Builder's Standards

Third Edition

A Measurable Difference

The Quality Assurance Builder Standards provide, for the first time ever, new homebuyers and remodeling homeowners a way to measure the quality of the project against an industry approved set of standards.

These standards have been developed by the Builders Association of Greater Indianapolis (BAGI) as a service to new home and remodeling homeowners in the Central Indiana area. BAGI is a membership trade association representing over 1100 member firms in Marion, Hamilton, Boone, Hendricks, Morgan, Johnson, and Hancock Counties.

These standards create a series of performance standards that the builders and the homeowners can use to communicate and understand each others' expectations regarding the building or remodeling project.

The standards address the most prevalent issues that arise between the builder and the customer before the project, during the project, and, most importantly, after the project is completed. All too often it is the undefined expectations that create the majority of the problems encountered in the building and remodeling processes.

The standards will help eliminate problems before the project even begins.

Scope of the Quality Assurance Builder Standards

These standards are intended to be used as a tool by both the builder and the homeowner when questions arise regarding the new home or remodeling project. Prior to calling the builder, the homeowner should use the standards manual to determine if the particular concern is within the standards and then decide if a call to their builder is necessary. The builder should use these standards as the tool to determine what action is necessary to meet homeowner expectations created by the standards.

The standards presented were chosen to address the vast majority of the questions that arise in the course of the typical construction or remodeling process. The actual standards and the language used, along with the individual sections of the manual, were chosen to allow all parties a clear understanding of the potential issues and the standards that should be expected. It should be clearly noted that the standards do not constitute a warranty nor are they intended as a substitute for a warranty. In addition, the standards are separate and distinct from any manufacturer's warranties that may apply to materials and products used in the project. The homeowner and the builder should agree that the standards are to be included as a part of the construction and/or sales contract for the project.

Scope of Responsibilities

Typically, numerous parties are involved in a residential construction project, whether it is building a new home or remodeling an existing one. Each of these parties has specific responsibilities to fulfill. The contract documents should provide a clear statement of the agreement between the builder and the homeowner. In addition to the specific provisions of any contract, the following general responsibilities should be noted:

The Builder: For the purposes of this book, the builder (also may be referred to as the contractor) is the company named in the contract that has primary responsibility for completing the project, whether new construction or remodeling. The builder often employs others to assist him/her. In most cases, the builder is responsible for all work assigned in the contract, regardless of who actually performs the work. If the builder is acting in a special role, for instance as a construction manager, or the customer selects others to work on the project who are outside the builder's control, then the responsibility for evaluation and remedy of proposed problems may fall to other parties.

The Homeowner: The homeowner (also may be referred to as the customer) is the buyer of the product or service, whether new construction or remodeling, named in the contract. The homeowner is responsible for carefully selecting the builder and reviewing the contracts to ensure they accurately represent his or her expectations for the final product. Once the homeowner accepts the project and moves into the home or occupies the newly renovated space, then he or she is responsible for routine maintenance and upkeep. Homes require a certain amount of care that is generally the homeowner's responsibility. The homeowner should note that in some of these standards the builder is not obligated to make repairs to items that fall within the homeowner's maintenance responsibilities.

The Manufacturer: Manufacturers warrant many residential construction components that may fall outside the scope of the builder's responsibilities, such as kitchen appliances, furnaces, and air conditioners. Other less obvious items may include certain types of siding, roofing, or flooring. If there is a warranty problem with one of these components, the buyer should be aware that the builder may not be responsible for the product once it is installed. If a problem occurs, the builder will often deal directly with the manufacturer and/or suppliers to have the problem evaluated and provide the homeowner with a recommended course of action. The builder's responsibility may end once he or she provides the appropriate information on how to contact the manufacturer, unless otherwise specified in the contract.

Remodeling Projects

Remodeling is the process of expanding or enhancing an existing structure. There are sometimes inherent difficulties in melding the new and old in a way that meets the expectations of the homeowner. Under these circumstances, suspension of the application of these standards may be necessary for the remodeling project to be successfully completed. These include, but are not limited to: the meeting of old out-of-plumb structures with new structures; the appearance of; new materials near weathered, existing products; and the practical considerations for new projects to work within the limitations of an existing structure.

Because of the unique challenges of joining new with old, a remodeling contractor may build part of or the entire project outside of the scope of these standards in order to achieve the contract objectives. When it is reasonable, the builder may note and discuss a problem with the homeowner before construction. It is also normal for a builder to

discover during the course of construction certain conditions that may affect the building process and the construction performance. These conditions may require the builder to proceed using different solutions from those the standards suggest. In these circumstances the governing factor is meeting the needs of the homeowner as outlined in the contract.

How to Use this Standards Manual

This manual is divided into sections generally organized according to the usual sequence of events in the construction process. Each section typically includes a general introduction and major categories containing individual construction standards. Most of the standards contain all or most of the following components:

Observation: A description of a particular circumstance that may raise a question regarding the quality of materials or workmanship

Standard: The specific criterion for acceptable workmanship

Builder's Responsibility: A description of the repair work by the builder that may be necessary to meet the standard

Homeowner's Responsibility: *[Optional]* A description of a particular homeowner's maintenance responsibility if it warrants special consideration

Discussion: [*Optional]* An explanation of unique factors pertinent to the observation, standard, builder responsibility, or homeowner responsibility

These standards have been determined by researching information provided by the *National Association of Home Builders,* national and local trade organization and associations, national and local industry experts, and a review committee of builders, suppliers, subcontractors, laborers, manufacturers, and homeowners. The standards have been approved by the *Builders Association of Greater Indianapolis* as being reasonable according to all available information reviewed at the time this publication was written. Any and all changes or amendments will be included in revised copies as necessary.

General Information

In Central Indiana, construction is governed by a process that requires all work to be done in compliance with locally approved, applicable building and related codes. If any conflict arises between these standards and the codes, as a matter of law, the code requirements will take precedence over these standards.

These performance standards apply only to contract work as specified in the contract documents, plans, and specifications for the project as provided by the builder. They do not apply to designs, plans, materials, or workmanship that are supplied by the homeowner or outside the scope of the particular project. It should be noted that the responsibilities as listed in this manual are only applicable during the service period for the particular job or the part of the job addressed in each standard.

The corrective measures and suggested methods of repair listed in this manual are not the only remedies to the observations mentioned. There are many acceptable methods, which may depend on such criteria as available resources, weather conditions, building codes, regional practices and standards, extent to which an observation is considered a problem, or financial restraints.

Service Period

The service period, as used in these standards, is defined as a period of one year from the date of closing and/or final acceptance of the project, unless otherwise agreed to by the builder and the homeowner and noted in the contract. On occasion, these guidelines refer to a period, such as the time of closing or the time of installation, other than the service period.

The tolerance for such a guideline is typically controllable by the builder up to a certain point in time. After such a point in time, variables may affect the work performed and cause changes that are greater than the tolerance but that cannot be controlled by the builder.

For Additional Information

The Builders Association of Greater Indianapolis (BAGI) is available to answer any questions you may have regarding the development and use of these standards. Additionally, users are encouraged to provide comments and suggestions regarding their experiences with the standards. Responses should be submitted in writing to the Builders Association of Greater Indianapolis, P.O. Box 44670, Indianapolis, IN 46244. Comments will be considered for future editions of this book.

This publication is designed to provide accurate and authoritative information in regard to the subject matter covered. It is published with the understanding that the publisher is not engaged in rendering legal, accounting, or other professional service. If legal advice or other expert assistance is required, the services of a competent professional person should be sought.

—From a Declaration of Principles jointly adopted by a Committee of the America Bar Association and a Committee of Publishers and Associations.

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SECTION 1:

BUILDING PERMITS, ZONING PERMITS, LAND SURVEYS

Background

It is typically the builder's responsibility to obtain the necessary permits prior to construction on the property. Before any building projects begin, appropriate government agencies should be contacted to secure necessary permits. Each local has different requirements for permits and inspections.

Building Permits

Applications for construction should be made according to local government agencies. It is the builder's responsibility to secure these permits unless otherwise noted in the owner's contractual agreement. Some government agencies require inspections at various phases of construction. It is the responsibility of the permit holder to ensure all inspections are completed as required.

1.1 **Observation:** The inspecting agent may not approve work, may order a work stoppage, or may not allow occupancy.

Standard: Building projects are to adhere to all applicable codes.

Builder's Responsibility: The builder is responsible for making the necessary corrections and getting approval from the inspector before proceeding with the next phase of construction.

Discussion: Often times an inspector will "turn down" an inspection because the builder or subcontractor has not performed work or used materials according to the applicable codes. Failure to pass an inspection is not always an indication of a problem with code compliance. Often a project may not pass inspection simply because clarification or additional information is needed by an inspector.

1.2 **Observation:** The property does not have corner boundary stakes.

Standard: The builder will do the necessary plotting of the building in accordance with local government requirements and development covenants and restrictions. It is common for a government agency not to require property corner boundary stakes.

Builder's Responsibility: The builder should provide the land survey necessary for government zoning and building approval. In cases where fences, sprinkler systems, tree clearing or other objects encroach upon property lines, the builder is responsible for ensuring that these items do not conflict with local government requirements and development restrictions.

SECTION 2:

EXCAVATION, GRADING, GROUND REMOVAL AND FILL

This phase of construction dealing with the earth's movement is broad and ambiguous. Since each site is unique unto itself and subject to the most diverse contractual relationships, it is thus necessary to establish certain definitions for phases of work.

General Information

Definitions

Excavate - To dig or move dirt for the construction of a foundation. The depth of the excavation is determined by local building codes and the builder's judgment of the actual field conditions as work progresses. Trees, bushes, and grasses around the excavation site may be affected by the excavation.

Backfill - To fill in the exterior around a foundation (or in a trench) using a loader or other necessary mechanical equipment and by using the ground displaced from such excavation (or trench) and/or additional fill. The purpose of backfilling is to improve working conditions for further construction; to protect the foundation from the elements; to reduce the hazards inherent to 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.

Final Rough Grade - To level and grade the dirt on the site with a bulldozer or other appropriate equipment to prepare for the finish grade taking into consideration the building walkway, driveway, adjoining properties and drainage. Depending upon the terms of the contract, this would ordinarily include the entire front, sides and rear area on the lot affected by construction, unless otherwise specified. Final rough grade does not mean the ground is prepared for seed or sod. Final rough grade is when proper grade elevations have been established so that water will drain away from the dwelling to natural or man-made water sources. The builder is not responsible for stock piling, maintaining, or redistributing top soil to graded surfaces. The builder cannot be responsible for existing soil conditions.

Finish Grade: To make final preparation of the ground for seed, sod, landscaping and the positive drainage requirements of applicable local building codes.

Settling

2.1 Observation: Settling of the ground around the foundation that impedes proper drainage.

Standard: Ground settlement should not disrupt water drainage away from the house, although settlement around the foundation of up to 6 inches should be expected if it does not impede drainage.

Builder's Responsibility: If the building contract includes finish grading, the builder has the responsibility only once during the service period for supplying the soil and all labor necessary to properly replace the soil in areas within 10 feet of the foundation to meet the positive drainage requirement.

Homeowner's Responsibility: The homeowner should continue to provide the labor for a positive drainage slope away from the foundation and to direct all downspout or sump pump discharge lines away from the foundation to prevent subsequent water problems after the builder has corrected the situation one time.

Discussion: Backfilled ground will settle. In fact, it is the intent to permit settling before future grading is done. 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 to promptly follow 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.

2.2 Observation: Settling of the ground around the foundation that does not impede drainage, and/or settling of water, sewer, or other utility trenches or septic fields.

Standard: While settlement in the above-mentioned areas is to be expected, areas that have settled greater than 6 inches require adjustment.

Builder's Responsibility: If the building contract includes finish grading, then the builder has the responsibility only once during the

service period for supplying soil that is workable and free of rocks (larger than golf ball size). Top soil is not necessary to meet the standard.

Homeowner's Responsibility: Once the builder has supplied the soil, the homeowner is responsible for all labor to move the soil and properly fill in the affected areas. It is the homeowner's responsibility to direct all downspouts and sump pump discharge lines away from the foundation. It is recommended that the homeowner fill in depressions as they occur to avoid future problems.

Erosion

2.3 Observation: Landscaped areas are washing away or eroding.

Standard: Seeded or sodded areas such as slopes and swales will wash away, depending on the amount of rain or drainage occurring prior to grass taking root.

Builder's Responsibility: The builder is responsible for providing the proper drainage around the house and maintaining the proper existing drainage swales at the time of the finish grade. After that time, the homeowner is responsible for maintaining drainage swales.

Homeowner's Responsibility: It is the homeowner's responsibility to replace seed or sod in washed areas once the finish grade has been established properly within these standards. Washing away or erosion occurs as a result of water run-off on the property and/or from adjacent properties. The homeowner is responsible for replacing seed and sod in washed out or eroded areas.

Standing Water

2.4 Observation: Water is standing in yard areas graded by the builder, excluding designated drainage retention areas.

Standard: After normal rainfall, water should not stand in a yard for more than 24 hours.

Builder's Responsibility: If standing water exceeding the above standard occurs, it is the builder's responsibility to regrade the affected area, and re-seed and/or re-sod if necessary. The builder is not responsible for any corrections if the source of the standing water stems from

flow of water from an adjoining property, gutter downspouts, sump pump outlets or work performed by others.

Homeowner's Responsibility: Homeowner is responsible for the maintenance of water discharge areas.

Discussion: No decision regarding standing water will be made while frost, snow, or saturation exists on the ground. The possibility of standing water for more than 24 hours and up to 48 hours after an unusually heavy rainfall should be anticipated by the owner.

SECTION 3:

FOUNDATION & INTERIOR CONCRETE

Background, Concrete

Concrete consists of a mixture of many natural materials: water, cement, sand, gravel, fly ash and other various admixtures. These materials are combined in many different ways according to the specific use of the finished concrete, regional requirements, and climate. Because it is a natural product, it is difficult to control how it will react to various conditions that are beyond the control of both the builder and the homeowner.

Naturally occurring conditions affect concrete in numerous ways. Indiana is classified as a Severe Weather Region for concrete. The National Association of Home Builders (NAHB) defines a severe weather region as outdoor exposure in a cold climate where concrete may be exposed to the use of deicing salts or where there may be a continuous presence of moisture during frequent cycles of freezing and thawing. Exposure to severe weather can damage pavements, driveways, walks, curbs, steps, porches, and slabs in unheated garages. Destructive action from deicing salts may occur whether from direct application or from being carried onto an unsalted area from a salted area, such as on the undercarriage of a car traveling onto an unsalted area from a salted area. Concrete expands and contracts with temperature changes. This is especially a concern during the first year after concrete has been poured, because it still retains a lot of water.

Another characteristic of concrete that is difficult to control is color variations. Concrete itself can have varying colors due to the different types of sand and aggregates used in the mixture. Color variations can also be caused by admixtures such as calcium chloride, (the most commonly used admixture to accelerate the curing process of concrete and to reduce the effects of freezing). If concrete is poured on different days, and the previously poured concrete has had time to cure a bit, color differences will be apparent. Different brands and types of concrete may contain many varieties of sand, cement, admixtures, and aggregate that will result in color variations in the finished concrete. When repairs are made, the concrete used as a filler must be extremely dry to prevent shrinkage. This

almost always results in a repair patch that is darker in color than the existing concrete. Because of the previous explanations for color variations, it is to be expected that whenever a repair is made, it is nearly impossible to match the colors of concrete.

Because the curing of concrete is a chemical process and can take up to one year to complete, changes in size and strength are to be expected. It is very difficult to control the effects of water evaporation, air bubbles within the concrete, air humidity, and wind. Some chemical processes are controllable and are the responsibility of the homeowner. Pitting, spalling, or scaling can occur when salt or other deicers are applied directly to the surface of the concrete or when they are indirectly deposited on the surface by tires or feet. These substances cause rapid deterioration of the surface, by both chemically attacking the concrete and by drawing moisture near or within the surface and promoting expansion and contraction of the concrete during the freeze-thaw cycle. Other chemicals, such as lawn fertilizer, can also chemically attack the surface of the concrete, resulting in spalling, scaling, and pitting. Until concrete has cured, it can not withstand extreme weight such as moving vans, school buses, or garbage trucks. It is especially important to limit the amount of weight that is placed upon concrete during the first year because it needs sufficient time to cure and gain strength.

Background, Foundations

The entire weight of a house is supported by the foundation. The foundation consists of the footings, the foundation walls (basement walls or crawl space walls), and the foundation slab if present. Foundation wall footings must be designed and placed to minimize settling or cracks in foundation walls. Foundation walls are usually made of poured concrete or masonry block.

Definitions

1. **Bowed -** a condition where a wall is curved in a concave or convex way either vertically or horizontally
2. **Crazing -** hairline cracks that form a web over the surface area of concrete
3. **Dusting -** the formation of a powdery substance on the surface of concrete

4. **Efflorescence -** a salt deposit on the surface that forms when the water solution in the concrete evaporates
5. **Expansion and Contraction Joints (also known as control joints) -** lines that are cut or formed between slabs of concrete in a straight and continuous pattern with the intention of creating a location for the concrete to expand, contract, and crack in such a manner that cracks do not form across a slab
6. **Flow Lines -** a visible line on a concrete wall or column that shows where concrete poured during one placement has flowed horizontally before the next placement has been poured
7. **Honeycombs -** voids left in concrete where cement and sand particles have not filled out the spaces between coarse aggregate gravel
8. **Out of Level -** a condition where a flat plane (such as a basement floor or the edge of a wall) has points that are lower or higher than the rest of the flat plane
9. **Out of Plumb -** a condition where the angle created when a wall meets the floor does not equal 90 degrees
10. **Out of Square -** a condition where the angle created when two perpendicular walls meet does not equal 90 degrees
11. **Pop Outs -** depressions formed in the surface of concrete as the result of small pieces of aggregate which have been forced from the surface
12. **Scaling -** the flaking or peeling of the surface layer of concrete
13. **Spalling -** the crumbling of the surface of concrete, where small disc-shaped chunks break away, usually resulting from expansion from within the larger mass of concrete

General Conditions

These conditions affect both poured concrete and masonry blocks.

NOTE: The following corrective measures are not the only remedies to the problems mentioned. There are many acceptable methods which may depend on such criteria as available resources, weather conditions, location of concrete on the site, building codes, regional practices and standards, extent to which the condition is considered a problem, financial restraints, etc.

GENERAL

Out of Square

3.1 **Observation**: The foundation is out of square.

Standard: As measured at the top of the foundation wall, the diagonal of a triangle with sides of 12 feet and 16 feet shall not be 1 inch more or 1 inch less than 20 feet. Additionally, the complete foundation shall not be out of square more than 1 inch where the longest diagonal exceeds 20 feet in length. In remodeling applications this doesn't apply where existing walls are not straight or existing corners are not square.

Builder's Responsibility: The builder will make necessary modifications to any foundation not complying with the standards for squareness to provide a satisfactory appearance. The builder may square the first floor deck by holding the sill plate "in" on one end of the foundation and "out" on the other end or cantilevering over the foundation where necessary.

Discussion: Squareness is typically an aesthetic consideration. The objective of the corrective measures is to effectively produce a satisfactory appearance.

Out of Level

3.2 **Observation:** The foundation is out of level.

Standard: As measured at the top of the foundation, no point shall be more than 1/2 inch total out of level within 20 feet, unless the owner and builder agree to intentionally build an addition to an existing structure out of level in order to match or compensate for inaccuracies in the existing structure.

Builder's Responsibility: The builder will make necessary modifications to any foundation not complying with the standards for levelness. This can be done by placing mortar, shims, or other approved fillers designed to withstand the weight of the structure under the mud sill plate or by appropriately scribing or planing the mud sill plate.

Discussion: Levelness is both an aesthetic and functional

consideration and some degree of unevenness is to be expected. While not structurally damaging, an out of level floor can result in aesthetic or functional conditions elsewhere in the home (i.e., siding or paneling does not line up). The builder and the owner may agree to build an addition out of level in order to keep the floor of an addition on the same plane and the roof ridge on the same line as those of an existing, out of level structure.

Bowed Walls

3.3 Observation: Foundation wall is bowed.

Standard: A foundation wall 8 feet in height in a finished area should not be bowed concave or convex either vertically or horizontally more than 1-1/2 inch in a 10 foot horizontal measurement.

Builder's Responsibility: The builder is responsible for adjusting the foundation in areas where finished living space is to be completed per the contract and specifications. In areas where there is to be finished living space, the builder is required to make appropriate adjustments, such as building a stud wall to create a straighter surface on the foundation wall. In areas of unfinished space, the builder shall meet the appropriate building code.

Discussion: Bowed walls are typically an aesthetic consideration. If building a stud wall is used to compensate for an out of plumb foundation, the finished space dimension, will change accordingly.

Out of Plumb

3.4 Observation: Foundation is not plumb.

Standard: Measuring from the bottom to the top of an 8 foot foundation wall in a finished area, the wall should not be out of plumb more than 1-1/2 inch.

