

Approved February 12, 1996

# HOME BUILDERS ASSOCIATION OF GREATER ST. LOUIS INDUSTRY STANDARDS MANUAL

## PREFACE

The Industry Standards set forth in this manual represent the materials and workmanship to which local builders adhere under local building codes. The purpose of these standards is to help you determine the validity of any potential question relative to defective materials and/or workmanship you might experience in your new home during the limited warranty period as defined and offered by your builder.

Only the most frequent items which concern new home buyers have been addressed in these Industry Standards. If a home buyer experiences a problem or defect not found in these Industry Standards, it indicates only that the Industry Standards Committee has not reviewed and established Standards for that particular item.

To the extent that minimum performance standards have not been enumerated in these Industry Standards, builders shall construct new homes in accordance with acceptable industry practices, which assure the home buyer quality workmanship and materials. Likewise, the validity of any complaint for which a standard has not been published shall be determined on the basis of acceptable industry practices, which assure the home buyer quality workmanship and materials; and any conciliation or arbitration of such complaint shall be conducted in accordance with this premise.

For convenience and ease of understanding, we have expressed these Industry Standards in terms of performance standards. Non-compliance with the performance standards beyond the acceptable tolerances calls for corrective action by the builder. The format for each section is designed as follows:

<b>Problem</b>	<b>A brief statement in simple terms of the problems to be considered.</b>
<b>Acceptable Tolerance</b>	<b>A performance standard relating to a specific deficiency.</b>
<b>Builder Responsibility</b>	<b>A statement of the corrective action, if any, required of the builder.</b>

*The Home Builders Association of Greater St. Louis is not a party to the transaction between the Builder and his customers. This manual is a service to help eliminate confusion and clarify the quality of materials and workmanship, which HBA members are expected to provide.*

*It is the sincere desire of the HBA and your builder that the standards and guidelines contained in this manual will assist you in understanding and enjoying your new home.*

## **Section I EXCAVATION, GRADING, GROUND REMOVAL, AND FILL**

### **Background**

The purpose of this standard is to assist the home buyer in obtaining a uniform acceptable understanding of grading and related problems. The standard is not meant to supersede or substitute for other restrictions placed by governmental agencies. For this reason no mention is made of FHA requirements or disputes that may arise as a result of requirements of similar agencies. Such agencies have written manuals or other means of arbitrating such disputes.

Because this phase of construction dealing with the movement of earth is so broad and ambiguous, since each site is unique unto itself and subject to the most diverse contractual relationships, it is necessary to establish certain "ground rules" or definitions for phases of work.

### **Excavation**

The depth of the excavation is determined by the builder, based on his judgment of actual field conditions as work progresses. Trees, bushes, and grasses within and around the excavation site may be affected by the excavation.

### **Backfill**

Backfill means to fill the exterior around a foundation or in a trench using a loader or other necessary mechanical equipment, utilizing only the ground which was available from such excavation or trench. The purpose of backfilling is to improve working conditions for further construction; to attempt to protect the foundation from the elements of frost, water, etc.; to reduce the hazards inherent in open basements or foundations, and to get the process of ground settlement started, which takes three or more years depending upon the type of soil. Hauling away excess ground or hauling in additional fill, unless otherwise specified in the contract, is the responsibility of the owner. The time of backfilling in the building process is at the discretion of the contractor.

### **Rough Grading**

Using a bulldozer or other proper equipment, using the dirt on the site, and following the approved drainage plan, a proper yard grade is established with respect to the building walk, drive, adjoining properties and draining to within two inches of final landscaped grade. Depending upon the terms of the contracts, this would ordinarily include the entire front, sides and rear area on the lot affected by construction, unless otherwise specified. Rough grade does not mean the ground is prepared for seed or sod. Rough grade is the establishment of proper grade elevations so that water will drain away from the dwelling and to natural or man-made water courses.

#### **1. Problem**

Settling of ground around foundation, water, sewer, septic or utility trenches.

#### **Acceptable Tolerance**

Backfilled ground will settle. In fact, it is intended to permit settling before future

grading is done.

**Builder Responsibility**

As provided in the building contract, the builder is to perform the initial backfilling. If finished grading is not included in the building contract, the builder is responsible to properly notify the owner: 1) of the absolute necessity of the owner promptly following through with the grading responsibilities; 2) of the need for the owner to maintain a positive slope away from the foundation; and 3) that the lack of proper maintenance may cause foundation failure that will not be covered by the builder. Should the building contract include finished grading, the builder has the responsibility during the service period of 1 year for supplying soil necessary to refill settled areas, so the owner can provide positive drainage slope away from the foundation to prevent subsequent water problems.

It is the owner's responsibility, unless otherwise specified by contract, to fill in such depressions as they occur, and to sod or seed, to avoid other related problems.

**2. Problem**

Basement wall leakage due to insufficient slope and drainage away from foundation when builder has contracted to finish grading. "Leakage" is defined as actual flow and accumulation.

**Acceptable Tolerance**

Walls should not leak as a result of insufficient slope and drainage.

**Builder Responsibility**

If landscaping is owner's contractual responsibility and is not completed within 30 days of finished grading, there is no builder responsibility. Otherwise, builder should correct slope as needed.

It is the owner's responsibility to fill in all depressions, as they occur, due to settling and to direct all downspout or sump pump discharge lines away from the foundation.

**3. Problem**

Washing or erosion of landscaped areas installed by the builder.

**Acceptable Tolerance**

Seeded or sodded areas such as slopes and swales will wash away, depending on the amount of rain or drainage taking place prior to a proper stand of grass being established.

**Builder Responsibility**

The builder should not be responsible for replacing seed or sod in washed areas where finish grade has been established properly within the guidelines of government ordinances for the period of contractual warranty. In the event washing or erosion occurs as a result of water run-off from adjacent property, the builder has no responsibility. The

builder is not responsible for replacing seed and sod in washed areas

**4. Problem**

Landscaping, seeding, sod or trees dying.

**Acceptable Tolerance**

Seeding, sod, trees and landscape installed by the builder as part of the contract should be in good condition at the time of the closing. Any defects should be noted by the owner at the time of occupancy inspection or installation, whichever occurs later. Noted defects should be corrected by the builder. Otherwise, builder is not responsible for the life or condition of any of the above under any circumstances.

**Builder Responsibility**

None, except to correct defects as noted above.

**5. Problem**

Existing trees, bushes die during construction or after dwelling is completed.

**Acceptance Tolerance**

During excavation, backfill and rough grading process, trees, bushes, and grasses existing on the building site could be affected by equipment the builder uses on the job.

**Builder Responsibility**

It is the builder's responsibility to comply with all local tree preservation ordinances in effect at the time of construction.

**6. Problem**

Standing water in yard areas graded by the builder.

**Acceptable Tolerance**

Necessary grades and swales shall be established to provide proper drainage away from home. Standing or ponding water within the immediate surrounding area of home shall not remain for a period longer than 24 hours after a rain. Where swales are draining from adjoining properties or where a sump pump discharges, an extended period of 48 hours is to be allowed for the water to dissipate. The possibility of standing water after an unusually heavy rainfall should be anticipated and is not to be considered a deficiency. No grading determination is to be made while there is frost or snow or when the ground is saturated.

**Builder Responsibility**

In the event of standing water exceeding the guidelines above, it is the builder's responsibility to re-grade the affected area and re-seed and/or re-sod. The builder is not responsible for any corrections if the source of the standing water stems from flow of water from adjoining property or work performed by others.

## SECTION II

### Basement

#### Background

Concrete is a material subject to natural phenomena such as erosion, freezing and thawing, chipping, and natural color variations. Further, the curing of concrete is a chemical reaction and the size, strength, and water content change dramatically during the first year. Shrinkage cracks during the hardening process are a common occurrence. Shrinkage cracks do not affect the integrity of the slab or wall and are to be expected.

Concrete driveways shall be adequate to carry normal automobile traffic. They are not designed to carry heavy loads such as moving vans, school buses or garbage trucks.

Concrete is also subject to attack by certain chemicals. For example, pitting, spalling or scaling can occur when de-icers are placed on the slab or are dropped from a car. These are phenomena beyond the builder's control.

Concrete work is subject to color variation and texture variation by the nature of the materials. Repairs, when required, seldom match in color. Variation is to be expected by the owner.

