the filters shortly after moving in as unusual amounts of dust and dirt may have been stirred up and captured by the filters.

☐ ☐ ☐ ☐ C. Duct System, Chases, and Vents  - Comments:
All visible ducts and vents visually appear to be intact and in overall sound condition at the time of the inspection. Some areas of the ductwork were visually obscured from view.

IV. PLUMBING SYSTEM

✓ ☐ ☐ ☐ A. Water Supply System and Fixtures
Location of water meter: Street
Location of main water supply valve: Street
Static water pressure reading: 55 PSI
Comments:
Water meter observed for 5 minutes with no visible movement at the time of the inspection.

Main water meter and cut off valve located north west front yard. Main water lines are copper with flex and copper supply lines.

Static water pressure at time of inspection was recorded at 55 PSI.

Interior cut off valves noted but not tested due to the possibility of them leaking while operating.

Anti-Siphon valves were noted at time of inspection

Utility room hookups for washing machine, refrigerator water supply fixtures or other supplies requiring an appliance hookup are not tested or within the scope of the inspection due to open connections and possible water intrusion to home.

✓ ☐ ☐ ☐ B. Drains, Wastes, and Vents  - Comments:
Main sewer clean out located south west corner of the home.

All drains lines and stacks are in sound condition at the time of the inspection and

All drains lines and stacks are in sound condition at the time of the inspection and
IV. PLUMBING SYSTEM

appear to be performing their intended function.

Visible drain lines are PVC construction.

C. Water Heating Equipment

*Energy Source: Natural Gas*

*Capacity: 39 Gallon*

*Comments:*

Water heater is an A. O. Smith, natural gas, 39 gallon 40000 BTU located in up hall closet.

Cold water shutoff valve was noted at water heater supply line location.

T&P Valve noted and plumbed but not tested due to the possibility of the valve not resealing.

Overflow pan was noted under water heater. Normal wear and tear for age.

D. Hydro Massage Therapy Equipment - *Comments:*

V. APPLIANCES

A. Dishwasher - *Comments:*

Dishwasher is a Whirlpool brand unit. Dishwasher completed a full cycle and is working within normal parameters at the time of the inspection. Overall cleaning efficiency of the unit cannot be determined by the visual inspection and is beyond the scope of the review.

B. Food Waste Disposer - *Comments:*

Disposal was functioning within normal parameters at the time of the inspection.

C. Range Exhaust Vent - *Comments:*

Range hood fan and light functions within normal parameters at the time of the inspection.

D. Ranges, Cooktops, and Ovens - *Comments:*

Left rear burner is hard to ignite. Recommend repairing as needed for proper operation.

Whirlpool free standing gas range working with in normal parameters at the time of the inspection. Oven tested at 338 degrees F. when set on the 350 degree F. position. Difference of 12 degrees. A variance of 25 degrees F. is considered the acceptable range.

Testing of Oven self-cleaning modes, timer(s) and clocks are not within the scope
V. APPLIANCES

of this inspection; oven is tested in a manual mode only.

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E. Microwave Oven - Comments:

F. Trash Compactor - Comments:

G. Mechanical Exhaust Vents and Bathroom Heaters - Comments:

   Bathroom exhaust vent(s) visually appear to be functioning as intended at the time of the inspection and terminate outside of the structure.

H. Garage Door Operator(s) - Comments:

I. Doorbell and Chimes - Comments:

   Door bell is working within normal parameters at the time of the inspection. Normal wear and tear for age.

J. Dryer Vents - Comments:

VI. OPTIONAL SYSTEMS

A. Lawn and Garden Sprinkler Systems - Comments:

   Sprinkler system consists of 5 zones. Sprinkler heads are working within normal parameters at the time of the inspection. Coverage appears to be adequate. Sprinkler system was tested in manual mode only and does not guarantee automatic mode will operate as intended.