Builder's Responsibility: If the wall is to remain unfinished per the contract and specifications and/or blueprints, or is designated as a space to be finished in the future, then the builder is required to meet the appropriate building code. If the wall is to be in a finished living space per the contract and specifications, then the builder should adjust it as necessary to meet the standard. Some alternatives are to use furring strips on the out-of-plumb wall or build interior stud

walls to compensate for the lack of plumbness and to make the wall aesthetic.

Discussion: Out of plumb walls are typically an aesthetic consideration. If building a stud wall is used to compensate for an out of plumb foundation, the finished space dimensions will change accordingly.

Moisture

3.5 **Observation:** Basement walls are damp to the touch, pipes are dripping water, and/or water collects on basement windows.

Standard: Condensation on basement walls is acceptable and to be expected in new homes. It is a natural process in the curing of poured concrete as well as a natural phenomenon caused by the water in the environment.

Builder's Responsibility: None.

Homeowner's Responsibility: To make sure that basement windows are closed during damp, humid weather and opened during clear, dry weather to reduce the amount of moisture in the air and to maintain a consistent temperature. Landscaping grade should be maintained away from the house so that water is not allowed to seep down around the exterior of the foundation walls.

Discussion: Condensation occurs wherever warm, moist air inside the house comes in contact with a colder surface, such as a window, basement wall, or exposed pipe. Condensation is most noticeable in new homes because gallons of water are used during construction to make the concrete of basement walls. This water comes out of the walls by evaporation which consequently raises the moisture content above normal. Proper ventilation will bring this normal drying-out process to its conclusion as steadily as possible The process should not be accelerated by creating extremely high temperatures during winter. The house will dry out unevenly, exaggerating the effects of normal shrinkage. The homeowner should consider running a dehumidifier during the first few years of occupancy.

Standing Water in Crawl Space

3.6 **Observation:** There is standing water in the crawl space.

Standard: Standing water in the crawl space that is not being drained is unacceptable.

Builder's Responsibility: Builder should take steps necessary to eliminate water that is resting on top of the ground cover vapor barrier. Water that is below the vapor barrier should be drained by an approved drainage system or method.

Homeowner's Responsibility: The homeowner is responsible for maintaining the proper drainage away from the foundation. This includes, but is not limited to, keeping clear the gutters and downspouts to prevent overflowing; not altering or damaging drainage lines located above and/or below ground; and preventing sprinklers and irrigation systems from putting water onto the house. If a sump pump is installed, the homeowner shall ensure its power supply is maintained.

Discussion: Water in the crawl space is anticipated and can come from many different sources. Crawl spaces operate to remove excess water through the use of various techniques and drainage systems. These techniques and systems may include grading, piping, and pumping, and it is important to maintain them in working condition to prevent water-related problems.

Dusting & Efflorescence

3.7 Observation: There is a white powdery substance on the surface of interior concrete.

Standard: White powder often accumulates on the surface and is to be expected.

Builder's Responsibility: None.

Homeowner's Responsibility: No corrective measure is necessary; however, if the homeowner is concerned about the aesthetics of the condition, then he or she can dry-brush and then rinse the surface of the concrete with water.

Discussion: Concrete is produced using a large amount of water. This water often contains dissolved salts. During the curing process, which may take up to a year, most of this water evaporates. As it

does, the salts are deposited on the surface. This is an aesthetic condition and does not result in structural damage.

SLABS & BASEMENT FLOORS

Separation of Control Joints

3.8 **Observation:** Concrete slab within the structure has separated, moved, or cracked at expansion and contraction joints.

Standard: Concrete slabs and floors are designed to move and crack at expansion and contraction joints.

Builder's Responsibility: None.

Unlevel Basement Floors

3.9 **Observation:** Basement floor is gently sloping or is uneven.

Standard: Except where a floor or portion of floor has been designed for specific drainage purposes, concrete floors in rooms designed for habitability shall have no pits, depressions, or areas of unevenness exceeding 3/8 inch in 32 inches.

Builder's Responsibility: The builder will correct or repair the floor to meet the standard.

Discussion: It is not unusual for a basement floor to gently slope toward a drain. This is intended to discourage water from settling on the slab. Other areas of unevenness not intended to encourage drainage can be corrected by leveling out the floor with latex or equivalent filler, or grind as necessary. When a basement slab is particularly large, areas of unevenness are impossible to avoid and should be expected. Concrete repairs will not exactly match existing concrete.

Unlevel Garage Floors

3.10 **Observation:** Garage floor is gently sloping or is uneven.

Standard: Except where a floor or portion of floor has been designed for specific drainage purposes, concrete floors shall have no pits or depressions or areas that exceed 3/8 inch in 32 inches.

Builder's Responsibility: The builder will correct or repair the floor to meet the standard.

Discussion: It is normal for a garage floor to gently slope toward a drain or toward the vehicle entry point. This is intended to discourage water from settling on the slab. Areas with pits or depressions that do not meet the standards can be corrected by leveling out the floor with latex or equivalent filler, or grind as necessary.

Cracks in Concrete Basement Floor or Slab-on-Grade

3.11 Observation: Concrete basement floor or slab-on-grade is cracked.

Standard: Minor cracks in concrete basement floors are normal. Cracks exceeding 1/4 inch in width or 3/16 inch in vertical displacement should be repaired.

Builder's Responsibility: The builder will repair cracks that do not meet the standard. An appropriate joint or crack filler can be used and is acceptable for a crack up to 1/2 inch in width or vertical displacement.

Discussion: Because of the nature of concrete, cracks in slabs and/or basement floors are normal and to be expected. In other forms of concrete (drives, walks, garage floors, etc.) it is common to have expansion and contraction joints, which help to control surface cracking. On basement floors or slabs-on-grade, where the floor will be finished, an expansion or contraction joint would create depressions that affect flooring such as carpeting, tile or vinyl. As a result, these areas typically do not have joints and consequently tend to crack more frequently and in irregular ways. The builder can chisel out, clean and either grout or fill the surface level of the crack with a latex-fortified cement mixture or similar substance designed to fill cracks and bond concrete. If cracks are mismatched in height, then the builder could grind the surface until smooth or "level" the area with cement or other similar mixture and then proceed with the repair as described above. The homeowner should be aware that the color and surface texture of the original concrete and that used for repairs will not match and that a crack may reappear.

Cracks in Garage Floor

3.12 **Observation:** Garage slab has cracks.

Standard: Minor cracks in garage floors are normal. Cracks exceeding 1/4 inch in width or 3/16 inch in vertical displacement shall be repaired.

Builder's Responsibility: The builder is to repair the floor to meet the standard. An appropriate joint or crack filler can be used and is acceptable for a crack up to 1/2 inch in width or vertical displacement.

Discussion: Cracks in garage slabs are more common than in other slabs because they are exposed to more weather variations and settling. The builder can chisel out, clean and either grout or fill the surface level of the crack with a latex-fortified cement mixture or similar substance designed to fill cracks and bond concrete. If cracks are mismatched in height, then builder could grind the surface until smooth or "level" the area with cement or other similar mixture and then proceed with the repair as described above. The homeowner should be aware that the color and surface texture of the original concrete and that used for repairs will not match and that a crack may reappear.

Spalls, Scales or Pits in Interior Concrete

3.13 **Observation:** Interior concrete floor surfaces are spalling, scaling or pitting from pop outs.

Standard: Interior concrete floor surfaces shall not disintegrate, but minor spalling, scaling and pitting from pop outs should be expected.

Builder's Responsibility: The builder will take whatever corrective measures necessary to repair or replace defective concrete surfaces. The builder is not responsible for deterioration caused by salt, chemicals, mechanical implements, or other factors beyond the builder's control (i.e., water containing salts or deicers dripping from cars parked in a garage).

Homeowner's Responsibility: Limit exposure of the concrete to chemicals, deicers, and salt, (the use of which is beyond the control

of the builder.) Any damages caused by exposure to such chemicals are to be remedied by the homeowner.

Discussion: The homeowner should be aware that the color and surface texture of the original concrete and that used for repairs will not match exactly.

FOUNDATION WALLS

Crack in Basement Wall

3.14 **Observation:** Poured basement wall is cracked.

Standard: Crack in basement wall should not leak or exceed 1/4 inch.

Builder's Responsibility: Cracks that exceed 1/4 inch and/or leak will be repaired.

Discussion: The homeowner should be aware that the color and surface texture of the original concrete and that used for repairs will not match exactly. (Please refer to section 3.16 for possible causes of leaks.)

Crack in Concrete Block Foundations

3.15 **Observation:** Masonry foundation wall is cracked.

Standard: Cracks in mortar joints of masonry foundation walls should not leak.

Builder's Responsibility: The builder will repair cracks that leak.

Discussion: Small cracks resulting from shrinkage are common in mortar joints in masonry construction. The homeowner should be aware that the color and surface texture of the original mortar or cement and that used for repairs will not match exactly.

Leaks

3.16 **Observation:** Water is observed trickling down foundation walls in a steady stream.

Standard: No leak is acceptable. There are, however, several causes of leaks. The responsibility of correcting the leaks may be either the builder's or the homeowner's, depending on its cause.

Cause 1: Leak is caused by a crack, regardless of size, in the foundation wall.

Builder's Responsibility: The builder will fill all cracks that cause leaks. This can be done by chiseling out and grouting the crack or by chiseling, cleaning and filling the crack with a latex-fortified cement mixture or similar substance designed to fill cracks and bond concrete.

Discussion: Foundation walls are subject to a wide variety of stresses. Because the majority of the wall is underground, it maintains a fairly constant temperature. Typically, the top 18 inches of the wall that extends out of the ground is subject to extreme seasonal temperature changes. These changes cause concrete to expand and contract. Combinations of stresses and temperature variations often cause cracks in the basement or foundation walls. These cracks do not affect the strength of the structure and may be easily repaired. The only circumstance that warrants correction is when the crack leaks.

Cause 2: Water is leaking in over the top of the foundation wall because the exterior grade is set too high.

Builder's Responsibility: The builder is to ensure that the final exterior grade is set below the level of the foundation wall to prevent water from seeping over the top. This is especially important where foundation walls are 'stair-stepped' in areas of daylight or walkout basements. If the finished grade outside the basement slopes toward the wall, the grade may be redesigned to encourage water to drain away. The final exterior grade must never be at or above the level of the top of the foundation walls.

Homeowner's Responsibility: If the final grade is changed by the homeowner at any time, then it is the homeowner's responsibility to correct the grade and all consequential problems.

Cause 3: Water is leaking in over top of foundation wall because of improper landscaping.

Builder's Responsibility: If the builder has planted landscaping as part of the contract, then he or she should have taken all necessary precautions to maintain grade and is responsible for meeting the standard.

Homeowner's Responsibility: When watering landscaping it is extremely important to make sure that no water is allowed to run toward or form puddles near the exterior of the foundation. The homeowner should also make sure that no sprinkler is allowed to hit the exterior of the home. When water hits the exterior, it can run down the walls and seep into the basement or foundation.

Discussion: Basement walls themselves are not waterproof. Where conditions have warranted, the builder should have damp-proofed or waterproofed the underground portions of the foundation to help prevent water from seeping in through surrounding soil. Leaks can be the result of anything from cracks in walls to improperly maintained landscaping. Before making extensive or expensive repairs to correct wet-wall conditions, thoroughly check the drainage system. Repairing or adjusting downspouts or gutters will often help carry surface water away from foundation walls.

Cause 4: Foundation walls are wet due to insufficient slope and drainage away from the foundation in cases where the builder has contracted to complete the final rough grading and finish grade. "Wet" shall be defined as actual water running or trickling from, through or under the basement wall and onto the floor.

Builder's Responsibility: If the building contract includes finish grading, the builder has the responsibility only once during the service period for supplying the soil and all labor necessary to properly replace the soil in areas within 10 feet of the foundation to meet applicable building codes and proper drainage.

Homeowner's Responsibility: The homeowner should continue to provide the labor for a positive drainage slope away from the foundation and to direct all downspouts or sump pump discharge lines away from the foundation to prevent subsequent water problems after the builder has corrected the situation one time.

Discussion: Dampness of the foundation walls, particularly at the upper two (2) feet and lower one (1) foot, are common to newconstruction and should not be construed as "wet".

Honeycombs

3.17 **Observation:** There are small voids, known as honeycombs, exposing large pieces of aggregate within the foundation walls.

Standard: Honeycombs are common in poured walls and are to be expected; however, honeycombs should not leak.

Builder's Responsibility: The builder will correct any honeycombs in poured walls that leak.

Discussion: These holes are primarily aesthetic and rarely result in structural damage. One instance where it could become a structural concern is if water is able to infiltrate the voids, freezing and causing the wall to expand, contract and possibly crack. Because the underground temperature is fairly consistent, it is unlikely that the foundation wall will ever be exposed to such temperature changes.

SECTION 4:
EXTERIOR CONCRETE

Background

Concrete consists of a mixture of many natural materials: water, cement, sand, gravel, fly ash and other various admixtures. These materials are combined in many different ways according to the specific use of the finished concrete, regional requirements, and climate. Because it is a natural product, it is difficult to control how it will react to various conditions that are beyond the control of both the builder and the homeowner.

Naturally occurring conditions affect concrete in numerous ways. Indiana is classified as a Severe Weather Region for concrete. NAHB defines a severe weather region as outdoor exposure in a cold climate where concrete may be exposed to the use of deicing salts or where there may be a continuous presence of moisture during frequent cycles of freezing and thawing. Exposure to severe weather can damage pavements, driveways, walks, curbs, steps, porches, and slabs in unheated garages. Destructive action from deicing salts may occur whether from direct application or from being carried onto an unsalted area from a salted area, such as on the undercarriage of a car traveling onto an unsalted area from a salted area. Concrete expands and contracts with temperature changes. This is especially a concern during the first year after concrete has been poured, because it still retains a lot of water.

Another characteristic of concrete that is difficult to control is color variations. Concrete itself can have varying colors due to the different types of sand and aggregates used in the mixture. Color variations can also be caused by admixtures such as calcium chloride, (the most commonly used admixture to accelerate the curing process of concrete and to reduce the effects of freezing). If concrete is poured on different days, and the previously poured concrete has had time to cure a bit, color differences will be apparent. Different brands and types of concrete may contain many varieties of sand, cement, admixtures, and aggregate that will result in color variations in the finished concrete. When repairs are made, the concrete used as a filler must be extremely dry to prevent shrinkage. This almost always results in a repair patch that is darker in color than the existing concrete. Because of the previous explanations for color

variations, it is to be expected that whenever a repair is made, it is nearly impossible to match the colors of concrete.

Because the curing of concrete is a chemical process and can take up to one year to complete, changes in size and strength are to be expected. It is very difficult to control the effects of water evaporation, air bubbles within the concrete, air humidity, and wind. Some chemical processes are controllable and are the responsibility of the homeowner. Pitting, spalling, or scaling can occur when salt or other deicers are applied directly to the surface of the concrete or when they are indirectly deposited on the surface by tires or feet. These substances cause rapid deterioration of the surface, by both chemically attacking the concrete and by drawing moisture near or within the surface and promoting expansion and contraction of the concrete during the freeze-thaw cycle. Other chemicals, such as lawn fertilizer, can also chemically attack the surface of the concrete, resulting in spalling, scaling, and pitting. Until concrete has cured, it can not withstand extreme weight such as moving vans, school buses, or garbage trucks. It is especially important to limit the amount of weight that is placed upon concrete during the first year because it needs sufficient time to cure and gain strength.

Stoops or Steps have Settled

4.1 **Observation:** Stoops or steps have settled or separated from the house structure.

Standard: Stoops and steps should not settle or separate in excess of 1 inch from the house.

Builder's Responsibility: The builder will correct to meet the standard.

Water Remains on Stoops or Steps

4.2 **Observation:** Water remains on stoops or steps after rain has stopped.

Standard: Water should drain off outdoor stoops and steps. Minor amounts of water can be expected to remain on stoops and steps for up to 24 hours after rain.

Builder's Responsibility: The builder will take corrective action to assure proper drainage of stoops and steps.

Concrete Driveway

4.3 **Observation:** Low spots in driveways in which water pockets appear, not caused by conditions stated in the background.

Standard: No measurable water depth exceeding 1/2 inch is acceptable on concrete driveways.

Builder's Responsibility: The builder will correct to meet the standard by replacing areas as needed. Color and texture variations are to be expected.

Cracks in Exterior Concrete

4.4 **Observation:** Exterior concrete - sidewalks, porches, patios, driveways, etc. - are cracked.

Standard: Some random cracking of exterior concrete will occur and is to be expected. If settling causes cracks that exceed 1/4 inch width or 3/16 inch in vertical displacement, it is considered excessive.

Builder's Responsibility: The builder is responsible for correcting only those cracks that exceed the standard. An appropriate joint or crack filler can be used and is acceptable for a crack up to 1/2 inch in width or vertical displacement.

Homeowner's Responsibility: For aesthetic purposes, smaller cracks may be filled with a waterproof concrete caulk. While this may reduce the appearance of the crack, it should be noted that there will be a color and texture variance between the original concrete and the caulking.

Discussion: Driveways, patios, and sidewalks should have expansion and contraction joints which help to control surface cracking. Refer to definition number 5 on page 9.

Spalling, Scaling, or Pitting from Pop-Outs in Exterior Concrete

4.5 **Observation:** Exterior concrete surfaces are spalling, scaling and pitting from pop outs exposing aggregate.

Standard: Under normal conditions of weathering and use, exterior concrete surfaces should not disintegrate; however, minor spalling, scaling and pitting from pop outs should be expected.

Builder's Responsibility: If concrete surfaces have spalled, scaled or pitted under normal weathering and use, the builder will take corrective action as necessary to meet the standard. The builder is not responsible for damage that is the result of spalling, scaling or pitting caused by salt, chemicals, mechanical implements, or other factors beyond the builder's control.

Homeowner's Responsibility: The homeowner should take precautions to reduce or eliminate the exposure of exterior concrete to salt, chemicals, mechanical implements, and other factors which could damage the concrete surface.

Stains on Exterior Concrete

4.6 **Observation:** Exterior concrete is stained.

Standard: Exterior concrete will stain.

Builder's Responsibility: None.

Homeowner's Responsibility: The homeowner should take precautions to prevent petroleum-based products, solvents, and paint from coming in contact with exterior concrete surfaces. By keeping stain remover on hand, many stains can be made less visible if treated immediately. (It should be noted, however, that these products may also weaken the surface of concrete.)

Discussion: Concrete is a porous, natural product that absorbs such substances as petroleum-based products, solvents, and paints. When a liquid enters concrete, it can seep from top to bottom or bottom to top (a stain may appear from underneath the surface, even if nothing was spilled upon the top surface of the concrete). It should also be expected that mud from the construction site could get into the porous surface of concrete. This is beyond the control of the builder and falls within the parameters of this standard.

SECTION 5:
WOOD FRAMING

Background

The following standards apply to the installation of dimensional wood framing materials and other wood framing components, such as trusses, used in the construction or remodeling of a house.

Many varied species of lumber are used as building components and are imported here from all parts of the United States, Canada, and in some instances, outside of North America.

Since almost all of the lumber used in home construction is not indigenous to this area, it goes through a period known as "stabilization." This phase usually lasts through one complete change of all seasons, or in some cases longer. During this time it is common for wood components 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 the drywall, the effect is usually seen only on the outside of the drywall, such as mitered joints that were once closed and have now opened up, or doors that initially operated efficiently and now will not latch properly. These problems are due to the stabilization of lumber and should be attended to as late in the service period as possible so as to allow sufficient time for lumber to stabilize.

CARPENTRY

Wood Floors

5.1 **Observation:** Wood subfloors are uneven

Standard: Subfloor should not be more than 1/4 inch off level within any 32 inch span and not to exceed 1/2 inch off level within any 20 foot span. Allowable floor and ceiling joist deflections are governed by local building codes.

Builder's Responsibility: The builder will meet the standard.

Discussion: The builder has many options to bring the floor into acceptable tolerances at either the initial or finished carpentry stages.

5.2 **Observation:** Springiness, bounce, shaking, or visible sag is observed in floor.

Standard: All beams, joists, headers, and other structural members shall be sized and fasteners spaced according to local building codes.

Builder's Responsibility: The builder will modify any floor not meeting the standard.

Discussion: Deflection may indicate insufficient stiffness in the lumber, or may reflect an aesthetic consideration independent of the strength and safety requirements of the lumber. Joists are required to meet standards for maximum deflection as called out in the building code span tables.

5.3 **Observation:** Floor squeaks.

Standard: Extensive research on this subject concludes totally squeak-proof floors cannot be guaranteed but reasonable efforts should be made to eliminate the squeak.

Builder's Responsibility: The builder will refasten any loose subfloor or take other corrective action to eliminate squeaking to the extent possible without removing floor and ceiling finishes. Due to the nature of floor squeaks, total elimination may not be possible.