Concrete work consists of two primary divisions:

1. The construction of basement walls which may be either cast-in-place (poured) concrete or ...
2. The placing (pouring) of flat slab areas consisting of footings, basement and garage floors, stoops, patios, walks or drives.

#### 1. Problem

Leaks in basement.

##### Acceptable Tolerance

No leaks or flow of water are acceptable, except when caused by improper landscaping or subterranean problems where the responsibility is defined as the owner's by the building contract. For further information on these items, refer to the Excavation, Grading, Ground Removal & Fill Standards. Leaky conditions should not be confused with dampness or moisture, which can be expected by the owner during the first year of the settling process, or with condensation during the summer months.

##### Builder Responsibility

Builder should correct as required. After correction, all openings should be repaired. Color variations in repairs to be expected.

#### 2. Problem

Cracked basement walls not caused by owner's landscaping.

##### Acceptable Tolerance

Correct cracks that OLY leak water by surface patching.

**Builder Responsibility**

Repair non-structural cracks in excess of 1/8" These repairs should be made approximately a year after closing to permit normal settling of the home to stabilize conditions. Exterior repairs are not made except in cases of major structural damage.

**3. Problem**

Cracking of basement floor.

**Acceptable Tolerance**

Shrinkage cracking is to be expected and requires no repair unless one or both of the following conditions exist:

- a. If the two surfaces of the crack are mismatched in height by more than 1/4".
- b. If the shrinkage occurs non-uniformly (e.g., all in one crack rather than several) and exceeds 1/4" average width.

**Builder Responsibility**

Builder should correct using a latex filler, grinding surfaces smooth in case of mismatch, or repair by other acceptable methods at the builder's discretion. Owner is cautioned repair will not match in color. A hairline crack may reappear.

**4. Problem**

Water standing on basement floor slab.

**Acceptable Tolerance**

No measurable water depth exceeding 3/8" permissible.

**Builder Responsibility**

Correct to meet tolerance by filling with a latex or equivalent filler or grind as necessary. Finished repair should be feathered and smoothed. Color variations are to be expected.

**5. Problem**

Cracking of garage slab.

**Acceptable Tolerance**

More movement should be expected in the slab since it is subject more to weather variations and settling. The acceptable tolerance is an average 3/8" for cracks in plane or width.

**Builder Responsibility**

Builder should correct using a latex filler, grinding surfaces smooth in case of mismatch, or repair by other acceptable methods at the builder's discretion. Owner is cautioned repair will not match in color. A hairline crack may reappear.

**6. Problem**

Cracking of stoops or porches.

**Acceptable Tolerance**

Same as Item No. 3 above.

**Builder Responsibility**

Builder should correct using a latex filler, grinding surfaces smooth in case of mismatch, or repair by other acceptable methods at the builder's discretion. Owner is cautioned repair will not match in color. A hairline crack may reappear.

**7. Problem**

Cracks in patios, walks and drives.

**Acceptable Tolerance**

The tolerance is the same as for garage slabs in Item No. 5 above. NOTE: Control joints are installed as a means for controlling cracking and are not subject to the tolerance restrictions.

**Builder Responsibility**

Builder should correct using a latex filler, grinding surfaces smooth in case of mismatch, or repair by other acceptable methods at the builder's discretion. Owner is cautioned repair will not match in color. A hairline crack may reappear.

**8. Problem**

Pitting, scaling or spalling of concrete work.

**Acceptable Tolerance**

These conditions are generally caused by concentration of water freezing and thawing; the exposure to chemicals, de-icers, road salts or additives whether placed on surface or dropped by vehicles and/or mechanical implements; and other factors beyond the builder's control.

**Builder Responsibility**

None. NOTE: Salt or de-icers should not be used on concrete as they will rapidly disintegrate concrete.

**9. Problem**

Low spots in driveways and other concrete slabs, except for stoops or porches.

**Acceptable Tolerance**

No measurable water depth exceeding 3/8" is permissible on driveways and other concrete slabs.

**Builder Responsibility**

Correct to meet tolerance by filling with a latex or equivalent filler or grind as necessary or any acceptable method at the builder's discretion. Finished repair should be feathered and smoothed. Color variations are to be expected.

**10. Problem**

Water standing on stoops or porches.

**Acceptable Tolerance**

No measurable water depth exceeding 1/4" permissible on stoops or porches.

**Builder Responsibility**

Correct to meet tolerance by filling with a latex filler or grout, or grind as necessary. Color variations are to be expected.

**11. Problem**

Settling, heaving, or separating of stoops, steps or garage floors.

**Acceptable Tolerance**

Stoops, step or garage floors shall not settle, heave or separate in excess of 1" from the house structure.

**Builder Responsibility**

Correct to meet tolerance by filling with a latex or equivalent filler. Finished repair should be feathered and smoothed. Color variations are to be expected.

**12. Problem**

Uneven color or discolored concrete.

**Acceptable Tolerance**

Atmospheric/environmental conditions and various protective measures can have an effect on the color of concrete. Concrete placed at different time periods or placed in sunny or shaded areas can also have an effect on the color of concrete. NOTE: Calcium chloride is needed in colder months to accelerate the rate of strength development, decreasing the time which protection against freezing is needed. Calcium Chloride tends to darken the color of the concrete.

**Builder Responsibility**

None.

**13. Problem**

Mud in surface.

**Acceptable Tolerance**

During construction mud and dirt in porous concrete surfaces are to be expected.

**Builder Responsibility**

None.

**14. Problem**

Rust in surface.



**Acceptable Tolerance**

Rust can be expected occasionally to appear on concrete surfaces.

**Builder Responsibility**

None.

**SECTION III**

**ASPHALT BLACKTOP DRIVEWAYS**

**Background**

Blacktop, like concrete, is a man-made product consisting of natural materials that are subject to natural phenomena such as expansion, contraction and shrinkage. Because of these natural tendencies, cracks up to 1/2" are acceptable and will require no corrective action.

Blacktop driveways shall be adequate to carry normal automobile traffic. They are not designed to carry heavy loads such as moving vans, school buses, or garbage trucks.

Also, blacktop is subject to chemical/solvent attack and surface deterioration in hot weather. For example, gasoline will attack and break down the bituminous mixture that surrounds the aggregate in blacktop. During periods of hot weather, blacktop surfaces may be damaged under some types of vehicle traffic, bicycle kick stands, etc. Color variations are also to be expected.

Blacktop owners should seal blacktop, including edges, with an approved sealer. Cracks should be sealed on a yearly basis. This should be done as normal maintenance.

**1. Problem**

Low spots in driveways in which water pockets appear, not caused by conditions stated above.

**Acceptable Tolerance**

No measurable water depth exceeding 1/2" is permitted on blacktop driveways.

**Builder Responsibility**

Correct to meet tolerance by filling with blacktop. The finished repair should be feathered and smoothed. Color and texture variations are to be expected.

**2. Problem**

Excessive sinking or cracking of blacktop driveways.

**Acceptable Tolerance**

Blacktop driveway should not sink or crack more than 1/2" or cave in under normal use.

**Builder Responsibility**

Correct cracks exceeding acceptable tolerance by patching. Areas sinking more than the acceptable tolerance are to be corrected. Finished repair to be feathered and smoothed. Color and texture variations are to be expected.

**3. Problem**

Mud in surface.

**Acceptable Tolerance**

During construction mud and dirt can be expected to appear in porous blacktop surfaces.

**Builder Responsibility**

None.

**4. Problem**

Chipping at edges of blacktop.

**Acceptable Tolerance**

This section of blacktop is tamped in by hand and will crack more than 1/2" and cave in when heavy vehicles are driven over it.

**Builder Responsibility**

None.

**5. Problem**

Tire marks on driveway.

**Acceptable Tolerance**

Blacktop will develop indentions if owner turns wheel of vehicle while in place.

**Builder Responsibility**

None.

**SECTION IV**

**MASONRY**

**Background**

Masonry work is performed with quarried natural materials or with products manufactured by relatively simple processes which have been selected for their wearing qualities.

As such, they are subject to the same weathering phenomena as in their natural state, such as erosion, freezing and thawing, chipping, natural color variations and nonuniformity of size.

Masonry work can be performed with an almost infinite variety of materials, methods of application and techniques of installation. This permits the owner an almost infinite range of personal choice, but, at the same time, creates, once that choice has been made, a situation that can never again be exactly duplicated. Masonry is more dependent upon the variation of the techniques of the individual workman.

