



## Inspection Report

# Bilco Renovations LLC

**Property Address:**  
2001 Widget Central Drive  
Walnut Cove ND 27499



## Armco Inspections LLC - Armco Infrared LLC

**Robert McCoy Jr., PE**  
**Raleigh, North Carolina**  
**919-636-5553**  
**NC Professional Engineer #20697**  
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**Comment Key or Definitions**

The following definitions of comment descriptions are utilized with this inspection report. All comments by the inspector should be considered before purchasing this home.

**Satisfactorily Inspected (SI)** = I visually observed the item, component or unit and if no other comments were made then it appeared to be functioning as intended allowing for normal wear and tear.

**Not Inspected (NI)** = I did not inspect this item, component or unit and made no representations of whether or not it was functioning as intended and will state a reason for not inspecting.

**Not Present (NP)** = This item, component or unit is not in this home or building.

**Repair or Replace (RR)** = The item in question is a part of one of the house basic operating systems and is required to function as originally intended. Further inspection of the item by a licensed contractor, engineer, or qualified tradesman may be required along with subsequent repair or replacement as is needed to restore proper functionality. Additionally, a listed item or component may be operating satisfactorily according to the building standards when it was installed but not be proper by current safety and building practice. In this case, the item will be listed for client information - GFCI receptacles in wet areas are an example.

**Client Is Present:**

Yes

**Radon Test:**

Yes

**Weather:**

Clear

**Temperature:**

Over 65

**Rain in last 3 days:**

No



## Summary

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### Customer

Bilco Renovations LLC

### Address

2001 Widget Central Drive  
Walnut Cove ND 27499

In the following REPAIR or REPLACE SUMMARY, components or items listed indicate that these components and/or associated systems do not function as intended or adversely affect the habitability of the dwelling; or appear to warrant further investigation by a specialist, or require subsequent observation. This summary shall not contain recommendations for routine upkeep of a system or component to keep it in proper functioning condition or recommendations to upgrade or enhance the function, efficiency, or safety of the home.

This Summary is not the entire report. The complete report may include additional information of concern to the customer. It is recommended that the customer read the complete report.

### **REPAIR or REPLACE RECOMMENDATIONS:**

**For ELECTRICAL, HVAC, PLUMBING AND STRUCTURAL (Interior and Deck) ITEMS, utilize a TRADESMAN or CONTRACTOR THAT IS LICENSED FOR THE AREA OF CONCERN.**

**For ROOFING, INTERIOR, EXTERIOR, WINDOW and APPLIANCE ITEMS, utilize a QUALIFIED TRADESMAN or PERSON THAT IS COMPETENT IN THE AREA OF CONCERN (carpenter, roofer, window contractor, general contractor, etc).**

## Repair or Replace Summary

**1.0 FOUNDATIONS (Report signs of abnormal or harmful water penetration into the building or signs of abnormal or harmful condensation on building components.)**

**Repair or Replace**

Photograph number one shows framing and subfloor above one basement closet that appears to be covered with organic growth. In this case the growth (if existing) is a result of high levels of moisture and poor ventilation in the closet.

Photos 2,3 show areas of the main crawlspace that are similarly discolored and may contain organic growth of significant levels. Recommend additional evaluation to determine the composition of the discoloration with remedies as may be required.

See also sections 9.1 and 9.2 regarding crawlspace ventilation, vapor barrier and possible sealing/insulating

## **1.2 COLUMNS, PIERS and GIRDERS (Structural)**

### **Repair or Replace**

At one point, a significant fire occurred at the left rear basement utility area that contains the remains of a decommissioned boiler as well as the new high efficiency natural gas fired furnace, a decommissioned natural gas fired hot water heater and one active hot water heater.

Some of the fire damaged floor joists have been provided "sisters" for reinforcement. In addition, screw jacks have been provided to support the ends and middle sections of some of the floor joists. If the screw jacks are structurally necessary, they are improperly installed. I cannot determine if the supporting girder at the opposite end of the joists supported (photo 1) contains the necessary strength to adequately support the floor and what may be load bearing walls directly above (girder shown in photographs 2-4). I recommend evaluation of this area by a North Dakota registered engineer with a structural specialty to determine if the girder and associated floor system is adequate for the building load and if not, repaired as as will be necessary to restore the original design intent.

## **1.3 FLOORS (Structural)**

### **Repair or Replace**

See section 1.2 for comment regarding support for the area beneath the kitchen floor and above utility area located in the basement left rear.

## **2.1 WALL CLADDING FLASHING AND TRIM**

### **Repair or Replace**

(1) Deterioration of the exterior wood lap cladding finish was noted at the left side elevation more so than anywhere else. This condition is assumed to be due to increased exposure to storm conditions as well as shading. One or two areas of cracked plank were noted as well as peeling paint that has exposed the underlying wood. If these conditions are not corrected and ongoing pro-active maintenance provided, additional deterioration will occur.

## **2.2 DOORS (Exterior)**

### **Repair or Replace**

This second floor exterior rear door to latch will not engage the strike plate when closed. Unless the deadbolt is engaged, the door may be pushed open. This is considered a safety concern in residential construction.

Weather strip provided on this door is improperly installed or missing. Weather strip on the front entry door from the front porch is missing weather strip altogether.

## **2.6 VEGETATION, GRADING, DRAINAGE, DRIVEWAYS, PATIOS, WALKWAYS AND RETAINING WALLS (With respect to their effect on the condition of the building)**

### **Repair or Replace**

(1) Tree limbs that are in contact with roof or hanging near roof should be trimmed to decrease the chance of shingle damage during storm conditions. The photograph is typical.

(2) The soil/mulch and/or vegetation at the front of the building is near the porch floor framing. This condition can lead to water intrusion and damage to the wall framing and siding (if wood). It can also lead to insect intrusion and subsequent framing damage. Recommend keeping the leaves, grass and soil at least six inches below the siding where possible.

(3) The soil grade all around the building should be such that surface water is directed away from the building and foundation walls. The slope should approximate 1 inch fall in 48 inches horizontal. In mulched areas with little or no

vegetation, I recommend insuring that the soil slope beneath the mulch also be 1:48 along with the addition of landscape plastic beneath the mulch to insure positive stormwater controlled soil grade all around the home should be such that surface water is directed away from the house and foundation walls.

This comment assumes that water directed away from the building in this manner will continue to be controlled such that the runoff is carried completely away (to municipal storm system or nearby creek-bed or body of water, etc). At the end of the day, we want to minimize water absorbed into the ground in areas around the house that may migrate to the crawlspaces (if existing).

### 3.0 ROOF COVERINGS

#### Repair or Replace

One small section of asphalt shingle appears to be out of position adjacent to the gutter above the second floor rear deck.

### 3.1 FLASHINGS (Chimneys, dormers, drip edge)

#### Repair or Replace

The flashing may be improperly installed at this chimney located at the left rear of the house. Moisture stained soffit material appears to exist immediately below the area of concern. Recommend additional examination by a roof professional to ensure flashing integrity.

### 3.3 ROOFING DRAINAGE SYSTEMS (Gutters, downspouts, take-away)

#### Repair or Replace

One section of gutter guard appears to be out of position at the left rear corner of the building.

