Residential Construction Standards

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INTRODUCTION

The National Association of State Contractors Licensing Agencies (NASCLA) was formed in Utah in 1962 as a nonprofit corporation dedicated to the mutual assistance of its members in striving for the better regulation of the construction industry in order to protect the health, welfare and safety of the general public.

The association’s membership is comprised of state and local contractor licensing agencies, construction firms, construction trade associations and others associated with the construction industry.

The purpose of this publication is to provide state and local regulatory authorities with acceptable workmanship standards for residential construction. The NASCLA Residential Construction Standards provide guidelines for regulatory authorities that should be applied only within the scope of the particular project being performed, and are not intended to answer all questions pertaining to workmanship of construction or applicable codes. Further, each state and local regulatory authority may modify or amend these standards as necessary to meet the particular needs of their geographic location.

A remodeling project may be outside the scope of these guidelines due to conditions in the old structure that require solutions different from those the guidelines suggest. During the remodeling process, the governing factor is meeting the needs of the consumer as outlined in the contract and complying with the applicable codes.

The information contain herein should not be construed as policy, an endorsement, warranty (expressed or implied) or guaranty by the National Association of State Contractors Licensing Agencies (NASCLA), or any persons or organizations involved in the creation of this manual of any technical descriptions systems, details requirements, materials or products.

Please note: State and local regulatory authorities must consult their own codes and laws to identify and resolve any conflicts of law created by the adoption of these standards.

Acknowledgements:

NASCLA gratefully acknowledges the leadership and commitment of the members of the NASCLA Residential Committee who worked together to produce the NASCLA Residential Construction Standards.

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CHAPTER 1
APPLICABLE TIME LIMITS

State law or local ordinances will control the time frame for inspections of code classifications of construction to be performed. In no event should the regulatory authority require or perform construction inspections beyond the time periods otherwise required by law. It is also likely that different states and local jurisdictions will have differing time periods, but that is, again, an issue controlled by local or state law.

The regulatory authority, under normal conditions, will inspect for code violations during the time limits shown below. Contractor responsibility does not extend to items which have been subject to owner neglect, modification or abnormal use.

Defects in appliances, fixtures and heating/air conditioning equipment properly installed by the contractor shall be limited to the manufacturer’s warranty.

Nothing in this section creates a warranty or limits a warranty.

The following classifications shall be open to inspection for code and standards violations for the first ____ months (time period to be determined by the adopting state):

1. Grading, fill and other site work
2. Masonry and concrete*
3. Carpentry and wood products*
4. Insulation
5. Moisture
6. Doors and windows
7. Finishes: paint, stain, wallpaper, carpet, tiles, flooring, etc.
8. Cabinets and countertops
9. Drywall and plaster
10. Roofing*
11. Siding
12. Windows and skylights
13. Caulking and weather-stripping
14. Hardware
15. Hard coat stucco
The following classifications shall be open to inspection for code and standards violations for the first ____ months (time period to be determined by the adopting state):

1. Heating and air conditioning
2. Plumbing
3. Electrical

(*) Major structural damage, including structural damage to systems noted above by an asterisk*, and buildings which are unsafe, unsanitary, do not provide adequate egress, constitute a fire hazard, or are otherwise dangerous to human life shall be inspected for code violations during the first ____ years only (time period to be determined by the adopting state).
APPLICABLE BUILDING CODES

Building codes change from time to time. For the purpose of these Construction Standards, the building codes governing the structural, mechanical, plumbing, electrical, gas and energy requirements for new construction that were adopted and in effect at the time the house was constructed may be used to determine compliance. These standards apply uniformly regardless of any adopted code.
CHAPTER 2
INTRODUCTION TO CONSTRUCTION STANDARDS

These Construction Standards are intended to specify the minimum performance standards for the construction of homes\(^1\) and to set forth the basis for determining the validity of all home buyer complaints\(^2\) related to defective materials and workmanship.

Only the most frequent defects of concern to the industry have been addressed in the Construction Standards set forth in the following pages. It is not possible to discuss every conceivable situation that can occur in construction. Because of the limitless combinations that can be incorporated into a home, infinite conditions can occur. This manual describes the most common and repetitive situations. Likewise, the validity of any homeowner’s complaint for defects for which a standard has not yet been addressed herein shall be determined on the basis of good industry practice, which assures quality of materials and workmanship, and any conciliation or arbitration of such complaints shall be conducted accordingly.

The following Construction Standards are expressed in terms of performance standards. Noncompliance with the performance standards calls for corrective action by the builder. The format is designed for easy comprehension by both layman and builder as follows:

1. **Common Defect or Problem** – a brief statement in simple terms of the deficiency to be considered.

2. **Performance Standard** – performance standards relating to a specific deficiency.

3. **Builder Repair Responsibility** – statement of the corrective action required of the builder to repair the deficiency, or any other damage resulting from making the required repair. The method of correction to meet the industry standard is at the builder’s discretion. Alternatives for making acceptable repairs exist in most cases.

Many items related to deficiencies in the home are homeowner maintenance responsibilities. To assure themselves of long, comfortable use of their home and protection of their investment, homeowners should learn about and act on those maintenance responsibilities.

\(^1\) Utilize the appropriate terminology throughout these standards as defined by each state’s statutes.

\(^2\) See footnote one.
Background

Framing or rough carpentry provides the skeletal structure of the residence, which includes fabrication of wood portions of the floor systems, exterior walls, interior partitions and roof, which are built on and supported by the foundation.

The exterior wall framing is designed to support the vertical load from the floors and roof and to resist lateral loads resulting from winds. Interior partitions may or may not be load bearing. The roof is designed to support its own weight plus that of anticipated loads from snow, ice and wind. The framing is quality controlled by the building code and subject to building inspection when the entire framed structure can be viewed.

Wood framing can be fabricated on or off a job site, or a combination of both. Even when most of the framing is done on site, there has been a trend to use pre-manufactured components, such as roof or floor trusses, in lieu of the more conventional joist and rafter construction. As a natural product, wood will respond to humidity and temperature conditions and can cause shrinking, twisting or warping of the framing material. Some of these conditions can be controlled or minimized; others are due to the nature of wood itself.

In single family construction, lumber type and grade, span, spacing and load bearing capacities are tightly controlled by code, while the carpentry foreman uses his own judgment in determining the exact layout. Hence, the accumulation of tolerances of several inches in overall dimension is not unusual.

1. **Common Defect or Problem**
   - Floors squeak.
   - **Performance Standard**
     - Floor squeaks are common to new construction and a squeak-proof floor cannot be guaranteed.
   - **Builder Repair Responsibility**
     - Builder should try to minimize the floor squeaks and must correct if caused by a construction defect. It should be noted that a second floor repair would be surface nailing in carpeted areas and impossible in vinyl or ceramic areas.

2. **Common Defect or Problem**
   - Uneven or unlevel floors.
Performance Standard
Floors shall not be more than 1/4” out of plane or level in wood, vinyl and ceramic areas or 1/2” out of plane in carpeted areas within any 32” measurement when measured parallel to the joists.

Builder Repair Responsibility
Builder to repair to meet performance standard.

3. Common Defect or Problem
Crowned floor joist.
Performance Standard
Floors shall not be more than 1/4” out of plane or level in wood, vinyl and ceramic areas or 1/2” out of plane in carpeted areas within any 32” measurement when measured parallel to the joists.

Builder Repair Responsibility
Builder to repair to meet performance standard.

4. Common Defect or Problem
Seams or ridges appear in resilient flooring due to subfloor irregularities.
Performance Standard
In the natural settling and shrinkage process, some mismatch of the subfloor may exhibit and mirror itself as ridges or depressions showing on the surface goods.

This can be minimized by the customer in his selection of an embossed pattern in a darker color. In particular, lighter solid colors and/or smooth vinyl surfaces mirror any minor variations of the subsurfaces to which they are applied and emphasize this ridging. If the ridge or depression effect exceeds 1/8” and cannot be corrected from below, the resilient floor must be corrected. The ridge measurements should be made by measuring the gap created when a 6” straight edge is placed tightly 3” on each side of the defect and the gap measured between the floor and the straight edge at the other end.

Builder Repair Responsibility
If ridges exceeds standard, builder to remove the sheet goods in the minimum area where the joint will not be readily visible when repaired, re-nail the subflooring, sand smooth and/or fill gap and replace the sheet goods. Owner should note that there may be a mismatch in materials due to time or dye lot variations. If the material is unavailable due to discontinuation, unless the owner will accept a repair with as closely matching materials as is currently available or correction by some other means, builder should credit the owner 1½ times the cost to repair if the material were available. This would be 1½ times the minimum service charge, plus the additional hourly labor charge and the material cost needed to make the repair.
Common Defect or Problem
Bowed walls.
Performance Standard
All interior and exterior walls have slight variances on their finished surfaces.
Walls should not bow more than 1/4” out of line within any 32” horizontal or vertical measurement.
Builder Repair Responsibility
Builder will repair to meet performance standard.

5. Common Defect or Problem
Out of plumb walls.
Performance Standard
Walls should not be more than 1/4” out of plumb for any 32” vertical measurement.
Builder Repair Responsibility
Builder will repair to meet performance standard.

6. Common Defect or Problem
Out of plumb windows or windows do not operate.
Performance Standard
Windows must operate with reasonable ease as designed.
Builder Repair Responsibility
Builder to repair to be operable.

7. Common Defect or Problem
Truss lift.
Performance Standard
Truss lift occurs during the heating season and normally returns back down in the summer months. 3 Builder is not responsible for inadvertent cutting of tape where wallpapering may have been done.
Builder Repair Responsibility
This is to be corrected only during the summer months (as appropriate) after the first heating season, only if first reported during year one. If the problem reoccurs in the next heating season, and the gap exceeds 1”, then additional methods must be taken to correct the problem.

8. Common Defect or Problem
Cracked trusses.
Performance Standard
Builder to contact truss manufacturer to make sure truss conforms to its engineering.
Builder Repair Responsibility
Builder to repair as per recommendation of truss manufacturer.

3 This condition differs across geographical locations.
9. **Common Defect or Problem**  
   **Bowed ceilings.**  
   **Performance Standard**  
   All interior and exterior frame walls or ceilings have slight variations on the finished surfaces. Bowing should not be visible so as to detract from the finished surface. A ceiling bow which is more than 1/2” within a 36” measurement running parallel with the ceiling joist shall be excessive.  
   **Builder Repair Responsibility**  
   Ceiling bowed in excess of the performance standard shall be corrected.
CHAPTER 4
CARPENTRY STANDARDS - FINISH

(Finished Carpentry, Plumbing, Cabinetry, Millwork and Countertops)

Background

Wood and wood-like products are the basic materials used in finished carpentry. Wood is a natural product with individual grain variations in each species of wood. The matching of grain is not a standard procedure and may possibly be accomplished only as a specific contractual agreement between the owner and builder and with the careful selection of matching panels by the supplier. The variations in wood separate it from man-made products. One of the wonderful characteristics of wood is the difference in each piece.

Over the past several years, a marked change has taken place in the area of finished carpentry, paneling and millwork. Considerably less of the labor is being done on the site. Almost all millwork, paneling, cabinetry, countertops and doors are purchased by the builder as a completed product and are warranted by the builder according to manufacturers’ standards.

Scratches, chips, gouges or nicks should be noted by the owner at the time of the preoccupancy inspection. To maintain the beauty of the wood and wood products, wood should be cared for by the owner much like furniture. Builder should caution owner to only use products recommended by the manufacturers when cleaning and maintaining wood products and also in caring for countertops.

During the initial building stabilization period (first heating and cooling seasons), it is not unusual for doors to warp slightly or twist and alternately stick or not close. Warping, shrinking and swelling of wood and wood-like products can occur due to temperature and humidity changes.

If painting, varnishing and/or staining are to be done by the owner, it should be finished at the earliest possible opportunity. The primary purpose is preservation, protecting the surfaces and edges from weather and moisture penetration. The owner should be made aware that all surfaces must be sealed on all six sides. If a door or drawer fails and if it was not sealed on all six sides and the owner performed or contracted for his own staining, then the builder is not responsible to make the repair. Filling and sanding of minor imperfections, nail holes and splits are the responsibility of the painter. If the builder is responsible for the painting and/or staining, samples or names of the paint products should be left with the owner for minor touch-ups.
1. **Common Defect or Problem**
   Interior doors, closet doors, cabinet doors, or drawers warp and cannot be closed or will not stay closed.

   **Performance Standard**
   
a. The owner should note that during the initial building stabilization period, it is not unusual for doors to warp or twist and alternately stick or not close as the home goes through a settling and drying period, especially over the first heating season. The builder is obligated only to make replacements after this initial stabilization period, since often the door straightens during this process. Doors MUST be sealed on all six sides by the person contractually responsible for painting/staining.

   b. All interiors doors, closet doors, cabinet doors or drawers whose warpage exceeds the National Woodwork Manufacturers Association Standards (1/4” in most cases) and where the warp cannot be corrected by adjustment of either jambs, stops and/or hinges and cabinet catches to properly latch after the initial stabilization period of the building, at the end of the first year, shall be replaced by the builder. Doors MUST be sealed on all six sides by the person contractually responsible for painting/staining.