In selecting a veneer material, predominantly a matter of owner's preference, many factors enter in, such as the bond or pattern to be used for the brick or the stone; the selection of the type of mortar joint, whether raked, struck, or weeping patterns; the color of the mortar and the shading variation from batch to batch; the shades of the mortar chosen; the choice of the material size, whether a regular or normal size brick, or the type of stone chosen; and, finally, the individual workmanship performed by the mason doing the work. All of these variations set up a

distinctive situation within the masonry field.

Masonry work consists of two primary divisions:

1. The veneering of the exterior of some structures with brick or stone or other masonry products.
2. The construction of fireplaces and chimneys.

**1. Problem**

Efflorescence, a white chalk-like substance, appears on the surface of the brickwork.

**Acceptable Tolerance**

Such occurrence, usually white in color, results from water soluble salts migrating through the masonry structure where they are deposited on the surface through evaporation. Because it appears on the face of the wall it is often erroneously assumed to be the bricks that are at fault. To the contrary, efflorescence results from chemical compounds inherently found in the various elements of the masonry; i.e. brick mortar, mixing water, etc. and, as such, they do not reflect a defect in the brick.

**Builder Responsibility**

None. Spring rains should wash away white coloring on brick. If the homeowner wishes to remove prior to rains, vinegar and water can be used.

**2. Problem**

Water absorbed through brick work leaking inside foundation wall.

**Acceptable Tolerance**

Water should not leak inside foundation wall under normal conditions. Wind driven rainstorms and landscaping sprinklers can cause water to penetrate brickwork. These conditions are isolated and not normal conditions.

**Builder Responsibility**

Builder to inspect weepholes for proper installation and correct as needed. Builder to inspect brick joints for readily apparent voids in mortar and correct as needed. Should brickwork require waterproofing it is the owner's responsibility.

**3. Problem**

Color variations in mortar joints.

**Acceptable Tolerance**

Color variations can occur in mortar joints and are acceptable.

**Builder Responsibility**

None.

**4. Problem**

Fireplace or chimney does not draw properly.

**Acceptable Tolerance**

Builder should properly construct a chimney or fireplace that is operable under all conditions except the following:

- a. Temporary downdrafts created by abnormal weather conditions.
- b. Conditions where large obstructions, such as trees, cause a poor draft, in which case it shall be the owner's responsibility to extend the chimney to a height necessary for proper draft, to add a downdraft deflector, or to remove the obstructions.

**Builder Responsibility**

Correct fireplace or chimney to meet acceptable tolerance and/or local building codes applicable at time of construction.

**5. Problem**

Deterioration of used brick.

**Acceptable Tolerance**

The performance of used material cannot be warranted. The owner has the responsibility of making repairs should deterioration occur.

**Builder Responsibility**

None. The owner is responsible for applying silicone periodically to used brick as part of normal home maintenance.

**6. Problem**

Cracks in fireplace cap.

**Acceptable Tolerance**

The cap should not crack within the first year.

**Builder Responsibility**

Builder will repair if cracks occur within first year. Owner should inspect as a part of routine yearly maintenance.

**A) PRE-FAB FIREPLACES****1. Problem**

Fireplace or chimney does not draw properly.

**Acceptable Tolerance**

A properly designed and constructed fireplace and chimney shall function properly. It is normal to expect high winds to cause temporary negative draft situations. Similar negative draft situations can also be caused by obstructions such as large branches of trees too close to the chimney. Some homes may need to have a window opened to create an effective draft, if they have been insulated and weatherproofed to meet high energy conservation criteria.

**Builder Responsibility**

Builder will determine the cause of malfunction and correct, if the problem is one of design or construction of the fireplace.

**2. Problem**

Chimney separation from structure to which it is attached.

**Acceptable Tolerance**

Newly built fireplaces will often incur slight amounts of separation. Separation shall not exceed 1/2" from the main structure in any 10' vertical measurement.

**Builder Responsibility**

Builder will determine the cause of separation and correct if standard is not met. Caulking is acceptable.

**3. Problem**

Firebox paint changed by fire.

**Acceptable Tolerance**

Heat from fires will alter finish.

**Builder Responsibility**

None.

**4. Problem**

Cracked firebrick and mortar joints.

**Acceptable Tolerance**

Heat and flames from "roaring" fires will cause cracking.

**Builder Responsibility**

None.

**SECTION V**

**SYNTHETIC FINISHING SYSTEMS**

**Background**

An exterior finishing system is an exterior wall building system made up of various key components: reinforcing fabrics, adhesive, synthetic plaster finish, and/or insulation board.

**1. Problem**

Cracks, buckling, wrinkling or delamination of insulation board in system.

**Acceptable Tolerance**

Cracks, buckling, wrinkling or delamination of insulation board in system under normal

circumstances should not occur unless due to impact.

**Builder Responsibility**

Builder to check and repair affected areas, matching texture and color as closely as possible. Owner must understand repair may not match exactly. The builder shall repair in accordance with standards of good workmanship, but no warranty will be extended on the newly repaired surfaces.

**Homeowner Maintenance Responsibility**

Although it is a low maintenance material, the expansion joint caulking must be maintained to avoid any moisture penetration into the system. Consult manufacturer's recommendations for specific cleaning instructions.

**SECTION VI**

**WOOD, PLASTICS & METAL**

**Background**

This section of standards applies to the dimensional framing materials and exterior trim components of a house and their installation; e.g., floors, trusses, windows, siding, etc.

The species of lumber used in these building components are many and are transported to this area from all parts of the United States and Canada, and in some instances, outside of North America.

Since almost all lumber used in home construction here is not indigenous to this area, it goes through a period known as "stabilization." In addition, homes will also go through a settling process. This stabilization and settling period usually lasts through one complete change of all seasons, or in some cases longer. During the stabilization/settling of material, it is not uncommon for it to swell, bow, bleed, twist, or contract through drying or curing, and in general, deviate to different degrees from its original form when installed. Since much of this movement is hidden behind finished surfaces such as drywall, carpet, door jambs, etc., the effect is many times seen only on the outside; e.g., mitered joints that were once closed, now open up and doors that initially operated efficiently, now will not latch properly. These problems are due mainly to the stabilization/settling of lumber and should be attended to as late in the service period as possible so as to allow sufficient time for this inherent characteristic of lumber to stabilize/settle.

Metal products are an acceptable material for construction and should be installed according to the manufacturer's instructions.

**A) CARPENTRY**

**1. Problem**

Squeak in floors.

**Acceptable Tolerance**

Extensive research on this subject concludes that little can be done about floor squeaks. Generally, these will appear and disappear with changes in weather conditions.

**Builder Responsibility**

Within reasonable repair capability, locate squeak and face nail, screw floor from below, or wedge cedar shingle with feathered edge between the floor joist and sheathing in basement at point of squeak. Due to the nature of floor squeaks, total elimination may not be possible. It is acceptable for the builder to nail/screw through carpet in an attempt to correct the problem.

**2. Problem**

Uneven floors.

**Acceptable Tolerance**

Floor should not be more than 1/4" off level in 32" as measured parallel with the floor joists.

**Builder Responsibility**

Builder to correct to meet acceptable tolerance.

**3. Problem**

"Bouncy" floors.

**Acceptable Tolerance**

Allowable floor and ceiling joist deflections are governed by the applicable building code.

**Builder Responsibility**

None.

**4. Problem**

Window check rails not even or flush.

**Acceptable Tolerance**

Acceptable tolerance is 3/16".

**Builder Responsibility**

Builder to correct to meet acceptable tolerance.

**5. Problem**

Ceilings uneven.

**Acceptable Tolerance**

Ceiling should be not more than 3/8" off level in a 48" span.

**Builder Responsibility**

Builder to correct to meet acceptable tolerance.

**6. Problem**

Walls uneven.

**Acceptable Tolerance**

Walls should be even within 3/4" vertically or horizontally on any given wall within any 8' span.

**Builder Responsibility**

Builder to correct to meet acceptable tolerance.

**7. Problem**

Exterior butt and miter joints do not fit properly.

**Acceptable Tolerance**

It is feasible that these joints can open to as much as 3/8" tolerance because of material expansion, contraction and stabilization/settling.

**Builder Responsibility**

Builder should correct to meet acceptable tolerance; caulking is acceptable. Color variations are to be expected.

**8. Problem**

Fluctuation of roof sheathing between rafters or trusses.