Discussion: Floor squeaks may occur when a subfloor has come loose from the joists or when the subfloor is deflected by the weight of a person or furniture and rubs against the nails that hold it in place. The subfloor or joists may be bowed, and the nails may also be expelled from the wood during drying or the stabilization process of the home. Movement may occur between the joist and bridging or other floor members when one joist is deflected while the other members remain stationary. Gluing the subfloor is an acceptable method of code compliance and may help reduce the possibility of squeaks. Renailing floor joists with ring-shank nails will also substantially reduce severe floor squeaks. Because the standard requires the builder to make a reasonable attempt to eliminate

squeaks without requiring removal of floor and ceiling finishes, nailing loose subflooring with casing nails into the carpet surface and countersinking the head is an acceptable practice, as long as it is not readily visable.

Beams or posts

5.4 **Observation:** Wood beam or post made of dimensional lumber is split.

Standard: Beams and posts, especially those 3-1/2 inches or greater in thickness (which normally are not kiln dried), will sometimes split as they dry after installation. Such splitting is usually not a structural concern if posts and beams have been sized according to National Forest & Paper Association span tables.

Aesthetically, splits under 1/4 inch do not need to be filled. A 1/4 inch to 3/8 inch split should be filled, and splits over 3/8 inch requires replacement of the beam or post.

Builder's Responsibility: Builder will repair or replace any beam or post with a defect that does not meet the standard. Filling splits is acceptable for widths up to 3/8 inch.

Discussion: Some characteristics of drying wood are beyond the control of the builder and cannot be prevented. Compensation is made in span tables for the probable reduction in strength resulting from splitting caused by drying; therefore, splitting is primarily an aesthetic concern rather than a structural problem. Only aesthetic concerns are addressed in this section, and any structural questions should be referred to the Building Code. The builder and the homeowner may agree that the unfilled cracks are not aesthetically a concern and may be left unfilled.

5.5 **Observation:** Wood beam or post is twisted or bowed.

Standard: Beams and posts, especially those 3-1/2 inches or greater in thickness (which normally are not kiln dried), will sometimes twist or bow as they dry. This is usually not a structural concern if they have been sized according to National Forest & Paper Association span tables. Bows and twists exceeding 3/4 inch in an 8 foot section are unacceptable from an aesthetic standpoint.

Builder's Responsibility: Builder will repair or replace any beam or post that does not meet the standard.

Discussion: Some characteristics of drying wood are beyond the control of the builder and can not be prevented. Compensation is made in span tables for the probable reduction in strength resulting from bowing or twisting; therefore, bowing and twisting is addressed from an aesthetic concern only in this section. Any structural concerns should be referred to the Building Code.

5.6 **Observation:** Wood beam or post is cupped.

Standard: Beams and posts, especially those 3-1/2 inches or greater in thickness (which normally are not kiln dried) will sometimes cup as they dry after construction. Cupping is usually not a structural concern if posts and beams have been sized according to National Forest & Paper Association span tables. Cups exceeding 1/4 inch in 5-1/2 inches are unacceptable from an aesthetic stand point.

Builder's Responsibility: Builder will repair or replace any beam or post with a defect that does not meet the standard.

Walls

5.7 **Observation:** Wood framed walls are out of plumb.

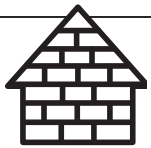
Standard: The wall should not be out of plumb more than 1/2 inch for every 8 foot vertical measurement.

Builder's Responsibility: Builder to meet the standard.

5.8 **Observation:** Wall is bowed.

Standard: All interior and exterior walls have slight variances in their finished surface. Walls shall not bow more than 1/2 inch out of line within any 32 inch horizontal measurement, or a total of 1 inch on any overall horizontal wall measurement. Additionally, walls shall not bow more than 1/2 inch out of line within any 8 foot vertical measurement or a total of 1 inch on any overall vertical wall measurement.

Builder's Responsibility: Builder to meet the standard.



SECTION 6:
MASONRY VENEER AND FIREPLACES

Background

Masonry work is performed with quarried natural materials or with products manufactured by relatively simple processes which have been selected for their durability. As such, manufactured products are subject to the same weathering phenomena as in their natural state, such as erosion, freezing and thawing, chipping, natural color variations and nonuniform size. Masonry work can be performed with an almost infinite variety of materials, methods of application and techniques of installation. This permits the homeowner an almost infinite range of personal choice, but, at the same time, creates a situation that can never again be exactly duplicated. The final appearance of masonry depends on the variation of the techniques of the individual workman. When using a veneer material, 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; the color of the mortar; the shading of the brick or stone variation from batch to batch; the choice of the material size; the size of brick, or the type of stone chosen; the weather conditions; and the individual workmanship performed by the mason.

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.

Veneers

6.1 **Observation:** Masonry veneer wall is cracked.

Standard: Cracks up to 1/8 inch wide due to shrinkage are common in mortar joints in masonry construction. Cracks over 1/8 inch wide are not acceptable. *(Exception to the standard: Windows, doors and other sills should show no evidence of cracks.)*

Builder's Responsibility: The builder will repair cracks in excess of the standard. Some acceptable means include, but are not limited to tuck pointing, patching, caulking or painting. Builder will not be responsible for color variation between original and new mortar.

6.2 **Observation:** A white chalk-like substance appears on the surface of the brick work and/or mortar joints.

Standard: The occurrence of efflorescence, 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. On the contrary, efflorescence results from chemical compounds inherently found in the various elements of the masonry (i.e. bricks, mortar, mixing water, etc.) and do not reflect a defect in the bricks, mortar or application process.

Builder's Responsibility: None. This is a normal condition.

Homeowner's Responsibility: Properly washing the brick after one year may help eliminate this problem.

6.3 **Observation:** Brick veneer course is not straight.

Standard: No point along the bottom of any standard size brick course shall be more than 1/4 inch higher or lower than any other point within 10 feet along the bottom of the same course, or 1/2 inch in any overall length. However, the homeowner and the builder may agree to match or otherwise allow for pre-existing conditions.

Builder's Responsibility: Even though this is an aesthetic consideration, the builder will rebuild the wall or replace bricks as necessary to meet the standard.

Discussion: Dimensional variations of the courses depend upon the variations in the brick selected.

6.4 **Observation:** Exterior cut bricks are of different thicknesses below openings.

Standard: Cut bricks used in the course directly below an opening shall not vary from one another in thickness by more than 1/4 inch. The smallest dimension of a cut brick should be greater than 1 inch.

Builder's Responsibility: The builder will repair the wall to meet the standard.

Discussion: Bricks are cut to achieve required dimensions at openings and ends of walls when it is not possible to match unit/mortar coursing.

6.5 **Observation:** There are mortar stains on exterior brick or stone.

Standard: Exterior brick and stone shall be free from mortar stains detracting from the appearance of the finished wall when viewed from a distance of 20 feet.

Builder's Responsibility: The builder will clean the mortar stains to meet the standard.

6.6 **Observation:** Water is absorbed through brick work and is leaking inside the structure.

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

Builder's Responsibility: The builder should inspect the masonry to determine the potential problem and correct any masonry problem creating a leak. Only when remedial repairs have been made and problems still exist should a clear water repellent coating be considered for brick masonry in which case the builder is responsible for such appropriate application once during the service period.

Homeowner's Responsibility: If the builder has applied a clear water repellent one time during the service period then it is the homeowner's responsibility to maintain the waterproofing seal after the service period.

6.7 **Observation:** There are color variations in mortar joints.

Standard: Color variations can occur in mortar joints due to weather conditions and is acceptable.

Builder's Responsibility: None

6.8 **Observation:** Used bricks are deteriorating.

Standard: The performance of used materials cannot be warranted.

Builder's Responsibility: None

6.9 **Observation:** Brick veneer is spalling from chimney surface.

Standard: Spalling of newly manufactured brick should not occur and is unacceptable. Spalling of used brick is acceptable.

Builder's Responsibility: Builder will repair newly manufactured brick when spalling appears. Used bricks are not under warranty.

6.10 **Observation:** There is soil or construction-related debris on the exterior facade.

Standard: Soil or debris from outside elements can occur during the building process.

Builder's Responsibility: The builder will clean one time at the time of closing per manufacturer recommendations.

Fireplaces & Chimneys

6.11 **Observation:** The fireplace or chimney does not draw properly.

Standard: Builder should install a prefabricated fireplace or construct a fireplace and/or chimney that is operable under all conditions except the following:

1) Temporary downdrafts created in abnormal weather conditions,

2) Conditions where large obstructions, such as trees, cause a poor draft, and

3) Geographical conditions (for example a valley) that is beyond the control and responsibility of the builder.

Builder's Responsibility: Correct fireplace or chimney to meet the standard and/or local building codes applicable at the time of construction.

Homeowner's Responsibility: It shall be the homeowner's responsibility to remove any obstructions causing poor draw of the fireplace which are beyond the builder's control.

Discussion: The builder is responsible for correct draft of gas logs when installed by the builder, however, the homeowner is responsible for correct draft of owner installed gas logs.

6.12 **Observation:** The chimney cap leaks.

Standard: It is normal for masonry caps to crack. All chimney caps are subject to expansion and contraction, however, leaks should not occur inside the home.
Builder's Responsibility: Builder will repair leaks to meet the standard.

SECTION 7:
SYNTHETIC FINISHING SYSTEMS

Background

An Exterior Insulation Finishing System (EIFS) is an exterior wall building skin made up of various components: reinforcing fabrics, primus/adhesive, synthetic plaster finish, and/or insulation board.

EIFS

7.1 **Observation:** EIFS insulation board and substrates crack, buckle, wrinkle, or delaminate.

Standard: EIFS insulation board and substrates should not crack, buckle, wrinkle or delaminate under normal circumstances unless damaged by impact or penetration.

Builder's Responsibility: Builder will repair affected areas, matching texture and color as closely as possible. The builder repairs are to be done in accordance with standards of good workmanship. Beyond the date of closing the builder is not responsible for cracks, buckles, wrinkles, delamination or related problems caused by impact or penetration.

Homeowner's Responsibility: Although synthetic finishing systems are a low maintenance material, the expansion joint caulking must be regularly observed and maintained by the homeowner to keep any moisture from penetrating the system. The homeowner must understand that repairs may not match finishes of existing wall.

7.2 **Observation:** Exterior Insulation Finishing System (EIFS) stucco wall surface is cracked.

Standard: Cracks in exterior stucco wall surfaces shall not exceed 1/8 inch in width.

Builder's Responsibility: Builder will repair cracks exceeding 1/8 inch in width once during service period.

Discussion: The word "stucco" includes cementitious coatings and similar synthetic finishes.

7.3 **Observation**: Coating separates from the base on exterior stucco wall.

Standard: The coating should not separate from the base on an exterior stucco wall during the service period.

Builder's Responsibility: Builder will repair areas where the coating has separated from the base once during the service period.

Discussion: A color match between stucco coatings applied at different times is practically impossible to achieve and a perfect match should not expected.

7.4 **Observation:** Colors of new exterior stucco walls or other synthetic finish systems walls do not match existing stucco walls.

Standard: The colors of new exterior stucco walls and other synthetic finish systems walls may not perfectly match the colors of old exterior stucco walls or new synthetic finishes systems walls.

Builder's Responsibility: None.

Discussion: The color of stucco and other synthetic finishes are unique and it is practically impossible to match colors between stucco coatings and other synthetic finishes applied at different times.

7.5

Observation: Finish textures of exterior stucco or synthetic finishes of new walls do not match.

Standard: Texture of new exterior stucco walls may not perfectly match the textures of old exterior stucco walls and other synthetic finishes applied at different times.

Builder's Responsibility: None.

SECTION 8:
EXTERIOR TRIM, SIDING AND WOOD DECKS

Exterior Trim and Siding Background

There are many different types of exterior trim, ranging from vinyl and aluminum to natural wood, hardboard siding and wood shingles. Each type of trim offers a different style and requires specific maintenance.

Vinyl and aluminum siding are affordable ways to simulate the look of wood and reduce the need for maintenance. While vinyl and aluminum siding do not require painting and are usually guaranteed against rusting, peeling, blistering and flaking, both vinyl and aluminum siding have a tendency to expand and contract with temperature changes and can wave and ripple more than other products.

Hardboard and other manufactured forms of siding are designed to expand and contract less than natural wood siding.

Natural wood siding and shingles weather and age over time. There products can offer a greater degree of flexibility for design purposes, such as unique window and door trim, eaves, screened porches and columns.

Because exterior trim is continually exposed to all variations of temperature and weather conditions, expansion and contraction can occur on an ongoing basis and to a greater degree that seen on wood pieces in the enclosed structure. These products require regular maintenance by the homeowner. To reduce deterioration, all natural wood products should maintain a coat of paint or stain. Any open joints beyond the standard specifications need to be caulked to prevent water infiltration, which could speed deterioration of the wood. In all cases, no water or other elements should be able to pass through the trim to the interior of the house.

It should be noted that while occasionally homeowners contract to do all interior painting themselves, the builder generally performs all exterior painting functions. Where the builder is contractually

responsible for the painting of exterior trim and siding, the builder will be responsible for any caulking as required by a standard. Additionally, the builder will be responsible for any touch up, repainting, or restaining of adjusted or replaced parts or pieces to satisfy a standard. The builder will match the caulking and/or paint or stain as closely as possible to the original color and texture, but a perfect match is not to be expected.

If the homeowner has contracted to do the painting, the builder will not be responsible for caulking as required by any standard. Likewise, the builder will not be responsible for any necessary touchups, repainting, or restaining of any adjusted or replaced parts or pieces. (Note: The painting responsibilities of these contractual obligations may be redefined per the contractual agreement between the homeowner and the builder.)

Wood (and manufactured products) Trim and Siding

8.1 **Observation:** Gaps show in exterior trim.

Standard: Joints between exterior wood trim pieces and siding or brick should not result in gaps wider than 1/4 inch.

Builder's Responsibility: The builder will repair or replace trim pieces with joints that do not meet the standard. Gaps exceeding 1/4 inch but less than 3/8 inch may be caulked. Gaps exceeding 3/8 inch should have trim or siding pieces replaced and repainted.

Discussion: Gaps are sometimes intentionally made for expansion joints depending on the products selected and the application process used.

Refer to paragraphs 6 and 7 in the Background (page 37 & 38) for clarification about painting responsibilities.

8.2 **Observation:** Exterior butt and miter joints of wood trim do not fit properly.

Standards: Joints should not result in gaps in excess of 3/16 inch.

Builder's Responsibility: The builder will repair or replace trim pieces with joints exceeding 3/16 inch. Joints in excess of 3/16 inch but less than 5/16 inch may be caulked. Trim pieces should be replaced and repainted where gaps exceed 5/16 inch.

Discussion: Refer to paragraphs 6 and 7 in the Background (page 37 & 38) for clarification about painting responsibilities.

8.3 **Observation:** Exterior trim board or siding is split.

Standard: Splits exceeding 1/8 inch in width need to be corrected.

Builder's Responsibility: The builder will repair splits greater than 1/8 inch but less than 1/4 inch by using a permanent filler. Trim pieces or siding with splits greater than 1/4 inch are to be replaced and repainted.

Discussion: Refer to paragraphs 6 and 7 in the Background (page 37 & 38) for clarification about painting responsibilities.

8.4 **Observation:** Exterior trim board is bowed or twisted.

Standard: Bows and twists exceeding 3/8 inch in 8 feet need to be corrected.

Builder's Responsibility: The builder will repair or replace trim pieces that are bowed or twisted and do not meet the standard. It is acceptable to re-nail bowed or twisted trim pieces to meet the standard.

Discussion: Some bowing of the exterior trim is to be expected because the framing of the interior structure may be slightly bowed.

Refer to paragraphs 6 and 7 in the Background (page 37 & 38) for clarification about painting responsibilities.

8.5 **Observation:** Exterior trim board is cupped.

Standard: Cups exceeding 3/16 inch in 5-1/2 inches (width of a stand trim board) need to be corrected.

Builder's Responsibility: The builder will repair or replace trim pieces that are cupped and do not meet the standard. It is acceptable to re-nail cupped pieces to meet the standard.

Discussion: Refer to paragraph 6 and 7 in the Background (page 37 & 38) for clarification about painting responsibilities.

8.6 **Observation:** Horizontal lap siding is not installed on a level straight line.

Standard: Any piece of lap siding more than 1/2 inch of out of level or off parallel with contiguous courses in 20 feet is unacceptable.

Builder's Responsibility: The builder will reinstall and repaint siding to meet the standard.

Discussion: The homeowner and the builder, for remodeling projects, may have agreed to disregard the standard in order to match a pre-existing structural or aesthetic condition on the existing structure.

Refer to paragraphs 6 and 7 in the Background (page 37 & 38) for clarification about painting responsibilities.

8.7 **Observation:** Face nails are excessively countersunk to expose visible fiber of hardboard siding.

Standard: Countersinking of nails to expose visible fiber of hardboard siding is not acceptable.

Builder's Responsibility: The builder is to thoroughly caulk and paint any visible fiber exposed by countersinking nails in hardboard siding. If the nail is countersunk 1/8 inch the nail is to be caulked and touched up with paint. If the nail is countersunk in excess of 1/8 inch the nail is to be caulked, touched up with paint and an additional nail should be installed flush to the surface.

Discussion: Refer to paragraphs 6 and 7 in the Background (page 37 & 38) for clarification about painting responsibilities.

8.8 **Observation:** Horizontal lap siding is bowed.

Standard: Bows in siding exceeding 1/2 inch in 32 inches are unacceptable.

Builder's Responsibility: The builder will repair or replace any siding with bows that does not meet the standard.

Discussion: Some bowing of the exterior siding is to be accepted because the framing of the interior structure may be slightly bowed. Also, if siding is held by nails into stud, expansion caused by increasing relative humidity may cause bulges or waves.

Refer to paragraphs 6 and 7 in the Background (page 37 & 38) for clarification about painting responsibilities.

8.9 **Observation:** Horizontal lap siding end gap is visible.

Standard: End gaps between two pieces of siding should not exceed 3/16 inch.

Builder's Responsibility: The builder will repair or replace any siding with end gaps that does not meet the standard. Gaps up to 5/16 inch may be caulked. Trim pieces should be replaced and repainted where gaps exceed 5/16 inch.

Discussion: Sometimes siding may be installed to intentionally leave gaps for expansion and contraction.
Refer to paragraphs 6 and 7 in the Background (page 37 & 38) for clarification about painting responsibilities.

8.10 **Observation:** Siding is buckled.

Standard: Siding that projects more than 3/16 inch from the face of adjacent siding is unacceptable.

Builder's Responsibility: The builder will repair or replace any siding not meeting the standard.

Discussion: Buckling can result when humidity causes the siding to expand.
Refer to paragraphs 6 and 7 in the Background (page 37 & 38) for clarification about painting responsibilities.

8.11 **Observation:** Nail has stained siding.

Standard: Stains exceeding more than 1/2 inch from the nail and readily visible from a distance of more than 20 feet are unacceptable. This standard does not apply if "natural weathering" or semi-transparent stain is specified for the job.

Builder's Responsibility: The builder will repair or replace any siding where nail stains do not meet the standard. The builder will touch up paint or stain of the affected area once during the service period.

Discussion: Stains may be from oxidation of nails or leaching of extractives from the wood. Use of galvanized nails will not necessarily prevent staining.

Refer to paragraphs 6 and 7 in the Background (page 37 & 38) for clarification about painting responsibilities.

8.12 **Observation:** There is soil or construction-related debris on the exterior facade.

Standard: Soil or debris from outside elements can occur during the building process.

Builder's Responsibility: The builder will clean one time at the time of closing per manufacturer recommendations.

Wood Shake Siding

8.13 **Observation:** The natural color or resins of cedar shakes or shingles have "bled" through paint or stain applied to the wood shake siding.

Standard: Resins and extractives bleeding through paint or stain, or blackening of shakes or shingles is unacceptable. This standard does not apply if "natural weathering" or semi-transparent stain is specified for the job.

Builder's Responsibility: One time during the service period the builder will clean and treat shakes to provide a reasonable appearance and to help prevent further bleeding.

Discussion: Refer to paragraphs 6 and 7 in the Background (page 37 & 38) for clarification about painting responsibilities.

Plywood or Other Veneer Siding

8.14 **Observation:** Siding has delaminated.

Standard: Siding shall not delaminate.

Builder's Responsibility: The builder will replace delaminated siding unless the delamination was caused by the homeowner's actions or negligence.

Discussion: Refer to paragraphs 6 and 7 in the Background (page 37 & 38) for clarification about painting responsibilities.

8.15 **Observation:** Joints between plywood or other veneer siding have separated.

Standard: Joint separations exceeding 3/16 inch are unacceptable.

Builder's Responsibility: The builder will caulk or repair siding as necessary to meet the standards. Gaps exceeding 3/16 inch, but less than 5/16 inch may be caulked. Where gaps exceed 5/16 inch, the plywood or other veneer pieces are to be replaced.

Discussion: Refer to paragraphs 6 and 7 in the Background (page 37 & 38) for clarification about painting responsibilities.

8.16 **Observation:** Veneer siding is bowed or twisted.

Standard: Bows and twists exceeding 1/2 inch in 32 inches are unacceptable.

Builder's Responsibility: The builder will renail or replace siding as necessary to meet the standard. It is acceptable to renail bowed or twisted pieces to meet the standard.