   **Builder Repair Responsibility**
   Adjust, upon request of the owner, one time only, preferably at the end of the warranty period, any doors and drawers that fail to operate properly. Replace any doors or drawers that cannot be corrected to come within acceptable tolerance after stabilization. Refinish as necessary if staining was part of the builder’s contract.

2. **Common Defect or Problem**
   Garage to house solid core door warps.

   **Performance Standard**
   Garage to house doors are more subject to weather conditions and thus these doors may warp, but will tend to come back to their original state. This can be a continual occurrence with seasonal changes.

   **Builder Repair Responsibility**
   If the door does not come back in summer to seal, builder to replace (provided door was sealed on all six sides if staining was owner’s obligation). Refinish as necessary if staining was part of the builder’s contract.

3. **Common Defect or Problem**
   Warpage or non-closing of exterior doors (except storm doors).

   **Performance Standard**
   Because of the security provided by these doors, the doors must be adjusted or corrected as required.

   **Builder Repair Responsibility**
   During the first year, if the security of the building is jeopardized, correct as requested by the owner to maintain the security of the
building. Replace any exterior doors whose permanent warpage exceeds the National Woodwork Manufacturers Association Standards after the stabilization period. Refinish as necessary if painting and staining was part of the builder’s contract. If painting is part of owner’s contract, they are cautioned to finish doors on all six surfaces at the earliest possible opportunity to prevent weather deterioration and warpage of the doors and to maintain a warranty on the door.

4. **Common Defect or Problem**
   Cabinet doors do not align properly or there is a gap between door and cabinet frame.
   **Performance Standard**
   Space between doors where doors butt should not exceed 1/8”. Top or bottom alignment should not exceed 1/16”. Separation between the door and the frame should not exceed 1/4”.
   **Builder Repair Responsibility**
   Builder to repair if any of the above conditions exceed acceptable tolerance.

5. **Common Defect or Problem**
   Loosening or separation of veneer on doors and cabinet doors.
   **Performance Standard**
   Veneer should not crack or separate during the first year of warranty provided the doors have been properly finished. If painting is to be done by the owner, they are cautioned to finish all six surfaces of the veneer doors at the earliest possible opportunity to prevent weather deterioration of the door, which can lead to delamination or warpage.
   **Builder Repair Responsibility**
   Builder should repair or replace any doors where the veneer has separated or delaminated during the first year of occupancy. Door replacement due to delamination is the owner’s responsibility if the owner has not promptly followed through on his responsibility to finish the door or has not finished all six sides of the doors. Builder to refinish only if painting or staining was part of the builder’s contract.

6. **Common Defect or Problem**
   Shrinkage or swelling of paneled doors, panels in cabinet doors and/or paneling.
   **Performance Standard**
   Panels will, due to the nature of wood products, shrink and expand and may expose unpainted or unstained surfaces.
   **Builder Repair Responsibility**
   None.

7. **Common Defect or Problem**
   Panels or door graining and/or color do not match.
Performance Standard
Since wood is a natural product and the grain structure is unique for each piece of wood, the builder is only responsible for supplying the grades and types of lumber and millwork and paneling specified in the contract. Grain and color matching is not the industry standard.

Builder Repair Responsibility
None, unless matched lumber was specifically stated in the contract.

8. Common Defect or Problem
Scratches on glass in doors.
Performance Standard
Scratching is inherent in the added safety features that are mandated in glass doors.
Builder Repair Responsibility
None.

9. Common Defect or Problem
Millwork trim graining or color does not match.
Performance Standard
See #7.
Builder Repair Responsibility
See #7.

10. Common Defect or Problem
Gaps in miter joints.
Performance Standard
Gaps in miter joints should not exceed 1/16".
Builder Repair Responsibility
Builder should repair any gaps exceeding 1/16". If the owner is responsible for the staining portion of the contract, the owner is responsible for restaining. If staining was part of the builder’s contract, builder must restain, if necessary.

11. Common Defect or Problem
Gouges, cracks, nicks or other material or workmanship imperfections.
Performance Standard
Nail pops, blisters and other such blemishes at the time the owner closes or takes occupancy of the home that are readily visible from a distance of 6’ under normal lighting conditions are unacceptable.
Builder Repair Responsibility
Builder to replace millwork components with the above listed defects where the defect cannot be easily corrected through the use of sanding or filling, so long as these items were noted prior to occupancy. It should be noted that if the owner is responsible for the painting portion of the contract, the finishing work becomes the owner’s responsibility.
12. **Common Defect or Problem**
Splices of millwork material within the length of a wall.
**Performance Standard**
Splicing is permissible.
**Builder Repair Responsibility**
None.

13. **Common Defect or Problem**
Cabinets separate or loosen from wall.
**Performance Standard**
Provided the cabinet installation is secure, some shrinkage may occur which may appear to indicate a gap between the cabinets and their mounting surface. This is normal and requires no correction. However, if the cabinet is actually loose, the builder shall correct.
**Builder Repair Responsibility**
Correct any loose cabinetry from the mounting surface, except those due to shrinkage.

14. **Common Defect or Problem**
Countertops separate from wall.
**Performance Standard**
Acceptable tolerance is 1/8” in width.
**Builder Repair Responsibility**
Builder to caulk if gap is over 1/8”.

15. **Common Defect or Problem**
Seams in laminate countertops rise.
**Performance Standard**
This will occur occasionally. Owner should keep seams sealed as water can penetrate.
**Builder Repair Responsibility**
None.

16. **Common Defect or Problem**
Exposed plastic laminate surfaces, laminate cabinetry and molded marble crack, chip, delaminate or are burned or scratched.
**Performance Standard**
There should be no imperfections in exposed plastic laminate surfaces at the time the owner takes occupancy of the home. Any defects must be noted by the owner in writing at the preoccupancy inspection and should be corrected by the builder. In some rare cases there may be latent defects in laminates, which would require adjustments by the manufacturer.
**Builder Repair Responsibility**
Correct defects noted at occupancy inspection. Defects occurring after that time are the owner’s responsibility for correction since these surfaces are subject to owner’s damage.
CHAPTER 5
CAULKING AND WEATHER-STRIPPING STANDARDS

Background

Weather-stripping of doors and windows helps keep the home properly heated or cooled. Metal stripping should be free of dents and loose sections and plastic or rubber stripping should be glued tightly. The junction between windows, doors and exterior wall material (i.e. siding, brick) will need to be caulked to minimize air infiltration. Caulking will need to be maintained by the homeowner throughout the life of the home. It should be noted that some air infiltration is normal during high winds.

1. Common Defect or Problem
   Caulking cracks.
   Performance Standard
   All types of caulk will dry out. Builder to remove old caulk and replace with new caulk at cracked areas one time during the first year. After the one repair, caulking becomes an owner maintenance responsibility.
   Builder Repair Responsibility
   Builder to repair to performance standard one time during the first year.

2. Common Defect or Problem
   Caulking is missing.
   Performance Standard
   Builder is responsible for caulking all wood, wood to masonry, aluminum to wood and aluminum to masonry to local codes.
   Builder Repair Responsibility
   Builder to repair to meet performance standard.

3. Common Defect or Problem
   Air infiltration around doors and windows.
   Performance Standard
   Doors and windows are cold spot sources and some infiltration of air must be expected. Proper weather-stripping and insulating around these areas can minimize air passage. However, depending on the type of window (i.e. double hung and sliding windows will have more air infiltration than casement or stationary windows) and under certain temperature and wind conditions, some infiltration will be observed by the homeowner.
   Builder Repair Responsibility
   Builder to inspect and adjust poorly fitted weather-stripping. If draft comes around casings, builder to make sure insulation is in place around window wherever possible.
CHAPTER 6
DRYWALL AND PLASTER STANDARDS

**Background**

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

Drywall is a relatively inflexible gypsum material, which is applied to interior surfaces. Drywall and plaster are applied in sheets, which are nailed or screwed to the stud or joist for application. The sheets are then taped and the entire surface is sprayed and textured to produce a finished surface. In plaster, the final coats are trowelled on.

Because the drywall or plaster has been placed on lumber surfaces which are subject to shrinkage and warpage and which are not perfectly level and plumb, problems occur through stress and strain placed on drywall during the drying of the lumber, which is inherent in the construction of a home.

In evaluating the need for drywall and plaster repairs, the general rule to be applied is, if the defect is readily noticed by visual inspection, it should be repaired. However, due to the initial shrinkage problem that exists with a new home, it is impossible to correct each individual defect as it occurs, and for that matter it is essentially useless to do so. The entire house will tend to stabilize itself near the end of the warranty period, and one repair should be made when necessary, preferably near the end of the 12th month after occupancy upon request by the homeowner. Repairs will be made no more than one time during the warranty period. All repairs should be made within industry standards. Any reoccurrence beyond the warranty period becomes a homeowner’s maintenance item.

Since drywall and plaster are finish materials, repairs will be slightly visible due to a color or texture mismatch after they have been made. The mismatch will be even more visible when a special textured finish has been employed. Repairs do not require repainting when they are applied on unpainted surfaces such as unpainted ceilings or when the builder did not contract for the painting. The builder will attempt to match the repair as closely as possible, but exact color match of the unpainted surface is impossible to achieve. Where the repair has been made on a painted surface, the builder will not be responsible for paint touch-up, provided color samples are left by the painter at the home, otherwise the builder shall be responsible to touch up the repair, but the owner should be cautioned that the color match will not be perfect.
1. **Common Defect or Problem**  
Visual defects caused by normal shrinkage or nail pops, cracks, seam lines, ridging or cracked corner beads.  
**Performance Standard**  
Any of the above defects which can be readily determined by visual inspection (without lighting the defect from one direction) shall be repaired by the builder except where normal repainting will cover the defect as in the case of a hairline crack. Cracks not exceeding 1/16” in width are common in gypsum wallboard installations and are considered acceptable.  
**Builder Repair Responsibility**  
Builder to repair to original finish as closely as possible. Repairs will be made no more than one time during the first year.

2. **Common Defect or Problem**  
Defects caused by workmanship during installation such as blisters in the tape, excess compound in joints, or trowelling marks.  
**Performance Standard**  
Defects, which can be readily observed by visual inspection (without lighting the defect from one direction), are beyond the industry standard except where normal repainting will cover the defect.  
**Builder Repair Responsibility**  
Builder to correct the defects.

3. **Common Defect or Problem**  
Photographing of mudded areas (tape lines, nails, corners, etc.).  
**Performance Standard**  
The paint on the wallboard surface has a different texture than on the taped and mudded areas.  
**Builder Repair Responsibility**  
Photographing is not common, but when it is readily visible (without lighting the defect from one direction), it is the builder’s obligation to repair.

4. **Common Defect or Problem**  
Uneven texturing.  
**Performance Standard**  
As textures are composed of natural materials, there will be some variation. Blemishes should not be visually apparent.  
**Builder Repair Responsibility**  
Builder to repair finish to standard.
5. **Common Defect or Problem**
   - Separation at ceiling due to trusses lifting.
   - **Performance Standard**
     - Truss lift occurs during the heating season and normally returns back down in the summer months.\(^4\) Builder is not responsible for inadvertent cutting of tape where wallpapering may have been done by the homeowner.
   - **Builder Repair Responsibility**
     - This is to be corrected only during the summer months after the first heating season. If the problem reoccurs in the next heating season and gap exceeds 1", additional methods must be taken to correct the problem (i.e. the use of a molding at the ceiling).

6. **Common Defect or Problem**
   - Uneven angular joints or corners.
   - **Performance Standard**
     - Defects that can be readily determined by visual inspection are to be repaired by builder only prior to decorating. The use of a rounded corner is acceptable at angles.
   - **Builder Repair Responsibility**
     - Builder to repair to be visually acceptable.

7. **Common Defect or Problem**
   - Texturing on repairs is uneven.
   - **Performance Standard**
     - Since drywall and plaster are finish materials, repairs will be slightly visible due to a color or texture mismatch after they have been made.
   - **Builder Repair Responsibility**
     - Every attempt should be made to uniformly match the texture.

\(^4\) This condition differs across geographical locations.
CHAPTER 7
ELECTRICAL STANDARDS

Background

Electrical system installation is performed by licensed electrical contractors and in accordance with state and national electrical codes. The electrical code dictates safety requirements predominantly to prevent fires and minimize the chance of personal injury.

The builder cannot be responsible for what an owner plugs into an electrical outlet. The builder is also not responsible for what an owner has added to the electrical system.

1. **Common Defect or Problem**
   - Outlets and switches do not work.
     
     **Performance Standard**
     - All outlets and switches must be operative.
     **Builder Repair Responsibility**
     - Builder to repair or replace wiring or replace defective outlets and switches to make units work properly.

2. **Common Defect or Problem**
   - Lights and fans do not work.
     