**Acceptable Tolerance**

Sheathing should not fluctuate more than 1/2" between adjacent structural members.

**Builder Responsibility**

Builder to correct to meet acceptable tolerance.

**B) FINISHED CARPENTRY & MILLWORK**

**Background**

Wood and woodlike products are the basic materials used in finish carpentry. Wood is a natural product and there are individual grain variations in each piece of wood. Therefore, it is understood that grain matching is not to be expected. Grain matching techniques, especially in plywood, are possible, but are not the normal industry standard and could only be accomplished as a specific contractual agreement between the owner and builder and the careful selection of matching panels by the lumber supplier.

It should be noted that over the past several years, a marked change has taken place in the area of finished carpentry. Considerably less labor is being done on the site and more of it is being done off-site by specialists such as cabinetmakers, paneling firms and mills, often out-of-state. There is less emphasis on the custom-made cabinet and more on purchasing pre-manufactured, pre-finished units. As such, almost all millwork, paneling, cabinetry, windows and doors are purchased by the builder as a completed product and are covered by separate manufacturer's standards and warranty. The standards listed below are guidelines to a performance warranty designed to assure the proper functioning of the particular components involved in the finished carpentry area. In unusual cases, it may be necessary for the builder to bring in a manufacturer's representative on the particular component for more detailed analysis of the nature of the problem and the recommended correction and possible replacement and/or



adjustment under the manufacturer's warranty.

All warpage, shrinkage and swelling corrections after occupancy are covered only if the owner maintains proper temperature control and humidity within the house. These standards apply to finished living areas and not to basements and garage areas.

**1. Problem**

Interior doors, closet doors, cabinet doors or drawers warp and cannot be closed or will not stay closed.

**Acceptable Tolerance**

All interior doors, closet doors, cabinet doors or drawers should open and close properly.

**Builder Responsibility**

Builder to correct to meet acceptable tolerance.

**2. Problem**

Warpage or non-closing of exterior doors (except storm doors).

**Acceptable Tolerance**

Because of the security provided by these doors, the doors must be adjusted or corrected as required throughout the initial first year's service period to maintain the security of the building.

**Builder Responsibility**

Correct to maintain the security of the building. Repair or replace any exterior doors whose warpage cannot be corrected by adjustment of jambs, stops, and/or hinges to properly latch after the initial stabilization/settling period of the building.

**3. Problem**

Loosening or separation of veneer in flush doors.

**Acceptable Tolerance**

Veneer should not crack or separate during the first year's service period provided the doors have been properly finished by the builder if part of his contract. If painting is part of the owner's contract, the owner is cautioned to finish the veneer doors on all surfaces at the earliest possible opportunity to prevent weathering deterioration of the door which can lead to veneer delamination or warpage.

**Builder Responsibility**

Builder should replace or repair any doors where the veneer has separated or delaminated during the first year of occupancy if painting was the responsibility of the builder. Door replacement or repair due to delamination or warpage is the owner's responsibility if the owner has not promptly followed through on his responsibility to finish the doors.

**4. Problem**

Shrinkage or swelling of paneled doors or paneling.

**Acceptable Tolerance**

Shrinkage of recessed panel doors or paneling should not create actual gaps between the panels and their frame or meeting surface. It should be noted by the owner, however, that the panels may shrink in the stabilization/settling process and the unfinished portions of the paneling could be exposed.

**Builder Responsibility**

It is the builder's responsibility to touch up those gaps between panels during the initial stabilization/settling period if painting was part of the builder's contract.

**5. Problem**

Garage door fails to operate properly.

**Acceptable Tolerance**

Garage doors should operate under normal conditions.

**Builder Responsibility**

Builder shall correct or adjust garage doors as required.

**6. Problem**

Garage doors allow entrance of snow or water.

**Acceptable Tolerance**

Garage doors shall be installed as recommended by the manufacturer. Some entrance of the elements can be expected under abnormal conditions.

**Builder Responsibility**

Builder will adjust or correct garage doors to meet manufacturer's recommendations.

**7. Problem**

Panels or door graining do not match.

**Acceptable Tolerance**

Since wood is a natural product and its grain structure is unique for each piece of wood, the builder's only responsibility is for supplying the grades and types of lumber, millwork and paneling specified in the contract. Grain matching is not the industry standard.

**Builder Responsibility**

None.

**8. Problem**

Windows do not operate properly.

**Acceptable Tolerance**

All windows should operate as designed by the manufacturer after the initial stabilization/settling period.

**Builder Responsibility**

Adjust and/or repair window units that fail to function under manufacturer's operating directions after the initial stabilization/settling period. See Item No. 1 for

stabilization/settling description.

**9. Problem**

Cracks, gaps in miter joints, or other workmanship imperfections.

**Acceptable Tolerance**

Cracks and gaps in miter joints should not be noticeable at the time of closing. However, mitered joints may open during the stabilization/settling period of the building.

**Builder Responsibility**

Builder to correct any cracks, gaps in miter joints, or other workmanship imperfections noted at the time of closing. Correction of defects through the use of sanding, filling, puttying and staining is acceptable. If cracks and gaps appear during the stabilization/settling period the builder has no responsibility.

**10. Problem**

Cracks, scratches and swirls in natural marble and manufactured cultured marble countertops and window sills.

**Acceptable Tolerance**

When manufactured, marble countertops and window sills are buffed to a high gloss finish. Under certain lighting conditions such as down lights, swirls from the polishing process are visible. Such swirls are normal and do not require any action by the builder. However, minor scratches may occur during construction and will be corrected by the builder. There should be no other imperfections in the tops at the time of closing.

**Builder Responsibility**

Builder has no responsibility for swirls from the manufacturing process. Builder should correct defects noted at the time of closing, to include buffing or polishing of scratches in the field that occurred during construction, if needed. Since the tops and sills are subject to owner damage, defects occurring after closing are the responsibility of the owner.

**11. Problem**

High pressure laminate (formica) surfaces crack, chip, delaminate, show surface swirls or are burned or scratched.

**Acceptable Tolerance**

Countertops fabricated with high pressure laminate coverings shall not delaminate. Certain cleaners used on dark colored laminate countertops during the manufacturing process may produce swirls. Such swirls are normal and do not require any action by the builder. However, minor scratches may occur during construction. Only those scratches that penetrate the surface will be corrected by the builder. There should be no other imperfections in the tops at the time of closing.

**Builder Responsibility**

None, except to correct defects noted at the time of closing. Since the tops are subject to owner damage, defects occurring after closing are the responsibility of the owner. Homeowner should be aware that anything hot set on countertops will burn the laminate.

- 12. Problem**  
Swelling of countertop at any seam.
- Acceptable Tolerance**  
Countertops over a certain length will have seams. Builder will make every effort to have well-fitted seams.
- Builder Responsibility**  
None, as long as seams are fitted properly. Homeowner should make every effort to keep moisture away from all seams, miter areas, and butt joints.
- 13. Problem**  
Cabinets separate from wall or loosen.
- Acceptable Tolerance**  
Provided the cabinet installation is secure, some shrinkage may occur which may appear to indicate a gap between the cabinets and their mounting surface. This is normal and requires no correction. However, if the cabinet is actually loose, the builder shall correct.
- Builder Responsibility**  
Correct any installation separation of cabinetry from the mounting surface, except those due to shrinkage.
- 14. Problem**  
Glass breakage or leakage in windows and doors.
- Acceptable Tolerance**  
Any broken, cracked or scratched glass should be noted by the owner at the time of closing and should be corrected by the builder, unless otherwise covered by insurance. Insulated glass (thermopane) often carries extended manufacturer's warranty against leakage-related defects.
- Builder Responsibility**  
None, except to correct defects noted at the time of closing. Defects occurring after that time are the owner's responsibility for correction since these surfaces are subject to owner's damage.
- 15. Problem**  
Scratches in glass surface.
- Acceptable Tolerance**  
Some scratches are to be expected.
- Builder Responsibility**  
None.
- 16. Problem**

Basement stairs and/or stringers split.

**Acceptable Tolerance**

Since basement stairs are usually in an unfinished area, splitting is acceptable unless it is affecting the structural stability of the stairs.

**Builder Responsibility**

Builder should correct to meet acceptable tolerance.

**17. Problem**

Cracking in caulking.

**Acceptable Tolerance**

Cracking in caulking is to be expected due to shrinkage during the stabilization process.