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

   Type of Construction:
   Comments:

C. Outbuildings - Comments:

D. Outdoor Cooking Equipment

   Energy Source:
   Comments:

E. Gas Supply Systems - Comments:

   Gas meter located on the north side of the home. All accessible gas line connections and valves were tested for leaks with leak detector and none were found at the time of the inspection. Testing of underground or concealed lines is not within the scope of this visual inspection. All unused gas valves should be capped to reduce possible accidental gas leaks in home and related issues.
VI. OPTIONAL SYSTEMS

☐ ☐ ☑ ☐ F. Private Water Wells (A coliform analysis is recommended.)
  Type of Pump:
  Type of Storage Equipment:
  Comments:

☐ ☐ ☑ ☐ G. Private Sewage Disposal (Septic) Systems
  Type of System:
  Location of Drain Field:
  Comments:

☐ ☐ ☑ ☐ H. Whole House Vacuum Systems - Comments:

☑ ☐ ☐ ☐ I. Other Built-in Appliances - Comments:
  Whirlpool refrigerator working with in normal parameters at the time of the inspection. Refrigerator section tested at 37F and freezer section tested at 8F.
I. STRUCTURAL SYSTEMS

C. Flashing not appropriate around fireplace.

D. Rotted chimney trim.

Light in attic.
I. STRUCTURAL SYSTEMS

E. Slipped lap siding above garage roof.

H. Rotted window trim at rear. New flashing above front window.
I. STRUCTURAL SYSTEMS

H. Damage to interior of window at staircase.

III. HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS

B. Primary AC drain line draining next to the foundation.
General Comments

Limitations

Occupied Home – The home is occupied by seller/tenant with their personal belongings and furniture which may limit some areas to inspect.

Standard and Mid - Efficiency Furnace - Only a limited section of the heat exchanger could be viewed with a light and mirror. Dismantling the furnace to thoroughly inspect the heat exchanger is beyond the scope of this inspection. You are advised to obtain the services of a qualified gas fitter/technician to perform a complete inspection of your furnace prior to the start of the heating season.

Chimney - The interior of chimneys and their flue liners are not visible on our visual inspection. You are advised to obtain the services of a qualified chimneysweeper or other qualified personnel to perform a complete inspection and tune up of your fireplace/stove prior to using the appliance.

Supplementary Comments

Not all receptacles/outlets tested due to limited accessability (i.e. furniture, clutter and/or obstructions).
1.0 I. STRUCTURAL SYSTEMS

1.1 C. Roof Covering and Materials
    Flashing at the lower shed type roof area on the chimney above the rear living room window does not appear to be installed properly and could leak. Recommend repairing this condition as needed to reduce possible leaks and related issues.

1.2 D. Roof Structure & Attic
    Excessive day light seen in the attic where the front gable meet the lower roof at the south west corner.

    Larger than normal gaps noted between the soffits and roofs at the base of the gables and some bird nest are already built in the attic in these areas.

    Recommend repairing these areas as needed to reduce possible leaks and reduce further pest intrusion to the attic.

1.3 E. (Walls (Interior & Exterior))
    Loose siding noted on the south side of the home.

    One piece of lap siding has slipped above the right side of the garage roof.

    Recommend repairing as needed to reduce possible leaks and related issues.

1.4 H. Windows
    Stationary window on the front of the home has leaked in the past and appears to be repaired. Some damage noted to the interior of the sheetrock around the window. New flashing has been installed and window was tested for moisture and none was found at the time of the inspection.

    Trim around the window on the rear of the home to the south of the chimney is rotted.

    Recommend contractor evaluate all issues and repairing all rotted wood and monitoring the front window and repair as or if needed should leaking continue to occur.

1.5 J. Fireplace/Chimney
    Some minor rot noted to the chimney trim on the home. Recommend repairing or replacing all rotted wood as needed.

2.0 II. ELECTRICAL SYSTEMS

2.1 B. Branch Circuits, Connected Devices and Fixtures
    No Ground Fault Circuit Interrupt protection noted or GFCI not tripping in the up hall bath. Recommend installation of GFCI receptacles/protection in standard areas to reduce risk of electrical shock and promote best overall safety practice.
3.0  III. HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS

3.1  B. Cooling Equipment
Primary condensate lines are draining next to foundation. Recommend extending away from foundation to reduce possible issues and promote positive water movement away from foundation areas.

AC differential is a little marginal, only 14 degrees was obtained at the best and larger than normal differences noted between the supply air temps on different ducts. Recommend HVAC technician evaluate as needed to determine the condition and efficiency of the unit.