Discussion: Some bowing of the exterior plywood or other veneer pieces is to be expected because the framing of the interior structure may be slightly bowed.

Refer to paragraphs 6 and 7 in the Background (page 37 & 38) for clarification about painting responsibilities.

Aluminum Lap or Vinyl Lap Siding

8.17 **Observation:** Siding is bowed or wavy.

Standard: Some waviness in lap siding is to be expected either because of bows in studs or from siding panels expanding and contracting due to changes in heat and cold. Thermal expansion waves

or distortions in aluminum lap or vinyl lap siding (sometimes called oil canning) are unacceptable if they exceed 1/2 inch in 32 inches.

Builder's Responsibility: The builder will correct any thermal expansion waves or distortions to comply with the standard by reinstalling or replacing siding as necessary.

Discussion: This problem can be caused either by the siding being nailed too tightly to the house (instead of loosely hung in the center of the nail slots) not allowing adequate room for the siding to expand at the ends. The appearance of aluminum or vinyl lap siding may change on a periodical basis from heating and cooling, weather conditions or sunlight.

Any repairs to siding that are necessary to meet the standard may not match due to normal fading or manufacturer color changes.

8.18 **Observation:** Siding color is faded.

Standard: Any color of siding, when exposed to the ultra violet rays of the sun, will fade. The builder cannot prevent this condition. However, panels installed on the same wall will generally fade at the same rate.

Builder's Responsibility: None

Homeowner's Responsibility: The homeowner should clean siding on a yearly basis using manufacturer's recommendations for cleaning.

Discussion: Any necessary repairs to siding needed to meet standards may not match due to fading or manufacturer color changes.

8.19 **Observation:** Aluminum or vinyl lap siding courses are not level or parallel with eaves, wall openings, or with contiguous courses.

Standard: Any piece of aluminum or vinyl lap siding more than 1/2 inch out of level or off parallel with contiguous courses in 20 feet is unacceptable, unless the homeowner and the builder have previously agreed to disregard the standard to match a pre-existing condition.

Builder's Responsibility: The builder will reinstall siding to comply with the standard and replace any siding damaged during removal.

Discussion: The homeowner and the builder, for remodeling projects, may have agreed to disregard the standard in order to match a pre-existing structural or aesthetic condition on the existing structure.

Any necessary repairs to siding needed to meet standards may not match due to fading or manufacturer color changes.

8.20 **Observation:** Aluminum or vinyl lap siding trim nail is exposed under window, door, or eave.

Standard: All facing nails should be the same color as the trim. No nail heads in the field of the siding should be exposed.

Builder's Responsibility: The builder will install the trim nails to meet the standard.

Discussion: Vinyl siding generally should not be face nailed. However, there are appropriate and typical occasions when a face nail may be needed to reinforce a joint or hold the siding to the wall when it is cut to fit around window frames, doors, roofs, or other obstructions on the wall.

8.21 **Observation:** Aluminum or vinyl lap siding trim accessory is separated from caulking at windows or other wall openings.

Standard: Siding trim accessories should not separate from caulking at windows or other wall openings more than 1/4 inch during the service period.

Builder's Responsibility: The builder will repair or recaulk trim pieces to meet the standard. Gaps exceeding 1/4 inch but less than 3/8 inch may be caulked. Trim accessories should be replaced where gaps exceed 3/8 inch.

Discussion: Any repairs to siding that are necessary to meet standards may not match due to fading or manufacturer color changes.

8.22 **Observation:** Aluminum or vinyl lap siding is not cut straight.

Standard: Visible cuts in siding should be straight, plumb and neat. Crooked cuts greater than 1/8 inch from true are unacceptable.

Builder's Responsibility: The builder will repair or replace siding to meet the standard.

Discussion: Any repairs to siding to meet standards may not match due to fading or manufacturer's color changes.

8.23 **Observation:** Aluminum or vinyl lap siding is not cut tight to moldings.

Standard: Gaps between siding and molding shall not exceed 1/4 inch. Gaps exceeding 1/4 inch but less than 3/8 inch may be caulked. Siding pieces should be replaced where gaps exceed 3/8 inch.

Builder's Responsibility: The builder will correct the siding to meet the standard.

Discussion: Any repairs to siding that are necessary to meet standards may not match due to fading or manufacturer's color changes.

8.24 **Observation:** There is inadequate clearance between exterior siding and finished grade.

Standard: A 6 inch clearance should be maintained between siding and the finished grade at time of closing.

Builder's Responsibility: The builder will ensure that a 6 inch clearance exists between siding and fill or at the time of finish grade, which ever happens later, if the builder is responsible for the finish grade.

Homeowner's Responsibility: Homeowner, when adding fill for planting beds (mulch, topsoil, etc.) shall maintain a 6 inch clearance between siding and fill.

Discussion: Backfilling earth onto siding may cause the siding to discolor. Prolonged exposure may cause water damming and wicking behind the siding. Both parties are to fulfill their responsibility to avoid problems

8.25 **Observation:** There is "creeping" or noise in aluminum lap or vinyl lap siding.

Standard: "Creeping" or noise in aluminum lap or vinyl lap siding is an inherent characteristic of siding exposed to direct ultra violet rays. "Creeping" and noise is to be expected.

Builder Responsibility: None

Discussion: Aluminum lap and vinyl lap siding are attached to the structure using appropriate or proper spacing of nails. Siding is interlocked at the bottom of each piece and secured onto the nailed portion of the top of the panel below. Occasionally, wind will cause a rattling noise within the interlocked panels. "Creeping" is a process of expansion and contraction of siding moving across each other or the nails. Noise is the result of the friction of the panels rubbing and moving together.

Wood Decks

Background

Wood decks, popular alternatives to patios, are usually constructed with "pressure-treated" lumber because of its ability to resist decay and termites. Other species of wood, such as cedar and redwood, are also used. Any species of wood will darken to a gray color when exposed to the weather. Staining or painting can delay or prevent some of the color change.

Wood decks, being exposed to weather all year, will respond to the changes in temperature and moisture. Cracking, splitting, warping, bowing, and cupping are all normal occurrences. With regular maintenance, decks will provide many years of enjoyment.

8.26 **Observation:** Wood deck is "springy" or shaky.

Standard: Some shakiness or "springiness" should be expected. All structural members in a wood deck are sized and spaced according to appropriate building codes, the *National Forest and Paper Association span tables,* or a higher standard agreed upon before construction by the homeowner and the builder.

Builder's Responsibility: At the time of closing, the builder will reinforce or modify, as necessary, any wood deck not meeting the code guidelines. After closing the builder is not responsible for "springiness" caused by loose nails or bowed or warped boards that are the result of the deck's natural tendency to expand and contract with changes in the environment.

Homeowner's Responsibility: Maintenance of the deck, such as re-nailing loose nails and sealing the boards to prevent damage from the environment, is the responsibility of the homeowner.

Discussion: Deflection may indicate insufficient stiffness in the lumber or may reflect an aesthetic consideration independent of the strength and safety requirements of the lumber. Joists and girders are required to meet standards for both stiffness and strength. It should be noted that a deck consists of independent deck floor boards that can expand and contract at different rates, while the floor of a house is held together by larger pieces of sub-flooring, which helps to reduce the effects of expansion and contraction. Individual clients may not be satisfied with the deflection limits built into the code or span tables. When a customer's preference is made known before construction, a higher standard may be agreed upon by the builder and the homeowner.

8.27 **Observation:** Spaces between decking are not uniform.

Standard: The space on opposite sides of individual deck boards should not differ in average width by more than 3/16 inch at the time of installation (unless otherwise agreed upon between the builder and the homeowner.)

Builder's Responsibility: The builder will realign or replace decking boards to meet the standard. The builder is only responsible for correct spacing at the time of installation.

Discussion: The spaces between deck boards will naturally tend to change over time due to changes in the environment. Boards will expand when they get wet, when the weather is humid or when the air temperature is hot. During colder or drier weather, the boards will shrink. Some boards may expand or contract more than others, depending on their length, age and whether or not they have been sealed.

Properly and regularly sealing the deck boards may reduce the amount of expansion and contraction over time.

8.28 **Observation:** Wood deck is out of level.

Standard: No point on the deck surface shall be more than 1/2 inch higher or lower than any other deck surface point within 10 feet on a line parallel to the house, unless the homeowner and builder agree to intentionally build a wood deck out of level in order to match or compensate for inaccuracies in the existing structuring.
Builder's Responsibility: The builder will repair as necessary to meet the standard.

Discussion: A slope of approximately 1/8 inch per foot is desirable in the perpendicular direction of the decking to shed water.

8.29 **Observation:** Wood deck boards are split.

Standard: At the time of installation, splits in wood deck boards shall not exceed 1/8 inch.

Builder's Responsibility: The builder will replace deck boards as necessary to meet the standard at the time of installation.

Discussion: Properly and regularly sealing the deck boards may decrease the tendency for boards to split.

8.30 **Observation:** Wood deck boards are warped or bowed.

Standard: At the time of installation, wood deck boards should not bow more than 3/8 inch in 8 feet.

Builder's Responsibility: The builder will replace deck boards as necessary to meet the standard at the time of installation.

Discussion: Properly and regularly sealing the deck boards may decrease the tendency for boards to warp.

8.31 **Observation:** Wood deck boards are cupped.

Standard: At the time of installation, cups in wood decking boards shall not exceed 1/4 inch in 5 1/2 inches.

Builder's Responsibility: The builder will replace deck boards as necessary to meet the standard at the time of installation.

Discussion: Properly and regularly sealing the deck boards may decrease the tendency for boards to cup.

8.32 **Observation:** Stain color variations are on wood deck.

Standard: Stain color variations are not acceptable if they result from improper stain application or failure to mix the stain properly. Stain color variations resulting from weathering of the boards or from varying porosity of the wood used to build the deck are normal and are not covered by this standard.

Builder's Responsibility: The builder will restain the boards as necessary to meet the standard.

8.33 **Observation:** Wood deck board has nail head protruding.

Standard: At the time of closing nail heads shall not protrude from the floor of the wood deck.

Builder's Responsibility: At the time of closing, the builder will refasten nails with heads protruding from the floor of the deck so that the heads are flush with the surface and the boards are secure.

Homeowner's Responsibility: It is the homeowners responsibility to periodically check the deck for protruding or loose nails, and to renail as necessary.

Discussion: Nails should be driven flush when the deck is installed, but they may pop from the deck boards over time as the wood shrinks and expands. Boards may become loose at the nail pop. Resecuring the boards in addition to resetting the nails may be necessary. Avoid using the same nail holes.

8.34 **Observation:** Nails on wood deck are "bleeding".

Standard: Nail stains extending more than 1/2 inch from the nail and readily visible from a distance of more than 6 feet are not acceptable.

Builder's Responsibility: The builder will eliminate nail stains to meet the standard or replace the deck board if necessary.

Discussion: This standard does not apply if "natural weathering" or semi-transparent stains are specified.

8.35 **Observation:** Wood deck railing lacks rigidity.

Standard: At the time of closing, wood deck railings shall be firmly and securely attached to structural members so that no visible movement occurs under normal use.

Builder's Responsibility: The builder will repair or resecure deck railings as necessary to comply with the standard.

Homeowner's Responsibility: It is the homeowner's responsibility to ensure that the deck railings are used as a means of fall prevention and not used to support the weight of an individual(s) by sitting or leaning on the rail.

8.36 **Observation:** Railings on wood decks contain slivers in exposed areas.

Standard: Railings on wood decks should not contain slivers longer than 1/8 inch in any exposed area at the time of closing.

Builder's Responsibility: The builder will repair railings as necessary to remove the slivers to meet the standard.

Arbor Homes

SECTION 9:
ROOF STRUCTURE, ROOFING MATERIALS AND FLASHING, GUTTER, DOWNSPOUTS, AND SKYLIGHTS

Background

There are two basic types of roofs, flat and pitched. These two types have numerous variations. The so-called flat roof may actually have some slope for drainage. This type of roof is not as common in the Indianapolis home market today as it was in the 50's, but still has an occasional application. The slope is generally expressed as the rise being given first, as for instance 4 inches in rise per 12 inches horizontal. For purposes of definition, flat roofs might be classified as those having less than a 3-in-12 slope. This slope is the greatest for which a shingle is ordinarily allowed to be installed on a roof according to local building codes. Pitched roofs may vary in slope from 3-in-12 to 14-in-12 or more, depending on the architectural design and the intended use of the attic space.

All species of softwood framing lumbers are acceptable for roof framing, subject to maximum allowable spans for the particular species, grade, and use. Since all species are not equal in strength properties, larger sizes, as determined from the design, must be used for weaker species for a given span.

Roof structures in the Indianapolis market usually consist of the main roof body, valleys, dormers and overhangs, covered by a plywood or OSB roof sheathing.

The purpose of the finished 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 home construction, the most common material used is the seal down asphalt or fiberglass shingle. This common shingle is manufactured by coating a dry felt core with asphalt or fiberglass, then 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. Color variation is quite common.

The shingle manufacturer provides all warranties on their product. Homeowners should familiarize themselves with these warranties.

Roof Structure

9.1 **Observation:** Roof ridge sags or bows.

Standard: Roof ridge should not sag or bow more than 1 inch in 10 feet, and not to exceed a 2-1/2 inch deflection on one continuous ridge.

Builder's Responsibility: The builder will repair any deficiencies which do not meet the standard.

9.2 **Observation:** Roof rafter bows.

Standard: Rafters that bow greater than 1 inch in 8 feet are considered excessive.

Builder's Responsibility: The builder will repair any deficiencies which do not meet the standard.

9.3 **Observation:** Roof sheathing is bowed and appears wavy.

Standard: Roof sheathing should not bow more than 1/2 inch in 2 feet.

Builder's Responsibility: The builder will straighten bowed roof sheathing as necessary to meet the standard.

Roof Vents

9.4 **Observation:** A roof vent or attic louver leaks.

Standard: Roof vents and attic louvers should not leak; however, infiltration of wind-driven rain and snow are not considered leaks and are beyond the control of the builder.

Builder's Responsibility: The builder will repair or replace the roof vents or louvers as necessary to meet the standard.

Discussion: Attics should have natural ventilation as required by the approved building codes. The builder will provide adequate

ventilation. The builder is not responsible for problems that may result from homeowner's alterations to the original system. Occasionally, driving rain or snow will infiltrate the vents, causing spotting on the ceiling. The builder is not responsible for such weather damage.

Fiberglass or Asphalt Shingles and Flashing

9.5 **Observation:** The roof or flashing leaks.

Standard: Roofs and shingles shall not leak under normal conditions. On some occasions, a driving rain with high wind at a particular angle to the shingle can produce a temporary leak. The water tightness of the roof is a combination of the shingling material and the sheet metal work used at the junctures of the roof and at openings such as the chimney.

Builder's Responsibility: The builder will repair any verified roof or flashing leaks not caused by wind-driven rains or snows, ice build-up, leaves, debris, or the homeowner's actions or negligence.

Homeowner's Responsibility: It is the homeowner's responsibility to keep the roof drains, gutters, and downspouts free of debris.

9.6 **Observation:** Ice builds up on the roof.

Standard: During prolonged cold spells, ice is likely to build up at the eaves of a roof. This condition occurs when snow and ice accumulate, and gutters and downspouts are frozen.

Builder's Responsibility: None

Homeowner's Responsibility: Prevention of ice build-up on the roof is a homeowner's maintenance item.

Discussion: Indiana has freeze-thaw cycles more frequently than most other states. It is common for winter storms to be followed by relatively mild temperatures, resulting in freeze-thaw cycles. These variations in temperatures can result in a build-up of ice in the gutters and roof valleys, known as an ice dam. Sometimes the ice can extend several inches above the level of the gutters. As this ice melts, it can cause water to back up under the shingles and roof decking or to seep through the shingles, causing leaks. Although roofs with a

low pitch are more susceptible to this type of leak, it can happen on any roof.

9.7 **Observation:** Shingles have blown off the roof.

Standard: Shingles should not blow off in winds less than the manufacturer's warranty covers for the type of shingle installed.

Builder's Responsibility: The builder will ensure proper installation of shingles.

Discussion: In excessively high winds, 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.

9.8 **Observation:** Shingles are not aligned.

Standard: Shingles should be installed according to the manufacturer's installation instructions to ensure the proper appearance.

Builder's Responsibility: The builder will remove shingles that do not meet the standard, and replace them with shingles that are properly aligned.

9.9 **Observation:** Shingle color mismatch.

Standard: Manufacturers do not guarantee 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. Color variations are to be expected.

Builder's Responsibility: None.

9.10 **Observation:** Shingle edges and corners are curled or cupped.

Standard: Shingle edges and corners should be flat.

Builder's Responsibility: The builder will ensure that all shingles will lay flat.

9.11 **Observation:** Shingles do not overhang edges of roof or hang too far over edges of roof.

Standard: Shingles shall overhang roof edges by not less than 1/4 inch and not more than 3/4 inch.

Builder's Responsibility: The builder will reposition or replace shingles as necessary to meet the standard.

9.12 **Observation:** Shingles have developed surface buckling.

Standard: Shingles buckling higher than 1/4 inch are considered excessive.

Builder's Responsibility: The builder will fix the affected shingles to meet the standard.

9.13 **Observation:** Sheathing nails have loosened from framing and raised shingles.

Standard: Nails should not loosen from roof sheathing to raise shingles from surface.

Builder's Responsibility: The builder will repair all areas as necessary to meet the standard.

9.14 **Observation:** Roofing nails are exposed at ridge of roof.

Standard: Nail heads shall be sealed to prevent leakage.

Builder's Responsibility: The builder will repair areas to meet the standard.

9.15 **Observation:** Holes from walk boards are visible in exposed portions of shingles.

Standard: There should be no holes from walk boards in the exposed part of the shingles.

Builder's Responsibility: The builder will replace any shingles not meeting the above standard.

Roll Roofing

9.16 **Observation:** Roof leaks due to water trapped under roll roofing.

Standard: Water shall not become trapped under roll roofing.

Builder's Responsibility: If water becomes trapped under roll roofing during the service period, the builder will repair or replace the roofing as necessary to meet the standard.

9.17 **Observation:** Roofing is bubbled or wrinkled but does not leak water.

Standard: Bubbled or wrinkled surface of roll roofing is caused by unusual conditions of heat and humidity acting on the asphalt and cannot be controlled by the builder.

Builder's Responsibility: None.

9.18 **Observation:** Water is standing on a flat roof.

Standard: Water should drain from a flat roof except for minor ponding limited to 48 hours following a rainfall.

Builder's Responsibility: Builder will take corrective action to assure proper drainage of the roof.

Chimney Flashing

9.19 **Observation:** Leak in new chimney flashing.

Standard: New chimney flashing should not leak under normal conditions, except where the cause is determined to result from ice build-up or the homeowner's actions or negligence.

Builder's Responsibility: The builder will repair leaks in new chimney flashing not caused from ice build-up or the homeowner's actions or negligence.

Homeowner's Responsibility: Chimney flashing and chimney caps should be kept in good condition in order to keep moisture from entering your chimney. They should be checked occasionally for rust, corrosion and secure attachment. Have loose flashing repaired

by a professional. If flashing is not tight, it will allow water to leak through the spot that the flashing is protecting.

Gutters and Downspouts

9.20 Observation: Gutters or downspouts leak.

Standard: Gutters and downspouts should not leak.

Builder's Responsibility: Builder will repair leaks in gutters and downspouts.

Homeowner's Responsibility: Keep all gutters and downspouts free of any debris, including leaves, tree limbs, and other objects which may block the normal flow of water through the system.

9.21 Observation: Gutters overflow during a heavy rain.

Standard: Gutters may overflow during a heavy rain.

Builder's Responsibility: The builder will repair if gutters overflow during normal rains.

Homeowner's Responsibility: Homeowner is responsible for keeping gutters free from debris that could cause overflow.

9.22 Observation: Water remains in the gutters after rain.

Standard: When a gutter is unobstructed by debris, the water level should not exceed 1 inch in depth.

Builder's Responsibility: Builder will repair the gutter to meet the standard.

Discussion: Installing gutters with a minimum 1/32 inch drop in 1 foot will generally prevent water from standing in the gutters. Even so, small amounts of water may remain in some sections of gutter for a short time after a rain. In areas with heavy rainfall and/or ice build-up the builder may consider increasing the pitch or fall or adding additional downspouts.

Skylights

9.23 **Observation:** Skylight leaks.

Standard: Leaks resulting from improper installation of skylights are unacceptable. Condensation on interior surfaces of skylights is not a leak and not considered a defect.

Builder's Responsibility: Builder will repair any leaks to meet the standard.

SECTION 10:
INSULATION

Background

Insulation is the process by which an inert, fire-resistant material is applied to walls, ceilings, and sometimes floors of a structure to act as a barrier to heat flow (R-value). This produces a more controlled interior climate in the home and conserves energy and fuel usage.

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

Insulation

10.1 **Observation:** Insufficient insulation.

Standard: Insulation should be installed according to both the R-values designated in the contract documents and local building codes.

Builder's Responsibility: Builder will install insulation to meet the standard.