**Builder Responsibility**

None.

**18. Problem**

Interior door sticks, will not open or close without rubbing jamb material.

**Acceptable Tolerance**

A minimal margin of 1/16" clearance should be between door and jamb.

**Builder Responsibility**

Builder to correct to tolerance by sanding and/or planing or adjusting hinges and touching up door finish as required.

**19. Problem**

Trim material loose from wall surface.

**Acceptable Tolerance**

All trim material should be secure to wall surface and should not move to touch.

**Builder Responsibility**

Trim material should be secured to wall surfaces by nailing, gluing, or caulking.

**20. Problem**

Shelving sags or pulled away from wall surface.

**Acceptable Tolerance**

Shelving materials will sag or pull away from wall when heavy materials are placed on them. Shelving supports should be located in accordance to manufacturer's specifications.

**Builder Responsibility**

Add shelving supports where shelving expanses have exceeded manufacturer's

specifications and/or replace warped or damaged shelf material if necessary.

## C) EXTERIOR

### Background

All types of siding are subject to conditions and stresses of the surfaces to which they are applied. These conditions and stresses include but are not limited to expansion and contraction, warpage, moisture and temperature fluctuations. This section concentrates on the installation and workmanship of siding products which are the builder's responsibility. The quality (of the product itself not considering installation) and durability of siding products are judged and warranted according to the manufacturer's specifications and warranties. It is recommended that the owner(s) familiarize themselves with the manufacturer's warranties.

#### 1. Problem

Delamination or premature deterioration of exterior siding.

#### Acceptable Tolerance

Siding should not delaminate or deteriorate within the manufacturer's specifications.

#### Builder Responsibility

Builder should correct to manufacturer's specifications unless caused by owner's neglect to maintain siding properly.

#### 2. Problem

Ripples and noise in metal and vinyl siding.

#### Acceptable Tolerance

These are inherent characteristics of metal and vinyl siding.

#### Builder Responsibility

None, if installed to manufacturer's specifications.

#### 3. Problem

Water standing in gutters.

#### Acceptable Tolerance

When gutter is unobstructed by debris, the water level shall not exceed 1" in depth. Industry practice is to install gutters approximately level. Consequently, it is entirely possible that small amounts of water will stand in certain sections of gutter immediately after a rain.

#### Builder Responsibility

Builder will correct to meet acceptable tolerance.

#### 4. Problem

Gutters and/or downspouts leak.

**Acceptable Tolerance**

Gutters and downspouts shall not leak but gutters may overflow during heavy rain.

**Builder Responsibility**

Builder will repair leaks. Gutter caulk is acceptable. It is a homeowner responsibility to keep gutters and downspouts free of leaves and debris which could cause overflow.

**SECTION VII****ROOFING****Background**

The purpose of roofing material is to form a weatherproof surface which prevents water from entering the house. There are several types of roofing material used, including asphalt, fiberglass, wood, tile, slate, and metal. In single-family residential construction, the most common material used is the seal down fiberglass shingle, which may take up to one year to properly lay down and seal. This common fiberglass shingle is manufactured by coating a dry felt core with asphalt and rolling colored granules on the outer surface to provide the finished color. Because the process of coating shingles with colored granules is a batch-type process, dye lots and color variations can result. This is quite common.

The shingle manufacturer holds all warranties for its product. Homeowners should familiarize themselves with these warranties.

- 1. Problem**  
Roof leaks.

**Acceptable Tolerance**

Roof should not leak, with exceptions to items listed in Homeowner Maintenance. On some occasions, a driving rain with high wind velocity from a particular direction with relation to the shingle can produce a temporary leakage condition.

**Builder Responsibility**

A combination of the characteristics of the shingling material and the sheet metal work, which is used at the junctures of the various angles of the roof and at the opening, such as chimneys, results in a leak-proof roof. Builder is to correct to meet acceptable tolerance.

**Homeowner Maintenance Responsibility**

Excessive ice or snow build-up with alternate freezing and thawing can create a capillary effect causing leakage, which is a homeowner maintenance responsibility. Owner can correct this by preventing leaf build-up in gutters and removal of excess snow and ice. In severe cases, a gutter heating cable can be used.

- 2. Problem**  
Shingles appear wavy.

**Acceptable Tolerance**

Some waviness is to be expected.

**Builder Responsibility**

None. Ensure installation is in accordance with manufacturer's specifications.

**3. Problem**

Wind damage.

**Acceptable Tolerance**

Shingles should not blow off under normal conditions. However, in excessive high wind shingles may stand up in the air or possibly blow off if the shingles have not had ample sunlight and roof heat to activate the seal down strip. Some shingles may require one full summer to complete the sealing process.

**Builder Responsibility**

Ensure installation is in accordance with manufacturer's instructions. Provide manufacturer's warranty, and handle grievance in accordance thereof.

**4. Problem**

Inadequate nailing or stapling of shingles.

**Acceptable Tolerance**

Shingles should be fastened in the proper location with the correct number and size fastener as specified in the manufacturer's instructions.

**Builder Responsibility**

Correct deficiencies to bring roof in compliance with installation requirements.

**5. Problem**

Shingle color mismatch.

**Acceptable Tolerance**

Manufacturers do not warrant uniform color. Some color mismatches occur from sun reflections, minor differences in colors between shingles in the same lots, and the aging and weathering of shingles. Shade variations are to be expected.

**Builder Responsibility**

None.

**SECTION VIII**

**INSULATION**

**Background**

Insulating is the process by which an inert, heat-resisting material is applied to walls, ceilings, and floors of a structure to act as a barrier, to create a resistance to heat flow (R-value).



This produces a more controlled interior climate within the home and conserves energy and fuel usage.

The commonly used insulation materials are rock wool, fiberglass, mineral wool, cellulose, and various types of foams and bead boards. The insulation materials are manufactured in batt form, as loose-blown material, and in sheet form, all having individual specific uses. A secondary function of the insulating material is to provide a vapor barrier to restrict migration of moisture between walls. These materials are either kraft paper, foil facing, or polyethylene sheets.

**1. Problem**

Pipes freeze.

**Acceptable Tolerance**

In the St. Louis area, homes generally are not built to withstand extreme temperatures for an extended period of time.

**Builder Responsibility**

Unless damage occurs due to extreme temperatures, builder will correct the situation to prevent pipes from re-freezing. The correction may involve opening the walls for access to the pipe and either adding or replacing insulation which may have moved during the construction process, or leaving a permanent vent into the warmer space to prevent the freeze from recurring.

**2. Problem**

Condensation, frost or ice build-up on interior window surfaces.

**Acceptable Tolerance**

Due to weather conditions and interior humidity factors, condensation, frost, and/or ice build-up may occur.

**Builder Responsibility**

None.

NOTE: Excess moisture will be present in the house during the first year of the occupancy due to the natural drying of the building materials (such as lumber and concrete). If a humidifier or dehumidifier is installed on the furnace, owner should adjust the settings for proper operations.

**3. Problem**

Drafts and temperature variation at mechanical penetrations.

**Acceptable Tolerance**

Mechanical penetrations of walls produce an air-flow passage whereby the cold or outside air can be drawn into the home.

**Builder Responsibility**

None.

**4. Problem**

Drafts around doors and windows.

**Acceptable Tolerance**

Proper installation, weather-stripping, caulking and insulating around these areas can minimize air passage. However, under certain temperature and wind conditions, some infiltration will occur.

**Builder Responsibility**

Inspect to see that doors or windows are installed and adjusted correctly. Check to assure that the air leakage is within manufacturer's limits and correct as necessary.

**5. Problem**

Movement of blown attic insulation.

**Acceptable Tolerance**

On occasion, due to attic ventilation or unusually high winds, blown-in attic insulation will tend to move from its original position. In such cases, it should be repositioned by the owner.

**Builder Responsibility**

None.

**SECTION IX**

**FINISHES**

**A) DRYWALL AND PLASTER**

**Background**

In reviewing drywall and plaster problems which occur during the first year of service, it is necessary to include some explanatory material on the nature of the material and its performance during and after the initial stages of construction.

Drywall and plaster are a relatively inflexible gypsum material which is applied to the interior surfaces created by the rough carpentry step. Both are applied by either gluing, nailing, or screwing to the studs or joists for application. The drywall is then taped and finished and the entire surface is painted or textured to produce a finished surface which is judged on its appearance. In plaster, the final coats are trowelled or sprayed on.