4.0  V. APPLIANCES

4.1  D. Ranges, Cooktops, and Ovens
Left rear burner is hard to ignite. Recommend repairing as needed for proper operation.
A ground fault circuit interrupter, or GFCI, is an inexpensive electrical safety device that can protect you and your family members from a serious electric shock.

Have you ever had an electric shock? While it is an unpleasant experience, it is not usually fatal. However, given the right conditions, the same shock could be fatal! If your body makes a solid connection to the ground, the shock could easily kill you. Here are two examples of a solid ground connection:

- If you are physically standing or touching the ground outside
- If you touch something conductive, such as any part of the plumbing system in your house, that is also touching the ground outside

In other words, if you decide to operate your hedge trimmer in your bare feet and you get a shock, you may not survive it.

**How Can a GFCI Help?**

A GFCI is a special electrical outlet that prevents electric shocks in situations such as the ones described above. The GFCI monitors the electrical current leaving from and returning to the outlet. The current leaving the outlet should be the same amount as the returning current. If the current returning is less than that which leaves, the missing current could be passing through somebody’s body to the ground. The GFCI detects the mismatch and shuts off the electrical outlet in a split second.

**Where Should GFCI Outlets Be Located?**

GFCI outlets should be installed in any area that presents a risk of an electric shock with a direct path to the ground. In other words, anywhere you might directly touch the ground outside or anywhere where you might touch a part of the plumbing system. Some smart GFCIs locations are:

- Exterior outlets
- Kitchen counter outlets (not common in Canada)
- Bathroom outlets
- Garage outlets
- Outlets in unfinished basements
This is not a complete list. Areas near swimming pools, hot tubs, and so on should also include this type of outlet.

GFCIs are not perfect, however, and have been known to “nuisance trip” when connected to certain types of electrical equipment. For this reason, exceptions to the suggested (or required) locations for GFCIs exist. For example, a regular outlet would be a better choice for a freezer in your garage since the potential for nuisance tripping of the GFCI is high and might go undetected for days, leading to spoiled food in the shut-off freezer.

**Remote GFCI**

Several electrical outlets usually connect to a single circuit in an average home. A single GFCI outlet will protect all of the outlets in the circuit, even if the other outlets are not GFCIs. But the GFCI outlet must be the first outlet in the string in order for it to properly protect the other outlets, and, of course the connections have to be properly made.

Remote GFCIs sometimes cause confusion for home owners in the following ways:

- A home owner thinks the bathroom does not have a GFCI because the outlet looks like a standard one. The standard outlet under the protection of a remote GFCI should have a sticker indicating its GFCI protection. The problem is, the sticker does not stick forever. A Pillar To Post® inspector can test this for you.
- A standard outlet that does not appear to work in a bathroom or kitchen may actually be attached to a remote GFCI outlet that has nuisance tripped. Before calling an electrician, check the GFCI outlets in other bathrooms and in other locations around the house.

**Testing**

GFCIs are easy to test and should be tested every month. Simply press the test button on the outlet. You should hear a pop as the reset button pops out a little. To reset, just press the reset button. If the GFCI fails to trip, or if you are unable to reset it, it is time for an electrician to replace it.

Special breakers also provide GFCI protection to the entire circuit. These breakers can be installed instead of GFCI outlets. The GFCI breaker should also be tested monthly. You will recognize this breaker from the test and reset button.

GFCIs can help prevent injury and death from electric shock. It is a small device worth having to ensure the safety of your family members.
Increasing Electrical Fire Safety
An “arc fault circuit interrupter,” or AFCI, is a new type of circuit breaker designed to detect sparking in an electrical system, and to shut down the affected circuit before it causes a fire. The jury is still out on whether AFCIs actually save lives and property.

A household circuit can cause fire in two ways: circuit overload and sparking. Standard circuit breakers or fuses usually protect an overloaded circuit, but the breakers may not trip from intermittent sparking. For example, if you pierce or sever an electrical cable while hammering a nail into a wall, you could create an intermittent short, resulting in sparking. If the breaker does not trip, a fire could start. The AFCI is designed to detect such problems.

Other potential causes of sparking:
- A frayed extension cord
- A squeezed or pinched cord
- Old and cracked insulation on electrical wires and cables
- Loose electrical connections

What’s the Difference Between an AFCI and a GFCI?
A GFCI, or a “ground-fault circuit interrupter,” is typically installed in areas with a high risk for electrical shock, such as bathrooms (see Pillar To Post® GFCI Info Series). A GFCI protects people from electric shock, while an AFCI protects homes from electrical fires.