     **Performance Standard**
     - Wiring to fixture must be operative.
     **Builder Repair Responsibility**
     - Builder to repair defective wiring to lights and fans. If the fixture is inoperative, repair of the fixture is covered under a manufacturer’s warranty. If the fixture was builder supplied, the builder is responsible for the service call. If the fixture was owner supplied, the owner is responsible for the service call.

3. **Common Defect or Problem**
   - Lights dim or flicker in parts of building.
     
     **Performance Standard**
     - Lights may dim or flicker during starting of some motor driven equipment.
     **Builder Repair Responsibility**
     - Check wiring for installation per standards of the applicable electrical code. If flickering/dimming does not occur when motor driven equipment is turned off, the owner should notify the builder to check if the wiring is per code. If nothing is found, the owner should contact the electric power company for possible defects in supply source.
4. Common Defect or Problem
   Lights dim/flicker in entire building.
   Performance Standard
   Lights should not flicker throughout entire building at one time.
   Builder Repair Responsibility
   Builder should first have licensed electrical contractor check internal wiring as necessary. If internal wiring is proper, owner should then notify the electric power company for possible defects in supply source.

5. Common Defect or Problem
   Circuit breakers trip out.
   Performance Standard
   Circuit breakers should not disengage under normal usage except in cases where there may be an overload of portable appliances (See #6 re: GFI circuits).
   Builder Repair Responsibility
   If it is determined that there is not an overload of portable appliances, a licensed electrical contractor is to repair or replace breaker.

6. Common Defect or Problem
   Ground fault interruptor (GFI) circuit trips frequently.
   Performance Standard
   Ground fault interruptors are sensitive safety devices installed into the electrical system to provide protection against electrical shock. These sensitive devices can be tripped very easily.
   Builder Repair Responsibility
   A licensed electrical contractor shall install ground fault interruptor in accordance with approved electrical code. Tripping is to be expected and is not covered, unless due to a construction or product defect.

7. Common Defect or Problem
   Fluorescent lights hum.
   Performance Standard
   Some fluorescent ballast will hum.
   Builder Repair Responsibility
   Excessive hum must be checked by a licensed electrical contractor.

8. Common Defect or Problem
   Door bells/chimes do not work.
   Performance Standard
   Door bells/chimes carry a one-year warranty and should operate.
   Builder Repair Responsibility
   Licensed electrical contractor to repair or replace if door bell/chimes supplied by builder. Owner is responsible if owner supplied.
9. **Common Defect or Problem**
   Drafts from electrical outlets.
   **Performance Standard**
   Electrical junction boxes on exterior walls may produce airflow whereby the cold air can be drawn through the outlet into a room.
   **Builder Repair Responsibility**
   None. Owner can place a foam type insulation behind cover plate to cut down the airflow.

10. **Common Defect or Problem**
    Water leaks into basement at builder installed conduits going through walls.
    **Performance Standard**
    Water leaks into basement should not occur at conduits. If the owner has graded or changed the grade around the foundation, or has hired a third party to grade or change the grade around the foundation, the builder may not be responsible for leaks into the basement at conduits.
    **Builder Repair Responsibility**
    Builder to repair, providing grading is not at fault.
CHAPTER 8  
FIREPLACE STANDARDS

Background

Fireplaces fall into two categories, the first is “full masonry.” This type of fireplace is constructed with a masonry flue, exterior veneer and interior firebox. The second is “prefabricated,” which has a metal pipe chimney and a manufactured metal firebox.

1. Common Defect or Problem
   Fireplace or chimney does not draw properly.
   Performance Standard
   A properly designed and constructed fireplace and chimney shall function properly. It is normal to expect that high winds can cause temporary negative draft situations. Similar negative draft situations can also be caused by obstructions such as large branches of trees too close to the chimney.
   Builder Repair Responsibility
   Builder will determine the cause of malfunction and correct, if the problem is one of design or construction of the fireplace.

2. Common Defect or Problem
   Firebox paint changed by fire.
   Performance Standard
   Heat from fires can alter finish.
   Builder Repair Responsibility
   None.

3. Common Defect or Problem
   Cracked firebrick and mortar joints in firepot.
   Performance Standard
   Expansion and contraction will cause cracking.
   Builder Repair Responsibility
   None, unless crack exceeds 1/8” width. Builder will then tuckpoint.

4. Common Defect or Problem
   Rust on the exterior of the fireplace or rust on the damper.
   Performance Standard
   As rust can form from condensation or moisture within a home, the owner should use a rust-removing product to remove rust.
   Builder Repair Responsibility
   None.
5. **Common Defect or Problem**  
Cracks in chimney and fireplace caps.  

**Performance Standard**  
Chimney and fireplace caps should be checked periodically by the owners for hairline cracks in the concrete and brick, especially next to the flue. These cracks are caused by shrinkage and severe weather conditions and should be caulked with an elastic type caulking compound or tuckpointed with mortar or cement. Failure to do this could result in moisture getting into the chimney, freezing, and cracking the flue material or the face of the brick or stone.  

**Builder Repair Responsibility**  
None, unless crack exceeds 1/8” in width, builder will then tuckpoint.

6. **Common Defect or Problem**  
Fireplace fans are noisy.  

**Performance Standard**  
Fans will make some noise due to the location of their installation but should not be excessively noisy. Fireplace fans are covered by a one-year manufacturer’s warranty. Noise level is not to exceed manufacturer’s acceptable noise level.  

**Builder Repair Responsibility**  
Builder to inspect and repair if fan is touching any part of fireplace.

7. **Common Defect or Problem**  
Cracks in mortar joints of brick or other masonry walls or veneers.  

**Performance Standard**  
Small hairline cracks due to shrinkage are common in mortar joints in masonry construction. Cracks greater than 1/8” in width are considered excessive.  

**Builder Repair Responsibility**  
Builder will repair cracks in excess of performance standard by pointing or patching. These repairs shall be made at the end of the first year of the warranty period. Owner should be aware that some variation between old and new mortar color will occur.

8. **Common Defect or Problem**  
Chimney separation from structure to which it is attached.  

**Performance Standard**  
Newly built fireplaces will often incur slight amounts of separation. Separation shall not exceed 1/2” from the main structure in any 10’ vertical measurement.  

**Builder Repair Responsibility**  
Builder will determine the cause of separation and correct to standard.
CHAPTER 9
FLOORING FINISH STANDARDS

Background

Finished flooring work is subject to the same phenomena during construction of a home that applies to drywall and plaster, namely shrinkage and warpage of the surface to which it is applied, settling of the home, and expansion and contraction of the subsurface to which it is applied with moisture and temperature variations. Most of the flooring problems are a result of these natural phenomena occurring during the stabilization of the home during the initial warranty period and are mirrored in the floor coverings.

The following finished flooring standards are contained separately in this section:

1. Carpeting
2. Ceramic or Quarry Tile
3. Resilient Flooring
4. Wood Flooring
CHAPTER 10
CARPETING STANDARDS

Background

Carpet installation may often be contracted for by the owners, or may be done by the builder as an allowance item. A standard carpet installation will use seaming techniques to join the material and these seams will be somewhat visible. Carpeting is subject to normal manufacturing tolerance and most particularly to lot variations affecting color, texture and pattern. From time to time, patterns are discontinued, which makes it impossible to exactly duplicate the material; hence, it is recommended that the owner save scrap material from the carpet installation for any future repairs that may be required due to burns, spots, etc.

1. **Common Defect or Problem**
   Open carpet seams.
   **Performance Standard**
   Carpet seams will show. However, no visible gap is acceptable.
   **Builder Repair Responsibility**
   Builder to correct any open gaps.

2. **Common Defect or Problem**
   Carpeting becomes loose, seams separate or stretching occurs.
   **Performance Standard**
   Wall to wall carpeting, installed as the primary floor covering, when stretched and secured properly, shall not come up, become loose or separate from its point of attachment.
   **Builder Repair Responsibility**
   Builder to re-stretch or re-secure carpeting as needed, if original installation was performed by the builder.

3. **Common Defect or Problem**
   Spots on carpet/minor fading.
   **Performance Standard**
   Exposure to light may cause spots and/or minor fading on carpet. Spots, if noted prior to occupancy in writing, are the builder’s responsibility.
   **Builder Repair Responsibility**
   None. However, if noted prior to occupancy in writing, builder would then clean or repair.
CHAPTER 11
CERAMIC AND QUARRY STANDARDS

Background

Ceramic or quarry tile is also used as a finished flooring surface and in some counter and wall applications. Hard tile is supplied as a finished product and is subject to lot variations. The tiles may be attached to the subfloor, finish floor or wall surface with mastic (glue) or directly set into a mud base (special concrete mix). After the tile is set, grout is applied to fill the joints. Grouting will be affected by the natural settling and shrinkage of the home. Regrouting will be required by the homeowner as normal maintenance throughout the life of the home. With colored grout, it is virtually impossible to match colors should a repair of grout be desired.

Ceramic tile installation may be performed as an allowance item. Installation and tile costs may vary with tile size, shapes and patterns selected by the homeowner.

In all cases of finished floor covering materials, the owner is advised to follow the manufacturer’s suggested recommendations for maintenance and cleaning.

Narrow tipped or stiletto high heels will damage ceramic and quarry tile flooring and are not the builder’s responsibility for repair. Because of the wear and tear caused by normal use of the floor, no reasonable repair can be expected to restore the flooring to a new, unused, perfect condition.

1. Common Defect or Problem
   Cracks appear in grouting of ceramic tile joints or at junctions with other materials such as a bathtub.
   Performance Standard
   Cracks at the joints of ceramic tile are commonly due to the settling process, especially between the horizontal and vertical surfaces or the butting of dissimilar materials. As such, they require repointing.
   Builder Repair Responsibility
   Ceramic tile should be repointed when necessary, only once during the warranty period, preferably near the end of the warranty period. After one repointing, it becomes an item of owner maintenance.

2. Common Defect or Problem
   Ceramic tile cracks or become uncemented.
   Performance Standard
   Tile should not crack or become loose during warranty period under normal wear. It should be noted that ceramic tile can crack if something is dropped on the floor, and this type of cracking is not usually warranted.
3. **Common Defect or Problem**
   Ceramic tile grout discolors.
   **Performance Standard**
   Normal efflorescence is a condition, which can be cleaned with a special solution or will disappear in time. Grout is porous and can be sealed by the homeowner to prevent dirt penetration.
   **Builder Repair Responsibility**
   None.

4. **Common Defect or Problem**
   Mildew forms on tile or grout.
   **Performance Standard**
   This is a homeowner's maintenance responsibility.
   **Builder Repair Responsibility**
   None.

5. **Common Defect or Problem**
   Color variations in tile.
   **Performance Standard**
   Color variations are inherent in all ceramic glazes fixed clay products.
   **Builder Repair Responsibility**
   None.

6. **Common Defect or Problem**
   Tile style or pattern no longer available when repair called for.
   **Performance Standard**
   None.
   **Builder Repair Responsibility**
   Unless owner will accept a repair with as closely matching materials as is currently available, or correction by some other means, builder should credit the owner 1 ½ times the cost to repair if the material were available. This would be 1 ½ times the minimum service charge, plus the additional hourly charge and material cost estimate.

7. **Common Defect or Problem**
   Floors squeak.
   **Performance Standard**
   Floor squeaks are common to new construction and a squeak-proof floor cannot be guaranteed.
Builder Repair Responsibility
Builder should try to minimize the floor squeaks and must correct if caused by a construction defect. It should be noted that second floor repair would be a surface nailing in carpeted areas, and impossible in vinyl or ceramic areas.
CHAPTER 12
RESILIENT FLOORING STANDARDS

Background

Resilient flooring includes inlaid, roto-vinyl, seamless sheet vinyl and resilient vinyl composition tile.

All resilient flooring is subject to normal manufacturing tolerances and most particularly to dye lot variation affecting color, texture and pattern. From time to time, patterns are taken off the market, which makes it impossible to exactly duplicate a material when none is available. The most common problem occurring when partial replacement is called for in repair is the inability to match closely in color due to variation from dye lot to dye lot. In the replacement or correction of resilient flooring, the owner must be prepared to accept a variation in dye lot when the pattern is still in existence and is cautioned that a seam may show. When a repair is made, the smallest possible area should be repaired. Although the builder will attempt to match colors as closely as possible, the owner should note that the wax or vinyl dressing build-up on the existing areas, light variations, atmospheric conditions and other chemical reactions will produce a color variation, even within the same dye lot. The owner can minimize this variation by removing any build-up and thoroughly cleaning the floor according to the flooring manufacturer’s recommendations. Likewise, the color variations will become less noticeable with subsequent dressings and use of the floor.

The nature of resilient flooring makes possible permanent deformation of the surface when subject to high loads which can be exerted by furniture with improper floor protectors or no protectors at all. Manufacturer recommended protectors are a necessity. The protectors must rest flat on the floor, not at an angle. The maximum surface load per square inch must not exceed 75 lbs. Narrow tipped or stiletto high heels will damage vinyl tile and all sheet vinyl flooring, and are not the builder’s responsibility for repair. Because the wear and tear caused by normal use of resilient flooring, no reasonable repair can be expected to restore the resilient flooring to a new, unused, perfect condition.