Discussion: Proper installation shall include correct placement of insulation behind electrical boxes, studs, corner framing, and wiring. *Note:* Insulation does not render a wall or room soundproof.

10.2 **Observation:** Pipes freeze due to improper insulation.

Standard: Pipes should not freeze if properly insulated and all necessary homeowner precautions have been taken (See Discussion on page 62).

Builder's Responsibility: The builder will repair the damaged plumbing and correct the insulation to prevent pipes from freezing when homeowner has taken the necessary precautions. The

repair may involve opening the walls for access to the pipe and either adding or replacing insulation that may have moved during construction. It may be necessary to install a permanent heat vent to warm the space in order to prevent the freeze from reoccurring.

Homeowner's Responsibility: The owner is responsible for draining or otherwise protecting pipes and exterior faucets exposed to freezing temperatures.

Discussion: Homes should be heated consistently at a normal level to help prevent problems during cold weather. Outside faucets generally have a "freeze proof" feature, but in order for this feature to be effective, hoses must be removed during cold weather. If a hose is left attached, the water remaining in the hose may freeze, expanding back into the pipe and causing a break. Any such break is not an insulation or plumbing problem and is the homeowner's responsibility. Further, some water pipes and appliances such as water heaters, water meters and water softeners may be located in unheated and uninsulated garages. To help prevent the freezing of these pipes the homeowner should keep the garage doors closed. Further, plumbing located along exterior walls could be subject to freezing during extreme temperature conditions. During these extreme periods the homeowner should take necessary precautions to help prevent freezing of the plumbing fixtures. (ie open cabinet doors to these fixtures, leave a slow drip/trickle running in the faucet, etc.) Refer to section 18 for more plumbing freezes.

10.3 **Observation:** Drafts around doors and windows.

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

Builder's Responsibility: Builder will inspect and ensure that doors or windows are properly installed and adjusted correctly to minimize air infiltration.

10.4 **Observation:** Movement of blown attic insulation

Standard: On occasion, due to attic ventilation or unusually high winds, blown-in attic insulation will tend to move from its original position.

Builder's Responsibility: None.

Homeowner's Responsibility: In such cases, insulation should be repositioned by the homeowner.

Arbor Homes

SECTION 11:
WINDOWS & DOORS

Background

Windows and exterior doors serve both functional and aesthetic functions in a home. They provide security, privacy, and protection against the elements and a means of entering and existing the premises. They also serve as a source of natural light, heat, ventilation, noise reduction, and are an aspect of architectural detailing.

There are numerous brands and styles available to the homeowner today with an almost infinite number of features. Doors can be made of wood, composite materials, metal or fiberglass. Windows can be constructed of wood, composite materials, vinyl, aluminum or fiberglass. Each type of material offers durability, maintenance and finishing considerations that homeowners might want to review, if options are available.

Windows

11.1 **Observation:** Window is difficult to open or close.

Standard: Windows should operate with reasonable pressure.

Builder's Responsibility: The builder will correct or repair as necessary to meet the standard.

Homeowner's Responsibility: Routine maintenance will help ensure proper operation of the windows.

11.2 **Observation:** Window glass is broken and/or screen is damaged.

Standard: No glass should be broken or screen damaged at the time of closing.

Builder's Responsibility: At the time of closing, the builder will repair or replace the glass or screen to meet the standard.

Homeowner's Responsibility: Broken glass or screens not reported to the builder by final walk-through are the homeowner's responsibility.

11.3 Observation: Scratches appear on surface of glass.

Standard: Glass surfaces should not have scratches visible from 10 feet under normal lighting conditions.

Builder's Responsibility: At the time of closing, the builder will replace any scratched glass surface that does not meet the standard.

Discussion: Normal lighting conditions are defined by indirect sunlight or medium artificial light. High intensity lighting, direct sunlight, or artificial lighting aimed directly on an area is not considered within the definition of normal lighting. Likewise, sconce lights which cast light directly on a wall surface is not within the definition of normal lighting.

11.4 Observation: Condensation and/or frost on inside surfaces of windows.

Standard: Windows will collect condensation on their interior surfaces when extreme temperature differences and high humidity levels occur. Condensation usually results from humid conditions within the home created by the owner or during the curing process in a new space.

Builder's Responsibility: Unless the window condensation or frost is directly attributed to a faulty installation, it usually results from conditions beyond the builder's control. If windows have been properly installed no corrective action is required.

Homeowner's Responsibility: If a humidifier is installed, homeowner must follow the manufacturer's recommendations for proper operation.

Discussion: Occasional window condensation in the kitchen, bath or laundry area is common. It is the homeowner's responsibility to maintain proper relative humidity level in the house.

11.5 Observation: Air leaks in and/or around windows

Standard: Windows should be installed properly to help eliminate air leaks in and/or around windows.

Builder's Responsibility: If air comes in because windows or weather-stripping were fitted poorly, builder will repair the improperly fitted windows or weather-stripping.

Discussion: Some air infiltration around windows could occur during periods of high winds. During periods of variances between inside and outside air temperatures variations of the temperature near the window may occur and is to be expected.

11.6 Observation: Condensation between window panes.

Standard: There should be no condensation between the window panes.

Builder's Responsibility: The builder will repair or replace the window to meet the standard.

11.7 Observation: During rains, water appears on interior corner of glazed window unit.

Standard: Water leakage from improper installation is unacceptable.

Builder's Responsibility: The builder will repair any deficiencies attributable to improper installation.

Exterior Doors and Garage Doors

11.8 Observation: Exterior door is warped.

Standard: Exterior doors shall not warp to the extent that they become inoperable, cease to be weather-resistant, or exceed 1/4 inch measured diagonally from corner to corner.

Builder's Responsibility: The builder will correct or replace exterior doors that do not meet the standard. The builder is not responsible for exact matches of wood grains, stains, paint finishes or discontinued styles for replacement doors.

Discussion: Exterior doors will warp to some degree because of the difference in the temperature between inside and outside surfaces. Warping may also be caused by improper or incomplete finishing of the door including sides, top and bottom.

Refer to paragraphs 6 and 7 in Section 8 in the background (page 37 & 38) for clarification about painting responsibilities.

11.9 **Observation:** Raw wood shows at the edges of inset panel on exterior door.

Standard: Wooden panels will shrink and expand because of temperature and/or humidity changes and may expose unpainted surfaces. This does not constitute a defect. Shrinkage of panel doors should not create actual gaps between the panels and their frame or meeting surface.

Builder's Responsibility: The builder will repair or replace and refinish the panel to meet the standard once during the service period.

Homeowner's Responsibility: The homeowner is responsible for touching up exposed areas of unpainted areas caused by shrinkage of door panels.

Discussion: Refer to paragraphs 6 and 7 in Section 8 in the background (page 37 & 38) for clarification about painting responsibilities.

11.10 **Observation:** Door panel is split.

Standard: Split panels should not allow light to be visible through the door.

Builder's Responsibility: The builder will repair and paint, or stain the split panel that does not meet the standard once during the service period.

Discussion: Refer to paragraphs 6 and 7 in Section 8 in the background (page 37 & 38) for clarification about painting responsibilities.

11.11 **Observation:** Exterior door sticks.

Standard: Exterior doors shall operate smoothly. As an exception, wooden exterior doors may stick during occasional periods of high humidity.

Builder's Responsibility: The builder will adjust or replace the door to meet the standard.

Discussion: Exterior doors will warp to some degree because of the difference in the temperature between inside and outside surfaces. Warping may also be caused by improper or incomplete finishing of the door including sides, top and bottom.

Refer to paragraphs 6 and 7 in Section 8 in the background (page 37 & 38) for clarification about painting responsibilities.

11.12 Observation: Door swings open or closed by the force of gravity.

Standard: Exterior doors shall not swing open or closed by the force of gravity alone.

Builder's Responsibility: The builder will adjust the door to prevent it from swinging open or closed by the force of gravity unless self-closing doors are required by the local building codes.

11.13 Observation: Air leaks around the doors.

Standard: Doors will be installed properly to minimize air leaks around the doors.

Builder's Responsibility: If air comes in because doors were installed improperly or weather-stripping were fitted poorly, the builder will repair to meet the standard.

Discussion: It is normal to have gaps between the door edge and the frame and the threshold. The gaps shall not vary in size by more than 3/16 inch. To prevent air infiltration, properly fitted weather-stripping is necessary. Additionally, the threshold should be properly sealed to the sub-floor or concrete slab. During cold temperatures and high winds, some air infiltration is to be expected.

11.14 Observation: Gaps are visible between exterior door edge, door jamb, and threshold.

Standard: Gaps should not exceed 3/16 inch.

Builder's Responsibility: The builder will repair to meet standard.

Discussion: It is normal to have gaps between the door and the frame and the threshold. The gaps shall not vary in size by more than 3/16 inch. To prevent air infiltration, properly fitted weather-stripping is necessary. Additionally, the threshold should be properly sealed to the sub-floor or concrete slab. During cold temperatures and high winds, some air infiltration is to be expected.

11.15 Observation: Sliding patio door or screen will not stay on track.

Standard: Sliding patio doors and screens should slide on their tracks at the time of closing.

Builder's Responsibility: The builder shall correct or adjust to meet the standard.

Homeowner's Responsibility: Cleaning and maintenance necessary to preserve proper operation are the homeowner's responsibility.

11.16 Observation: Garage door fails to operate properly.

Standard: Garage doors should operate properly under normal conditions.

Builder's Responsibility: The builder should install garage door to meet the above standard.

Homeowner's Responsibility: Springs are under tension at all times and should never be adjusted except by those with a thorough knowledge of the mechanism.

Discussion: Homeowner should be able to lift the door smoothly and with little resistance. It should stay open around three to four feet above the floor. If it does not, it is out of balance.

11.17 Observation: Garage doors sag.

Standard: Garage door should not sag.

Builder's Responsibility: The builder will secure, reinforce and support track as required to provide the strength and rigidity to ensure that the garage door will not sag.

11.18 **Observation:** Garage doors leak during periods of rain or snow.
Standard: Garage doors should not leak, under normal conditions.

Builder's Responsibility: The builder will repair leaks resulting from a failure to properly install the garage doors. During severe weather conditions, some leakage may occur.

Discussion: In the situation where there is an apron poured below the actual garage floor level, the door should sit on the apron and there should be no gaps at the floor. In the situation where there is no apron and the garage door sits on the garage floor, there may be a small gap at the center of the control joints. Perimeter weather-stripping should rest against the door on both sides and across the top. There should be no gaps around the door. "Gaps" does not mean "daylight," since some perimeter weather-strip is translucent.

Arbor Homes

SECTION 12:
DRYWALL AND PLASTER FINISHES

Background

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

Drywall and plaster are a relatively inflexible gypsum material that is applied to rough framing materials in the home. Both products are applied in sheets which are nailed and/or screwed to the studs or joists. The joints between the sheets are then taped and finished with a layer of plaster joint compound. The entire surface is painted or textured to produce a finished surface that is judged on it's appearance. Due to the differences in texture between tape, joint compound and the Gypsum Wallboard product, there will be inherent differences in the texture when finished, which, depending upon the angle viewed and lighting, may be noticeable. 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 warping and are not perfectly level and plumb, problems can occur through stress and strain placed on drywall during the stabilization of the lumber. This is inherent in the construction of a home. For example, if a stud twists after drywall is installed and finished, this twist will be reflected in either a concave or a convex surface to the drywall or plaster. If this shrinkage in any particular area exceeds the flexibility of the gypsum wall board and the finishing plaster, a crack or other imperfection will occur. Depending on the size of the crack, these conditions may be considered a defect or simply a cosmetic characteristic of the products used.

Inconsistencies in drywall and plaster finishing are classified as either defects or cosmetic finishing imperfections. For cosmetic finishing imperfections (not cracks or nail pops), the general rule to be applied is, if a cosmetic finishing imperfection is readily noticed by visual inspection, it should be repaired. Readily noticed by visual inspection shall mean from a distance of 6 feet under normal lighting conditions. Normal lighting conditions are defined by indirect

sunlight or medium artificial light. High intensity lighting, direct sunlight, or artificial lighting aimed directly on an area is not considered within the definition of normal lighting. Likewise, sconce lights which cast light directly on a wall surface is not within the definition of normal lighting. Other examples of cosmetic finishing imperfections include nail pops that do not break the finished surface and drywall cracks that do not exceed 1/8 inch in width. Drywall cracks that exceed 1/8 inch and nail pops that break the finished surface are considered defects.

Due to the initial stabilization problem, which exists with the new home, it is impractical to correct each individual defect as they occur. Doing so would create significant inconvenience for the homeowner since it can take multiple trips to complete a drywall repair. The entire house will tend to stabilize itself near the end of the service period; therefore, it is recommended that the homeowner submit one repair request near the end of the 12th month after closing to address any drywall defects or cosmetic repairs. Cosmetic finishing imperfection repairs will be made no more than once during the service period.

Since drywall and plaster are finish materials, repairs will be slightly visible through color or texture variations. This mismatch will be even more critical when a special texture finish has been employed. Repairs do not require repainting when they are applied on unpainted surfaces such as ceilings or when the builder did not contract for the painting. The builder will attempt to match the repair color and texture as closely as possible; but an exact match of the repair with the surrounding areas is impossible to achieve. When painting is part of the contract, the builder will be responsible for touching up paint with original color in repaired areas only. If the builder provides the homeowner with paint, paint touch up will be a homeowner responsibility.

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

Drywall and Plaster Finishes

12.1 **Observation:** Cracks and separations in drywall and/or corner beads; nail pops.

Standard: The builder will correct drywall defects such as cracks and

separation in drywall, cracks and separation in corner beads and nail pops in excess of 1/8 inch at any time during the one year service period. The builder will correct nail pops, which have broken finished surface. The builder is not responsible to repair drywall or tape cracking that is caused by truss uplift as defined in Section 12.3 Slight imperfections as defined in Section 12.2 are not covered under this standard.

Builder's Responsibility: The builder will repair the above defects to match the original finish as closely as possible. The builder will apply touch up paint to the repairs with the original paint color in areas where the builder was responsible for the original interior painting. A perfect match between original paint and touch up paint cannot be expected. The builder is responsible to touch up only the repaired areas and not an entire room or wall. The builder is not required to repair defects that are covered by wallpaper.

12.2 **Observation:** Minor seam separations, corner bead cracks, blisters, ridging at seam lines, and mounds at nail heads.

Standard: The above items are cosmetic finishing imperfections and not defects since they are common conditions that are generally caused by lumber stabilization and should be expected. Cosmetic finishing imperfections that can be readily observed by visual inspection from a distance of 6 feet under normal lighting conditions will be repaired by the builder one time during the service period, except where normal repainting will cover the blemish, as in the case of a hairline crack. The builder is not responsible to repair drywall or tape cracking that is caused by truss uplift as defined in Section 12.3.

Builder's Responsibility: As a courtesy one time during the service period, the builder will repair cosmetic finishing imperfections as defined above to match the original finish as closely as possible. The builder will touch up and paint the repairs with the original paint color in areas where the builder was responsible for the original interior painting. A perfect match between original paint and touch up paint cannot be expected. The builder is responsible to touch up only the repaired areas and not an entire room or wall. When the paint is provided to the homeowner by the builder, the homeowner will be responsible for paint touchups. The builder is not required to repair blemishes that are covered by wallpaper.

Discussion: Normal lighting conditions are defined by indirect sunlight or medium artificial light. High intensity lighting, direct sunlight, or artificial lighting aimed directly on an area is not considered within the definition of normal lighting. For more information regarding normal lighting conditions refer to the Background in this section in the 4th paragraph.

12.3 **Observation:** Cracks or breaks in tape where walls meet insulated ceiling.

Standard: Cracks where interior walls meet insulated ceilings can be 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 may crack the drywall tape.

12.4 **Observation:** Repaired textured ceiling or walls do not match.

Standard: Texture and color variations are to be expected.

Builder's Responsibility: None

SECTION 13:
PAINTING, VARNISHING AND WALLPAPERING

Background

The purpose of painting is more than decoration. Paint and stain protect exposed surfaces from the weather. Preservation is the primary purpose of painting, varnishing and staining. The intent is to produce a surface sealed from moisture. When the homeowner has contracted with the builder for painting, the builder is responsible for properly applying the material in accordance with the industry standards of proper workmanship. Nail holes on interior surfaces must be puttied and joints must be properly caulked. These standards apply to finished living areas and not to garage and unfinished basement areas.

Interior wall paint coverage can be affected by the color of the selected paint. In general, pastel or bold colors do not cover well and may take three or more coats. The homeowner should refer to his/her contract with the builder 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 process of a new home, it is recommended for the homeowner's protection that no wallpaper be installed during the first year of occupancy. When evaluating paint, varnish and wallpaper repairs, the general rule to be applied is, if the defect is readily noticed by visual inspection, it should be repaired. Readily noticed by visual inspection shall mean from a distance of 6 feet under normal lighting conditions. Normal lighting conditions are defined by indirect sunlight or medium artificial light. High intensity lighting, direct sunlight, or artificial lighting aimed directly on an area is not considered within the definition of normal lighting. Likewise, sconce lights which cast light directly on a wall surface is not within the definition of normal lighting.

Painting, Varnishing and Wallpapering

13.1 **Observation:** Exterior paint or stain is peeling, chalking or fading (except gutters, downspouts or other sheet metal areas.)

Standard: Peeling, chalking or fading, except through the normal oxidation process, should not occur during the service period.

Builder's Responsibility: The builder shall properly prepare and repaint the affected areas, matching the color as closely as possible. Homeowner must understand that 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 one time during the service period.

13.2 **Observation:** Varnished or stained exterior millwork deteriorates due to weather conditions, including sunlight.

Standard: Due to weather conditions, including exposure to sunlight, the finish on varnished or stained millwork cannot be warranted.

Builder's Responsibility: None

Homeowner's Responsibility: Varnished or stained millwork requires more frequent refinishing than do painted surfaces.

13.3 **Observation:** Inconsistent finishes on exterior and/or interior painted walls or millwork can be readily observed from a distance of 6 feet, under normal lighting conditions.

Standard: The builder is responsible to apply as consistently as possible the number of coats specified in the contract. Pre-primed millwork has a primer coat. The number of primer coats and final coats shall be the same throughout the house unless otherwise specified in the contract.

Builder's Responsibility: The builder will provide the proper number of coats as specified in the contract. If a primer coat has been omitted an additional final coat may be added as a substitute.

Discussion: Refer to paragraph 2 in the Background (page 75) for the definition of normal lighting conditions.

13.4 **Observation:** Painting is required as a result of repair work.

Standards: Where repaired areas require paint touch up or repainting, the builder will be responsible only if painting was part of the builder's contract and specifications.

Builder's Responsibility: The builder will properly prepare and repaint affected areas, matching color as closely as possible. Homeowner must understand that touch up may not match exactly. Should the paint repair affect the majority of a wall or area, the area, but not necessarily the entire room, should be repainted. The builder will repaint in accordance with standards of good workmanship one time during the service period.

13.5 **Observation:** The exterior and/or interior painted surfaces do not seem to be washable.

Standard: Washability is as defined by the paint manufacturer.

Builder's Responsibility: None

13.6 **Observation:** Brush marks show on interior painted surface.

Standard: Brush marks shall not be readily visible on interior painted surfaces when viewed from a distance of 6 feet, under normal lighting conditions.

Builder's Responsibility: The builder will refinish as necessary to meet the standard and match surrounding areas as closely as practical.

Discussion: Some homeowners and builders may agree that visible soft brush marks are preferred in certain applications. Such an agreement shall be made prior to the application of paint. Refer to paragraph 2 in the Background (Page 75) for the definition of normal lighting conditions.

13.7 **Observation:** Interior surface is spattered with paint.

Standard: Paint spatters shall not be readily visible on walls, woodwork, floors, or other interior surfaces when viewed from a distance of 6 feet, under normal lighting conditions.

Builder's Responsibility: The builder will remove paint spatters to meet the standard.

Discussion: Some homeowners and builders may agree that visible soft brush marks are preferred in certain applications. Such an agreement shall be made prior to the application of paint. Refer to paragraph 2 in the Background (Page 75) for the definition of normal lighting conditions.

13.8 **Observation:** Lap marks show on interior paint or stain.

Standard: Lap marks shall not be readily visible on interior paint or stain when viewed from a distance of 6 feet, under normal lighting conditions.

Builder's Responsibility: The builder will refinish as necessary to meet the standard and match surrounding areas as closely as practical.

Discussion: Some homeowners and builders may agree that visible soft brush marks are preferred in certain applications. Such an agreement shall be made prior to the application of paint. Refer to paragraph 2 in the Background (Page 75) for the definition of normal lighting conditions.

13.9 **Observation:** There are color variations of stained woodwork.

Standard: Stain color will vary on different types of wood. Because of wood graining, the stain color may vary throughout the same piece of wood and wood types.
Builder's Responsibility: None

13.10 **Observation:** Varnish or lacquer interior finishes have deteriorated.

Standard: Clear finishes on interior woodwork should not deteriorate during the service period.

Builder's Responsibility: The builder will retouch affected areas of clear-finish interior woodwork and match the original finish as closely as practical.