What Do These Devices Look Like? Where Are They Installed?
An AFCI fits into the electrical panel in place of a standard circuit breaker. It looks like a GFCI breaker except the AFCI has a blue test button while the GFCI has an orange test button.

AFCIs are becoming mandatory in some jurisdictions. In 2002, the National Electrical Code insisted on AFCIs for all bedroom electrical outlets and their branch circuits.
AFCIs may be retrofitted to any home with a modern circuit breaker panel. But before you ask your electrician to replace all your breakers with AFCIs, consider the following:

- AFCIs are expensive, about $40 to $60 dollars per breaker. For a typical panel, you might pay a sum of $1,500, not including labor.
- AFCI breakers may not be available for an old panel.

**Can an AFCI Make an Old Electrical System Safer?**

Old wiring has likely been subjected to years of modifications and abuse, making it a more likely candidate for sparking. Insurance companies are concerned about the safety of knob and tube wiring in particular, making an AFCI seem an ideal retrofit. But since AFCIs have not been tested with old wiring, certifying laboratories and electrical authorities cannot yet assure the public that AFCIs will perform as expected.

**Not Quite Electrical Nirvana**

It will take several more years before statistics reflect anything concrete about how well AFCIs function. In the meantime, we can only assume that AFCIs reduce the chances of electrical spark-induced fires. Electrical authorities do plan, however, to ultimately mandate every breaker in your electrical panel as an AFCI or a GFCI, or a device that covers both, protecting people from electric shock and homes from electrical fires.

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Pillar To Post® encourages anyone who feels they would benefit from AFCIs to consult an electrician. We would like to make one thing clear: we do not believe AFCIs are a quick fix for dangerous wiring, nor are they an excuse to live with an unsafe electrical system. A qualified electrician should promptly deal with unsafe wiring conditions.
Your garage vehicle door may be the largest moving object in your home and could weigh up to 400 pounds. For your safety make sure it's in good condition.

Overhead garage doors have gravity to deal with. In the absence of some type of balancing mechanism, the door would slam shut as soon as you let go of it. Older garage doors may employ a weight and pulley system to balance the weight of the door however virtually all modern systems use springs. Regardless of the method used, the door should balance. If you open the garage door about half way and let go, it should balance there.

**Spring failure**
The springs used to balance the weight of the door are under enormous stress. If a spring were to break, flying pieces of metal could cause serious injury. Modern spring systems incorporate safety features to prevent flying metal in the event of a spring failure. For example, extension springs should have a cable running down the middle of the spring to contain the spring upon failure.

**Automatic opener**
Automatic door openers are not a replacement for a properly balanced door. The opener is not powerful enough to lift the entire weight of the door. The opener works with the help of the springs or counter balance system.

An automatic garage door opener should stop and reverse on meeting an obstruction. Many systems manufactured prior to 1982 may stop but not reverse. These older systems should be upgraded. This is not only about protecting your car, it’s about protecting people.

Today, some form of external entrapment protection is required. An electric eye is the most common system used. The electric eye is mounted 5 to 6 inches off the floor and senses...
objects in its path. If your garage door opener does not have an electric eye system, you may be able to upgrade it without replacing the entire system.

**Emergency release**
During a power failure the garage door may be impossible to open. Since 1982, automatic garage door openers have an emergency release to disengage the garage door from the opener. Once disengaged, you can open the door by hand. Make sure you know where this is and how to operate it. It is usually a short rope hanging from the unit. Pulling the rope disengages the door from the automatic door opening mechanism.

**A Few More Pointers on Garage Doors**
- Keep it in good shape: Your garage door may require periodic lubrication and adjustment. An overhead garage door that is poorly maintained may pose a threat to your safety. Hiring a garage door expert to inspect and adjust the system is a good idea.
- Pinch hazard: Sectional overhead garage doors pose a pinch hazard to fingers. Never put your fingers in the space between door sections to close the door, use the provided handles. Some modern sectional garage doors have a ‘pinch proof’ design.
- Security: The remote control for your automatic opener is like a key to your garage. When you move into a home, you should change the remote control settings just as you would change the locks on your doors. If the codes for your automatic opener cannot be changed, it probably also lacks other key safety features of a more modern system. You should consider upgrading.
- Educate children: Kids need to know that garage doors are dangerous. Bikes and toys should never be left in the path of the garage door while the door is open. Make sure they know that they should not play with the remote control. Mount the door activation button five feet from the ground, out of reach.
AIR CONDITIONING UPDATE

The face of air conditioning has changed completely over the last few years and it's going to change more, from efficiency to comfort.