Resilient flooring is a manufactured product bought as a finished product, either in the form of squares or sheet goods, which is applied by the appropriate trade; predominantly with mastic directly over the surface prepared to accept it.

1. Common Defect or Problem
   Nail pops appear on the surface of resilient flooring.
   Performance Standard
   All nail pops should be repaired.
   Builder Repair Responsibility
   Builder to correct all nail pops that have not broken the surface of the goods by driving the nails back into place. Replace any areas where the
nail pop has broken the surface. Replace sheet goods in a minimum area so the joint will not be readily noticeable where the nail pop broke the surface.

2. **Common Defect or Problem**
Seams or ridges appear in the resilient flooring due to subfloor irregularities.

**Performance Standard**
In the natural settling and shrinkage process, some mismatch of the subfloor may exhibit and mirror itself as ridges or depressions showing on the surface goods. This can be minimized by the customer in his selection of an embossed pattern in a darker color. In particular, lighter solid colors and/or smooth vinyl surfaces mirror any minor variations of the subsurfaces to which they are applied and emphasize this ridging. If the ridge or depression effect exceeds 1/8” and cannot be corrected from below, the resilient floor must be corrected. The ridge measurements should be made by measuring the gap created when a 6” straight edge is placed tightly 3” on each side of the defect and the gap measured between the floor and the straight edge at the other end.

**Builder Repair Responsibility**
If ridge exceeds standard, builder to remove the sheet goods in a minimum area so the joint will not be readily visible when repaired, retile the subflooring, sand smooth and/or fill gap and replace the sheet goods. Owner should note that there may be a mismatch in materials due to time difference or dye lot variations. If the material is unavailable due to discontinuation, unless the owner will accept a repair with as closely matching materials as is currently available or correction by some other means, builder should credit the owner 1 ½ times the cost to repair if the material were available. This would be 1 ½ times the minimum service charge, plus the additional hourly labor charge and material cost need to make the repair.

3. **Common Defect or Problem**
Resilient flooring lifts, bubbles or becomes unglued at joint.

**Performance Standard**
Resilient flooring should not loosen during the normal warranty period unless caused by the owner’s negligence or excessive use of water.

**Builder Repair Responsibility**
Providing edges are still intact, resecure the material. If not, replace the minimum area as per standard #2.

4. **Common Defect or Problem**
Shrinkage gaps show in resilient flooring.

**Performance Standard**
Gaps shall not exceed 1/16” in width in vinyl to vinyl joints. However, where dissimilar materials abutt, larger gaps may appear.
5. **Common Defect or Problem**  
*Flooring discoloration.*  
**Performance Standard**  
Certain conditions and substances such as heat, oil, fertilizers, asphalt from driveways and driveway sealers with an asphalt or coal tar base, and some carpet dyes can cause permanent stains, especially in traffic areas. The owners are also cautioned that the use of certain latex or rubber-backed throw rugs can cause discoloration of the resilient flooring due to a chemical reaction.  
**Builder Repair Responsibility**  
This is not a manufacturing defect, nor the builder’s responsibility. It is the owner’s responsibility to protect these areas with doormats or proper rugs at each entrance. There are certain instances when discoloration may be warranted by the manufacturer. Owner should contact the manufacturer for a determination under his warranty.

6. **Common Defect or Problem**  
*Fading of color of resilient flooring.*  
**Performance Standard**  
Exposures to excessive direct sunlight through glass sliding doors, for example, can cause fading or discoloration.  
**Builder Repair Responsibility**  
This is not a manufacturing defect, nor the builder’s responsibility. It is the owner’s responsibility to protect these areas by the use of drapes or blinds during times of direct sunlight exposure. Resilient flooring is no different in this instance than any drapes, furniture or carpeting in the home.

7. **Common Defect or Problem**  
*Heel marks, burns, scratches, scuffs and indentations on resilient flooring.*  
**Performance Standard**  
All of the above items are caused by owner use and abuse.  
**Builder Repair Responsibility**  
None, unless problems are relayed to the builder in writing prior to occupancy or noted during walk-through. If builder is notified prior to occupancy or at walk-through, it is builder’s responsibility to repair. If the damage occurs after that time, it is the responsibility of the homeowner.

8. **Common Defect or Problem**  
*Wear on surface or loss of sheen on resilient flooring.*  
**Performance Standard**  
Depending on the type of product, owner to refer to manufacturer’s warranty.
9. Common Defect or Problem
Floors squeak.

Performance Standard
Floor squeaks are common to new construction and a squeak-proof floor cannot be guaranteed.

Builder Repair Responsibility
Builder should try to minimize the floor squeaks and must correct if caused by a construction defect. It should be noted that a second floor repair would be surface nailing in carpeted areas and is impossible in vinyl and ceramic areas.
CHAPTER 13

WOOD FLOORING STANDARDS

Background

Wood flooring, as a finished surface, is applied directly over the subfloor. Wood flooring, while predominantly hardwood, may occasionally be softwood. Hardwood is generally preferred because of its better wearing qualities and the resistance to abrasions. Wood floorings may be either pre-finished or job-finished. All wood floors are subject to shrinkage, as a natural occurrence. Both stains and sealers on job-finished floors may require maintenance different from that of pre-finished floors. It should be noted that due to climate and humidity changes, wood floors may be subject to gapping.

1. **Common Defect or Problem**
   Gaps in wood floor.
   **Performance Standard**
   It must be understood that gapping is a normal occurrence during the heating season. Repairs should then be made during the summer so a proper correction can be made because warm, humid weather will cause the floor to expand. Gaps in excess of 1/8” in summer are to be corrected. Relative humidity in the home can cause noticeable fluctuations in gaps between floor boards. This is a common phenomenon in climates and areas of the home that experience significant shifts in humidity. The consumer is responsible for maintaining proper humidity levels in the home.
   **Builder Repair Responsibility**
   Builder to repair gaps in excess of 1/8”.

2. **Common Defect or Problem**
   Wearing of finish on wood floor.
   **Performance Standard**
   Elements of nature, moisture and driveway materials may cause the finish on wood floors to wear faster. The homeowner should maintain his flooring to prevent this condition.
   **Builder Repair Responsibility**
   None.

3. **Common Defect or Problem**
   Finish is uneven on wood floors.
   **Performance Standard**
   Slight variations may appear in the finish, but must not be readily visible.
   **Builder Repair Responsibility**
   Builder to repair/replace if visibly uneven.
4. **Common Defect or Problem**
   Cupping of hardwood floors.
   **Performance Standard**
   Cups in strip hardwood floorboards shall not exceed 1/16” in height in a 3” maximum span measured perpendicular to the long axis of the board.
   **Builder Repair Responsibility**
   Builder to repair or replace any boards that have cupped in excess of the performance standard on hardwood floors. The builder is not responsible for cupping caused by moisture beyond the control of the builder. There is no warranty for cupping on a pine or soft wood floor.

5. **Common Defect or Problem**
   Dents in wood floors.
   **Performance Standard**
   This is a normal occurrence in wood floors due to high heels, etc., and must be noted to builder in writing at preoccupancy inspection.
   **Builder Repair Responsibility**
   None, unless noted in writing prior to occupancy. If so, builder to repair.

6. **Common Defect or Problem**
   Fading of wood floors.
   **Performance Standard**
   Exposures to excessive direct sunlight through glass sliding doors, for example, can cause fading or discoloration.
   **Builder Repair Responsibility**
   This is not a manufacturing defect nor the builder’s responsibility. It is the owner’s responsibility to protect these areas by the use of drapes or blinds during times of direct sunlight exposure. This is no different than other fabrics such as furniture or carpeting in the home.

7. **Common Defect or Problem**
   Floors squeak.
   **Performance Standard**
   Floors squeak are common to new construction and a squeak-proof floor cannot be guaranteed.
   **Builder Repair Responsibility**
   Builder should try to minimize the floor squeaks and must correct if caused by a construction defect. It should be noted a second floor repair would be surface nailing in carpeted areas, and impossible in vinyl and ceramic areas.
CHAPTER 14

GARAGE DOOR STANDARDS

Background

The surface of hardboard used on garage doors is ideal for field applied coatings, since hardboard does not have any knots, grain raise or other defects that typically shorten the coatings life. Hardboard used on garage doors is made from wood or any other material. As such, it must be properly coated initially and maintained if satisfactory performance is to be achieved from the hardboard door as well as the field applied coating.

If the homeowner does his own painting and staining, for the warranty to be effective, paint must be applied to inside and outside surfaces and on all edges, immediately after installation.

An inherent characteristic of flush doors is the possibility of bowing (either inward or outward). This is not considered a defect. Proper painting of the door, plus the use of paint other than a dark color, will minimize this possibility (dark paints do not deflect the heat of the sun as well as lighter paints do).

1. Common Defect or Problem
   Bottom of overhead door does not fit to the floor.
   Performance Standard
   Door weather-stripping should fit flush to the floor.
   Builder Repair Responsibility
   Builder to scribe the bottom of the door to conform to the level of the concrete so weather-stripping on bottom of door affects a seal.

2. Common Defect or Problem
   Garage doors allow entrance of snow or water.
   Performance Standard
   Garage doors allow shall be installed as recommended by the manufacturer. Some entrance of the elements can be expected under severe weather conditions, if the door is not weather-stripped.
   Builder Repair Responsibility
   Builder will adjust or correct garage doors to meet manufacturer’s recommendations. If weather-stripped, door must seal out the elements.

3. Common Defect or Problem
   Door does not fit tightly at the sides and top.
   Performance Standard
   a. If it is an unweather-stripped door, there may be some small gaps.
   b. If the door is weather-stripped, the door should fit tight.
Builder Repair Responsibility
a. If the door is unweather-stripped, the builder has no repair responsibility.
b. If the door is weather-stripped, the builder is to repair.

4. **Common Defect or Problem**
Garage doors fail to operate under normal use.
**Performance Standard**
Garage doors shall operate properly.
**Builder Repair Responsibility**
Builder to correct or adjust garage doors as required, except where the cause is determined to result from homeowner abuse or negligence.

5. **Common Defect or Problem**
Garage doors sag.
**Performance Standard**
Due to the excessive weight of a panel door, some sagging may occur.
**Builder Repair Responsibility**
None, as long as it is within manufacturer’s tolerance.

6. **Common Defect or Problem**
Split in door panel.
**Performance Standard**
Split panels shall not allow light to be visible through the door.
**Builder Repair Responsibility**
If light is visible, builder to fill split and match paint or stain as closely as possible if he did painting originally. This will be done only one time in the warranty period, preferably at the end of the first year.
CHAPTER 15

GRADING, GROUND REMOVAL, GRAVEL AND FILL STANDARDS

Background

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

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

If finished grading or landscaping is not included in the building contract, it is of absolute necessity the owner promptly follow through with his grading and landscaping responsibilities and maintain a positive slope away from the foundation, including refilling any settled backfilled and trenched areas. The lack of proper maintenance in this area may cause foundation failure that will not be covered by the builder.

Excavation

To remove soil to the level and outline of the proposed footings in such a way as to permit material delivery for the mason to commence work. Excavated soil is normally cast (dropped on the property) around the foundation except where lot size, site conditions and/or elevation requires its removal. Trucking costs are the responsibility of the owner.

Hauling (Trucking)

Hauling away excess ground or supplying and hauling in required fill, unless otherwise specified in the contract, is the responsibility of the owner.

Backfilling

To fill the exterior around a foundation or in a trench using a bulldozer or other necessary mechanical equipment utilizing only the ground which was available from such excavation or trench. The purpose of backfilling is to improve working conditions for further construction; attempt to protect the foundation from the elements such as frost, water, etc.; reduce the hazards inherent to open basements or foundations; and start the process of ground settlement, which could take three or more years depending upon the type of soil. Builder is not responsible for settling.
Rough Grading

Using mechanical equipment, the grader provides drainage away from the foundation in such a way as to indicate approximate grades at the building, walks, patios and driveways. This is normally done on an allowance specified in the contract. Builder is not responsible for settling.

Finish Grading

Using mechanical equipment and the dirt on the site, the grader establishes the yard grade within two inches of final landscaped grade with respect to the building, walks, drive and adjoining properties. Depending on the terms of the contract this would ordinarily include the entire lot. This is often contracted for by the owner, who is then responsible, and is the step to be performed just prior to landscaping.

Landscaping

Using light machinery or hand labor the grader finishes establishment of final grade, sodding or seeding, and provides ornamental shrubbery, trees and other planting. This is often contracted for by the owner, who is then responsible.

Site, Drainage and Erosion

Site drainage must comply with all applicable building codes in the subject jurisdiction. All sites must be prepared initially to prevent or reduce erosion from excessive water runoff. All contractual agreements made between parties will take precedence over guidelines. Homeowner maintenance is required after the possession of site.

1. **Common Defect or Problem**
   - Settling of ground foundation, sewer or septic trenches and gravel-fill-in garage area after backfill operations.

   **Performance Standard**
   - Backfilled ground will settle. In fact, it is the intent to permit settling before further grading is done.