13.11 **Observation:** Wallpapering is losing adhesion.

Standards: Wallpapering should not lose adhesion under normal wear.

Builder's Responsibility: Provided the wallpapering is in the builder's contract, it should be repaired. If a patch or repair must be made, builder shall match as closely as possible. Because of dye lot differences, homeowner must understand an exact match may not be possible. Builder is not responsibile for discontinued patterns. If installed by the homeowner, wallpaper repairs are the homeowner's responsibility.

13.12 Observation: Patterns in wall covering are mismatched at the seams.

Standard: Patterns in wall coverings shall match as closely as possible.

Builder's Responsibility: None

Discussion: It is normal to have some amount of mismatching at the seam. Some seams may be more readily visible than others. Defects in the pattern are a manufacturers responsibility.

13.13 Observation: Homeowner's wallpapering or homeowner's painting is affected by related repairs.

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

Builder's Responsibility: None

Arbor Homes

SECTION 14:
CARPET, RESILIENT FLOORING, WOOD FLOORING, CERAMIC TILE, BRICK, MARBLE AND STONE FLOORING

Background

All types of flooring are subject to flaws, conditions and stresses of the surfaces to which they are applied. Examples include, but are not limited to, expansion and contraction, warping, settling, moisture and temperature fluctuations, most of which occur during a stabilization period. This section will focus on the installation and workmanship of flooring products, which are the builder's or remodeler's responsibility. The quality and durability of the products vary greatly. Frequently, two different floor types will meet. The point at which these floor types meet there may be slight differences in height between the two surfaces. This difference is referred to as "lippage."

Carpet

Carpet is manufactured in a variety of weaves, patterns, weights and grades. Carpet is subject to "dye lot" differences because a limited quantity of a given material is produced at the same time. There may be noticeable differences in the same pattern of flooring produced from one dye lot to another (color, texture and pattern variations). The number of seams may vary due to the different widths in which carpet is available. This standard is concerned mostly with the installation of the carpet.

14.1 **Observation:** Carpet does not meet at seams.

Standard: It is not unusual for carpet seams to show; however, a visible gap at the seams is not acceptable.

Builder's Responsibility: If the carpet were installed by the builder, the builder will eliminate gaps at carpet seams.

14.2 **Observation:** Carpet comes loose or stretches.

Standard: When stretched and secured properly, wall-to-wall

carpet should not come up, loosen or separate from points of attachment at the time of closing.

Builder's Responsibility: If the carpet were installed by the builder, the builder will restretch or resecure as necessary to meet the standard.

Homeowner's Responsibility: Homeowners should avoid dragging heavy objects across carpet to reduce loosening or stretching of carpet.

14.3 **Observation:** Spots or minor fading are visible on the carpet.

Standard: Exposure to natural light may cause spots or minor fading of the carpet.

Builder's Responsibility: At the time of closing the builder will take corrective action as necessary to remove stains and spots noted at that time.

Homeowner's Responsibility: It is important to check with the maintenance recommended by the manufacturer.

14.4 **Observation:** Voids (holes) appear in padding below the carpet's surface.

Standard: Carpeted areas should have full pad coverage consistently throughout the carpeted areas.

Builder's Responsibility: The builder will repair any deficiencies to meet the standards.

14.5 **Observation:** There is excessive lippage at the junction between carpet and hard surface flooring, such as tile or hardwood.

Standard: Lippage greater than 1/4 inch is considered excessive.

Builder's Responsibility: The builder will repair the flooring to meet the standards.

Resilient Flooring

Resilient flooring is a term which describes relatively nonporous materials, including but not limited to: sheet vinyl, linoleum and vinyl tiles. Resilient flooring is secured to a properly prepared surface with an adhesive designed for this application. All resilient flooring is subject to normal manufacturing tolerances, which may be noticed when replacement or repair work is performed. "Dye Lot" refers to a limited quantity of material produced at a given time. There may be noticeable differences in the same pattern of flooring produced from one dye lot to another (color, texture, and pattern variations). A common floor problem occurs when a repair is needed and there is not an exact match between the replacement and the existing flooring due to dye lot variations. Other factors outside the builder's or remodeler's control, which may contribute to the impossibility of making an exact match even within the same dye lot, are cleaning product buildup on the existing floor or environmental differences such as sunlight variations or chemical reactions. Also, it may be impossible for the builder or remodeler to obtain the same pattern if it has been discontinued from production.

Definitions:

"Inlaid" and "Rotovinyl" Sheet Flooring: Vinyl sheet flooring is available as "inlaid" (the pattern going throughout the wear layer of vinyl) and as "rotovinyl" (the pattern is printed on top of the flooring). Both are then covered with a layer of wearing surface.

Vinyl sheet floor coverings range from having no cushion at all to having a thick cushion beneath the wear layer. Although the thick cushion increases comfort, the vinyl can be dented by heavy objects and shoe heels.

Vinyl composition tiles: Solid (or pure) vinyl tiles are homogeneous vinyl which is unbacked and usually has uniform composition throughout. Solid vinyl composition tiles do not have a wear layer top coat.

NOTE: Inlaid, Rotovinyl, and Composition tiles are installed on wood subfloors or over on-grade and below-grade concrete. Rubber backed rugs can effect the finish on these floors.

14.6 **Observation:** Nail pops appear on the surface of resilient flooring.

Standard: After all appliances are installed by the builder any visible nail pops should be repaired.

Builder's Responsibility: The builder will repair the resilient floor covering in the affected areas. The builder is not responsible for patterns or color variations when repairing floor covering, although efforts will be made to repair with similar materials.

Tears in the Surface of Resilient Flooring

14.7 **Observation:** There are tears, cuts and scratches in the surface of resilient flooring.

Standards: At the time of closing, there should be no tears, cuts and scratches in the surface of resilient flooring when viewed from a distance of 6 feet, under normal lighting conditions.

Builder's Responsibility: The builder will repair the resilient floor coverings in the affected areas at the time of closing that are visible from a distance of 6 feet, under normal lighting conditions. The builder is not responsible for patterns or color variations when repairing floor covering, although efforts will be made to repair with similar materials.

Homeowner's Responsibility: The homeowner should be careful not to drag items across the resilient flooring. Heavy items, such as appliances, tables and chairs, may tear, cut or scratch the surface.

Discussion: Refer to paragraph 2 in section 13 in the Background (Page 77) for the definition of normal lighting conditions.

14.8 **Observation:** Depressions or ridges appear in resilient flooring because of subfloor irregularities.

Standards: Depressions or ridges exceeding 1/8 inch should be repaired. The ridge or depression measurement is taken with the gap at one end of a 6-inch straightedge centered over the depression or ridge with 3 inches of the straightedge held tightly to the floor on one side of the defect.

Builder's Responsibility: The builder will take corrective action to bring the defect within the acceptable tolerance so that the depres-

sion or ridge is not readily visible and is not more than 1/8 inch. The builder will not be responsible for discontinued patterns or color variations when repairing the floor covering, although efforts will be made to repair with similar materials.

14.9 **Observation:** Resilient flooring loses adhesion.

Standard: Resilient flooring should not lift or detach from the surface.

Builder's Responsibility: The builder will repair the affected resilient flooring as necessary. The builder is not responsible for discontinued patterns or color variations when repairing the floor covering, although efforts will be made to repair with similar materials.

14.10 **Observation:** Seams or shrinkage gaps show in resilient sheet flooring.

Standard: Open gaps at seams in resilient sheet flooring are not acceptable. Where dissimilar materials meet, the gap shall not exceed 1/8 inch.

Builder's Responsibility: The builder will repair the resilient flooring as necessary to meet the standard. The builder will not be responsible for discontinued patterns or color variations when repairing the floor cover, although efforts will be made to repair with similar materials.

Discussion: Due to available width in manufacturer products, seaming may be required. These seams may be visible but should not be gaping.

There are many acceptable means of adjusting a gap in the flooring where dissimilar material abutt, including, but not limited to, the use of a transition strip to suit the application.

14.11 **Observation:** Bubbles appear on roll vinyl flooring.

Standard: Bubbles resulting from trapped air that protrude higher than 1/16 inch from the floor are not acceptable.

Builder's Responsibility: The builder will repair the floor to meet the standard.

Discussion: The standard does not apply to perimeter attached vinyl floors, where only the perimeter part of the flooring is attached to the underlying surface.

14.12 **Observation:** Patterns on roll vinyl flooring are not aligned.

Standard: Patterns at seams between adjoining pieces should be aligned to within 1/16 inch.

Builder's Responsibility: The builder will correct the flooring to meet the standard.

14.13 **Observation:** Resilient floor tile is loose.

Standard: Resilient floor tiles shall be securely attached to the floor.

Builder's Responsibility: The builder will attach loose resilient floor tiles securely to the floor. The old adhesive will be removed, if necessary, to resecure the tiles.

14.14 **Observation:** Corners or patterns of resilient floor tiles are not aligned.

Standard: The corners of adjoining resilient floor tiles shall be aligned to within 1/8 inch. Non-aligned patterns are not addressed by this standard unless they result from improper orientation of floor tiles.

Builder's Responsibility: The builder will correct resilient floor tiles with non-aligned corners to meet the standards.

Discussion: Some tiles are not uniform in size and complete alignment maybe impossible.

Wood Flooring:

Wood flooring, because of its very nature as a wood product, may expand, contract, cup and warp due to moisture and temperature variations of 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. Wood flooring 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. There are many wood flooring species, domestic and imported, available to the consumer today. The harder the wood, the less susceptible it is to denting. Many of the wood flooring characteristics are inherent in the species selected and should be expected and will warrant no concern or correction. Pet traffic, unprotected chair and table legs, high heel shoes and athletic hard sole or spike shoe traffic will increase the occurrence of scratches, dents and mars. Some stains and wood species wear differently than others. Areas directly over heat runs may experience more movement than in other areas. These conditions are beyond the control of the builder.

14.15 **Observation:** Gaps exist between strip wood floor boards.

Standard: Gaps between strip wood floor boards shall not exceed 1/16 inch in width at time of installation.

Builder's Responsibility: The builder will repair gaps that do not meet the standard.

Homeowner's Responsibility: The homeowner is responsible for maintaining proper humidity levels in the home.

Discussion: Proper repair can be achieved by filling the gap. The relative humidity of the home will cause noticeable fluctuations in gaps up to 1/4 inch between floor boards. This is normal in spaces that experience significant shifts in humidity. The homeowner is responsible for maintaining proper humidity levels in the home; however, even with the proper humidity levels, gaps still will appear as a result of the changes caused by the heating and cooling systems.

14.16 **Observation:** Strip wood floor board is cupped.

Standard: Cups in strip wood floor boards shall not exceed 1/16 inch height in a 3 inch maximum span measured perpendicular to the long axis of the board. Cupping caused by exposure to moisture beyond control of the builder is not covered.

Builder's Responsibility: The builder will correct or repair to meet the standard.

Discussion: The relative humidity of the home can cause noticeable fluctuations between floor boards. This is normal in spaces that experience significant shifts in humidity. The homeowner is responsible for maintaining proper humidity levels in the home to help ensure minimal changes and fluctuations in floor boards. Even with proper humidity levels, changes still may appear as a result of the heating and cooling systems.

14.17 **Observation:** There is excessive lippage at the junction of wood flooring products to other flooring material at the time of installation.

Standard: Lippage greater than 1/16 inch is considered excessive.

Builder's Responsibility: The builder will repair flooring to meet the standard.

Discussion: Lippage is the difference in height at the juncture of two types of flooring materials. Some type of transition strip may be necessary.

14.18 **Observation:** Crowning (or warping) of strip flooring has occurred.

Standard: Crowning (or warping) of strip flooring shall not exceed 1/16 inch in a 3 inch span when measured perpendicular to the long axis of the board.

Builder's Responsibility: The builder will repair to meet the standard.

Discussion: The relative humidity of the home can cause noticeable fluctuations between floor boards. This is normal in spaces that experience significant shifts in humidity. The homeowner is responsible for maintaining proper humidity levels in the home to help ensure minimal changes and fluctuations in floor boards. Even with proper humidity levels, changes still may appear as a result of the heating and cooling systems.

14.19 **Observation:** Wood flooring buckles from its substrate (underlying support).

Standard: The wood flooring should not become loose from substrate.

Builder's Responsibility: The builder will repair to meet the standard.

14.20 **Observation:** Slivers or splinters appear in strip flooring.

Standard: Slivers or splinters that are present at the time of closing are unacceptable.

Builder's Responsibility: The builder will repair to meet the standard.

Discussion: Imperfections can be shaved and filled prior to sanding and finishing. Any corrections made after finishing may not match.

14.21 **Observation:** Sticker marks or planer burns appear through the finish on the surface of strip flooring.

Standards: Discoloration from stacking strips or planers on flooring is unacceptable.

Builder's Responsibility: The builder shall repair or replace finished areas with sticker marks or planer burns.

14.22 **Observation:** The top coat of wood flooring finish has peeled.

Standard: The top coat of wood flooring finish should not peel during normal usage.

Builder's Responsibility: The builder shall refinish any field-applied finishes that have peeled. Peeling of the pre-finished coating will be referred to the manufacturer.

Ceramic Tile, Brick, Marble and Stone Floor

Ceramic tile is a product manufactured in many shapes and colors. Ceramic 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 installation. Most of the problems with ceramic tile occur as a result of the stabilization of the surfaces on which the tile is applied. Adding tile over concrete that has cracked can create an ongoing problem for the homeowner and in such cases, an alternative choice of flooring material should be given serious consideration. It is normal for concrete to crack (see Section 3.11 Cracks in Basement Floor or Slabe on Grade).

While various crack fillers or suppressant materials can be used, they do not prevent the crack from expanding and contracting. As the movement of the concrete takes place, it can cause the tile or grout to crack.

Definitions:

Quarry Tile - Quarry tile is made of clay and shale. It comes in natural and pastel tones, with color distributed throughout the tile. It is usually cut in 6 inch squares or larger. New quarry tile has a dull, unglazed surface.

Glazed ceramic tile - Glazed ceramic tile has a shiny, matte, or textured look, resulting from a finishing spray that is applied before firing. The finish keeps liquids from soaking into the tile pores, but may dull the surface in high traffic areas. Manufacturers generally recommend sweeping the file with a soft broom and an occasional damp mopping with water. Soap is not recommended, as it leaves a cloudy film. Glazed tiles may be slippery. Manufacturers rate a tile's slip resistance on a scale of I through IV, with the higher number indicating better resistance.

Grout - Grout is a thin mortar used to secure tiles. Grout sealers may be used to prevent its discoloring from soil and moisture.

Marble - Marble is a naturally occurring, recrystallized limestone. It is soft and porous. It will stain easily if not initially sealed with at least two coats of penetrating sealer. White marble is softer and less dense than colored marble, so it stains more easily. Dark marble shows scratches more easily.

14.23 Observation: Tile, brick, marble or stone flooring is broken or loose.

Standard: Tile, brick, marble or stone flooring should not crack or loosen under normal wear.

Builder's Responsibility: The builder will replace cracked tiles, bricks, marble, and stone flooring and resecure loose tiles, brick, marble or stone once during the service period, unless the defects were caused by the homeowner's actions or negligence. The builder is not responsible for discontinued patterns or color variations when replacing tile, brick, marble or stone flooring.

14.24 **Observation:** Cracks appear in the grouting of tile joints or at junctures with other materials, such as a bathtub.

Standard: Cracks in grouting are normal and to be expected, however cracks in grouting or caulking in excess of 1/16 inch should be repaired one time during the service period.

Builder's Responsibility: The builder will repair grouting or caulking where cracks exceed 1/16 inch to meet the standard. The builder will not be responsible for color variations or discontinued colored grout.

Discussion: Cracks in grouting, or caulking where appropriate, of ceramic tile joints commonly result from normal shrinkage conditions.

14.25 **Observation:** There is excessive lippage of adjoining ceramic or marble to other flooring materials.

Standard: Lippage greater than 1/16 inch is considered excessive, except where the materials are designed with irregular heights.

Builder's Responsibility: The builder will repair to meet standards.

Discussion: Lippage is the difference in height at the junction of two types of flooring materials. Some type of transition strip may be necessary.

14.26 **Observation:** Grout or mortar joint is not a uniform color.

Standard: Color variation that is visible from a distance of 6 feet under normal lighting conditions at the time of closing is unacceptable.

Builder's Responsibility: The builder will repair to meet the standard.

Discussion: Due to the porous nature of grout, discoloration and staining under normal household conditions should be expected and is not the responsibility of the builder.

Normal lighting conditions are defined by indirect sunlight or medium artificial light. High intensity lighting, direct sunlight, or artificial lighting aimed directly on an area is not considered within the definition of normal lighting. Likewise, sconce lights which cast light directly on a wall surface is not within the definition of normal lighting.

SECTION 15:
FINISHED CARPENTRY & MILLWORK

Background

Wood and wood-like 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. 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. Interior trim is manufactured in specified lengths and it is not uncommon in long walls for it to be spliced.

It should be noted that over the past several years, a marked change has taken place in the area of finished carpentry. Considerably less of the 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. There are lots of options ranging from custom-made cabinetry to pre-manufactured, pre-finished units. As such, almost all millwork, paneling, cabinetry and doors are purchased by the builder as completed products and are covered by separate manufacturers' standards and warranties. The standards listed below are standards designed to assure the proper functioning of the finished carpentry

Wood products, because of the very nature, may expand, contract, warp or cup due to moisture and temperature variations in the home. It is the homeowner's responsibility to maintain consistent and proper temperature and moisture to minimize stresses on wood products.

Where the builder is contractually responsible for the interior painting, the builder will be responsible for any filling, puttying or caulking as required by the applicable standard. Additionally, the builder will be responsible for any touch up, repainting, or restaining of adjusted or replaced parts or pieces to satisfy a standard. The builder will match the paint or stain as closely as possible to the original color and texture but a perfect match is not to be expected.

If the homeowner has contracted to do the painting, the builder will not be responsible for filling, puttying or caulking as required by any standard. Likewise, the builder will not be responsible for any necessary touch up, repainting, or restaining of any adjusted or replaced parts or pieces. (Note: The painting responsibilities of these contractual obligations may be redefined per the contractual agreement between the homeowner and the builder.)

Interior Doors:

15.1 **Observation:** Interior door is warped.

Standard: Interior doors (full opening) should not warp in excess of 1/4 inch as measured diagonally from corner to corner.

Builder's Responsibility: The builder will repair or replace and refinish as necessary any warped door to meet the standard.

Discussion: In bathroom or utility room areas, exhausts fans or an open window must be used to remove moisture to help prevent warping of door units. Note: All 6 sides of door are to be painted or stained and sealed.

Refer to paragraphs 4 and 5 (page 95 & 96) in the background for clarification about painting responsibilities.

15.2 **Observation:** Bifold doors come off tracks during normal operation.

Standard: Bifold doors should slide properly on their track.

Builder's Responsibility: Builder will repair any bifold door that will not stay on its track during normal operation once during the service period.

Homeowner's Responsibility: Cleaning and maintenance necessary to preserve proper operation are the homeowner's responsibility.

15.3 **Observation:** Pocket doors rub in their pockets during normal operation.

Standard: Pocket doors should not rub in their pockets.

Builder's Responsibility: At the time of closing the builder will repair the pocket doors to meet the standard and if needed one additional time during the service period.

Discussion: Pocket doors commonly rub, stick, or derail due to the inherent nature of pocket doors. It is an ongoing situation and should be anticipated.

Refer to paragraphs 4 and 5 (page 95 & 96) in the background for clarification about painting responsibilities.

15.4 **Observation:** Wooden door panel splits.

Standard: Wooden door panel should not split to the point where light is visible through the door.

Builder's Responsibility: The builder will fill splits in the door with wood filler and match the original paint or stain as closely as possible once during the service period.

Discussion: Refer to paragraphs 4 and 5 (page 95 & 96) in the background for clarification about painting responsibilities.

15.5 **Observation:** Door rubs on jambs or latch does not work.

Standard: Doors should operate smoothly and door latches should operate correctly.

Builder's Responsibility: Builder will repair the door and door latch as necessary to meet the standard.

15.6 **Observation:** Door drags on carpet or other floor covering.

Standard: Doors should not drag on carpet or other floor covering.

Builder's Responsibility: Builder will repair the door to meet the standard if the builder installed the carpet or other floor covering as part of the contract.

Discussion: If the builder installs the door over pre-existing carpet or other floor covering, the builder is responsible for meeting th standard. If the carpet or other floor covering is installed by homeowner after door installation, builder is not responsible for door adjustments.

15.7 **Observation:** Door edge is not parallel to door jamb.

Standard: Where the builder installs the door frame and door, the door edge should be within 3/16 inch of parallel to the door jamb. Where the builder installs the door in an existing frame that is out of square, the standard does not apply.

Builder's Responsibility: The builder will adjust the door as necessary to meet the standard.

15.8 **Observation:** Door swings open or closed by force of gravity.

Standard: Doors should not swing open or closed by the force of gravity alone.

Builder's Responsibility: The builder will adjust the door as necessary to meet the standard.

Interior Stairs

15.9 **Observation:** Gaps exist between interior stair risers, treads, skirts, and/or other railing parts.