### 4.2 HOT WATER SYSTEMS, CONTROLS, CHIMNEYS, FLUES AND VENTS

#### Repair or Replace

- (1) The hot water heater located in the basement utility area was off at the time of inspection (known natural gas supply) and could not be tested for fully proper operation.
- (2) The temperature/pressure relief valve on the water heater needs a 3/4inch pipe to extend within 6 inches of floor for safety.
- (3) The water heater discharge flue is connected to a chimney system that originally served natural gas or coal fired boiler or furnace which has been removed. The original flue in the chimney was sized to accommodate both the water heater and the furnace or boiler and as such may be significantly oversized for the water heater alone. This condition is called and "orphaned" water heater and may result in inadequate draft for the water heater to operate properly. I saw no evidence of flame rollout (stained or burned finish) on the water heater shell or products of combustion (corrosion, etc.) at the exterior of the flue. In any event, I recommend examination of this water heater for proper operation by the same HVAC professional that corrects the deficiencies with the furnace located in the attic.

### 5.1 SERVICE AND GROUNDING EQUIPMENT, MAIN OVERCURRENT DEVICE, MAIN AND DISTRIBUTION PANELS

#### Repair or Replace

- (1) Some evidence of elevated moisture levels was noted at the main service panel at the left side elevation utility meter. Recommend examination of the enclosure for points of entry of moisture with repairs as may be necessary.

The meter base and service panel assembly is loose at the wall mounting points as indicated in the second photograph. It is possible that service panel moisture intrusion is occurring through the rear mounting holes.

- (2) A waterproof flexible conduit was noted loose at the bottom surface of the main service panel at the utility meter. The conduit should be reconnected to the fitting to protect the internal conductors from stress and possible disconnection.

All three of the main service panel dead front panel mounting screws are missing and should be replaced for safety - photo 2

- (3) The grounding conductor for the two pole circuit shown in photos 1-2 is improperly connected to the neutral bar in the sub panel located at the first floor left side rear kitchen utility room. This conductor should be relocated to the enclosure bonded grounding bar at the right side of the enclosure

The third photograph shows a circuit breaker handle sporting a staple. **This staple was effectively preventing tripping or proper action of the circuit breaker** affected as it was trapped beneath the center section of the dead plate (when first observed). Recommend examination by a qualified electrician to determine the possible reason for the presence of this device and removal if none can be found.

## **5.2 BRANCH CIRCUIT CONDUCTORS, OVERCURRENT DEVICES AND COMPATIBILITY OF THEIR AMPERAGE AND VOLTAGE**

### **Repair or Replace**

Splices for branch circuit wiring were noted exposed at this old circuit breaker or fuse panel in the basement utility room as well as a number of open junction boxes in the basement utility area in hallway as well as the second-floor attic area (at least five locations). Cover plates should be provided to protect the wiring and splices in every case according to current commercial standard.

## **5.3 CONNECTED DEVICES AND FIXTURES (Observed from a representative number operation of ceiling fans, lighting fixtures, switches and receptacles located inside the house, garage, and on the dwelling's exterior walls)**

### **Repair or Replace**

- (1) Many three prong (grounding) receptacles are wired without a ground throughout the building. The outlets need to be grounded or replaced with two-prong (non-grounding) receptacles for safety.
- (2) The purpose of some wall switches was not determined - recommend asking the seller for clarification.
- (3) The light section of this ceiling mounted combo fan/light located at the second floor bathroom did not operate when tested.

## **5.5 OPERATION OF GFCI (GROUND FAULT CIRCUIT INTERRUPTERS)**

### **Repair or Replace**

This GFCI receptacle located at the rear second-floor deck did not operate when tested (no power).

## **6.3 CHIMNEYS, FLUES AND VENTS**

### **Repair or Replace**

**The discharge flue for the second floor attic natural gas fired furnace is disconnected at the furnace enclosure. Repairs are required prior to furnace operation to prevent products of combustion including carbon monoxide and water vapor from being discharged into the attic space. This condition is also possible fire hazard.**

## **6.5 HEAT DISTRIBUTION SYSTEMS (including fans, pumps, ducts and piping, with supports, insulation, air filters, registers, radiators, fan coil units and convectors)**

### **Repair or Replace**

See section 7.2 for comment regarding the forced air distribution system for both the basement and second floor HVAC systems

## **7.2 DISTRIBUTION SYSTEMS (including fans, pumps, ducts and piping, with supports, insulation, air filters, registers, radiators, fan coil units and convectors)**

### **Repair or Replace**

Significant conditioned air distribution duct damage was noted in the second floor attic space as shown in the photographs. In some cases the outer insulation jacket is compromised, and in other cases the duct is open to the attic and conditioned air is being lost in significant quantities (photos 2-3).

In addition to the above, separation was noted between the evaporative coil housing and the discharge duct plenum chamber - photo 4

Photo # 5 shows air patterns on the side of the evaporator coil housing to indicate air leakage at the point of entry of the refrigerant lines.

The above conditions cause significant energy loss to the attic well as possible condensation formation in the attic during the winter.

The above conditions will also result in de-pressurization of the interior which will draw exterior air into the building from any other air leakage location (exterior doors, windows, attic access, wall receptacles, poor bath ceiling fan air sealing, etc). Elevated utility bills, hot/cold rooms and possibly noticeable draftiness are the overall results.

The depressurization mentioned above will also draw significant levels of crawlspace air into the building which will contaminate the interior air of the office space with whatever is airborne in the crawlspace (mold spores, voc(s), etc).

### 7.3 PRESENCE OF INSTALLED COOLING SOURCE IN EACH ROOM

#### Repair or Replace

No airflow was noted from the ceiling register at the right side rear basement "storage room." No airflow was also noted at the right side rear office or activity room rear floor register on the first floor. It is possible that these two issues are related.

### 8.0 CEILINGS

#### Repair or Replace

(1) Minor ceiling damage was noted adjacent to the chimney chase at the first floor left side rear utility area. This damage may be due to prior flashing storm water leakage as indicated may be possible in section 3.1 (see section 3.1 for recommendation)

### 8.5 DOORS (ALL REASONABLY ACCESSIBLE DOORS)

#### Repair or Replace

This second floor bathroom access door is split in the area shown. The door appears to rub the door frame during operation resulting in excessive force in the area of the damage.

### 8.6 WINDOWS (ALL REASONABLY ACCESSIBLE)

#### Repair or Replace

Some of the windows are painted shut and not movable and some could be satisfactorily tested. Many of the windows are original and utilize sash cords and window weights for ballast or balance.

### 9.0 INSULATION AND VAPOR RETARDERS (in unfinished spaces)

#### Repair or Replace

(1) On the second floor there are two areas where the ceilings are at lower levels than the balance of the floor. In these two areas insulation levels are approximately 0. This condition seriously compromises the R-value of the entire second floor ceiling. Recommend review and recommendation by a qualified insulation professional for adequate second-floor insulation and air sealing.

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## Inspection Report Main Body

|   |   |                                  |
|---|---|----------------------------------|
| <b>Date:</b> 9/9/2010   | <b>Time:</b> 10:00 AM                     | <b>Report ID:</b> 10.0909.1      |
| <b>Property:</b><br>2001 Widget Central Drive<br>Walnut Cove ND 27499 | <b>Customer:</b><br>Bilco Renovations LLC | <b>Real Estate Professional:</b> |

**1. STRUCTURAL COMPONENTS**

**STRUCTURAL REPAIR**

In every case of STRUCTURAL REPAIR ( floors, walls, attic, ceilings, etc) where SAFETY IS AN ISSUE, The ARMCO Recommendation is that a LICENSED CONTRACTOR familiar with house framing systems be employed to perform those repairs ACCORDING TO THE CURRENT STANDARD.