Because the drywall or plaster has been placed on lumber surfaces which are subject to shrinkage and warpage and which are not perfectly level and plumb, problems occur through stress and strain placed on drywall during the stabilization/settling of the lumber. This is inherent in the construction of a home. For example, if a stud twists in the drying process, this twist will be reflected in either a concave or convex surface to the drywall or plaster. If this shrinkage in any particular area exceeds the flexibility of the gypsum wall board, an imperfection will occur.

In evaluating the need for drywall and plaster repairs, a general rule is to be applied: if the defect is readily noticed by visual inspection, it should be repaired. However, due to the initial

stabilization/settling problem which exists with the new home, it is impossible to correct each individual defect as it occurs, and for that matter, it is essentially useless to do so.

The entire home will need to stabilize/settle itself during the service period, and one repair should be made when necessary. Repairs will be made no more than one time during the service period.

Since drywall and plaster are finish materials, repairs will be slightly visible due to a color or texture mismatch after they have been made. The mismatch will be even more critical when a special textured finish has been employed. Repairs do not require repainting when they are applied on unpainted surfaces such as ceiling cracks or when the builder did not contract for the painting. When it is part of the contract, the builder will attempt to match the repair texture as closely as possible, but the exact color match of the unpainted surface is impossible to achieve. Where the repair has been made on a painted surface, the builder will not be responsible for repainting.

These drywall and plastering standards apply to finished living areas and not to basements or garage areas.

**1. Problem**

Visual defects, such as cracks, hairline cracks, corner bead cracks, nail pops, seam lines or ridging.

**Acceptable Tolerance**

Slight imperfections, such as nail pops, seam lines and cracks not exceeding 1/8" in width are common in gypsum wallboard installations and are not covered by the builder. These items can easily be corrected by the owner with spackling during normal redecorating.

**Builder Responsibility**

Repair to original finish as closely as possible, except builder has no responsibility to repair if tape cracking or breaking is caused by truss uplift as described in Problem No. 3.

When repair is builder's responsibility, repairs will be made only one time during the service period. Builder will attempt to match paint as closely as possible if surface was originally painted by the builder.

NOTE: See also Section B, Problem No. 5, regarding wallpaper.

**2. Problem**

Defects caused by poor workmanship during installation such as blisters in the tape, excess compound in joints or trowelling marks.

**Acceptable Tolerance**

Defects which can be readily observed by visual inspection without resorting to intense artificial or natural light placement should be corrected, except where normal repainting will cover the defect.

**Builder Responsibility**

Correct such defects to meet acceptable tolerance.

**3. Problem**

Cracks or breaks in tape where walls meet insulated ceiling.

**Acceptable Tolerance**

Cracks where interior walls meet insulated ceilings are caused by the bowing of the roof trusses. Roof trusses will rise in the winter, especially when the bottom chord of the truss is surrounded by a thick layer of insulation that prevents the bottom chord from obtaining the same temperature and moisture content as the top chord. This lifts the ceiling drywall and cracks the tape. Short of removing the attic insulation, which is not recommended, truss uplift cannot be prevented.

**Builder Responsibility**

None.

**4. Problem**

Repaired textured ceiling or walls do not match.

**Acceptable Tolerance**

Texture and color variations are to be expected.

**Builder Responsibility**

None.

**B) PAINTING, VARNISHING AND WALLPAPERING**

**Background**

The purpose for painting is more than decoration, in that paint or stain protects exposed surfaces from the weather. Preservation is the primary purpose for painting, varnishing and staining, and the intent is to produce a surface sealed from moisture penetration. Millwork manufacturers do not normally extend warranties on their product against warping or cracking. When the owner has contracted for painting, the builder is responsible for properly applying the material in accordance with manufacturer's recommendations and industry standards of proper workmanship. Nail holes on interior surfaces must be puttied and all joints must be properly caulked. These standards apply to finished living areas and not to garage and basement areas.

Interior wall paint coverage can be affected by the color of the selected paint. In general, pastel colors do not cover well and may take three or more coats. The owner should refer to his/her contract in such cases. Stained interior trim and millwork is colored by applying one coat of stain to the bare wood and then wiping off the excess. Differences in the wood grain and the manufacturing process can cause porosity variations which will then cause color variations of the finished product. This can even occur within one board as well as different pieces from the same lot. **Due to the length of the stabilization/settling process of a new home, it is recommended for the owner's protection that no wallpaper be installed during the first year of occupancy.**

**1. Problem**

Exterior paint or stain peeling, chalking or fading except gutters, downspouts or other

sheet metal areas.

**Acceptable Tolerance**

The occurrence of peeling, chalking or fading, except through normal oxidation process, should not occur during warranty period.

**Builder Responsibility**

Builder shall properly prepare and repaint affected areas, matching color as closely as possible. Owner must understand touch up may not match exactly. Should the paint deterioration affect the majority of a wall or area, the area should be repainted. The builder shall repaint in accordance with standards of good workmanship, but no warranty will be extended on the newly repainted surfaces.

**2. Problem**

Varnished or stained millwork which deteriorates due to weather conditions (inclusive of sunlight).

**Acceptable Tolerance**

Millwork must be cared for; like furniture, it cannot be scrubbed. Due to varying weather conditions, including exposure to sunlight, the finish on varnished or stained millwork cannot be warranted. Varnished or stained millwork requires more frequent refinishing than do painted surfaces.

**Builder Responsibility**

None.

**3. Problem**

Interior paint coverage.

**Acceptable Tolerance**

Interior paint should be applied in a manner sufficient to visually cover walls, ceiling, and trim surfaces.

**Builder Responsibility**

Builder shall repaint wall, ceiling or trim surfaces where inadequate paint has been applied. Where a large area is affected, the entire surface shall be repainted.

**4. Problem**

Wall covering losing adhesion.

**Acceptable Tolerance**

Wall covering should not lose adhesion under normal wear.

**Builder Responsibility**

- a. Provided the wall covering is in the builder's contract, it should be repaired or replaced.
- b. If a patch or repair must be made, builder shall match as closely as possible.

Because of dye lot differences, owner must understand an exact match may not be possible.

- c. If installed by the owner, wallpaper repairs are the owner's responsibility.

**5. Problem**

Owner's wall covering or owner's painting is affected by related repairs.

**Acceptable Tolerance**

The owner should inspect the surface prior to painting or papering. Since the work was done by the owner, the owner accepted the surface as satisfactory for the original work at the time of installation. The owner is responsible for any subsequent paint and paper repairs to that surface.

**Builder Responsibility**

None.

**6. Problem**

Washability of painted surfaces.

**Acceptable Tolerance**

Washable as defined by paint manufacturer.

**Builder Responsibility**

None.

**7. Problem**

Color variation of stained woodwork.

**Acceptable Tolerance**

Stain color will vary in look on different types of wood. Stain color may vary even though the wood type is the same because of the grains.

**Builder Responsibility**

None.

**C) RESILIENT FLOORING, CERAMIC TILE, HARDWOOD FLOORING & CARPET**

**Background**

All types of flooring are subject to conditions and stresses of the surfaces to which they are applied. These conditions and stresses include but are not limited to expansion and contraction, warpage, settling, moisture and temperature fluctuations which usually occur during the stabilization/settling period. This section concentrates on the installation and workmanship of flooring products which are the builder's responsibility. The quality (of the product itself not considering installation) and durability of flooring products are judged and warranted according

to the manufacturer's specifications and warranties. It is recommended that the owner(s) familiarize themselves with the manufacturer's warranties.

### Resilient Flooring

Resilient flooring is a term which describes relatively non-porous materials including but not limited to sheet vinyl, linoleum, vinyl tiles and liquid seamless flooring. Liquid seamless flooring is cast in place on the job by pouring materials such as liquid plastic, vinyl, and rubber on the subfloor surface and allowing it to cure to become the finished product. For the purpose of this standard, liquid seamless flooring shall be treated as sheet vinyl and linoleum. Resilient flooring is secured to the properly prepared surface with adhesive designed specifically for this application.

All resilient flooring is subject to normal manufacturing tolerances which may be noticed within the same pattern when replacement or repair work is performed. "Dye Lot" refers to a limited quantity of material produced at a given time. There are differences noticeable in the same pattern of flooring produced from one dye lot to another, such as color, texture, and pattern variations. A common flooring problem occurs when repair is needed and there is not an exact match between the replacement and existing flooring due to dye lot variations.