   **Builder Repair Responsibility**
   - To the extent provided in the building contract, the builder is to perform the initial backfilling. Where the builder is not responsible by contract for finish grade or landscaping, the builder shall not be responsible for normal settling of backfilled or trenched areas. Lines installed by the builder that settle excessively shall be repaired by the builder during the first year.

   **Owner Responsibility**
   - Unless otherwise specified by contract, fill in such depression as they occur or as soon as possible to avoid other related problems.
2. **Common Defect or Problem**  
Wet basement walls after backfilling, due to insufficient slope away from the foundation when builder is responsible for backfill and/or rough grading only. “Wet” shall be defined as actual water running or trickling from, through, or under the basement wall and onto the floor, thus puddling or eventually finding the floor drain. Dampness of the walls particularly at the upper 2 and lower 1 foot are common to new construction and should not be construed as “wet.”  

**Performance Standard**  
Wet walls are usually a result of sunken areas around the foundation if the finished grading has not been performed. Proper grading, landscaping and waterproofing where applicable should eliminate damp or wet basements.  

**Builder Repair Responsibility**  
Builder to backfill in accordance to item #1, and/or waterproof where applicable.

3. **Common Defect or Problem**  
Wet basement walls due to insufficient slope and drainage away from foundation when builder has contracted for finish grading.  

**Performance Standard**  
While some dampness is normal, wall should not be wet as defined in item #2 above.  

**Builder Repair Responsibility**  
If landscaping is owner’s contractual responsibility and not completed within 30 days of finished grading, there is no builder responsibility. Otherwise, builder should correct slope as needed, other costs incidental to such correction are borne by the builder.  

**Owner Responsibility**  
Builder to fill in depressions, as they occur, due to settling. Direct downspouts and sump pump discharge from foundation and use extensions as needed. The owner’s proper landscaping should eliminate a wet basement.

4. **Common Defect or Problem**  
Improper drainage of the site.  

**Performance Standard**  
The builder, to ensure proper drainage away from the home, shall have established the necessary preliminary grades and swells. Standing or ponding water shall not remain for periods in excess of 48 hours in the immediate area after a rain, except that in swales which drain other areas, or in areas where sump pumps discharge, a longer period can be anticipated. Consideration must be given to the type of soil present and to the relationship to surrounding terrain. The possibility of standing water after an unusually heavy rainfall should be anticipated. No grading determination shall be made while there is frost or snow on the ground or while the ground is saturated.
Builder Repair Responsibility
The builder will try to establish the proper grades and swales based on soil conditions, site and weather conditions. The homeowner is responsible for maintaining such grades and swales once they have been established.

5. Common Defect or Problem
Heavy rains will cause erosion where grass and sod has not had time to be permanently established. Additional landscaping by homeowner or his agent can change the topography of the site.
Performance Standard
The defects or problems can be determined by visual inspection or by additional information gathered at site inspection.
Builder Repair Responsibility
Builder to repair to original finish as closely as possible. Repairs, if required by inspection, will be made no more than one time during first year.

6. Common Defect or Problem
Grass, ornamental shrubbery, trees and other plantings die.
Performance Standard
These are items of nature and are subject to homeowner care and maintenance.
Builder Repair Responsibility
None, unless noted in writing prior to occupancy, and the builder agreed to replace the plantings.

7. Common Defect or Problem
Water appears on interior crawl space surfaces.
Performance Standard
Crawl spaces should be graded and drained properly to prevent water from accumulating deeper than 3/4” and larger than 36” in diameter in crawl space area. Standing or ponding water shall not remain for extended periods after a rain (generally, no more than 48 hours) except in surfaces that drain other areas where sump pumps discharge. In these areas a longer period can be anticipated. The possibility of standing water after an unusually heavy rainfall should be anticipated by the owner.
Builder Repair Responsibility
The builder will take the necessary corrective measures to create positive flow within the crawl space to discharge water to the exterior of the structure.
CHAPTER 16
HARDWARE AND LIGHTING FIXTURE STANDARDS

Background

All hardware and lighting fixtures are finished products. Care should be taken to protect them, especially during painting and staining. Homeowner maintenance is required. The homeowner should make sure not to use abrasive products (i.e. lacquer thinner, solvents, cleaners and cleaning solutions, etc.) to clean the hardware and light fixtures.

It should be understood that, as we come into contact with hardware and lighting fixtures, the natural chemicals in our bodies will cause a breakdown of the finish in time. It should be understood that there will be color variations within finishes.

Any hardware or light fixtures with a protective coating will gradually tarnish and eventually take on an antique appearance. Atmospheric conditions, direct sunlight, caustic agents such as cleaners or scratches from contact with sharp objects may cause the protective coating to crack or peel, exposing the natural material, causing spotting and discoloration. The integrity of the surface under such conditions of exposure is not warranted. Initial care for these products requires only periodic cleaning with mild nonabrasive soap and light buffing with a soft cloth.

Regarding breakage of glass in light fixtures, it should be noted that such breakage is the responsibility of the manufacturer or builder only until acceptance of delivery. Upon delivery, it is the owner’s responsibility.

1. **Common Defect or Problem**
   Finish on hardware or lighting fixture wears off.
   **Performance Standard**
   If the defect is caused by products such as lacquer, stain or varnish that was applied by the builder’s subcontractor, the builder is responsible for correcting.
   **Builder Repair Responsibility**
   If the defect was caused by the builder’s subcontractor, the builder is to replace or repair. If due to natural causes or negligence on the part of the homeowner, the builder is not responsible.

2. **Common Defect or Problem**
   Locks do not work.
   **Performance Standard**
   All locks must work.
Builder Repair Responsibility
Builder to view lock to verify if it was installed properly. A faulty lock is covered by the manufacturer’s one-year warranty. Builder is responsible for installation.

3. Common Defect or Problem
Lights or fans do not work.

Performance Standard
Wiring to fixture must be operative.

Builder Repair Responsibility
Builder is to repair defective wiring to lights and fans. If it is found that the fixture is inoperative, it would fall under a manufacturer’s warranty. If the fixture was owner supplied, the owner will be responsible for the cost of the service call.
CHAPTER 17
HEATING AND SHEET METAL STANDARDS

Background

Heating and cooling systems are specified by code, with the equipment selection (size and capacity) being dependent upon the size of the home, outside design temperatures, and anticipated heat loss due to the home design. It should be noted that temperatures in the home may vary due to wind direction, windows, doors, etc. If parts of the home are colder than others, running the blower of the furnace constantly may help.

Cleaning of furnace filters is a homeowner’s responsibility.

1. **Common Defect or Problem**
   
   **Noisy ductwork.**
   
   **Performance Standard**
   
   When metal is heated it expands and when cooled it contracts. The result is “ticking” or “crackling” which is generally to be expected and shall be considered acceptable.

   **Builder Repair Responsibility**
   
   Installation to comply with codes.

2. **Common Defect or Problem**
   
   **Oilcanning.**
   
   **Performance Standard**
   
   The stiffening of the ductwork and the gauge of the metal used shall be such that ducts do not “oilcan.” The booming noise caused by “oilcanning” is not acceptable.

   **Builder Repair Responsibility**
   
   Builder to correct to eliminate this sound.

3. **Common Defect or Problem**
   
   **Furnace not placed as per plan.**
   
   **Performance Standard**
   
   Due to heating design, venting and layout, the furnace location is to be determined by a heating contractor.

   **Builder Repair Responsibility**
   
   None.

4. **Common Defect or Problem**
   
   **Inadequate heating.**
   
   **Performance Standard**
   
   Heating system shall be capable of producing an inside temperature of 70°F, as measured in the center of each room at a height of 5' above the floor, under local outdoor winter design conditions of –10°F specified in
the ASHRAE handbook. Federal, state or local energy codes shall supersede this standard where such codes have been locally adopted.

**Builder Repair Responsibility**

Builder will correct heating system to provide the required temperatures. However, the homeowner shall be responsible for balancing dampers, registers and other minor adjustments. Builder shall not be responsible when installation follows guidelines of Special Rate Programs offered by utility companies if utility standards are lower than manufacturers’ recommendations.

5. **Common Defect or Problem**
   
   **Inadequate cooling.**
   
   **Performance Standard**
   
   Where air-conditioning is provided, the cooling system shall be capable of maintaining a temperature of 78°F, as measured in the center of each room at a height of 5’ above the floor, under local outdoor summer design conditions as specified in the ASHRAE handbook. In the case of outside temperatures exceeding 95°F, a differential of 15°F from the outside temperature will be maintained where there is excessive glass, this may not be attainable. Owner should be advised on the use of shading in that area. Federal, state or local energy codes shall supersede this standard where such codes have been locally adopted.

   **Builder Repair Responsibility**

   Builder will correct system to meet temperature conditions, in accordance with specifications. Builder shall not be responsible for changes when installation follows guidelines of special rate programs offered by utility companies if utility standards are lower than manufacturers’ recommendations.

6. **Common Defect or Problem**
   
   **Temperature in house is different than temperature set on the thermostat.**
   
   **Performance Standard**
   
   If thermostat is properly calibrated according to equipment specs, temperature should not differ more than 4°.

   **Builder Repair Responsibility**

   Builder to repair if there is a difference of more than 4°.

7. **Common Defect or Problem**
   
   **Kitchen or hood fan lets cold air into home.**
   
   **Performance Standard**
   
   All exhaust fans should have dampers, but drafts may develop during cold or windy weather. Because code requires boring through the outside wall, there also may be some condensation.

   **Builder Repair Responsibility**

   None. Owner should check to make sure damper operates and notify builder to repair if it does not operate.
8. **Common Defect or Problem**
   Moisture runs back in at bath vent fan.
   **Performance Standard**
   See # 11.
   **Builder Repair Responsibility**
   See # 11.

9. **Common Defect or Problem**
   Furnace is noisy.
   **Performance Standard**
   New furnaces are noisier due to design and blower size.
   **Builder Repair Responsibility**
   Builder to have manufacturer’s representative determine if noise is excessive.

10. **Common Defect or Problem**
    Condensation lines clog up.
    **Performance Standard**
    Condensation lines may clog eventually under normal use. This is a homeowner maintenance item. Builder shall provide unobstructed condensation lines at time of first occupancy.
    **Builder Repair Responsibility**
    None if installed properly. Builder shall provide unobstructed condensation lines at time of first occupancy.

11. **Common Defect or Problem**
    Excessive humidity in home.
    **Performance Standard**
    See Chapter 20, Moisture Standards.
    **Builder Repair Responsibility**
    See Chapter 20, Moisture Standards.

12. **Common Defect or Problem**
    Settling of air conditioning slab.
    **Performance Standard**
    Owner is required to maintain a proper slope and fill in dirt underneath slab.
    **Builder Repair Responsibility**
    Builder shall level within the first year.
CHAPTER 18
INSULATION STANDARDS

Background

Insulating is the process by which a fire resistant material is installed at the perimeter or outer envelope of the structure to act as a barrier to create a resistance to heat flow. This produces a more controlled interior comfort climate and conserves energy. The primary characteristic that is desired in an insulating material is the ability to trap a gas to increase the resistance to heat flow. Physically, the efficiency of the insulating material increases as either the bulk of the air entrapped is increased or the movement of the gas is decreased within a given volume of insulating material.

The measurement of insulating effectiveness is called “resistance to heat flow” and is expressed as “R Value.” Each manufacturer is required to label materials with its resistance to heat flow at 75°F mean temperature (R Value). R Value is a number rating system. As R increases, the overall effectiveness of the insulating material increases. Caution – Insulation may not cover an entire surface. Its R Value must be averaged with other assembly material(s) to give a true total average R Value.

Minimum R Value is established by the State Energy Code.

The commonly used fiberous insulating materials are mineral wool, fiberglass and cellulose. These materials are selected for their large ration of surface area to mass of the material in order to better entrap air. The normal form of the insulating material is either the blown loose material, as is most often used in the ceiling, or the batt form. Other forms are rigid materials such as polyurethane or polystyrene, which are usually supplied in panel form or are sprayed in their application.

Air infiltration can be further minimized by the installation of weather-stripping and caulking. Both require owner maintenance throughout the life of the home. Some infiltration will occur under certain temperatures and wind conditions.

The system of electric boxes and wiring on exterior walls produces an air flow passage whereby the cold or outside air can be drawn through the outlet into the room under most heating conditions, since the outside of the home is at a higher pressure than the inside. Also, venting for fans will produce some air flow. With acceptable building practices, this situation is virtually unpreventable, as are certain other situations resulting from many openings that do not exist in the home under normal construction.

Moisture in insulation causes it to lose its insulating value. Therefore, vapor barriers are put on the inside to keep moisture from entering into the walls and ceilings. It is also important to properly vent the attic to create airflow. This
can be accomplished with roof vents, gable louvers, ridge vents and soffit vents. Cathedral ceiling areas, where there is no attic, require proper ventilation. Year round ventilation is necessary.

Insulation and ventilation performance standards in some locations are specified by the applicable code.

You may wish to refer to the Moisture Standard (Chapter 20) for additional information.