In the case of STRUCTURAL REPAIRS where SAFETY NOT AN ISSUE, but potential failure, damage or additional damage is possible, the employed contractor will perform structural repairs TO THE STANDARD THE HOUSE WAS ORIGINALLY BUILT or as the client agrees.

Cases that require the advice or direction of a STRUCTURAL SPECIALIST or STRUCTURAL ENGINEER will be specified as such in the body of the report.

**Styles & Materials**

**FOUNDATION:**

ASSUMED RE-ENFORCED Poured CONCRETE  
FOOTINGS  
WITH BRICK FOUNDATION WALLS

**WALL STRUCTURE:**

ASSUMED  
2 X 4 WOOD  
WOOD LAP SIDING  
STUD SHEATHING and/or AIR BARRIER NOT VISIBLE

**ROOF STRUCTURE:**

STICK-BUILT  
2 X 6 RAFTERS  
WOOD SLATS  
NOT VISIBLE

**ATTIC INFO:**

PULL DOWN STAIRS  
NO STORAGE

**COLUMNS OR PIERS:**

SUPPORTING WOOD FRAMED  
WALLS  
WOOD PORCH COLUMNS

**FLOOR STRUCTURE:**

2 X 10  
UPPER FLOORS NOT VISIBLE  
16 inch joist centers

**ROOF-TYPE:**

GABLE  
HIP  
SHED

**METHOD USED TO OBSERVE**

**CRAWLSPACE:**  
CRAWLED

**CEILING STRUCTURE:**

2X6  
FIRST FLOOR CEILING NOT VISIBLE  
BASEMENT CEILING NOT VISIBLE

**METHOD USED TO OBSERVE ATTIC:**

WALKED  
VIEW PARTIALLY BLOCKED BY  
DUCTWORK

**Items**

**1.0 FOUNDATIONS (Report signs of abnormal or harmful water penetration into the building or signs of abnormal or harmful condensation on building components.)**

**Comments:** Repair or Replace

Photograph number one shows framing and subfloor above one basement closet that appears to be covered with organic growth. In this case the growth (if existing) is a result of high levels of moisture and poor ventilation in the closet.

Photos 2,3 show areas of the main crawlspace that are similarly discolored and may contain organic growth of significant levels. Recommend additional evaluation to determine the composition of the discoloration with remedies as may be required.

See also sections 9.1 and 9.2 regarding crawlspace ventilation, vapor barrier and possible sealing/insulating



1.0 Picture 1



1.0 Picture 2



1.0 Picture 3

**1.1 WALLS (Structural)**

**Comments:** Satisfactorily Inspected

Stairstep cracking was noted in several locations especially at the left side elevation. These cracks appear to be old in that paint was noted inside the crack. Recommend observation over time of these cracks for possible widening which I consider to be unlikely. In the event of significant wall shifting I recommend consultation with a structural engineer for corrective or preventive action. See section 2.6 for comment regarding soil grade and storm water control.



1.1 Picture 1

## 1.2 COLUMNS, PIERS and GIRDERS (Structural)

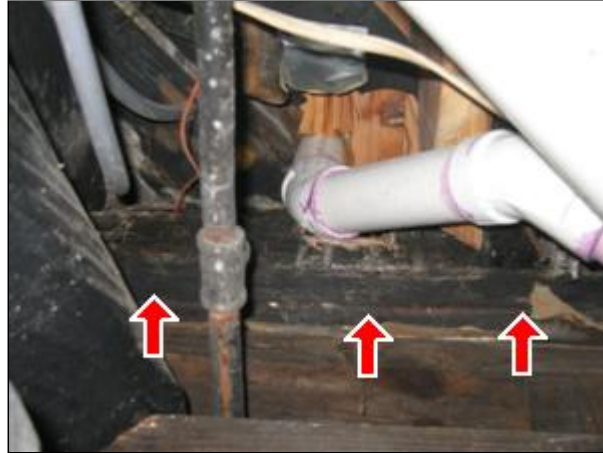
**Comments:** Repair or Replace

At one point, a significant fire occurred at the left rear basement utility area that contains the remains of a decommissioned boiler as well as the new high efficiency natural gas fired furnace, a decommissioned natural gas fired hot water heater and one active hot water heater.

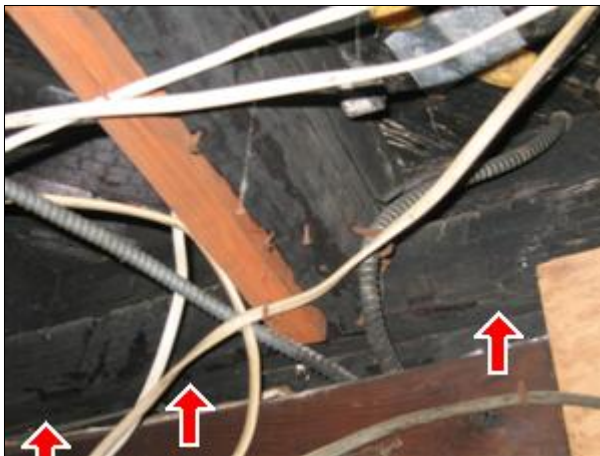
Some of the fire damaged floor joists have been provided "sisters" for reinforcement. In addition, screw jacks have been provided to support the ends and middle sections of some of the floor joists. If the screw jacks are structurally necessary, they are improperly installed. I cannot determine if the supporting girder at the opposite end of the joists supported (photo 1) contains the necessary strength to adequately support the floor and what may be load bearing walls directly above (girder shown in photographs 2-4). I recommend evaluation of this area by a North Dakota registered engineer with a structural specialty to determine if the girder and associated floor system is adequate for the building load and if not, repaired as as will be necessary to restore the original design intent.



1.2 Picture 1



1.2 Picture 2



1.2 Picture 3



1.2 Picture 4

**1.3 FLOORS (Structural)**

**Comments:** Repair or Replace

See section 1.2 for comment regarding support for the area beneath the kitchen floor and above utility area located in the basement left rear.

**1.4 CEILINGS (structural)**

**Comments:** Satisfactorily Inspected

**1.5 ROOF STRUCTURE AND ATTIC**

**Comments:** Satisfactorily Inspected



Typical second floor attic views



1.5 Picture 1



1.5 Picture 2

**2. EXTERIOR**

EXTERIOR CONCERN IMPLICATION& REPAIR

In cases where the EXTERIOR of the HOUSE is DAMAGED OR BREACHED and not repaired, additional damage may occur due to insect, animal or water intrusion.

Where DECK FRAMING OR RAILING SYSTEMS are of concern, SAFETY is an issue.

ARMCO RECOMMENDATION for Exterior Repairs : Utilization of a QUALIFIED TRADESMAN (Contractor or person that is familiar and experienced with the particular concern (Carpenter, Window contractor, Garage door specialist, Siding contractor, Mason, Landscape contractor, etc)).

Where DECK FRAMING/SAFETY is involved, repairs are to CURRENT STANDARD by a Contractor/Decking Specialist familiar with that standard.