Other factors outside the builder's control which may contribute to the impossibility to make an exact match, even within the same dye lot, are wax and cleaning product build-up on the existing floor, environmental differences such as sunlight variations, chemical reactions, etc. Also, it may be impossible for the builder to obtain the same pattern if it has been dropped from production.

The surface of many resilient floors may be permanently deformed when subjected to high concentrated loads, such as uncastered furniture legs. It is recommended that all furniture used on resilient floors have "swivel casters" to help preserve flooring. Because of the above-mentioned factors and normal wear and tear, the owner should expect some noticeable difference to repaired resilient flooring; however, the builder should attempt to match as closely as possible the pattern, color and texture of the existing flooring.

### Ceramic Tile

Ceramic tile is a product manufactured in many sizes, shapes and colors. Ceramic tile is usually bought and installed as individual pieces or small sheets of tile. It is secured to the properly prepared surface with adhesive designed specifically for ceramic tile installations. Most of the problems with ceramic tile occur due to the stabilization/settling of the surfaces to which the tile is applied as discussed earlier in this background.

### Hardwood Flooring

Hardwood flooring, because of its very nature as a wood product, may expand, contract, cup and warp due to moisture and temperature variations in the home. Because of these changes taking place in the wood itself, separations or gaps will be seen between individual boards and at butt edges. Hardwood is also subject to "creaking, cracking, and popping" sounds under normal foot traffic. It should be noted that these characteristics will not necessarily be consistent throughout the entire floor area. All of these situations should be expected and will warrant no concern or correction.

## Carpet

Carpet is manufactured in a variety of weaves, patterns, weights, and grades. Carpeting is subject to the same type of dye lot considerations as mentioned above in the resilient tile section.

It is very important to stress the required maintenance involved to get the best wear possible from carpeting. It includes frequent and thorough vacuuming, prompt cleanup of spills and stains, periodic professional care and cleaning, and other maintenance recommended by the manufacturer.

Carpet which has specific trademarks (i.e., Stain Master, Scotch Guard, etc.) is not impervious to staining; however, it is less prone to permanent staining and usually cleans up better than carpet without such trademarks. This standard is concerned mostly with the installation of carpeting, as the performance of the carpeting will be judged by the manufacturer.

### 1. **Problem**

Nail pops appear on the surface of resilient flooring.

#### **Acceptable Tolerance**

All nail pops should be repaired at normal service periods.

#### **Builder Responsibility**

Correct all nail pops which have not broken the surface of the goods by driving the nails back into place. Replace any tiles where the nail pops have broken the surface of the tile.

Plug or replace sheet goods in the minimum area where the joint will not be readily noticeable where the nail pop broke the surface.

### 2. **Problem**

Seams or ridges appear in the resilient flooring due to subfloor irregularities.

#### **Acceptable Tolerance**

In the natural stabilization/settling process, some mismatch of the subfloor may exhibit itself as ridges or depressions showing on the surface goods. If the ridge or depression effect exceeds 1/8" and cannot be corrected from below, the resilient floor must be corrected. The ridge measurement should be made by measuring the gap created when a 6" straight edge is placed tightly 3" on one side of the defect and the gap measured between the floor and the straight edge at the other end.

#### **Builder Responsibility**

Remove the sheet goods or tile in the minimum area where the joint will not be readily visible when repaired, re-nail the subflooring, sand smooth and/or fill gap and replace the sheet goods or tile.

### 3. **Problem**

Resilient flooring lifts, bubbles, or becomes unglued at joint.

#### **Acceptable Tolerance**

Resilient flooring should not loosen during the normal service period unless caused by the owner's negligence or excess use of water.



**Builder Responsibility**

Providing edges are still intact, re-secure the material. If not, replace the minimum area as per standard No. 2.

**4. Problem**

Shrinkage gaps show in resilient flooring.

**Acceptable Tolerance**

Gaps shall not exceed 1/16" in width in tile to tile joints. However, where dissimilar materials abut, larger gaps may appear.

**Builder Responsibility**

Repair as necessary.

**5. Problem**

Shrinkage of sheet goods at baseboard and door jambs.

**Acceptable Tolerance**

Shrinkage shall not exceed 1/16" from baseboard to material installed.

**Builder Responsibility**

Toe strip and/or caulking shall be applied.

**6. Problem**

Cracks appear at joints in ceramic tile.

**Acceptable Tolerance**

Cracks at the joints of ceramic tile are common due to the settling process, especially between the horizontal and vertical surfaces or the butting of dissimilar materials.

**Builder Responsibility**

None.

**7. Problem**

Ceramic tile cracks or becomes uncemented.

**Acceptable Tolerance**

None.

**Builder Responsibility**

Replace any cracked tiles and re-cement any loose tiles, unless the defects were caused by the owner's negligence.

**8. Problem**

Gaps appearing in hardwood flooring at seams and butt joints.

**Acceptable Tolerance**

Because of the nature of the product, hardwood gapping or separation can be expected.

**Builder Responsibility**

None.

**9. Problem**

Hardwood cracking or popping under normal foot traffic.

**Acceptable Tolerance**

Because of the nature of the product, hardwood cracking or popping is normal.

**Builder Responsibility**

None.

**10. Problem**

Subflooring loose under hardwood flooring.

**Acceptable Tolerance**

None.

**Builder Responsibility**

Re-nail or repair as necessary.

**11. Problem**

Color variation of carpet.

**Acceptable Tolerance**

Color may vary from dye lot to dye lot.

**Builder Responsibility**

None.

**12. Problem**

Carpet seams visible.

**Acceptable Tolerance**

Carpet seams will be seen at times due to the fabric type of carpet, sunlight, and grain of fabric. Carpet grain in a room should run in the same direction. Seams should be installed according to the manufacturer's carpet installation standard.

**Builder Responsibility**

None.

**13. Problem**

Matting or crushing of carpet.

**Acceptable Tolerance**

Matting or crushing of carpet may occur.

**Builder Responsibility**

Provide manufacturer's warranty and handle grievance in accordance thereof.

**SECTION X****HEATING, AIR CONDITIONING AND SHEET METAL****1. Problem**

Insufficient heating or cooling.

**Acceptable Tolerance**

Builder shall install a heating system capable of maintaining an indoor temperature of 70 degrees F. when outside temperature is 0 degrees F. Builder shall install a cooling system capable of maintaining an indoor temperature of 75 degrees F. when outside temperature is 95 degrees F. Up to a 6 degree temperature difference in different rooms and from floor to floor is considered acceptable.

**Builder Responsibility**

- a. The heating and air conditioning installation shall be made in accordance with the standards, practices and methods set forth in the current manuals of the Air Conditioning Contractors of America (ACCA) and the Sheet Metal & Air Conditioning Contractors National Association (SMACNA), which represent the national standards of the industry, and in compliance with all local municipal codes.
- b. Heat loss and heat gain calculations shall be made from the plans and specifications in accordance with local municipal codes.
- c. Gas furnaces used shall be approved by the American Gas Association and bear the AGA seal of approval. Oil and electric furnaces, heat pumps and air conditioners shall be approved by Underwriters Laboratories and bear the UL seal of approval.
- d. The furnace/air handler blower must deliver rated air over the heating surface or cooling coil. In order for the blower to deliver acceptable rated air, clean filters must be installed by the owner as necessary every 30 days year round.
- e. There shall be sufficient air delivered to each room to maintain the condition described in the Acceptable Tolerance above. This condition can be maintained if provision is made to return air from each living level at the same amount as air delivered to it.
- f. The thermostat shall be located so that it reflects the true condition of the house. It should not be affected by extraneous sources of heat, such as open bathroom or kitchen doors, second floor heat risers or heat from lights. Nor shall it be located so that it can be affected by the radiant heat from a fireplace or sun heat through a window.
- g. Dampers and registers should be balanced and other minor adjustments made. Also filters and outside condenser coil should be checked for cleanliness.
- h. If the installation does not maintain the conditions described above, the builder shall have it revised so that it does.

**Homeowner Maintenance Responsibility**

Homeowner is responsible for maintaining the balance of dampers and registers, and maintaining clean filters and a clean outside condenser coil.

**2. Problem**

Ductwork noise.