A/C Efficiency
The goal of air conditioning is to get as much cooling as possible for the least amount of energy input. SEER or Seasonal Energy Efficiency Ratio is a measure of efficiency. The higher the number, the more efficient the system. Prior to 1987 most air conditioning systems had a SEER of about 8. After ‘87 most were SEER 10. In 2006, a minimum SEER legislation kicked in requiring all new A/C systems to be at least SEER 13. Many of the top models are over SEER 17! If you are installing a new air conditioning system today, it is probably 30% to 50% more efficient than your old system!

Avoid Installation Problems
One way manufacturers are making their systems more efficient is by making the heat exchangers larger. The outdoor and indoor components are larger than before. This is no big deal for the outdoor unit but it can be a big problem for the indoor half of the system. If you are replacing your old air conditioner, you may find that the new coil won’t fit into your old air handler. You may have to replace your air handler or furnace. This is where a good installer is worth every penny. There may be workarounds that a novice may not know about. If you are in this situation, make sure you ask if there is an alternative such as a minor ducting modification. Ask if there are other brands that will fit. Many installers only represent a few brands, sometimes as few as one. It is probably worth a second opinion if the installer has no suggestions.

Two Stage Compressors
Modern two stage compressors solve the capacity dilemma. What’s the capacity dilemma? If the air conditioning system is sized to operate optimally on the hottest day of the season, it’s probably oversized the rest of the time. An oversized system will cool the house very quickly. This means short on cycles. This is inefficient and it does not dehumidify the house properly. In the past, installers would err on the side of oversizing for fear of a callback on the hottest day of the season. The result is that many systems are not achieving their rated SEER and the houses are cold and clammy.

If you want peak efficiency and dehumidification without the worry of a system that can’t keep up on the hottest day, there are systems that will operate at two capacities. It's like
having two air conditioning systems in one package. An undersized mode that will have very long on cycles and a larger capacity mode to keep you comfortable on the hottest days.

New Motors - ECM
Everyone is talking about ECM. It stands for Electronically Commutated Motor. That's a mouth full, but what does it do? It uses much less electricity than a standard motor and the speed can be varied continuously. Still don’t get it? Let’s look at an ECM in action on the blower for your A/C system.

Constant air flow rate: Air conditioning systems operate at maximum efficiency with a specific air flow rate across the coils. A standard air handler motor usually only has two speeds, low and high. It’s unlikely that these speeds will develop exactly the most efficient air flow rate. An ECM can lock on to an air flow rate. It will maintain this rate even if your ducting system is a little sub-par or if your filter builds dust. The ECM adjusts its speed to respond to these variables.

Control humidity: With the help of a humidistat, the system can respond to high humidity in the home by slowing the blower motor for a few minutes. The humid air gets a longer “dwell time” on the coils, sucking out more moisture.

Soft ramp: The ECM can be instructed to start slowly and ramp up to full speed over a few minutes and to ramp down at the end of the cycle. This soft ramp will maximize efficiency and dehumidification.

Run on low: The ECM can run on a very low speed between cycles to maximize air mixing in the home and get more out of your air cleaning system (filter) all with very little electricity.

New Refrigerant
Today most A/C systems use the HCFC refrigerant called R22. This is slated for phase out and will be replaced by refrigerants that have no ozone destruction capabilities such as R410a. Systems designed for R22 will not be able to use the new refrigerant. So do you need to worry? In short - no! R22 will be available for many years. The phase out starts in 2010 when new equipment will not use R22. In 2020, R22 will be available for servicing existing equipment but no new R22 will be produced. These generous timelines are longer than the life cycle of air conditioning equipment. Don’t let air conditioning sales people scare you.