With the above background on the insulation material in mind, the following are the most common problems occurring in the area of insulation:

1. **Common Defect or Problem**
   **Pipes freeze.**
   **Performance Standard**
   Drain, waste and vent, and water pipes shall be adequately protected, as required by applicable code, during normally anticipated cold weather, and as defined in accordance with ASHRAE design temperatures, to prevent freezing.
   **Builder Repair Responsibility**
   Builder will correct situations not meeting the code. It is the homeowner’s responsibility to drain or otherwise protect lines and exterior faucets and hose bibs (even if they have an anti-siphon valve attached) exposed to freezing temperatures.

2. **Common Defect or Problem**
   **Moisture condensation on windows.**
   **Performance Standard**
   Moisture condenses on the window because it is the coldest object in any given room. Glass has a much higher rate of heat transmission than other surfaces; hence, it is the colder surface during the normal heating season. Moisture condensation on windows is an indication of either too much moisture in the room, or poor circulation of the moisture that is present. The owner can minimize this condition by merely opening a window to permit the excess moisture to escape or by installing a dehumidifying system if the condition persists. It should be noted that in homes with humidification equipment, the formation of moisture on the windows is an indication that the humidifying equipment is set too high and producing too much moisture. It is also recommended that screens be removed from casement windows during the heating season.
   **Builder Repair Responsibility**
   None, except to explain to the owner more thoroughly how this condition is caused.
3. **Common Defect or Problem**  
Drafts at baseboards.  
**Performance Standard**  
The juncture of the floor and wall system is conducive to openings so a certain amount of draft is permissible, although it should be minimized.  
**Builder Repair Responsibility**  
Builder to check out the areas to assure the air leakage is at a minimum.

4. **Common Defect or Problem**  
Drafts from electric outlets.  
**Performance Standard**  
Electrical junction boxes on exterior walls may produce airflow whereby the cold air can be drawn through the outlet into a room.  
**Builder Repair Responsibility**  
Builder to check out the areas to assure the air leakage is at a minimum.

5. **Common Defect or Problem**  
Drafts from recessed lights, ceiling fans and vent fans.  
**Performance Standard**  
Drafts in these areas are normal.  
**Builder Repair Responsibility**  
None, as long as there is proper insulation around the unit.

6. **Common Defect or Problem**  
Drafts around doors and windows.  
**Performance Standard**  
Doors and windows are cold spot sources and some infiltration of air must be expected. Proper weather-stripping and insulating around these areas can minimize air passage. However, depending on the type of window (i.e. double hung and sliding windows will have more air infiltration than casement or stationary windows) and under certain temperature and wind conditions, some infiltration will be observed by the homeowner.  
**Builder Repair Responsibility**  
Builder to inspect and adjust poorly fitted weather-stripping. If draft comes around casings, builder to make sure insulation is in place around window wherever possible.

7. **Common Defect or Problem**  
Blown insulation in attic displaces.  
**Performance Standard**  
This may occur due to wind and air movement in the attic.  
**Builder Repair Responsibility**  
During the first year, builder to redistribute insulation to meet the applicable code.
8. **Common Defect or Problem**  
   Blown insulation in attic settles.  
   **Performance Standard**  
   During the first year insulation should not settle. However, after time, settling will occur.  
   **Builder Repair Responsibility**  
   Builder to correct during first year.

9. **Common Defect or Problem**  
   Not enough insulation.  
   **Performance Standard**  
   The builder must provide the R Rating as specified by the applicable code or contract.  
   **Builder Repair Responsibility**  
   Builder to correct to code/contract.

10. **Common Defect or Problem**  
    Gaps at the top of batt insulation.  
    **Performance Standard**  
    There should be no gaps.  
    **Builder Repair Responsibility**  
    Builder to insulate or foam spaces to fill gaps.
CHAPTER 19  
MASONRY AND CONCRETE STANDARDS

Background

Masonry and concrete work in residential construction provide the base structure upon which the house is built, and a permanent fire-proof construction and weatherproof exterior. The work is performed with quarried natural materials or with products manufactured by relatively simple processes, which have been selected for their wearing qualities. As such, they are subject to the same weathering phenomena as in their natural state, such as erosion, freezing and thawing, chipping, natural color variations and non-uniformity of size. Masonry work can be performed with an almost infinite variety of materials, methods of application, and techniques of installation. This permits the owner an almost infinite range of personal choice but at the same time, once that choice has been made, creates a situation that can never be exactly duplicated. Masonry, more than any other trade, is dependent upon the variation of the product and the techniques of the individual mason or workman.

Masonry and concrete work consist of four primary divisions:

1. The construction of a basement, which may be either cast-in-place (poured) concrete or concrete block masonry installed on footings.

2. The placing (pouring) of flat slab areas consisting of footings, basement and garage floors, stoops, patios, walks or drives.

3. The veneering of the exterior of some structures with brick, stone or other masonry products.

4. The construction of fireplaces and chimneys.

Concrete is subject to several natural changes. The first is shrinkage in the hardening process, which creates shrinkage cracks; the type most common in concrete work, especially in flat slabs. Shrinkage cracks themselves do not affect the integrity of the surface. Concrete is subject to the elements and is attacked by certain chemicals. Pitting, scaling or spalling can develop under unusual conditions or when certain salt or chemicals are placed on a slab in winter for ice removal or drop from a car onto a garage slab and/or drive. A certain amount of surface dusting is normal. Proper owner maintenance can alleviate most of these situations. A sealer can be applied by the homeowner to the concrete to minimize dusting, spalling and effects from chemicals.

Cracking is a characteristic of concrete, and cracks in concrete walls or mortar joints of block foundations generally do not affect the structural strength of the home. Cracks are caused by settling of the house, shrinkage of concrete,
expansion and contraction of concrete, and may occur continually throughout the life of the house.

Settling is a natural phenomenon in the construction of a new home, and concrete slabs are subject to the settling process. For this reason it is recommended that wherever possible, the construction of floating slabs, such as patios, walks and drives, be postponed until at least the end of the first year of occupancy or even longer so that a more stabilized soil condition will be available prior to actually doing the work.

Masonry and concrete work is also subject to color and texture variations due to the nature of the materials. Repairs, when made, seldom match in color and some variation is to be expected by the owner.

When selecting a veneer material, predominantly a matter of owner preference, many factors enter in, such as: the bond or pattern to be used for the brick or stone; the selection of the type of mortar joint (whether struck, raked or weeping pattern); the color of the mortar and the shading variation from batch to batch; the shades of the material involved and their relative contrast with the mortar chosen; the choice of material size, standard or king size brick or the type of stone chosen; and, finally, the individual workmanship of the mason.

All of these variables set up a distinctive situation within the masonry field.

1. Common Defect or Problem
   Leaks in basement or wet basement.
   Performance Standard
   No leaks or flow of water are acceptable, except when caused by an improper ground pitch away from the foundation (a proper pitch is 6’ down for every 10’ out from the foundation and must be maintained by the owner), or improper landscaping or subterranean problems where the responsibility is defined as the owner’s by the building contract. Leaking conditions should not be confused with dampness or moisture, which can be expected by the owner during the first year of the settling process, or with condensation during the summer months. If the basement had an engineered waterproofing system applied, then the owner should refer to the manufacturer’s warranty.
   Builder Repair Responsibility
   Builder should correct as required. After correction, any openings made in order to correct should be repaired. Color variations in repairs are to be expected.
2. **Common Defect or Problem**
   - Cracked basement walls.
     - **Performance Standard**
     Hairline cracks in mortar joints or cast-in-place concrete not exceeding 1/8” average width or hairline cracks in a single isolated block not extending to any adjacent blocks, providing these cracks do not cause a leaking problem are acceptable. If the cracks are caused by an improper pitch away from the foundation or owner landscaping, it is the responsibility of the owner to repair.
     - **Builder Repair Responsibility**
     Builder to repair any cracks in mortar joints or poured walls exceeding 1/8” average width. Unless structural danger exists, repairs should be made approximately a year after occupancy to permit normal settling through the stabilization period. Broken blocks should be removed from the inside and repaired with a 4” block. Grout colors should be matched as closely as possible, but color variations should be expected by the owner. Exterior repairs will not be made except in the case of major structural damage.

3. **Common Defect or Problem**
   - Cracking of basement floor.
     - **Performance Standard**
     Shrinkage cracking is to be expected and requires no repair unless one or both of the following conditions exist:
       a. If the two surfaces of the crack are mismatched in height by more than 3/16”.
       b. If the shrinkage occurs non-uniformly (i.e. all in one crack rather than several) and exceeds 3/16” average width.
     - **Builder Repair Responsibility**
     Builder should correct using a latex filler, surface patching or other method as required, grinding surfaces smooth in case of mismatch. Owner is cautioned that repair will not match in color and a hairline crack may reappear.

4. **Common Defect or Problem**
   - Cracking of garage slab.
     - **Performance Standard**
     Cracks in garage slabs in excess of 1/4” in width or 1/4” in vertical displacement shall be repaired.
     - **Builder Repair Responsibility**
     Builder will repair cracks exceeding maximum tolerances by surface patching or other methods as required. See repair method for #3.
5. **Common Defect or Problem**
   Cracks in patio, walks and drives.
   **Performance Standard**
   Except as may be otherwise covered by contract, no warranty against settling can be extended for floating slabs installed on soil which is less than 95% compacted. Cracks in excess of 1/4” in width or 1/4” vertical displacement on a surface which is 95% compacted shall be repaired. It should be noted that floating slab type concrete should not be installed until at least the end of the first year, if possible.
   **Builder Repair Responsibility**
   Builder to repair to meet performance standard. If replacement of a section is required, the minimum section should be removed from the walk, drive or patio at the blind or open joint.

6. **Common Defect or Problem**
   Pitting, scaling or spalling and chert pops of concrete work.
   **Performance Standard**
   The aggregate in concrete work should not be exposed unless it is caused by a concentration of water, freezing and thawing, use of salt or other chemicals and mechanical implements and other factors beyond the builder’s control. Owner should consider sealing the concrete.
   **Builder Repair Responsibility**
   Builder to correct using of a latex filler or grind to remove defect to meet acceptable tolerance. Owner is cautioned latex repair will not match in color.

7. **Common Defect or Problem**
   Powdering or chalking of concrete work.
   **Performance Standard**
   Powdering or chalking may occur. Builder should advise owner to seal the surface with a concrete sealing compound.
   **Builder Repair Responsibility**
   None. However, only if the surface is soft, other repairs may be required. These are rare and severe instances which builder would then be required to correct.

8. **Common Defect or Problem**
   Low spots in concrete slabs, except for stoops with foundations.
   **Performance Standard**
   No water pockets exceeding 1/4” depth shall exist in any slab within 32” length. Where a level slab has been requested by the owner or in basements, water pockets may appear.
   **Builder Repair Responsibility**
   Builder to correct to meet performance standards by filling with a latex or equivalent filler or grind as necessary. Finished repair should be feathered and smoothed. Minor color variations are to be expected.
9. **Common Defect or Problem**
Cracking of stoops with foundations.

**Performance Standard**
The effects of cracks or settling with inadequate drainage on stoops make acceptable tolerances much lower than for other slab forms. All cracks, except hairline cracks with no settling, require repair. Minor chips and cracks just beyond the acceptable tolerance should be corrected with a latex filler and beyond that point when complicated by settling.

**Builder Repair Responsibility**
Builder to correct to meet performance standard.

10. **Common Defect or Problem**
Water stands on stoops with foundations.

**Performance Standard**
No measurable water depth exceeding 1/16” is permissible on stoops.

**Builder Repair Responsibility**
Builder to correct to meet performance standards by filling with a latex filler or grinding. If the defect becomes qualified under item #9 on stoops, it shall be replaced as stated in that item.

11. **Common Defect or Problem**
Settling, heaving or separating of stoops, steps or garage floors.

**Performance Standard**
Stoops, steps or garage floors shall not settle, heave or separate in excess of 1” from the house structures.

**Builder Repair Responsibility**
Builder will take whatever corrective action is required to meet the performance standard.

12. **Common Defect or Problem**
Basement floor does not pitch to floor drain.

**Performance Standard**
Basement floors are only pitched in the immediate area of the floor drain. When there is to be a finished floor area around the drain, floors will not be pitched.

**Builder Repair Responsibility**
None, if the floor meets the performance standard.

13. **Common Defect or Problem**
Cracks in mortar joints of brick or other masonry veneer walls.

**Performance Standard**
Small hairline cracks due to shrinkage are common in mortar joints in masonry veneer construction as long as they don’t exceed 1/8” width.
Builder Repair Responsibility
Builder will repair cracks in excess of performance standards by pointing or patching. These repairs shall be made at the end of the first year of the warranty period. Owner should note that there will be a color variation between old and new mortar.