**Styles & Materials**

**SIDING STYLE:**

LAP  
BRICK

**SIDING MATERIAL:**

WOOD  
BRICK FOUNDATION WALLS

**EXTERIOR ENTRY DOORS:**

WOOD

**APPURTENANCE:**

COVERED PORCH  
DECK WITH STEPS  
SIDEWALK

**DRIVEWAY:**

GRAVEL

**Items**

**2.0 EAVES, SOFFITS AND FASCIAS**

**Comments:** Satisfactorily Inspected

The tongue and groove bead board soffit material appeared to be in good condition all around the house. One possible area affected by roof leakage was noted at the left side (as viewed from the rear lot) of the left side rear chimney (as viewed from the street). I could not determine if active leakage is occurring. I saw no evidence of leakage from within the attic or from within the room located at the second floor left rear (ceiling).



2.0 Picture 1



2.0 Picture 2

**2.1 WALL CLADDING FLASHING AND TRIM**

**Comments:** Repair or Replace

(1) Deterioration of the exterior wood lap cladding finish was noted at the left side elevation more so than anywhere else. This condition is assumed to be due to increased exposure to storm conditions as well as shading. One or two areas of cracked plank were noted as well as peeling paint that has exposed the underlying wood. If these conditions are not corrected and ongoing pro-active maintenance provided, additional deterioration will occur.

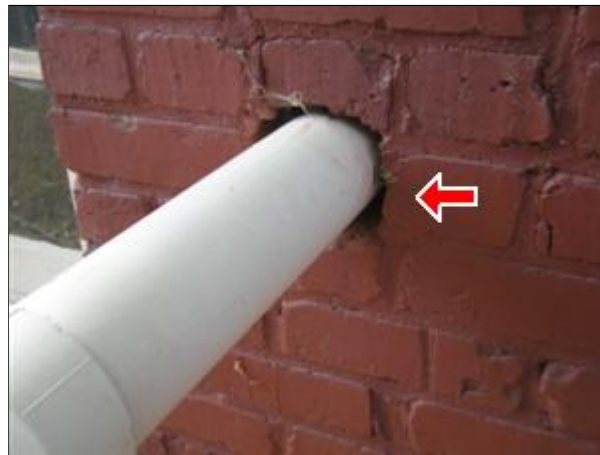


2.1 Picture 1



2.1 Picture 2

(2) Points of entry of exterior air and insects should be sealed - this includes wall cracks in areas around windows and doors.



2.1 Picture 3



(3) Column trim damage was noted at the extreme right rear of the house as shown in the photograph. This damage is a direct result of moisture absorption from the adjacent mulched area which is in direct contact. None of the other columns in this area exhibited trim damage of this type. Recommend complete separation of soil from wood construction of any type (unless the wood has been treated for ground contact). Also recommend sealing of the wood trim at all exterior columns on front and rear porches and decks (photos 2,3)



2.1 Picture 4



2.1 Picture 5



2.1 Picture 6

**2.2 DOORS (Exterior)**

**Comments:** Repair or Replace

This second floor exterior rear door to latch will not engage the strike plate when closed. Unless the deadbolt is engaged, the door may be pushed open. This is considered a safety concern in residential construction.

Weather strip provided on this door is improperly installed or missing. Weather strip on the front entry door from the front porch is missing weather strip altogether.



2.2 Picture 1



2.2 Picture 2

**2.3 GARAGE DOOR OPERATORS (Report whether or not doors will reverse when met with resistance)**

**Comments:** Not Present

**2.4 WINDOWS (Exterior trim, framing and Storm windows)**

**Comments:** Satisfactorily Inspected

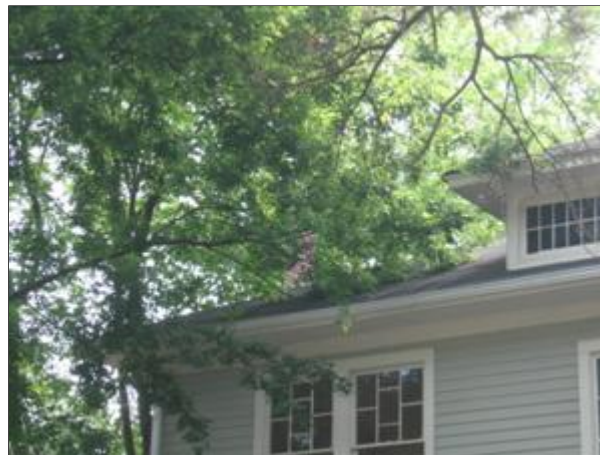
**2.5 DECKS, BALCONIES, STOOPS, STEPS, AREAWAYS, PORCHES AND APPLICABLE RAILINGS**

**Comments:** Satisfactorily Inspected

**2.6 VEGETATION, GRADING, DRAINAGE, DRIVEWAYS, PATIOS, WALKWAYS AND RETAINING WALLS (With respect to their effect on the condition of the building)**

**Comments:** Repair or Replace

(1) Tree limbs that are in contact with roof or hanging near roof should be trimmed to decrease the chance of shingle damage during storm conditions. The photograph is typical.



2.6 Picture 1

(2) The soil/mulch and/or vegetation at the front of the building is near the porch floor framing. This condition can lead to water intrusion and damage to the wall framing and siding (if wood). It can also lead to insect intrusion and subsequent framing damage. Recommend keeping the leaves, grass and soil at least six inches below the siding where possible.



2.6 Picture 2

(3) The soil grade all around the building should be such that surface water is directed away from the building and foundation walls. The slope should approximate 1 inch fall in 48 inches horizontal. In mulched areas with little or no vegetation, I recommend insuring that the soil slope beneath the mulch also be 1:48 along with the addition of landscape plastic beneath the mulch to insure positive stormwater controlled soil grade all around the home should be such that surface water is directed away from the house and foundation walls.

This comment assumes that water directed away from the building in this manner will continue to be controlled such that the runoff is carried completely away (to municipal storm system or nearby creek-bed or body of water, etc). At the end of the day, we want to minimize water absorbed into the ground in areas around the house that may migrate to the crawlspaces (if existing).

**3. ROOFING**

ROOFING CONCERN IMPLICATION& REPAIR

In cases where the ROOF COVERING or DRAINAGE SYSTEMS of the house are damaged or clogged and not repaired or cleaned, additional damage may occur due to water intrusion. ARMCO Recommendation in these cases is to have the item of concern evaluated and repaired by a QUALIFIED ROOFING TRADESPERSON according to current roofing standards.

**Styles & Materials**

**ROOF COVERING:**

3-TAB ASPHALT/FIBERGLASS

**VIEWED ROOF COVERING FROM:**

GROUND  
BINOCULARS

**SKY LIGHT (S):**

NONE

**CHIMNEY (exterior):**

BRICK

**Items**

**3.0 ROOF COVERINGS**

**Comments:** Repair or Replace

One small section of asphalt shingle appears to be out of position adjacent to the gutter above the second floor rear deck.



3.0 Picture 1

**3.1 FLASHINGS (Chimneys, dormers, drip edge)**

**Comments:** Repair or Replace

The flashing may be improperly installed at this chimney located at the left rear of the house. Moisture stained soffit material appears to exist immediately below the area of concern. Recommend additional examination by a roof professional to ensure flashing integrity.