Standard: Gaps between adjoining parts that are designed to be flush should not exceed 1/16 inch. Gaps in excess of 1/16 inch, but not to exceed 3/16 inch, may be puttied or caulked. Anything exceeding 3/16 inch will be replaced.

Builder's Responsibility: At the time of closing, the builder will fix the gap with filler or replace parts as necessary to meet the standard.

Discussion: Refer to paragraphs 4 and 5 (page 95 & 96) in the background for clarification about painting responsibilities.

15.10 **Observation:** Stair riser or tread squeaks.

Standard: Totally squeak-proof stair risers and treads cannot be guaranteed.

Builder's Responsibility: The builder will refasten any loose risers and treads or take other corrective action to eliminate squeaking to the extent possible without removing treads, carpet or ceiling finishes.

15.11 Observation: Interior stairs railing is loose and lacks rigidity.

Standard: At the time of closing, the interior stair railings should be firmly attached to structural members so that no visible movement occurs under normal use.

Builder's Responsibility: The builder will repair any stair railings to comply with the standard.

Interior Trim and Moldings

15.12 Observation: There are openings at the joints of trim and moldings.

Standard: Gaps in joints of trim and moldings should not exceed 1/16 inch.

Builder's Responsibility: At the time of closing, gaps in molding in excess of 1/16 inch, but not to exceed 3/16 inch, may be puttied or caulked. Anything exceeding 3/16 inch will be replaced.

Discussion: Refer to paragraphs 4 and 5 (page 95 & 96) in the background for clarification about painting responsibilities.

15.13 Observation: There is an opening between molding and the adjacent surface.

Standard: Gaps between molding and adjacent surface should not exceed 1/8 inch.

Builder's Responsibility: At the time of closing, gaps between molding and adjacent surfaces in excess of 1/8 inch but not to exceed 1/4 inch may be puttied or caulked. Anything exceeding 1/4 inch will be replaced.

Discussion: Refer to paragraphs 4 and 5 (page 95 & 96) in the background for clarification about painting responsibilities.

15.14 Observation: Nails are not properly set or, where puttied, nail holes are not properly filled.

Standard: At the time of closing, setting nails and filling nails holes are considered part of painting and finishing. After painting or finishing, nails or nail holes should not be readily visible from a distance of 6 feet under normal lighting conditions.

Builder's Responsibility: Where the builder is responsible for painting, the builder should take necessary action to meet the standard.

Discussion: Puttying of nail holes in base and trim molding installed in areas hidden from view (such as inside closets) are not included in standard.

Refer to paragraphs 4 and 5 (page 95 & 96) in the background for clarification about painting responsibilities.

Normal lighting conditions are defined by indirect sunlight or medium artificial light. High intensity lighting, direct sunlight, or artificial lighting aimed directly on an area is not considered within the definition of normal lighting. Likewise, sconce lights which cast light directly on a wall surface is not within the definition of normal lighting.

15.15 **Observation:** Inside and outside corners are not coped or mitered.

Standard: Trim edges at inside and outside corners should be coped or mitered. Square edge trim may be butted.

Builder's Responsibility: At the time of closing, the builder will finish inside and outside corners to meet the standard.

Discussion: Refer to paragraphs 4 and 5 (page 95 & 96) in the background for clarification about painting responsibilities.

15.16 **Observation:** Top and bottom of molding do not align.

Standard: Top or bottom edge of adjoining trim or moldings should not be out of alignment more than 1/16 inch.

Builder's Responsibility: At the time of closing, the builder will repair or replace to meet the standard.

Discussion: Refer to paragraphs 4 and 5 (page 95 & 96) in the background for clarification about painting responsibilities.

15.17 **Observation:** Interior trim is split.

Standard: Splits, cracks or checking should not exceed 1/16 inch.

Cracks up to 1/16 inch may be puttied or caulked but should not be visible at a distance of 6 feet under normal lighting. Trim pieces with such defect exceeding 1/16 inch should be replaced and repainted.

Builder's Responsibility: At the time of closing, the builder will repair or replace the meet the standard.

Discussion: Refer to paragraphs 4 and 5 (page 95 & 96) in the background for clarification about painting responsibilities.

Refer to discussion in Section 15.14 for the definition of normal lighting conditions.

15.18 Observation: Hammer marks are visible on interior trim.

Standard: At the time of closing, hammer marks on interior trim should not be visible from a distance of 6 feet under normal lighting conditions.

Builder's Responsibility: At the time of closing, the builder will fill hammer marks and refinish or replace affected trim to meet the standard.

Discussion: Refer to paragraphs 4 and 5 (page 95 & 96) in the background for clarification about painting responsibilities.

Refer to discussion in Section 15.14 for the definition of normal lighting conditions.

Cabinets and Countertops

Stock cabinet manufacturers offer cabinets that are made in quantity in advance and shipped from a warehouse for quick delivery. Because the cabinets are produced in quantity, the assembly line cannot be stopped to manufacture special units. The range of products is limited to the sizes listed in their catalogs.

Custom cabinet manufacturers make cabinets order-by-order and offer a wider range of wood species, finishes and special units.

Semi-custom cabinets are produced by both stock and custom manufacturers. These usually are produced on a stock basis, but with a wider range of standard interior fittings and accessories than regular

stock units, (although not as many as are available on custom units).

Where the builder is contractually responsible for the interior painting, the builder will be responsible for any filling, puttying or caulking as required by a standard. Additionally, the builder will be responsible for any touch up, repainting, or restaining of adjusted or replaced parts or pieces to satisfy the standard. The builder will match the paint or stain as closely as possible to the original color and texture but a perfect match is not to be expected.

15.19 **Observation:** Cabinets do not meet ceilings or walls.

Standard: Gaps in excess of 1/4 inch are unacceptable.

Builder's Responsibility: The builder will repair the gap with caulk, putty, or scribe molding or reposition/reinstall cabinets to meet the standard.

15.20 **Observation:** Cabinets frames do not line up with each other.

Standard: Cabinet face frames abutting or adjoining one another should not be out of line more than 1/8 inch.

Builder's Responsibility: Builder will make necessary adjustments to meet the standard.

15.21 **Observation:** Cabinet door or drawer is warped.

Standard: Cabinet door or drawer warping should not exceed 1/4 inch as measured from the face frame to the point of furthermost warping with the door or drawer front in the closed position.

Builder's Responsibility: Builder will replace or correct doors and drawer fronts as necessary to meet the standard.

15.22 **Observation:** Cabinet door or drawer binds.

Standard: Cabinet doors and drawers should open and close with reasonable ease.

Builder's Responsibility: The builder will adjust or replace doors and drawers as necessary to meet the standard.

Homeowner's Responsibility: Drawers should not contain excessive weight such as to cause drawers to bind.

15.23 **Observation:** Cabinet door will not stay closed.

Standard: Catches and closing mechanisms for cabinet doors should be adequate to hold the doors in a closed position.

Builder's Responsibility: The builder will adjust or replace mechanism or cabinet part, as necessary to meet the standard once during the service period.

15.24 **Observation:** There are color variations of stained woodwork.

Standard: Stain color will vary on different types of wood. Because of wood graining, the stain color may vary throughout the same piece of wood and wood types.

Builder's Responsibility: None

15.25 **Observation:** The tops of cabinet doors do not align with each other horizontally.

Standard: The tops of cabinet doors should align horizontally with no more than 3/16 inch difference in alignment.

Builder's Responsibility: At the time of closing, the builder will make sure that all cabinet doors meet the standard.

Homeowner's Responsibility: Maintain cabinet door alignment after time of closing.

Discussion: It is not unusual over a period of time for cabinet doors to come out of alignment due to normal usage. Most cabinet hinges are made to accommodate any adjustments needed.

15.26 **Observation:** The spacing between two cabinet doors without a center stile is excessive.

Standard: The spacing between cabinet doors without a center stile should not exceed 3/8 inch.

Builder's Responsibility: At the time of closing, cabinet doors should meet the above standard.

Homeowner's Responsibility: Maintain cabinet door spacing after the time of closing.

Discussion: Most cabinet doors have hinges that allow for easy realignment. The homeowner can realign doors as needed after the time of closing.

15.27 **Observation:** Laminate on countertop is delaminated.

Standard: Laminate countertops should not delaminate.

Builder's Responsibility: Builder will repair or replace delaminated countertop unless caused by homeowner's misuse or negligence.

Homeowner's Responsibility: Homeowner should not get liquid near the seams.

15.28 **Observation:** The surface of the laminate countertop is cracked, chipped or scratched.

Standard: Cracks, chips or scratches should not be readily visible on countertops when viewed from a distance of 6 feet under normal lighting conditions at the time of closing.

Builder's Responsibility: The builder will repair or replace cracked, chipped, scratched countertops only if reported prior to the closing. Any repairs on laminated countertops may have a slight variation in color or texture and is to be expected when repairs are attempted.

Discussion: Normal lighting conditions are defined by indirect sunlight, or medium artificial light. High intensity lighting, direct sunlight, or artificial lighting aimed directly on an area is not considered within the definition of normal lighting. Likewise, sconce lights which cast light directly on a wall surface is not within the definition of normal lighting.

15.29 **Observation:** Solid surface countertop is cracked, chipped or scratched.

Standard: Cracks, chips or scratches on sold surface countertops

should not be readily visible when viewed from a distance of 6 feet under normal lighting conditions at the time of closing.

Builder's Responsibility: Builder will repair to meet the standard. Any repairs on solid surface countertops may have a slight variation in color or texture and is to be expected when repairs are attempted.

Discussion: Normal lighting conditions are defined by indirect sunlight, or medium artificial light. High intensity lighting, direct sunlight, or artificial lighting aimed directly on an area is not considered within the definition of normal lighting. Likewise, sconce lights which cast light directly on a wall surface is not within the definition of normal lighting.

15.30 **Observation:** Countertop is not level.

Standard: Countertops should be no more than 3/8 inch in 10 feet out of level.

Builder's Responsibility: The builder will make necessary adjustments to meet the standard.

15.31 **Observation:** Laminate countertop seams are uneven and/or gapping.

Standard: The gap on a seam should not exceed 1/16 inch.

Builder's Responsibility: Builder will repair to meet the standard once during the service period. Caulking with materials compatible to the finish is acceptable.

Homeowner's Responsibility: Homeowner should not get liquid near the seams.

Discussion: Seams by their very nature will be noticeable by the naked eye.

15.32 **Observation:** There is a gap between end or back of countertop and adjoining wall.

Standard: Any gap greater than 1/8 inch is unacceptable.

Builder's Responsibility: Builder is to repair gap or replace countertop as necessary to meet the standard. Gaps in excess of 1/8 inch, but not exceeding 3/8 inch, may be caulked. Gaps exceeding 3/8 inch require additional corrective action including such measures as floating drywall to help reduce the space prior to caulking.

SECTION 16:
MISCELLANEOUS FINISH ITEMS

Towel Bars

16.1 **Observation:** Towel bar is not level.

Standard: Towel bar should be level within 3/16 inch.

Builder's Responsibility: The builder will reinstall any towel bar that does not meet the standard. The builder is responsible for any drywall or paint touch-up as a result of the repair work.

Discussion: Refer to paragraphs 4 and 5 in section 15 (page 93 & 94) in the background for clarification about painting responsibilities.

16.2 **Observation:** Towel bar or paper holder comes loose from wall.

Standard: Towel bar or paper holder should be fastened to either wood framing or drywall with an appropriate fastener and in such a way that it will not come loose from wall with normal use.

Builder's Responsibility: The builder will reinstall any towel bar that does not meet the standard. The builder is responsible for any drywall or paint touch-up as a result of the repair work.

Homeowner's Responsibility: Towel bars and paper holders should not be used to support the weight of anything more than their intended use. Homeowner is not to use towel bars of paper holders as grab bars.

Discussion: Refer to paragraphs 4 and 5 in section 15 (page 93 & 94) in the background for clarification about painting responsibilities.

Shower Doors

16.3 **Observation:** Shower door leaks.

Standard: Shower doors should not leak.

Builder's Responsibility: The builder will repair or replace shower door so that it does not leak.

Homeowner's Responsibility: Make sure that doors are thoroughly closed. If shower door is a sliding by-pass door, then the innermost door should be closed so that it is closest to the water source or shower head to prevent water from being forced between the door panels.

16.4 **Observation:** Shower door is not securely installed, does not close securely, is difficult to open or close, or swings open with gravity.

Standard: Shower doors should be installed securely, should close securely, open and close easily, and not swing open with the force of gravity.

Builder's Responsibility: The builder will adjust or replace the shower door to meet the standard unless due to homeowner negligence.

Homeowner's Responsibility: Homeowner should not use the shower door as a grab bar or for any other use than to prevent water from escaping from the shower enclosure.

16.5 **Observation:** Shower door does not roll easily on the track or comes off of track during operation.

Standard: Shower doors should be installed to roll smoothly on the tracks and not become dislodged during use.

Builder's Responsibility: The builder will adjust or replace the shower door to meet the standard unless due to homeowner negligence.

Homeowner's Responsibility: Homeowner should not use the shower door as a grab bar and shall keep the tracks clean to prevent obstruction.

Surface Finishes

Surface finishes of plumbing faucets and fixtures, decorative plumbing drains, shower doors, towel bars, paper holders, light fixtures, door knobs or levers, cabinet pulls and knobs, etc.

16.6 **Observation:** Surface finishes of the above mentioned items are scratched, chipped, or dented.

Standard: Scratches, chips, or dents in the above mentioned finishes should not be visible from a distance of 6 feet under normal lighting conditions at the time of closing.

Builder's Responsibility: The builder will repair or replace any of the above mentioned items or parts that do not meet the standard.

Discussion: Normal lighting conditions are defined by indirect sunlight or medium artificial light. High intensity lighting, direct sunlight, or artificial lighting aimed directly on an area is not considered within the definition of normal lighting. Likewise, sconce lights which cast light directly on a wall surface is not within the definition of normal lighting.

16.7 **Observation:** Surface finishes of the above mentioned items tarnish or deteriorate.

Standard: At the time of closing, no tarnishing or deterioration of the surface finishes should be visible from a distance of 6 feet under normal lighting conditions.

Builder's Responsibility: The builder will clean, repair, or replace any of the above mentioned items as needed that do not meet the standard. Builder is to verify any surface finish warranty for further obligation during the service period.

Homeowner's Responsibility: Homeowner should properly maintain the finish with routine cleaning and maintenance.

Discussion: Due to the wide number of options available today in regards to surface finishes of the products selected for use in homes, it is important to verify manufacturers' warranties. Certain surface finishes will tarnish or deteriorate with time and use. Others have a certain guarantee as designated by the manufacturer. The builder will verify with appropriate sources any warranties as necessary.

Normal lighting conditions are defined by indirect sunlight or medium artificial light. High intensity lighting, direct sunlight, or artificial lighting aimed directly on an area is not considered within the definition of normal lighting. Likewise, sconce lights which cast light directly on a wall surface is not within the definition of normal lighting.

Mirrors

16.8 Observation: Mirror is scratched.

Standard: Some scratches in mirror surfaces are to be expected, due to the manufacturing process. Under normal lighting conditions and a viewing angle of 30-90 degrees, any scratch visible with the naked eye from a distance of 3 feet or more is considered unacceptable at the time of closing.

Builder's Responsibility: The builder will replace any mirror that does not meet the standard.

Discussion: Due to the manufacturing process, mirrors often have slight scratches or defects. Some of the acceptable markings are as follows: small, hairline scratches in both the back and the face; small, pin-head bubbles or seeds; slight rub marks; slight areas of discoloration; slight digs or bruises. These markings are inherent in mirrors.

Normal lighting conditions are defined by indirect sunlight or medium artificial light. High intensity lighting, direct sunlight, or artificial lighting aimed directly on an area is not considered within the definition of normal lighting. Likewise, sconce lights which cast light directly on a wall surface is not within the definition of normal lighting.

Appliances

16.9 Observation: Kitchen appliance surface is scratched.

Standard: No scratch on any installed appliance should be visible from 6 feet or more under normal lighting conditions at the time of closing.

Builder's Responsibility: The builder will repair or replace any appliance part that does not meet the standard.

Discussion: Normal lighting conditions are defined by indirect sunlight or medium artificial light. High intensity lighting, direct sunlight, or artificial lighting aimed directly on an area is not considered within the definition of normal lighting. Likewise, sconce lights which cast light directly on a wall surface is not within the definition of normal lighting.

SECTION 17:
HEATING, VENTILATION AND AIR CONDITIONING STANDARDS

Background

Temperature, humidity, air motion, clothing, the temperature of the interior surfaces on the room, and the quality of the indoor air all affect personal comfort. Air-conditioning is the process of treating air to simultaneously control its temperature and humidity of the conditioned space. Comfortable conditions vary from person to person. The heating and cooling system must maintain the proper balance between temperature, relative humidity, and air motion for comfort. Most HVAC furnace filters when properly maintained, are designed to protect the heat exchanger coil from accumulations of dust that will harm the system.

Systems are designed to meet outdoor design conditions as set forth in the 1992 Model Energy Code of 2 degrees F. for Winter, and 90 degrees F. for Summer. Indoor design temperatures are 70 degrees F. for heating and 78 degrees F. for cooling. It should be noted that a properly sized furnace, air-conditioner or heat pump would run continuously during extreme temperatures. Extreme temperatures are defined as below 2 degrees F in winter and above 95 degrees F in summer for an extended period of time.

Homeowners are expected to have regular routine maintenance performed on their systems.

Balancing airflow is the process of opening and closing dampers and registers to restrict or increase airflow to certain rooms. Balancing is normally required on homes between heating and cooling seasons. Rooms over garages can expect to have higher than normal temperature variations.

Condensation lines

Observation: Condensation lines clog with normal use.

17.1

Builder's Responsibility: None

Homeowner's Responsibility: Condensation lines will clog with normal use. Owner maintenance is required.

Insufficient heating

17.2 **Observation:** Home is unable to maintain proper temperature.

Standard: Heating system should be able to maintain 70 degrees F. in the center of each room at 5 feet above the floor when the outdoor temperature is 2 degrees F. A room temperature may vary plus or minus 2 degrees F. of the thermostat's setpoint. All temperatures are to be measured with a high quality, properly calibrated, digital thermometer.

Builder's Responsibility: Builder should make necessary modifications to system and/or insulation to comply with the standard.

Homeowner's Responsibility: Homeowner should make seasonal airflow balance adjustments as necessary. Annual maintenance should be performed on the equipment. Multi-story homes and/or homes with sunrooms may require constant furnace fan operation to prevent air stratification.

Discussion: Constant furnace fan operation and leaving interior doors open will help even the tempertures from room-to-room. This practice should be considered during peak weather conditions, in multi-level homes, homes with significant east and west exposures, and homes with a remote room such as a bonus room or conditioned sunroom.

Insufficient cooling

17.3 **Observation:** Home unable to maintain proper temperature.

Standard: Cooling system should be able to maintain 78 degrees F. in the center of each room at 5 feet above the floor when the outdoor temperature is 90 degrees F. A room temperature may vary plus or minus 3 degrees F. of the thermostat's setpoint. All temperatures are to be measured with a high quality, properly calibrated, digital thermometer.

Builder's Responsibility: Builder will make necessary modifications to system and/or insulation to comply with the standard.

Homeowner's Responsibility: Homeowner should make seasonal airflow balance adjustments as necessary. Annual maintenance should be performed on the equipment. Multi-story houses and/

or homes with sunroom may require constant furnace fan operation to prevent air stratification. Window treatments may need to be closed.

Discussion: Constant furnace fan operation and leaving interior doors open will help even the tempertures from room-to-room. This practice should be considered during peak weather conditions, in multi-level homes, homes with significant east and west exposures, and homes with a remote room such as a bonus room or conditioned sunroom.

Ductwork

17.4 **Observation:** Ductwork separates or detaches.

Standard: Ductwork should remain intact and securely fastened.

Builder's Responsibility: The builder will correct seperated or detached ductwork to meet the standard.

17.5 **Observation:** The ductwork makes noises.

Standard: When metal is heated, it expands, and when cooled, it contracts. The resulting "ticking" or "crackling" sounds are to be expected and do not constitute a defect.

Builder's Responsibility: None

17.6 **Observation:** The ductwork produces excessively loud noises commonly known as "oil canning".

Standard: The stiffening of the ductwork and the gauge of the metal used should be such that ducts do not "oil can." The booming noise caused by "oil canning" is not acceptable.

Builder's Responsibility: The builder will correct the ductwork to eliminate noise caused by "oil canning."

Air Handlers

17.7 **Observation:** Air handler vibrates.

Standard: Air handler should not vibrate.

Builder's Responsibility: The builder will correct a vibrating air handler to meet the standard.

Discussion: Under certain conditions, some noise may be experienced with the normal flow of air even when air handler is installed correctly.

Refrigerant Lines

17.8 **Observation:** Refrigerant lines leak.

Standard: Refrigerant lines should not leak during normal operations.

Builder's Responsibility: The builder will repair leaking refrigerant lines and recharge the air-conditioning unit unless the damage was caused by the owner's actions or negligence.