14. Common Defect or Problem
Brick is different color than what was selected or colors vary.
Performance Standard
Due to the natural materials used to make brick, there will be color lot variations.
Even within a lot, brick may vary in color.
Builder Repair Responsibility
None.
CHAPTER 20
MOISTURE STANDARDS

Background

Because of the greater amount of desired and required insulation, including vapor barriers, caulking, tighter windows and building practices used to cut down air infiltration, new homes have become more energy efficient. In some homes this can also cause problems with high humidity. The homes are so tight that normal humidity caused by cooking, breathing, showering, etc. builds up inside the home. This can cause steamed-up windows, condensation around outlets or recessed lights and even drywall damage. When these conditions are first noticed, it is important to exhaust the humidity from the home. This can be done by running bath fans and vented cooking exhaust fans when necessary, using a dehumidifier, making sure the owner’s dryer is vented outside, installing an air-to-air heat exchanger or opening the house and letting the inside air exchange with the outside air.

The installation of dehumidification and humidification equipment and air-to-air exchangers is usually an owner option. Proper levels of humidity must be maintained. Just as too much moisture causes problems as described above, insufficient humidity or excessive dryness can cause other serious problems.

It should be pointed out that household size, lifestyle and outdoor temperatures will affect the humidity level in the home. A home with an enclosed pool can be the source of excessive damaging moisture and requires special care in design, use and maintenance. To a lesser degree, saunas, hot tubs and whirlpools also require similar care. The owners are responsible for maintaining proper temperatures and humidity in the home as well as for damage caused by failure to do so.

As outdoor temperatures drop, the indoor relative humidity level of your home should be decreased. For homes equipped with at least insulating glass on their windows, the following levels can be used to keep window condensation to a minimum:

<table>
<thead>
<tr>
<th>Outside Air Temperature</th>
<th>Inside Relative: 70 Degrees F Indoor Air Temp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>-20 degrees F</td>
<td>15 to 20 percent</td>
</tr>
<tr>
<td>-10 degrees F</td>
<td>20 to 25 percent</td>
</tr>
<tr>
<td>0 degrees F</td>
<td>25 to 30 percent</td>
</tr>
<tr>
<td>+1 degrees F</td>
<td>30 to 35 percent</td>
</tr>
<tr>
<td>+20 degrees F</td>
<td>35 to 40 percent</td>
</tr>
</tbody>
</table>
1. Common Defect or Problem
Moisture condensation on windows.
Performance Standard
Moisture condenses on the window because it is the coldest object in any given room. Glass has a much higher rate of heat transmission than other surfaces; hence, it is the colder surface during the normal heating season. Moisture condensation on windows is an indication of either too much moisture in the room, or poor circulation of the moisture that is present. The owner can minimize this condition by merely opening a window to permit the excess moisture to escape or by installing a dehumidifying system if the condition persists. It should be noted that in homes with humidification equipment, the formation of moisture on the windows is an indication that the humidifying equipment is set too high and producing too much moisture. It is also recommended that screens be removed from casement windows during the heating season.
Builder Repair Responsibility
None, except to explain to the owner more thoroughly how this condition is caused.

2. Common Defect or Problem
Moisture in attic.
Performance Standard
Builder must provide adequate ventilation to all areas of attic.
Builder Repair Responsibility
Builder to meet performance standards so that no moisture forms in the attic during normal weather conditions.

3. Common Defect or Problem
Dampness and moisture on basement walls, floors, pipes, etc.
Performance Standard
Owner should make sure that clothes dryer has been vented to the outside and no internal heat moisture recovery device is being used. Electronic dampers, if applicable, on furnace should be checked. Walls and slabs are cold due to ground conditions; warm moist air strikes the cold surfaces and condenses. Direct outside air should not be brought in as it is usually very moist during spring, summer and fall and the problem will be increased if such air is brought into the home.
Builder Repair Responsibility
None, other than explaining the causes to the owner and advising the use of a dehumidifier and increasing air circulation.

4. Common Defect or Problem
Water appears on interior crawl space surfaces.
Performance Standard
Crawl spaces should be graded and drained properly to prevent water from accumulating deeper than 3/4 inch and larger than 36” in diameter in crawl spaces area. Standing or ponding water shall not remain for extended periods after a rain (generally, no more than 48 hours) except
in surfaces that drain other areas or in areas where sump pumps discharge. In these areas a longer period can be anticipated. The possibility of standing water after an unusually heavy rainfall should be anticipated by the owner.

**Builder Repair Responsibility**
The builder will take the necessary corrective measures to create positive flow within the crawl space to discharge water to the exterior of the structure.

5. **Common Defect or Problem**
Condensation on skylights.

**Performance Standard**
All skylights can develop condensation due to high humidity levels. If skylight is in bathroom, ventilating fans should always be used or the window opened.

**Builder Repair Responsibility**
Builder not responsible for humidity levels in home.

6. **Common Defect or Problem**
Condensation on toilets.

**Performance Standard**
Condensation may occur during high humidity times of the year.

**Builder Repair Responsibility**
Builder not responsible for humidity levels in the home.

7. **Common Defect or Problem**
Condensation or frost on electrical outlets.

**Performance Standard**
Electrical junction boxes on exterior walls may produce airflow whereby the cold air can be drawn through the outlet into a room, sometimes creating condensation or frost.

**Builder Repair Responsibility**
None.

8. **Common Defect or Problem**
Mildew or fungus on painted surfaces.

**Performance Standard**
Mildew or fungus will form on a painted surface if the structure is subject to abnormal exposures or excessive moisture.

**Builder Repair Responsibility**
Mildew or fungus formation is a condition the builder cannot control and is a homeowner maintenance item.
CHAPTER 21

PAINTING, STAINING AND WALLPAPERING STANDARDS

Background

Preservation is the primary purpose of painting, varnishing and staining as they protect exposed surfaces, both interior and exterior, from environmental conditions and moisture penetration.

The prime cost in this type of work is labor, and for that reason owners often undertake the responsibility for painting/staining their homes. In such cases, the owners undertake all responsibility for the painting/staining contract unless otherwise specified. In any event, the party who undertakes the painting/staining contract, be it owner or the builder, assumes responsibility for:

- Promptly and properly providing protection to exposed surfaces to prevent damage due to deterioration of unfinished surfaces. Warping, checking, cracking, dry rot and blackening of lumber or millwork, which takes place due to improper, untimely or no painting/staining is the responsibility of the party contracting for the painting/staining. Millwork manufacturers do not normally extend warranties on their product against warping or cracking unless the surface has been properly finished. Special care must be exercised to assure that all sides and edges of doors are sealed to prevent warping.

- Properly preparing the surface to accept the paint, stain or wallpaper, including filling nail holes and filling or sanding of imperfections.

- Properly applying material in accordance with manufacturer’s recommendations.

- The number of coats to be applied as specified in the contract.

- Replacing hardware, fixtures and doors if they are removed for painting/staining or other finishing.

- Consequential damages are not the responsibility of the builder.

- Ceilings are not normally painted in new construction, but receive the drywall texture spray. Ceiling drywall repairs do not require painting.

- By applying surface material or wall covering, the painting or wall covering contractor implies an acceptance of the work underneath.

- Grain variations in wood will accept strain differently; therefore, it is not uncommon for two pieces of the same type wood, stained with the same product, to vary in color. An attempt should be made by the painter to
leave small quantities of all paints and stains for future touch up, if there is any left.

Some breakdown of the finish may occur around heavy concentrations of moisture (i.e. ranges, dishwashers, coffeepots, etc.) and is a homeowner maintenance item.

Varnished, painted or stained millwork and floors must be cared for like furniture and cannot be scrubbed. Exterior varnished surfaces require more maintenance than painted surfaces.

1. **Common Defect or Problem**
   Exterior paint or stain peels, chalks or fades, including gutters, downspouts or other sheet metal areas.

   **Performance Standard**
   The occurrence of peeling, chalking or fading should not occur during the warranty period unless the builder has specifically informed the owner that the particular color chosen may fade or chalk.

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

2. **Common Defect or Problem**
   Repainting of areas affected by drywall repairs.

   **Performance Standard**
   Industry standards require that the builder repaint new areas or repaired areas where painting has been affected by drywall repairs only when responsible for the painting contract. Repairs required shall be finished to match surrounding areas as closely as possible. Owner must be aware that there may be a slight color mismatch.

   **Builder Repair Responsibility**
   Builder will finish repair areas as indicated above.

3. **Common Defect or Problem**
   Ceiling not painted originally or after repair.

   **Performance Standard**
   Industry standards do not require painting of ceiling unless specified in contract or specifications. Ceiling drywall repairs do not require painting if the painting of ceilings was not specified in the contract.

   **Builder Repair Responsibility**
   None, unless ceiling painting was specified in the contract or specifications.
4. **Common Defect or Problem**  
Deterioration of varnish, polyurethane or lacquer finishes.  
**Performance Standard**  
Natural finishes on interior woodwork shall not deteriorate during the first year of the warranty period. However, varnish type finishes used on the exterior will deteriorate rapidly and are not covered by the warranty. Millwork and floors must be cared for like furniture and cannot be scrubbed. **Builder Repair Responsibility**  
Builder will refinish affected areas of interior woodwork, matching the color as closely as possible.

5. **Common Defect or Problem**  
Insufficient coats applied.  
**Performance Standard**  
Builder is responsible to apply the number of coats specified in the contract. Pre-priming of millwork or trim does count as one coat. **Builder Repair Responsibility**  
Builder to provide the proper number of coats as per contract.

6. **Common Defect or Problem**  
Paint and stain inside closet not of quality of other interior surfaces.  
**Performance Standard**  
Quality of workmanship may be lower in confined quarters where space limitations affect ability of workman to work freely. **Builder Repair Responsibility**  
Builder to paint and stain in a proper workmanlike manner within limitations stated above.

7. **Common Defect or Problem**  
Mildew or fungus on painted surfaces.  
**Performance Standard**  
Mildew or fungus will form on a painted surface if the structure is subject to abnormal exposures or excessive moisture. **Builder Repair Responsibility**  
Mildew or fungus formation is a condition the builder cannot control and is a homeowner maintenance item.

8. **Common Defect or Problem**  
Color variations within similar woods after staining.  
**Performance Standard**  
Since wood is a natural product and its grain structure is unique for each piece of wood, builder cannot guarantee an exact color match. **Builder Repair Responsibility**  
None.
9. **Common Defect or Problem**  
   Color variations between different types of woods after staining.  
   **Performance Standard**  
   Dissimilar woods cannot be matched exactly.  
   **Builder Repair Responsibility**  
   None.

10. **Common Defect or Problem**  
    Doors warp.  
    **Performance Standard**  
    The owner should note that during the initial building stabilization period, it is not unusual for doors to warp or twist and alternately stick or not close as the home goes through its initial settling and drying period, especially over the first heating season. The builder is obligated only to make replacements after this initial stabilization period, since often the door straightens in that process. Doors must be sealed on all six sides by the person contractually responsible for painting/staining.

    All interior doors, closet doors, cabinet doors or drawers whose warpage exceeds the National Woodwork Manufacturers Association Standards (approximately 1/8 “ in most cases), and where the warp cannot be corrected by adjustment of either jambs, stops, and/or hinges and cabinet catches to properly latch after initial stabilization period of the home, approximately the end of the first year, shall be replaced by the builder assuming the person responsible for painting/staining has sealed all six sides.

    **Builder Repair Responsibility**  
    Builder to adjust, upon request of the owner, one time only, preferably at the end of the warranty period, any doors that fail to operate properly, assuming that all six sides have been sealed by owner if owner was responsible for painting/staining. Replace any doors, which cannot be corrected to be within performance standards after stabilization. Refinishing to be the responsibility of party contractually responsible for painting/staining.

11. **Common Defect or Problem**  
    Wallcovering pulls loose.  
    **Performance Standard**  
    Wallcovering should not pull loose.  
    **Builder Repair Responsibility**  
    Provided the wallcovering is in the builder’s contract, it should be repaired. If a patch must be made, builder shall match as closely as possible. Because of dye lot differences, owner must understand exact match may not be possible. If installed by owner, wallcovering repairs are the owner’s responsibility.
12. **Common Defect or Problem**
   Edge mismatching in pattern of wallcovering.

**Performance Standard**
Wallcovering should match as closely as possible.

**Builder Repair Responsibility**
Builder to repair to meet performance standard. Because of dye lot differences, owner must understand that an exact match may not be possible.
CHAPTER 22

PLUMBING STANDARDS

Background

Plumbing system installation is performed by licensed contractors in accordance with detailed plumbing code requirements. These code requirements were established primarily for individual and public health reasons.

1. **Common Defect or Problem**
   Leakage of any kind from piping.
   **Performance Standard**
   No leaks of any kind should exist in any soil, waste, vent or water pipe. Condensation on pipes or sweating fixtures does not constitute a leak.
   **Builder Repair Responsibility**
   Builder shall make necessary repairs to eliminate leakage.

2. **Common Defect or Problem**
   Faucet leak or valve leak.
   **Performance Standard**
   No valve or faucet should leak.
   **Builder Repair Responsibility**
   Builder shall repair or replace the leaking faucet or valve. Washer or cartridge replacement is a homeowner’s responsibility after the first year.