As you can see, a lot has changed over the last few years and there is more to come. The one thing that has not changed is that a good A/C technician is the difference between a system that is tweaked to perfection and a system that is uncomfortable and inefficient.
Asphalt Shingles

Asphalt shingles are the most common type of sloped roof covering in North America. They are easy to install, reliable and arguably the best bang for the buck.

Shingle Construction
While there are many types of asphalt shingles, the general construction is similar. There are three distinct layers -
- A base material that gives the shingle strength and shape.
- An asphalt layer that forms a waterproof barrier.
- A granular surface that reflects the ultraviolet radiation and gives the shingle durability, color and texture.

Warranty
What’s a 20 year shingle? 20 years is the manufacturer’s limited warranty against defects. The number loosely represents the number of years the shingle could last in an ideal installation and ideal conditions. In practice, the reliable life is less than stated. Common shingle warranties are 15 to 50 years. The higher the warranty, the thicker the layer of asphalt and the thicker and heavier the shingle.

Fiberglass or Organic Based Asphalt Shingles
The two common base layer materials are paper saturated in asphalt and fiberglass. While they are both asphalt shingles, they are often referred to as organic and fiberglass respectively.

Fiberglass base shingles were developed to use less of the expensive asphalt but still maintain the same shingle life. The main difference is that the fiberglass based shingle is thinner and lighter than the equivalent organic shingle, making it more desirable for installers.

Organic shingles are thicker and heavier and are considered to have better durability and tear resistance. Fiberglass based shingles are more flexible in hot weather and may perform better in wind storms. Both types are used successfuley in most climates. There have been problems reported with fiberglass based shingles involving cracking of the shingles due to thermal stress (large temperature fluctuations). These problems are less prevalent now as new standards for manufacturing these shingles have been adopted by most manufacturers.
**Architectural / Laminated Shingles**
The most common asphalt shingle is the three tab shingle shown in the illustrations. Instead of three tabs, the architectural shingle has pieces of shingle material stuck on to create a more interesting pattern. Because there are pieces stuck on, it’s often called a *laminated shingle*. Since it’s a premium product, it will have a 25 to 30 year warranty as a minimum. Many styles are available.

**On The Roof**
The illustration below shows a roof deck with the first few rows of shingles. The shingles are arranged so water sheds from one shingle to the next. The key point is that the system is not waterproof. It relies on gravity and the slope of the roof to shed water. Asphalt shingles are designed for a roof with a slope of 4 in 12 or greater. They can be used on low slope roofs as well but a special application technique is required.

*Flashing:* Asphalt shingles will shed water reliably. At roof penetrations or intersections, special treatment is required. For example, you can’t reliably seal shingles to the edge of a skylight or chimney. Flashings are pieces of metal that are strategically placed to shed water over roof penetrations and onto the field of shingles without relying on sealants. Done properly, flashings will do the job for the life of the roof as they rely on nothing but gravity and slope. Flashings are often not done properly and are considered to be the weak point of any roof surface. Roofs rarely leak in the middle of a field of shingles, they leak at roof penetrations and intersections where flashing has been poorly installed or have become damaged.

**Life Cycle & Reliability**
Asphalt shingles wear out. Imagine an asphalt shingle roof surface as a sacrificial wear surface. The life cycle of the surface is always less than the advertised warranty period of the shingle.

*Wear:* Asphalt shingles deteriorate from exposure to ultraviolet radiation. For this reason, south and west facing shingles wear out much more quickly than north and east facing. Other wear factors include heat, inadequate venting of the roof space underneath, roof slope, leaves and debris, snow and ice.

*Reliability:* When the surface is near the end of its service life, it becomes unreliable. We are often asked if an old roof could last another year or two. The answer is usually, “yes but”. Either live with a reduced reliability (increased risk of leakage) or improve the reliability by giving the roof a “once over”, focusing on repairing flashings. Depending on the roof, it may not make economic sense to spend money repairing flashings that will only be torn off when the roof is ultimately resurfaced. Furthermore, the surface is hard to work with because it becomes very brittle when it’s old.

*Multiple layers:* When it’s time to resurface the roof, it is possible to install new asphalt shingles directly over the old. This is less expensive than stripping the existing surface. The trade-off is that the roof may not last as long and may not be as reliable. This is because old flashings are often used and are often not done properly and because the shingles are laid upon an uneven base. Some areas allow up to three layers while other areas allow only two.