Condensation on ductwork, air handler and flues

17.9 **Observation:** There is condensation on the outside of air handlers and ducts.

Standard: Air handlers and ducts will collect condensation on the exterior surfaces during extreme temperature differences and high humidity levels. Condensation results from humid conditions within the home that are created by the owner or during the curing process in a new space.

Builder's Responsibility: Unless the condensation or frost is directly attributed to faulty installation, it usually results from conditions beyond the control of the builder. No correction action is required unless due to faulty installation.

17.10 **Observation:** Condensation forms in water heater flues of 78% to 80% efficient gas furnace flues.

Standard: It is normal for condensation to form in atmospheric vented gas appliances.

Builder's Responsibility: None

Discussion: Moisture from the condensation of flue products is normal.

Rodents in exhaust vents

17.11 **Observation:** Rodents, birds or other animals invade exhaust vents.

Standard: Rodents, birds or other animals on occasion invade exhaust vents, and are beyond the control of the builder.

Builder's Responsibility: None

Homeowner's Responsibility: This is a home maintenance item. Homeowner is responsible for clearing exhaust vents.

Arbor Homes

SECTION 18:
PLUMBING
WATER SUPPLY SYSTEM

Background

There are two basic parts to the plumbing system.

1.) The water supply system, and

2.) The drain-waste-vent (DWV) system.

The water supply system carries water from the municipal water system (or well) into the house to fixtures and appliances.

The drain-waste-vent system carries wastewater and sewer gases out of the house.

Water and DWV Systems

The following standards apply to the water and DWV sources from the point that the builder is responsible for service.

18.1 **Observation:** Leakage of any kind of plumbing pipe.

Standard: No leak of any kind should exist in any drain-waste-vent or water pipe. (Refer to 18.4 for freezing.)

Builder's Responsibility: The builder will make any necessary repairs to eliminate leaks in plumbing pipes to meet the standard. The builder will make any drywall and paint repairs as necessary.

Discussion: Condensation on a pipe is not the same as a leak and is not a defect.

Refer to paragraph 4 and 5 in section 15 in Background (page 95 & 96) for clarification about painting responsibilities.

18.2 **Observation:** Condensation appears on pipes.

Standard: Condensation on pipes may result at certain combinations of temperature and indoor humidity and is not a defect.

Builder's Responsibility: None

Homeowner's Responsibility: Homeowner is to maintain proper relative humidity levels within the house.

Discussion: Condensation on a pipe is not the same as a leak and is not a defect.

18.3 Observation: A faucet or valve leaks.

Standard: No faucet or valve should leak due to defects in material or workmanship.

Builder's Responsibility: The builder will repair or replace the leaking faucet or valve.

Homeowner's Responsibility: If leaking is due to a worn washer, its replacement is the customer's responsibility.

18.4 Observation: Water in plumbing pipe freezes, and the pipe burst.

Standards: Drain, waste, vent, and water pipes should be adequately protected to prevent freezing per the applicable plumbing code for normally anticipated cold weather and in accordance with the design temperatures established by the American Society of Heating, Refrigerating, and Air-Conditioning Engineers.

Builder's Responsibility: The builder will correct situations not meeting the applicable code.

Homeowner's Responsibility: The owner is responsible for draining or otherwise protecting pipes and exterior faucets exposed to freezing temperatures. (Refer to Discussion 10.2 for freezing)

Discussion: Refer to paragraph 4 and 5 in section 15 in Background (page 95 & 96) for clarification about painting responsibilities.

18.5 Observations: The water supply system (exclusive of wells) fails to deliver water.

Standard: All connections to municipal water main or community water systems should deliver water within the capability of the system.

Builder's Responsibility: The builder will make all on site connections to allow for appropriate water supply.

Discussion: Conditions beyond the control of the builder that disrupt or eliminate the water supply are not covered.

18.6 **Observation:** Water and drain pipes are noisy.

Standards: Because of the flow of water and pipe expansion the water and drain pipe system will emit some noise. However, the water pipes should not make the pounding noise referred to as "water hammer".

Builder's Responsibility: Some noise in the water pipes is natural and comes from the flow of water and from pipes expanding. If there is a pounding noise from improperly anchored water pipes, the builder will repair.

18.7 **Observation:** Hose bibbs damaged by freezing temperatures.

Standards: Hose bibbs should not freeze if installed properly, providing the owner has removed the hose and any attachments from the spigot during cold weather. (Refer to Discussion 10.2 for freezing)

Builder's Responsibility: The builder will replace improperly installed hose bibs to meet the standard.

Homeowner's Responsibility: **Remove the hose and any attachments from the spigot during cold weather.**

Plumbing Fixtures

18.8 **Observation:** The bathtub or shower leaks.

Standard: Bathtubs and showers should not leak.

Builder's Responsibility: The builder will repair bathtub or shower leaks as necessary to meet the standard.

Homeowner's Responsibility: Proper maintenance by the homeowner includes sealing areas around tubs and showers. Maintenance of caulk seals and grout is the owner's responsibility.

18.9 **Observation:** Plumbing fixtures, appliances, or trim fitting is defective.

Standard: Plumbing fixtures, appliances, and trim fittings should not be defective.

Builder's Responsibility: The builder will repair or replace defective plumbing fixtures, appliances, or trim fittings.

18.10 **Observation:** The surface of porcelain, cultured marble, or fiberglass plumbing fixture is cracked or chipped.

Standard: Cracks or chips in surfaces of bathtubs and sinks are unacceptable if visible from 6 feet under normal lighting conditions or if they leak.

Builder's Responsibility: The builder will not be responsible for repairs of cracks or chips unless the damage is reported to the builder prior to closing or unless the damage causes leaks. The builder will repair or replace any defects to meet the standard.

Discussion: Normal lighting conditions are defined by indirect sunlight or medium artificial light. High intensity lighting, direct sunlight, or artificial lighting aimed directly on an area is not considered within the definition of normal lighting. Likewise, sconce lights which cast light directly on a wall surface is not within the definition of normal lighting.

18.11 **Observation:** Fiberglass tub or shower enclosure base flexes.

Standard: Flexing in fiberglass tub or shower enclosure base that is caused by improper installation or defect is not acceptable.

Builder's Responsibility: The builder will repair or replace tub or shower enclosure bases that do not meet the standard.

Sewer and Septic Systems

18.12 **Observation:** Sewer, fixture or drain is clogged.

Standard: Sewers, fixtures, and drains should operate properly.

Builder's Responsibility: Sewers, fixtures, and drains can easily

become clogged through the owner's actions (misuse). Builder will make the necessary repairs to put the sewer and septic systems in proper operating condition within the first 30 days of occupancy. If the sewer stoppage is due to owner actions, the owner will assume the cost of repair.

Homeowner's Responsibility: With respect to septic systems, owner's actions (misuse) include but are not limited to:

Connection of sump pump, roof drain, or backwash from water conditioner into the system.

Placement of non-biodegradable items in the system.

Use of food waste disposal not supplied or approved by the builder.

Placement of surfaces not permeable to water over the disposal area of the system.

Allowing vehicles to park or drive over the disposal area of the system.

Failure to pump the septic tank periodically, as required.

Use which exceeds the system's design standards.

SUMP PUMPS

Background

A sump pump is used to remove subsurface water that is collected in building subdrains, generally called a sump pit. The discharge from the sump pit should not be discharged into the sanitary sewer, and therefore it is usually piped to a splash block outside the home, a swaled area, a storm sewer opening, or a holding pond of some sort. Sump pump lines are usually equipped with a check valve, a device that prevents the previously pumped water from running back down the discharge pipe and refilling the sump pit. Sump pumps are mechanical devices that can and will fail for a variety of reasons. Numerous things can cause a sump pump failure: are electrical problems, debris in the pit causing the pump inlets to be clogged, clogged discharge line, mechanical problems, etc. Because of this, and because of the extensive consequential damages that can result from a failure, back-up sumps, battery back-up pumps, and/or alarm systems are strongly recommended for sump pump installations.

18.13 Observation: Sump pump is not working.

Standard: Sump pump should be able to pump out water from the sump pit to within 90% of its rated mechanical limits.

Builder's Responsibility: The builder will repair or replace any deficiency in the pump which does not meet the standard.

Homeowner's Responsibility:

1. Keep the sump pit and screened openings free from debris. Debris in the pit can affect the float, the switch, and the operation of the pump. Sump pumps are designed to pump water and not foreign objects such as mud, straw, pea gravel, or other debris.

2. Keep the discharge pipe, outside, open and free flowing. In order for the pump to discharge the water, no blockage can be in the discharge line. This includes mud, debris, ice, snow and other foreign matter that slows down or impedes pumping action.

3. Never use an extension cord to power a sump pump. Always make certain that the pump has a 3-prong plug and has a continuous power supply. Should you ever unplug a sump pump for any reason, the pump will not pump. It is the homeowner's responsibility to make sure that the pump is always plugged into the electrical outlet.

4. Read the manufacturer's manual regarding special information about the pump.

Discussion: In the event of consequential damage caused by sump pump failures beyond the builders control, the homeowner should contact their homeowner's insurance carrier who will subrogate or inform the homeowners to subrogate the appropriate parties for repairs and claims against damages. Homeowners are encouraged to carry insurance regarding sump pump failure. This coverage is not always automatically included in a homeowner's policy and the homeowner should request proof of coverage or obtain additional coverage from their insurer.

SECTION 19:
ELECTRICAL

Background

In reviewing this section, it is necessary to establish standards for the proper use of the electrical system. In order for the electrical system to perform properly, it is important that it be used in the manner for which it was designed and for it to be installed by a licensed electrical contractor. For this reason, recognized electrical codes have established that ground fault current interrupters of GFCI protection are 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 should not be connected to these outlets.

Use appropriate light bulb wattages and amount of electrical motor equipment for each household circuit. Exceeding the capacity of a circuit 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 should pay for the service charge and any subsequent expenses.

The electrical system has been installed by a licensed electrician in accordance with all applicable codes. The codes are in place to ensure a safe operating electrical system for normal residential use. The electrical system is a major part of your new home and, for safety purposes, it is vital to have a good understanding of its components.

Fuses and Circuit Breakers

19.1 **Observation:** Fuse blows or circuit breaker trips.

Standard: Fuses and circuit breakers should not blow or trip with normal usage, except in the case of GFCI outlets which are susceptible to moisture and/or weather conditions.

Builder's Responsibility: The builder will repair the wiring if it is not in conformity with local electrical code requirements. If problem is due to owner's equipment or misuse, the owner should pay for the service charge.

19.2 **Observation:** Ground fault circuit interrupter (GFCI) trips frequently.

Standard: Ground fault interrupters (GFCI) are safety devices installed as part of the electrical system to provide protection against electrical shock. These sensitive devices can be tripped very easily and is not a defect unless due to faulty installation.

Builder's Responsibility: The builder will install ground fault circuit interrupters (GFCI) in accordance with applicable electrical codes. Tripping is to be expected and is not covered unless it is caused by defective installation or device. If problem is due to owner equipment or misuse, the owner should pay for the service charge and related cost.

Outlets and Lights

19.3 **Observation:** Electrical outlets, switches, or fixtures malfunction.

Standard: All electrical outlets, switches, and fixtures should operate as designed.

Builder's Responsibility: The builder will repair or replace malfunctioning electrical outlets, switches, and fixtures, if supplied and installed by the builder.

Homeowner's Responsibility: Before contacting builder or electrician for service, homeowner should do some routine testing of system. Check to see if outlet is on a switch. Check reset on GFCI outlets. Check circuit breaker. Check light bulb wattages. If problem is due to owner's equipment or misuse, the owner should pay for the service charge and related costs.

19.4 **Observation:** Electrical outlet, switches and/or fixtures appears warm to touch and/or smell of smoke.

Standard: Electrical outlets, switches and/or fixtures should not be warm to touch or smell of smoke.

Builder's Responsibility: The builder will check the wiring for conformity to applicable electrical code requirements and the design load specified in the contract for normal use. The builder will repair wiring not conforming to code specifications.

Homeowner's Responsibility: The homeowner should not overload circuits with extension cords, plugs, oversized wattage lightbulbs or small appliances not designed for the outlet, fixture or circuit. Dimmers may feel warm in their natural state of operation. If the problem is due to homeowner's equipment or misuse, the owner should pay for the service call and related costs.

19.5 **Observation:** Builder installed ceiling fan vibrates excessively and is noisy.

Standard: The builder should properly install ceiling fans.

Builder's Responsibility: The builder will repair any faulty installation.

Discussion: Due to the wide number of options of these products, the builder is only responsible for proper installation. Any problem not associated with installation should be referred to the manufacturer.

19.6 **Observation:** Exterior light fixtures appear tarnished.

Standard: Exterior fixtures can and will tarnish and lose the luster of their finish.

Builder's Responsibility: None.

Homeowner's Responsibility: Homeowner is to properly maintain the finish with routine cleaning and maintenance.

Discussion: For tarnishing of interior light fixtures, refer to Section 16.7.

19.7 **Observation:** Receptacle/switch plate cover has a gap between the cover plate and the wall or ceiling surface.

Standard: Receptacle/switch plate cover should fit against the wall or ceiling within 1/8 inch.

Builder's Responsibility: Builder will repair to meet standard.

19.8 **Observation:** Lights flicker in parts of the home.

Standard: Lights may flicker or dim when appliances and motor driven equipment are started.

Builder's Responsibility: The builder will repair wiring if it doesn't conform to electrical code requirements and/or the design load as specified in the contract for normal use.

Homeowner's Responsibility: Heavy electrical equipment may cause momentary dimming of lights and is to be expected. If problem is due to owner's equipment or misuse, the owner should pay for the service charge and related costs.

Discussion: Before contacting the builder or electrician for service, homeowner should do home routine testing of systems. Check circuits for overloading. Check for loose light bulbs.

19.9 **Observation:** Recessed electrical fixtures shut off.

Standard: Some recessed electrical fixtures are manufactured with a device that turns the unit off should overheating occur.

Builder's Responsibility: Builder to inspect fixture for proper installation and repair as necessary.

Homeowner's Responsibility: Install replacement light bulbs that do not exceed wattage recommended by manufacturer for the fixtures. If problem is due to owner's equipment or misuse, the owner should pay for the service charge and related costs.

SECTION 20:
JOB SITE CONDITIONS AND FINAL CLEANING

Background

General cleanliness should be maintained on the job site during construction. This will enhance the safety and efficiency of the job. During construction, dirt, debris and mud are normal and should be expected while reasonable attempt should be made to keep the site orderly.

Construction materials, such as lumber, will be exposed to elements/weather at various points of time during the construction process. This is to be expected and accepted since most materials in a house are natural and the integrity of the materials is not comprised. However, if a material doesn't hold up to the exposure as expected, the builder will replace it to ensure that the house meets the standards spelled out in this document. Until the house is in the watertight phase of construction, it is common for water to be standing in a house after a rain fall.

The home should be broom cleaned before closing. All construction debris should be taken away from the site. Finally, the builder will make a reasonable effort when making necessary repairs during the service period to protect and clean the repaired areas.

20.1 **Observation:** Exterior paint has splattered on brick, concrete, or asphalt driveway

Standard: Paint shall not be splattered on brick, concrete, or asphalt driveway.

Builder's Responsibility: The builder will clean paint splatters from brick, concrete, or asphalt driveway without damaging the surfaces. Some slight changes in color or texture of the brick, concrete, or asphalt driveway may not be avoidable, and no guarantee against such changes is given.

Discussion: No surface damage that impairs the life of the brick, concrete, or asphalt is acceptable.

20.2 **Observation:** Roof shingles have paint overspray or paint splatters.

Standard: Roof shingles shall have no visible overspray or paint splatters when viewed from a distance of 10 feet or more under normal lighting conditions.

Builder's Responsibility: Builder is to replace any shingles with paint overspray or splatters that do not meet the standard.

SECTION 21:
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 inch 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. 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 wheel traffic, bicycle kick stands, etc. Color variations are also to be expected.

Blacktop owners should seal blacktop after filling any existing cracks, including edges, on a yearly basis with an approved sealer. This should be done by the homeowner as normal maintenance. However, the homeowner should wait for a period of one year from date of installation before applying any type of sealer.

Water Pockets

21.1 **Observation:** Low spots in driveways in which water pockets appear, not caused by conditions stated above in the background.

Standard: No measurable water depth exceeding 1/2 inch is acceptable on blacktop driveways.

Builder's Responsibility: The builder will correct to meet the standard by filling with blacktop. The finished repair should be feathered and smoothed. Color and texture variations are to be expected.

Sinking, Cracking or Chipping

21.2 **Observation:** Excessive sinking of blacktop driveway.

Standard: Blacktop driveway should not sink more than 1/2 inch under normal use.

Builder's Responsibility: 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

21.3 Observation: Excessive cracking of blacktop driveway.

Standard: Blacktop driveway should not crack more than 1/2 inch under normal use.

Builder's Responsibility: The builder will correct cracks exceeding the tolerance by patching. Color and texture variations are to be expected.

21.4 Observation: Chipping at edges of blacktop.

Standard: The edge of a blacktop driveway is tamped in by hand and can crack more than 1/2 inch and break apart especially when heavy vehicles are driven over it.

Builder's Responsibility: None

Discussion: As the hand-tamped edges of a driveway dries, it is normal for it to shrink and crack. Typically, the final grade is held down 1 to 2 inches from the top surface of the driveway, and as moisture and dirt attach themselves to the edges, cracks can increase in size and start to chip away.

Surface

21.5 Observation: Mud in surface of blacktop driveway.

Standard: Mud and dirt can get into the porous blacktop surface during construction.

Builder's Responsibility: None

21.6 Observation: Rust in the surface of blacktop driveway.

Standard: During installation, rust left from equipment may be evident on the surface of an asphalt or blacktop driveway. This is normal and should be expected.

Builder's Responsibility: None

SECTION 22:
LANDSCAPING

Background

In reviewing landscaping issues, it is generally the builder's responsibility to establish the proper grades and swales, rough grading, finish grading, seeding and sodding. During the appropriate growing season (mid March to mid October), the homeowner bears considerable responsibility.

The homeowner is responsible for maintaining such grades and swales once they have been established and delivered by the builder. The establishment of the lawn, additional dirt work, reseeding, settling, erosion and down spout washout becomes the responsibility of the homeowner at the time of closing. (See Sections, 2.1 2.2, 2.3, and 2.4 for additional information on settling, erosion, and standing water issues).

The builder should rake yard at the time of finish grading to remove from the surface rocks which are slightly larger than golf ball size. Rocks will work their way to the surface, and the homeowner will need to pick up these rocks as they appear. A good quality seed *(ie. fine blade perennial rye grass)* should be used. It is the homeowner's responsibility to purchase additional grass seed and to reseed needed areas as needed. The homeowner needs to allow a minimum of (1) one year for sodded areas to blend with seeded areas. Even then a perfect blend may not occur. As a precaution at the time of finish grading, the builder may spread straw over the yard in the seeded area for moisture protection during hot summer months or frost protection during cooler months. It is the homeowner's responsibility to replace straw if it blows away as well as removal of straw once lawn is substantially established.

Watering the yard twice a day, early morning and late evening is suggested. The homeowner should water until about 1 inch of water has been put down. This can be measured by placing a soup can in the yard to catch water while watering. Do not stop watering when grass starts to grow. The homeowner will need to continue watering for two to three months.

A starter fertilizer should be applied by the homeowner according to manufacturers instructions. Homeowner should fertilize again in the next growing season with a high nitrogen fertilizer to promote root growth for a thick lawn.

Trees and shrubs require deep watering to reach their root systems. To accomplish this, turn the hose onto a trickle, and place at the base of the tree or shrub. However, remember that landscaping can be very delicate. The homeowner can get additional information on proper landscape maintenance from a local landscaper or county extension office. When watering the lawn, keep the tree leaves out of the path of the sprinkler. Water sprinkled on leaves will act as a magnifying glass and burn the leaves, making it look like the tree died.

Landscape Dying

22.1 **Observation:** Seeding, sod, plantings or trees are dying.

Standard: Seeding, sod, plantings or 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.

Builder's Responsibility: Noted defects will be corrected by the builder. Builder is not responsible for the life or condition of any of the above under any circumstances beyond the time of closing.

22.2 **Observation:** Existing trees, bushes, or grasses die during construction or after dwelling is completed.

Standard: During or after the construction process, existing trees, bushes, and grasses existing on the building site could be affected by and die due to the construction process.

Builder's Responsibility: None.

22.3 **Observation:** Outdoor plants moved during the construction process die after project is completed.

Standard: Plants that must be physically transported during construction shall be moved, maintained and replanted by homeowner.

Builder's Responsibility: None

Discussion: The builder shall not be responsible for delays in the schedule when plants are moved by the homeowner.

22.4 **Observation:** Tree stumps have been left in disturbed area of construction site.

Standard: All tree stumps, either existing prior to construction or created during the construction process, within the area of the project necessary for completion of home, are to be removed by the builder per contract and specifications.

Builder's Responsibility: The builder will remove any stump from the disturbed area of the construction site per the contract and specifications.

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