3.1 Picture 1



3.1 Picture 2

**3.2 ROOF PENETRATIONS, CHIMNEYS AND SKYLIGHTS,**

**Comments:** Satisfactorily Inspected

**3.3 ROOFING DRAINAGE SYSTEMS (Gutters, downspouts, take-away)**

**Comments:** Repair or Replace

One section of gutter guard appears to be out of position at the left rear corner of the building.



3.3 Picture 1



**4. PLUMBING SYSTEM**

PLUMBING REPAIR

ARMCO Recommendation: Utilize a LICENSED PLUMBER, PLUMBING CONTRACTOR or other Person understood to be skilled in the plumbing trades for the issue at hand.

**Styles & Materials**

**WATER SOURCE/SUPPLY:**

PUBLIC

**WATER SUPPLY MAIN VALVE LOCATION:**

BASEMENT LEFT SIDE WALL

**PLUMBING SUPPLY:**

COPPER  
CROSS-LINKED POLYETHYLENE (PEX)  
GALVANIZED (OLD)

**PLUMBING DISTRIBUTION:**

COPPER

**PLUMBING WASTE:**

PVC  
CAST IRON

**WATER HEATER POWER SOURCE:**

NATURAL GAS (QUICK RECOVERY)

**WATER HEATER CAPACITY:**

40 GAL (1-2 PEOPLE)

**WATER HEATER LOCATION:**

BASEMENT UTILITY AREA

**HOT WATER TEMPERATURE AT KIT SINK:**

UNKNOWN - HEATER OFF

**Items**

**4.0 INTERIOR DRAIN, WASTE AND VENT SYSTEMS**

**Comments:** Satisfactorily Inspected

**4.1 INTERIOR WATER SUPPLY AND DISTRIBUTION SYSTEMS AND FIXTURES**

**Comments:** Satisfactorily Inspected

**4.2 HOT WATER SYSTEMS, CONTROLS, CHIMNEYS, FLUES AND VENTS**

**Comments:** Repair or Replace

- (1) The hot water heater located in the basement utility area was off at the time of inspection (known natural gas supply) and could not be tested for fully proper operation.
- (2) The temperature/pressure relief valve on the water heater needs a 3/4inch pipe to extend within 6 inches of floor for safety.



4.2 Picture 1

(3) The water heater discharge flue is connected to a chimney system that originally served natural gas or coal fired boiler or furnace which has been removed. The original flue in the chimney was sized to accommodate both the water heater and the furnace or boiler and as such may be significantly oversized for the water heater alone. This condition is called and "orphaned" water heater and may result in inadequate draft for the water heater to operate properly. I saw no evidence of flame rollout (stained or burned finish) on the water heater shell or products of combustion (corrosion, etc.) at the exterior of the flue. In any event, I recommend examination of this water heater for proper operation by the same HVAC professional that corrects the deficiencies with the furnace located in the attic.



4.2 Picture 2



4.2 Picture 3

#### 4.3 FUEL STORAGE AND DISTRIBUTION SYSTEMS (Interior fuel storage, piping, venting, supports, leaks)

**Comments:** Satisfactorily Inspected

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**5. ELECTRICAL SYSTEMS**

ELECTRICAL CONCERN IMPLICATION& REPAIR

In virtually every case, ELECTRICAL deficiencies are considered to be SAFETY issues. For this reason alone, LICENSED ELECTRICIANS or ELECTRICAL CONTRACTORS are recommended for condition evaluations and repairs.

The only two exceptions to the above approach are 1. That the condition may be first tested by the renewal of a CONSUMER ITEM (new light-bulb, etc) or 2. That the repair is of a minor nature (replacement of a receptacle or junction box cover-plate or tightening a fixture wall mounting, etc.) and that the person making the repair be qualified/experienced with such repairs.

**Styles & Materials**

**ELECTRICAL SERVICE CONDUCTORS:**

OVERHEAD SERVICE  
ALUMINUM  
220 VOLTS

**SERVICE PANEL CAPACITY:**

200 AMP

**SERVICE PANEL TYPE:**

CIRCUIT BREAKERS

**SERVICE PANEL LOCATION:**

OUTSIDE AT THE UTILITY METER

**SERVICE PANEL MANUFACTURER:**

UNKNOWN

**SUB PANEL LOCATION(S):**

IN KITCHEN CLOSET/PANTRY  
IN UPSTAIRS HALLWAY

**NUMBER OF SUB PANELS:**

TWO

**BRANCH WIRE 15 and 20 AMP:**

COPPER

**WIRING METHODS:**

ROMEX

**GFCI NUMBER AND LOCATION(S):**

THREE  
BATHROOMS  
EXTERIOR

**Items**

**5.0 SERVICE ENTRANCE CONDUCTORS**

**Comments:** Satisfactorily Inspected

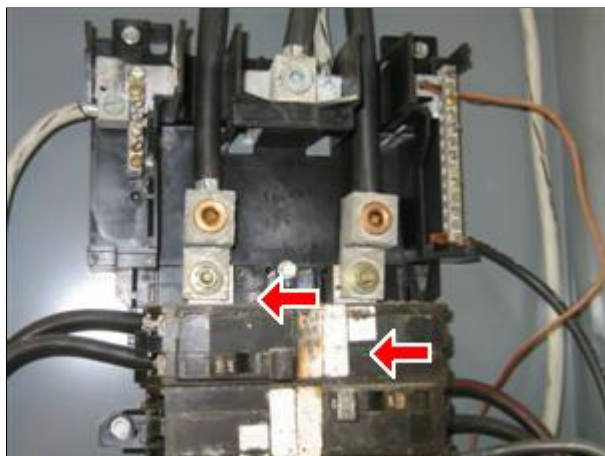
**5.1 SERVICE AND GROUNDING EQUIPMENT, MAIN OVERCURRENT DEVICE, MAIN AND DISTRIBUTION PANELS**

**Comments:** Repair or Replace

(1) Some evidence of elevated moisture levels was noted at the main service panel at the left side elevation utility meter. Recommend examination of the enclosure for points of entry of moisture with repairs as may be necessary.



The meter base and service panel assembly is loose at the wall mounting points as indicated in the second photograph. It is possible that service panel moisture intrusion is occurring through the rear mounting holes.



5.1 Picture 1



5.1 Picture 2

(2) A waterproof flexible conduit was noted loose at the bottom surface of the main service panel at the utility meter. The conduit should be reconnected to the fitting to protect the internal conductors from stress and possible disconnection.