**Acceptable Tolerance**

- a. When metal is heated it expands and when cooled it contracts. The result is "ticking" or "crackling" which is generally to be expected and shall be considered acceptable.
- b. Gauge of the metal used shall be such that supply ducts and plenums do not "oilcan." The booming noise caused by "oilcanning" is not acceptable.
- c. In the case of electric forced air heating systems (heat pump), a higher level of air noise is generally to be expected and shall be considered acceptable.
- d. With higher efficiency furnaces there may be a higher pitch noise from the motor start-up.

**Builder Responsibility**

The booming noise caused by "oilcanning" is not acceptable and builder must take necessary steps to correct.

**3. Problem**

Noise generated by air conditioner or heat pump.

**Acceptable Tolerance**

Units should be rated in accordance with Air Conditioning and Refrigeration Institute Standard (standard or sound rating - specific to individual manufacturer's equipment).

**Builder Responsibility**

Must assure that equipment conforms to above ARI Standard.

**SECTION XI**

**PLUMBING**

**1. Problem**

Leakage of any kind of piping.

**Acceptable Tolerance**

No leaks of any kind should exist in any soil, waste, vent or water pipe except where soil pipe leaks due to flooded or inoperative septic system.

**Builder Responsibility**

Builder shall make necessary repairs to eliminate leakage.

**2. Problem**

Faucet leak or valve leak.

**Acceptable Tolerance**

No valve or faucet should leak because of defects in either material or workmanship.

**Builder Responsibility**

Builder shall repair or replace the leaking faucet or valve, unless leakage is due to a worn washer. Washer replacement is a homeowner's responsibility.

**3. Problem**

Fixtures do not hold water.

**Acceptable Tolerance**

Stoppers on fixtures should retain water for a sufficient length of time to accomplish the fixture's intended use.

**Builder Responsibility**

Builder to correct until fixture holds water to meet acceptable tolerance.

**4. Problem**

Chipped, warped, or defective plumbing fixtures and brass goods.

**Acceptable Tolerance**

In case of questions between owner and builder as to the seriousness of the defect, the fixtures should be inspected by the manufacturer's representative and judged according to their manufacturing standards.

**Builder Responsibility**

Builder may repair or replace any fixture or fitting which is outside acceptable standards as defined by the manufacturer. In the case of chipping, the builder may repair or replace the fixture if the chipping is noted on the occupancy inspection. After occupancy the responsibility for chipped fixtures is the owner's.

**5. Problem**

Stopped-up sewers, fixtures, and drains.

**Acceptable Tolerance**

Sewers, fixtures, and drains should operate properly to accomplish their intended function.

**Builder Responsibility**

Because sewers, fixtures, and drains can easily be clogged through the owner's negligence, builder shall make the necessary repairs to put the sewer in proper operating condition within the first 30 days of occupancy. However, if the problem which caused stoppage of the sewer can be shown to be due to owner's negligence, the owner shall assume the cost of the repair.

**6. Problem**

Cracked laundry tubs.

**Acceptable Tolerance**

Laundry tubs should not leak.

**Builder Responsibility**

Builder has no repair responsibility on tubs unless the defect was noted on the occupancy inspection.

**7. Problem**

Noise in water pipes and waste pipes.

**Acceptable Tolerance**

There should be no objectionable water sounds, except those due to expansion, contraction or flow through the pipes. Water pressure exceeding 65 pounds per square inch may cause noise in water pipes.

**Builder Responsibility**

Builder should remove noise other than that due to expansion, contraction or the flow of water. If local water pressure exceeds 65 pounds per square inch, builder should provide a pressure reducing valve.

NOTE: Flashing is required around PVC pipes in some municipalities, which may cause more noise in some homes than others.

**8. Problem**

Sump pump does not operate.

**Acceptable Tolerance**

Sump pump should operate according to the manufacturer's specifications, if sump pump is provided by the builder per contract.

**Builder Responsibility**

Builder shall repair or replace malfunctioning sump pump, as required.

**9. Problem**

Hose bibbs damaged by freezing temperature.

**Acceptable Tolerance**

Hose bibbs should not freeze if installed properly, providing the owner has removed the hose and any attachments from the spigot during the cold weather.

**Builder Responsibility**

Inspect the hose bibb for proper installation. If installation was incorrect, replace hose bibb. If installation was correct, there is no builder responsibility.

**10. Problem**

Disposal is jammed.

**Acceptable Tolerance**

Disposal motor should spin freely with no obstruction.

**Builder Responsibility**

Inspect disposal for any factory defect. If found to be defective, a factory authorized repairman will replace disposal. If any homeowner item is found inside disposal causing the motor to jam, the homeowner will be charged for the service call to correct the problem.

**11. Problem**

Not enough hot water.

**Acceptable Tolerance**

Hot water heater should provide hot water to each fixture requiring hot water.

**Builder Responsibility**

Homeowner should contact Seller for repairs if not performing at capacity.

**12. Problem**

Plumbing fixtures appear tarnished/discolored.

**Acceptable Tolerance**

Fixtures can tarnish and lose luster to their finish.

**Builder Responsibility**

None. Fixtures will tarnish/lose luster over time. Builder has no responsibility to correct.

**SECTION XII**

**ELECTRICAL**

**Background**

In reviewing this section, it is necessary to establish guidelines for proper usage of the electrical system. In order for the electrical system to perform properly, it is important that the system be used in the manner for which it was designed. For this reason, recognized electrical codes have established the following norms: ground fault current interrupter (GFCI) protection is required at all sink areas (kitchen, wet bar, bathroom vanities), garages, unfinished basements and exterior outlets at ground level. Appliances using large amounts of current, such as freezers and refrigerators connected to these outlets, may cause the GFCI to trip. A dedicated outlet for such an appliance should be used. No more than 1500 watts per lighting circuit is allowed. Motors can be connected to lighting circuits provided the total wattage connected does not exceed the above limit.

Exceeding these guidelines may cause circuit breakers to trip. This tripping should not be

viewed as a nuisance, but a warning that the circuit is overloaded.

It is the owner's responsibility to ensure that the circuits are not overloaded. If a service call to repair an electrical problem reveals that the problem is due to overloading by the owner, the owner shall pay for the service charge and any subsequent expenses.

**1. Problem**

Lights, switches and receptacles do not work.

**Acceptable Tolerance**

All lights, switches and receptacles shall work properly.

**Builder Responsibility**

Repair wiring or replace defective lights, switches and/or receptacles to work properly.

**Homeowner Maintenance Responsibility**

Check to see if outlet is on a switch. Check reset on GFCI outlets. Check circuit breaker. Check light bulbs.

**2. Problem**

Lights flicker in parts of building.

**Acceptable Tolerance**

Lights may flicker or dim due to start of some appliances or motor driven equipment.

**Builder Responsibility**

Builder to check wiring for original equipment per manufacturer's requirements and local building codes. Builder to repair wiring if not in conformity.

**3. Problem**

Fuses blow or circuit breakers kick out.

**Acceptable Tolerance**

Fuses and circuit breakers should not activate under normal usage, except in the case of GFCI outlets which are susceptible to moisture and/or weather conditions. No more than 1,500 watts per lighting circuit allowed.

**Builder Responsibility**

Inspect wiring to insure conformity with local electrical code requirements. Repair wiring if not in conformity. If problem is due to owner equipment or misuse, the owner shall pay for the service charge.

**4. Problem**

Lights flicker in entire building.

**Acceptable Tolerance**

Lights should not flicker throughout entire building at one time.



**Builder Responsibility**

If the local utility company is not the source of the problem, builder should then check internal wiring and repair as necessary.

**Homeowner Maintenance Responsibility**

Owner should first check with the local utility company for possible defects in supply sources.

**5. Problem**

Recessed electrical fixtures shut off.

**Acceptable Tolerance**

Recessed electrical fixtures are manufactured with a device that forces the unit off should overheating occur.

**Builder Responsibility**

Builder to inspect fixture for proper installation and repair as necessary.

**Homeowner Maintenance Responsibility**

Install replacement light bulbs that do not exceed recommended wattage by manufacturer for any fixture. A 40 watt bulb is recommended for enclosed glass trims (shower trims). Heat cannot escape from these enclosed trims.

**6. Problem**

Light fixtures appear tarnished.

**Acceptable Tolerance**

Fixtures can tarnish and lose luster to their finish.

**Builder Responsibility**

None. Exterior light fixtures will tarnish. Builder has no responsibility to correct.

**Homeowner Maintenance Responsibility**

Maintain finish per manufacturer's recommendation.

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