All three of the main service panel dead front panel mounting screws are missing and should be replaced for safety - photo 2



5.1 Picture 3

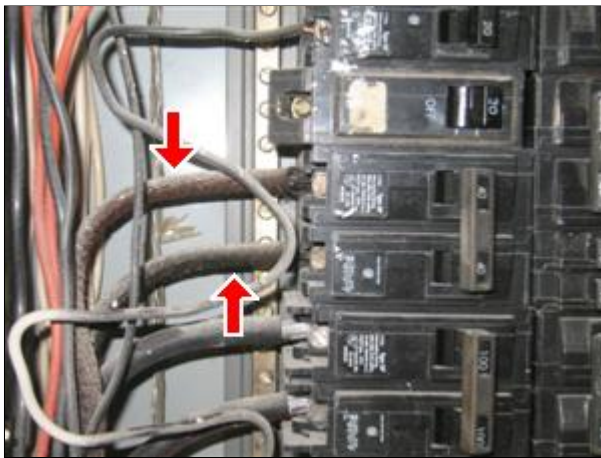


5.1 Picture 4

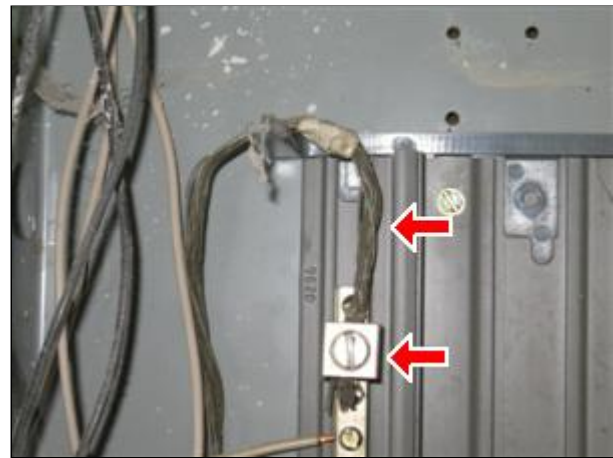
(3) The grounding conductor for the two pole circuit shown in photos 1-2 is improperly connected to the neutral bar in the sub panel located at the first floor left side rear kitchen utility room. This conductor should be relocated to the enclosure bonded grounding bar at the right side of the enclosure

The third photograph shows a circuit breaker handle sporting a staple. This staple was effectively preventing tripping or proper action of the circuit breaker affected as it was trapped beneath the center section of the dead plate (when first

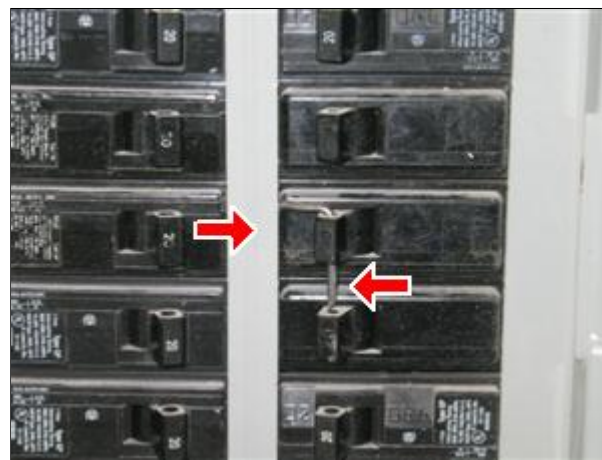
observed). Recommend examination by a qualified electrician to determine the possible reason for the presence of this device and removal if none can be found.



5.1 Picture 5



5.1 Picture 6



5.1 Picture 7

**5.2 BRANCH CIRCUIT CONDUCTORS, OVERCURRENT DEVICES AND COMPATIBILITY OF THEIR AMPERAGE AND VOLTAGE**

**Comments:** Repair or Replace

Splices for branch circuit wiring were noted exposed at this old circuit breaker or fuse panel in the basement utility room as well as a number of open junction boxes in the basement utility area in hallway as well as the second-floor attic area (at least five locations). Cover plates should be provided to protect the wiring and splices in every case according to current commercial standard.



5.2 Picture 1



5.2 Picture 2



5.2 Picture 3



5.2 Picture 4

**5.3 CONNECTED DEVICES AND FIXTURES (Observed from a representative number operation of ceiling fans, lighting fixtures, switches and receptacles located inside the house, garage, and on the dwelling's exterior walls)**

**Comments:** Repair or Replace



(1) Many three prong (grounding) receptacles are wired without a ground throughout the building. The outlets need to be grounded or replaced with two-prong (non-grounding) receptacles for safety.



5.3 Picture 1



5.3 Picture 2



5.3 Picture 3



5.3 Picture 4

(2) The purpose of some wall switches want not determined - recommend asking the seller for clarification.



5.3 Picture 5

(3) The light section of this ceiling mounted combo fan/light located at the second floor bathroom did not operate when tested.



5.3 Picture 6

**5.4 POLARITY AND GROUNDING OF RECEPTACLES WITHIN 6 FEET OF INTERIOR PLUMBING FIXTURES, AND ALL RECEPTACLES IN GARAGE, CARPORT, EXTERIOR WALLS OF INSPECTED STRUCTURE**

**Comments:** Satisfactorily Inspected

**5.5 OPERATION OF GFCI (GROUND FAULT CIRCUIT INTERRUPTERS)**

**Comments:** Repair or Replace

This GFCI receptacle located at the rear second-floor deck did not operate when tested (no power).



5.5 Picture 1

**5.6 OPERATION OF AFCI (ARC FAULT CIRCUIT INTERRUPTERS)**

**Comments:** Not Present

**5.7 SMOKE DETECTORS**

**Comments:** Not Inspected

The building smoke detector capability is part of a central security system and has no provision for testing at the unit(s). Recommend asking the seller for more information regarding operation.

**6. HEATING**

HEATING SYSTEM REPAIR

ARMCO Recommendation: Utilize a LICENSED HVAC CONTRACTOR.

**Styles & Materials**

**HEAT TYPE:**

FORCED AIR

**ENERGY SOURCE:**

NATURAL GAS

**FILTER TYPE:**

DISPOSABLE

**FILTER LOCATION:**

SECOND FLOOR  
 HALL CEILING  
 HALL LOWER WALL  
 HALLWAY UPPER WALL  
 HALLWAY FLOOR (In old floor furnace space)

**NUMBER OF HEAT SYSTEMS (excluding wood):**

TWO

**HEAT SYSTEM BRAND:**

GOODMAN

**DUCTWORK:**

INSULATED

**TYPES OF FIREPLACES:**

COAL BURNING DE-COMMISSIONED

**OPERABLE FIREPLACES:**

NONE

**NUMBER OF WOODSTOVES:**

NONE

**Items**

**6.0 HEATING EQUIPMENT**

**Comments:** Not Inspected

The natural gas supply was off at the time of inspection and the natural gas fired furnaces in the basement and attic could not be fully tested for operation. Recommend asking the seller for satisfactory demonstration of the unit once the gas supply has been restored and other repairs made as noted.

**6.1 NORMAL OPERATING CONTROLS**

**Comments:** Satisfactorily Inspected

Thermostat controls operated satisfactorily with a system in cool mode

**6.2 AUTOMATIC SAFETY CONTROLS**

**Comments:** Not Inspected

**6.3 CHIMNEYS, FLUES AND VENTS**

**Comments:** Repair or Replace

The discharge flue for the second floor attic natural gas fired furnace is disconnected at the furnace enclosure. Repairs are required prior to furnace operation to prevent products of combustion including carbon monoxide and water vapor from being discharged into the attic space. This condition is also possible fire hazard.



6.3 Picture 1



6.3 Picture 2

**6.4 SOLID FUEL HEATING DEVICES**

**Comments:** Not Present

**6.5 HEAT DISTRIBUTION SYSTEMS (including fans, pumps, ducts and piping, with supports, insulation, air filters, registers, radiators, fan coil units and convectors)**

**Comments:** Repair or Replace

See section 7.2 for comment regarding the forced air distribution system for both the basement and second floor HVAC systems

**6.6 GAS/LP FIRELOGS AND FIREPLACES**

**Comments:** Satisfactorily Inspected

View of typical coal burning fireplace (4 total). These units appear to have been decommissioned as the flues are plugged with newspaper or the equivalent. "Chimney balloons" or the equivalent are available commercially for this purpose and can be installed by a nonprofessional person. Prior to to operation of any of these fireplaces I recommend examination by a chimney and/or fireplace professional.



6.6 Picture 1



6.6 Picture 2

**6.7 PRESENCE OF INSTALLED HEAT SOURCE IN EACH ROOM**

**Comments:** Satisfactorily Inspected

See section 7.3 for comment - otherwise satisfactorily inspected

**7. CENTRAL AIR CONDITIONING**

COOLING SYSTEM REPAIR

ARMCO Recommendation: Utilize a LICENSED HVAC CONTRACTOR.

**Styles & Materials**

**COOLING EQUIPMENT TYPE:**

CENTRAL A/C SYSTEM

**NUMBER OF CENTRAL A/C UNITS:**

TWO

**NUMBER of WINDOW A/C UNITS:**

NONE

**COOLING SYSTEM AGE - YEARS:**

5-6

7-8

**Items**

**7.0 COOLING EQUIPMENT**

**Comments:** Satisfactorily Inspected

Both of of the air-conditioning condensing units operated as requested by the respective thermostats when in cool mode.



7.0 Picture 1

**7.1 NORMAL OPERATING CONTROLS**

**Comments:** Satisfactorily Inspected

**7.2 DISTRIBUTION SYSTEMS (including fans, pumps, ducts and piping, with supports, insulation, air filters, registers, radiators, fan coil units and convectors)**

**Comments:** Repair or Replace

Significant conditioned air distribution duct damage was noted in the second floor attic space as shown in the photographs. In some cases the outer insulation jacket is compromised, and in other cases the duct is open to the attic and conditioned air is being lost in significant quantities (photos 2-3).

In addition to the above, separation was noted between the evaporative coil housing and the discharge duct plenum chamber - photo 4

Photo # 5 shows air patterns on the side of the evaporator coil housing to indicate air leakage at the point of entry of the refrigerant lines.

The above conditions cause significant energy loss to the attic well as possible condensation formation in the attic during the winter.



The above conditions will also result in de-pressurization of the interior which will draw exterior air into the building from any other air leakage location (exterior doors, windows, attic access, wall receptacles, poor bath ceiling fan air sealing, etc). Elevated utility bills, hot/cold rooms and possibly noticeable draftiness are the overall results.

The depressurization mentioned above will also draw significant levels of crawlspace air into the building which will contaminate the interior air of the office space with whatever is airborne in the crawlspace (mold spores, voc(s), etc).



7.2 Picture 1



7.2 Picture 2



7.2 Picture 3



7.2 Picture 4



7.2 Picture 5

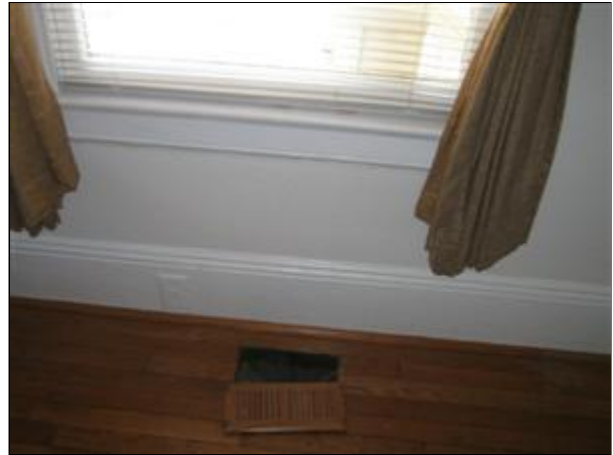
**7.3 PRESENCE OF INSTALLED COOLING SOURCE IN EACH ROOM**

**Comments:** Repair or Replace

No airflow was noted from the ceiling register at the right side rear basement "storage room." No airflow was also noted at the right side rear office - activity room rear floor register on the first floor. It is possible that these two issues are related.



7.3 Picture 1



7.3 Picture 2

**8. INTERIORS**

HOUSE INTERIOR REPAIR

ARMCO Recommendation: Repair by a QUALIFIED TRADESMAN (Person or Contractor that is familiar with the particular concern (Carpenter, Window contractor, Sheetrock contractor, Flooring specialist, etc)).

**Items**

**8.0 CEILINGS**

**Comments:** Repair or Replace

(1) Minor ceiling damage was noted adjacent to the chimney chase at the first floor left side rear utility area. This damage may be due to prior flashing storm water leakage as indicated may be possible in section 3.1 (see section 3.1 for recommendation)



8.0 Picture 1

(2) Ceiling stains were noted at the second floor left side rear storage room adjacent to the light fixture. It is possible that the chimney flashing for the chimney noted in section 3.1 is also responsible for this stain (see section 3.1 for recommendation).



8.0 Picture 2

**8.1 WALLS**

**Comments:** Satisfactorily Inspected

**8.2 FLOORS**

**Comments:** Satisfactorily Inspected

The floor for the small auxiliary room at the left rear of the house on both first and second floor sags from front to rear in approximately the same amount. I could not determine the reason for the sagging. I did not note any particular issue that would account for the slope of these two floors but assume that the reason for it is related. Recommend examination by the same structural professional that examines the fire damaged area beneath the kitchen.

**8.3 STEPS, STAIRWAYS, BALCONIES AND RAILINGS**

**Comments:** Satisfactorily Inspected

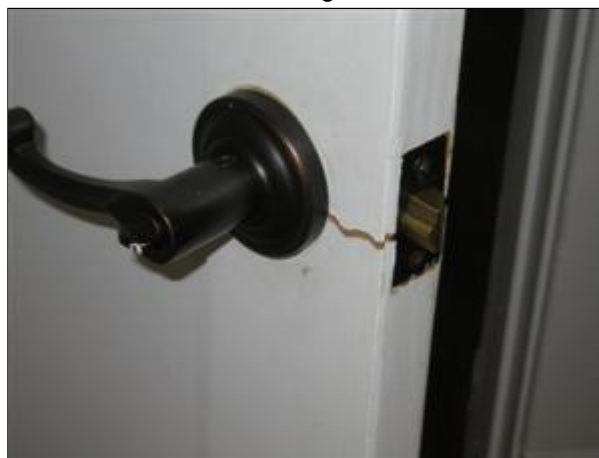
**8.4 COUNTERTOPS AND A REPRESENTATIVE NUMBER OF CABINETS**

**Comments:** Satisfactorily Inspected

**8.5 DOORS (ALL REASONABLY ACCESSIBLE DOORS)**

**Comments:** Repair or Replace

This second floor bathroom access door is split in the area shown. The door appears to rub the door frame during operation resulting in excessive force in the area of the damage.

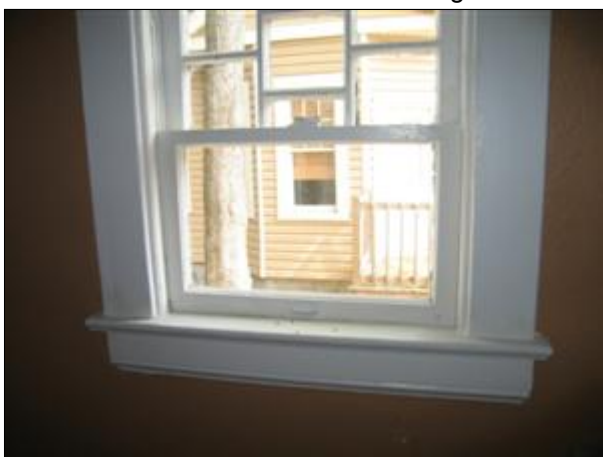


8.5 Picture 1

**8.6 WINDOWS (ALL REASONABLY ACCESSIBLE)**

**Comments:** Repair or Replace

Some of the windows are painted shut and not movable and some could be satisfactorily tested. Many of the windows or original and utilize sash cords and window weights for ballast or balance.



8.6 Picture 1



8.6 Picture 2

**9. INSULATION AND VENTILATION**

VENTILATION AND INSULATION REPAIR

ARMCO Recommendation: Repair by a QUALIFIED TRADESMAN (Person or Contractor that is familiar with the particular concern (Carpenter, Insulation contractor, HVAC contractor, Electrician, Electrical contractor, Appliance contractor, etc)).

**Styles & Materials**

**ATTIC INSULATION:**

BATT  
FIBERGLASS  
BLOWN  
FIBERGLASS

**R- VALUE:**

R-19 OR BETTER  
NONE

**ATTIC VENTILATION:**

RIDGE VENTS  
THERMOSTATICALLY CONTROLLED FAN

**EXHAUST FAN TYPES:**

FAN WITH LIGHT

**BATHROOM VENT:**

NOT VISIBLE

**Items**

**9.0 INSULATION AND VAPOR RETARDERS (in unfinished spaces)**

**Comments:** Repair or Replace

(1) On the second floor there are two areas where the ceilings are at lower levels than the balance of the floor. In these two areas insulation levels are approximately 0. This condition seriously compromises the R-value of the entire second floor ceiling. Recommend review and recommendation by a qualified insulation professional for adequate second-floor insulation and air sealing.



9.0 Picture 1



9.0 Picture 2



(2) Missing, down and otherwise damaged insulation was noted above the crawlspace across the front of the building. The images are typical.



9.0 Picture 3



9.0 Picture 4



9.0 Picture 5

(3) Vapor barrier plastic is installed in approximately 0% of the crawl space. Properly installed vapor barrier inhibits moisture entry into the crawl space air from the soil and possible subsequent framing damage. I saw no evidence of moisture induced framing damage in this crawl space. I also recommend some type of effective sealing or separation of the front porch crawlspace area from the crawlspace area beneath the "living space" of the building. At the present time, brick piers with large open gaps serve as the separator between the porch area and main crawlspaces. The area beneath the front porch will always have elevated levels of moisture even if the soil is covered due to moisture migration through the porch floor boards and around the porch perimeter framing.

See section 9.1 tab three for additional comment regarding a sealed crawlspace.



9.0 Picture 6

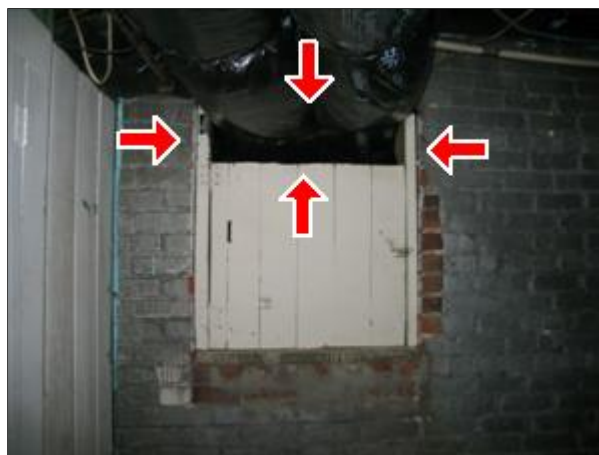


9.0 Picture 7

**9.1 VENTILATION OF ATTIC AND FOUNDATION AREAS**

**Comments:** Repair or Replace

(1) The interior of this house or building is very effectively coupled to the atmosphere of the crawlspace through the opening shown in this photograph even if all other floor or wall penetrations at access this crawlspace area have been completely sealed. As such any "stack effect" or other natural phenomenon or event that results in depressurization of the house will cause air from this crawlspace to be drawn into the occupied areas of the building. In addition to effective sealing of the upper levels of the second floor, I recommend some method of effective sealing in this area (shown in photo) as a first priority. Treating the first floor basement access door as in exterior door with proper fit and weather strip, etc. is also strongly suggested.



9.1 Picture 1

(2) In a fashion and with consequences similar to that suggested in tab 1 of this section, the interior of this building is also effectively coupled to the exterior through this hole in the exterior wall that leads to the rear storage shed. Recommend completely sealing the hole to prevent air passage into the basement area. If insulation of the sealed area is to be considered, it should be extruded polystyrene or the equivalent due to the proximity of ground moisture.



Likewise, and for the same reasons, I suggest sealing all wall penetrations in the lower floors that allow air leakage (at furnace flue, etc.).



9.1 Picture 2



9.1 Picture 3

(3) Moisture laden air will enter the crawlspace via open foundation vents (or where ever it can gain access) during the summer months and will condense on the building framework at some level. In my experience, all cases of framing dry rot or excessive organic growth have been noted associated with limited crawlspace or basement airflow (enough airflow to bring the moisture in but not enough to warm up the space as well - excessive condensate results).

Recommend closing all the vents during the summer and opening the vents during the dry winter time with houses or buildings that have insulated floors in order to minimize condensation throughout the crawlspace. An alternative approach is to completely seal the crawlspace all year (this method is particularly attractive when the crawlspace soil is relatively dry as this one is and there are no other significant moisture intrusion issues that would require ventilation - and there do not appear to be in this case). If the crawlspace area is to be completely sealed, a 100% coverage vapor barrier is essential along with proper exterior soil grade and storm water control away from the house. You may also consider insulating the foundation walls if full crawlspace sealing is desired.

Note that the crawlspaces I have observed to be in the finest condition have without exception been completely sealed from the gitgo. One such crawlspace was inspected about 4 years ago in a house constructed in the mid 70's and found to appear exactly as might have on the day it was completed!

(4) Other than the prior installation of the powered ventilation fan, the ventilation system for the attic is original and as such is considered satisfactory. See section 9.3 for comment and overall recommendations.

## 9.2 VENTING SYSTEMS (Kitchens, baths and laundry)

**Comments:** Satisfactorily Inspected

## 9.3 VENTILATION FANS AND THERMOSTATIC CONTROLS (ATTIC)

**Comments:** Not Inspected

The thermostatically controlled fan was too high to reach and test in the attic. Given the geometry and original ventilation style of this attic (no soffit vents other than leakage between the boards), it is unlikely that this fan, if operable, is particularly effective. Recommend eventual evaluation of the attic space by an HVAC or insulation professional or recommendations regarding effective ventilation.



9.3 Picture 1

## 10. BUILT-IN KITCHEN APPLIANCES

### APPLIANCE REPAIR

**ARMCO Recommendation: Repair by an Appliance Specialist or Contractor or person skilled or otherwise demonstrated to be knowledgeable in appliance repair.**

#### Items

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