3. **Common Defect or Problem**
   Water pipe banging/water hammer.
   **Performance Standard**
   There can be some instances when the electric valves on appliances or single control valves are shut off fast, which can cause some banging. All noises due to water flow and pipe expansion cannot be removed.
   **Builder Repair Responsibility**
   Builder is responsible to have pipes fastened properly.

4. **Common Defect or Problem**
   Fixtures do not hold water.
   **Performance Standard**
   Stoppers on fixtures should retain water for a sufficient length of time to accomplish the fixture’s intended use.
   **Builder Repair Responsibility**
   Builder to correct until fixture holds water to meet performance standard.

5. **Common Defect or Problem**
   Cracking, scratches or chipping of porcelain, fiberglass surfaces or faucets.
Performance Standard
Chips, cracks and scratches on surfaces of bathtubs, kitchen sinks and faucets can occur when surface is hit with sharp or heavy objects.

Builder Repair Responsibility
Builder shall repair any fixture or fitting which is outside acceptable standards as defined by the manufacturer. Builder will not be responsible for repairs unless damage has been reported to builder in writing at preoccupancy inspection prior to closing.

6. Common Defect or Problem
Stopped-up sewers, fixtures and drains.

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

Builder Repair Responsibility
Builder will not be responsible for sewers, fixtures and drains, which are clogged through natural causes or the homeowner’s negligence. If a problem occurs, the homeowner should consult builder for a proper course of action. Where defective construction is shown to be the cause, builder will assume the cost of the repair. Where homeowner negligence is shown to be the cause, the homeowner shall assume all repair costs.

7. Common Defect or Problem
Waste disposal unit does not operate properly.

Performance Standard
Disposal unit must accomplish its intended function.

Builder Repair Responsibility
Builder will repair any defective fixture or fitting which does not meet acceptable standards, as defined by the manufacturer, unless caused by homeowner negligence.

8. Common Defect or Problem
Sump pump does not operate.

Performance Standard
Sump pump should reasonably be expected to perform for a one-year period satisfactorily, unless unusual conditions such as underground springs or high water tables are encountered. Owner is responsible for maintaining a proper grade and downspout extensions should be used to keep water from pooling near foundation.

Builder Repair Responsibility
Builder shall repair or replace malfunctioning sump pump, except under unusual conditions.
9. **Common Defect or Problem**
   Inadequate flushing of toilets.
   **Performance Standard**
   It is not unusual for a toilet to be flushed twice due to energy conservation fixtures.
   **Builder Repair Responsibility**
   None, unless it is a manufacturer’s defect or plumbing clog which is the cause.

10. **Common Defect or Problem**
    Plumbing pipes freeze and burst.
    **Performance Standard**
    Drain, waste, vent and water pipes shall be adequately protected, as required by applicable code, during normally anticipated cold weather, and as defined in accordance with ASHRAE design temperatures, to prevent freezing.
    **Builder Repair Responsibility**
    Builder will correct situations not meeting code. It is the homeowner’s responsibility to drain or otherwise protect lines and exterior faucets and hose bibs even if they have an anti-siphon valve attached exposed to freezing temperatures.

11. **Common Defect or Problem**
    Condensation (sweating) of pipes.
    **Performance Standard**
    Condensation (sweating) is normal and may occur most often in well water systems due to the extreme cold temperature (45-50°F of water) of well water and humid basements.
    **Builder Repair Responsibility**
    None, unless pipe is leaking. A dehumidifier and pipe and tank insulation can be added by the owner.

12. **Common Defect or Problem**
    Defective appliance or fixtures supplied by owner.
    **Performance Standard**
    Any appliances or fixtures supplied by the owner will not be warranted for leakage, etc. by the builder. There may be some instances where a plumber will not install an owner’s fixtures if the fittings are not proper.
    **Builder Repair Responsibility**
    None.
CHAPTER 23

ROOFING STANDARDS

Background

The purpose of roofing material is to form a weatherproof surface, which prevents water or snow from entering the house. The materials used must be both waterproof and wind-resistant to afford effective protection of the dwelling.

Roofing materials have various life expectancies. Life expectancy is dependent upon building orientation to the sun and roof slope. The manufacturer provides a written warranty for each particular product, which delineates what is and is not covered. Although the sun is the major damaging force, wind and moisture also cause deterioration.

There are several types of roofing material used including asphalt, glass fiber, asbestos, wood tile and slate. The normal measurement of shingling material is the “square” which represents enough material to cover 100 square feet of roof area. Most man-made roofing materials are sold on the basis of longevity rather than weight and can be divided into several categories: organic vs. fiberglass, standard, laminated and specialty.

Wood shakes, slate, metal, tile and other specialized roofing materials each have a specific method of installation recommended by the manufacturer.

Shingle underlayment must be applied directly to roof boards. The purpose for this underlayment is as a secondary barrier to the roof covering.

Roofs or flashing should not leak under normally anticipated conditions. However, occasionally leakage may result from severe weather conditions, such as ice buildup, high winds or driving rain.

During extreme weather conditions, water may overflow the gutters. Homeowners should check gutters and downspouts regularly to prevent leaf build-up in the fall, and snow and ice dams in the winter, which can cause water to backup under shingles and cause leaks.

Storm damage to properly installed roofing is the owner’s responsibility.

It must be noted that in the case of a repair to a roof, every effort should be made by the builder to match material and color as closely as possible. The homeowner must expect color variations.
1. **Common Defect or Problem**
   **Roof leaks.**
   **Performance Standard**
   Roof should not leak. See homeowner’s maintenance responsibility below. The integrity of the roof is dependent upon the performance of many trades. Roof application, sheet metal work, siding application, masonry, carpentry and plumbing can all have an effect on the ultimate performance of the roof system.
   **Builder Repair Responsibility**
   When a leak appears, builder should make an inspection to assure that the proper trade makes the repair, except when the leakage is a homeowner’s maintenance responsibility.
   **Homeowner Maintenance Responsibility**
   Excessive ice or snow buildup with alternate freezing and thawing can create a condition causing leakage, which is a homeowner’s maintenance responsibility. Owner can correct this by preventing leaf buildup gutters and removal of excess snow and ice. In severe cases, a gutter heating cable can be used. On some occasions, a driving rain with high wind velocity can produce a temporary leak. Owner can also contact builder as to alternative suggestions on how to correct.

2. **Common Defect or Problem**
   **Chimney or chimney flashing leaks.**
   **Performance Standard**
   Chimney or chimney flashing should not leak.
   **Builder Repair Responsibility**
   Builder to check and repair chimney flashing. On particularly persistent and severe leaks, the builder may find it necessary to modify or install a saddle between the roof and the chimney to divert roof water run off from the chimney. If the flashing is not the cause of the leak, owner is responsible to seal masonry.

3. **Common Defect or Problem**
   **Shingles blow off.**
   **Performance Standard**
   Shingles should not blow off during the warranty period except under storm conditions. It should be noted that seal down shingles require heat from the sun to cause their sealing, so that some warm weather is required to affect the full seal.
   **Builder Repair Responsibility**
   Builder to repair shingles that have blown off if not due to winds in excess of basic wind speeds (see codes). In a repair situation, the owner is cautioned that a color mismatch in shingles may occur.
4. **Common Defect or Problem**  
Shingle color mismatch.  
**Performance Standard**  
Color variations in roofing materials are normal and acceptable and are not covered under any warranty. Angle of the sun, granule placement, pitch of the roof, and many variables can all have an effect on the appearance of the roof.  
**Builder Repair Responsibility**  
None.

5. **Common Defect or Problem**  
Broken shingles.  
**Performance Standard**  
Broken shingles must be replaced if reported to builder in writing prior to occupancy.  
**Builder Repair Responsibility**  
Builder to repair and match shingles as closely as possible.

6. **Common Defect or Problem**  
Standing water on flat roof.  
**Performance Standard**  
Flat roofs must be installed according to manufacturers’ specifications.  
**Builder Repair Responsibility**  
Builder to repair to manufacturer’s specifications.

7. **Common Defect or Problem**  
Moss and fungus growth on wood shake shingles.  
**Performance Standard**  
Under some conditions, moss and fungus tends to grow on cedar shake shingles.  
**Builder Repair Responsibility**  
None. Homeowners may wish to pursue remedies on the market that can be applied to shingles to prevent or retard these conditions.

8. **Common Defect or Problem**  
Skylights leak.  
**Performance Standard**  
Skylights should not leak.  
**Builder Repair Responsibility**  
Builder to repair. Care should be taken not to confuse condensation for leakage. Refer to Chapter 20, Moisture Standards, item #5.
9. **Common Defect or Problem**
   Roof vents leak.
   **Performance Standard**
   Under driving rains or snow conditions, vents may leak. Vents are a necessary and integral part of a building. Anything that lets air out can, under certain circumstance, let snow or rain back in.
   **Builder Repair Responsibility**
   This is a normal, temporary condition, which should require no repair.

10. **Common Defect or Problem**
    Ridges of roof decking showing through roof.
    **Performance Standard**
    If the ridge or depression effect exceeds 3/8” and cannot be corrected from below, the ridge must be corrected. The ridge measurements should be made by measuring the gap created when a 6” straight edge is placed tightly 3” on one side of the defect and the gap measured between the roof and the straight edge of the other end. Fiberglass shingles will magnify and mirror any uneveness of the roof decking below.
    **Builder Repair Responsibility**
    Builder to meet performance standard.

11. **Common Defect or Problem**
    Chimney flashing leaks.
    **Performance Standard**
    Chimney flashing should not leak. However, some masonry is porous, allowing moisture/dampness to seep in under certain conditions.
    **Builder Repair Responsibility**
    Builder to check and repair chimney flashing. If the flashing is not the cause of the leak, owner is responsible for sealing the masonry. On particularly persistent and severe leaks, the builder may find it necessary to modify or install a saddle between the roof and the chimney to divert roof water run off from the chimney.

12. **Common Defect or Problem**
    Any other flashings, valleys and roofing leak.
    **Performance Standard**
    Flashings, valleys and roofing should not leak.
    **Builder Repair Responsibility**
    Builder to repair.
13. **Common Defect or Problem**
   Gutters and downspouts leak.
   **Performance Standard**
   Gutters and downspouts should not leak, but may overflow during heavy rains. It shall be the owner’s responsibility to keep gutters and downspouts free of leaves and debris which could cause excessive overflow.
   **Builder Repair Responsibility**
   Builder to repair so gutters and downspouts do not leak.

14. **Common Defect or Problem**
   Water stands in gutters.
   **Performance Standard**
   A water level not in excess of 1/2” depth in any gutter section after the rain ceases when unobstructed by debris is acceptable. Industry practice is to install gutter approximately level without pitch. Consequently, it is entirely possible that small amounts of water will stand in certain sections of the gutter after a rain.
   **Builder Repair Responsibility**
   Builder shall correct when water level is in excess of 1/2” in depth.
CHAPTER 24
SIDING STANDARDS

Background

There are numerous types of siding. Wood and wood products, aluminum and vinyl are the most prevalent types being used. Each product is different and has its own inherent characteristics.

Caulking is an owner’s maintenance responsibility after one repair. It should be noted that caulk does not adhere to vinyl siding and thus, as per manufacturer’s recommendation, vinyl is not caulked.

1. Common Defect or Problem
   Aluminum siding buckles or ripples.
   Performance Standard
   This problem may be inherent due to the shrinkage of the wood underneath. Siding should not be 1/4” out of plane in an 8’ length. This can be measured by laying an 8’ straight edge at the highest point of the buckle.
   Builder Repair Responsibility
   Builder to repair to meet Performance Standard.

2. Common Defect or Problem
   Dents, chips or scratched on the aluminum/vinyl siding.
   Performance Standard
   Dents are to be noted in writing at the time the owner closes or takes occupancy of the home.
   Builder Repair Responsibility
   Builder to repair within one year of substantial completion or initial closing if notified prior to occupancy, whichever is later. It should be noted that repaired area may not match in color and/or textures.

3. Common Defect or Problem
   Siding comes loose.
   Performance Standard
   Siding should not come loose.
   Builder Repair Responsibility
   Builder to refasten.

4. Common Defect or Problem
   Caulking cracks.
   Performance Standard
   All types of caulk can dry out. Builder to remove old caulk and replace with new caulk at cracked areas one time during first year. After the one repair, caulking becomes an owner maintenance responsibility.
5. **Common Defect or Problem**
   Fading of aluminum or vinyl siding.
   **Performance Standard**
   Aluminum and vinyl siding will fade.
   **Builder Repair Responsibility**
   None.

6. **Common Defect or Problem**
   Wood shrinks, cracks, twists, bows and knots fall out.
   **Performance Standard**
   Due to the inherent characteristics of wood, all of the above may happen. 
   Builder will caulk knotholes one time and any gaps in excess of ¼” shall be caulked if noted prior to occupancy. The owner shall notify the contractor within 30 days after completion of construction if a preoccupancy inspection was not conducted. After occupancy, this is a homeowner maintenance responsibility.

7. **Common Defect or Problem**
   Wood siding splits where nail penetrates siding.
   **Performance Standard**
   If noted in writing to builder within 30 days after completion of construction if a preoccupancy inspection was not conducted, builder to replace piece and re-stain, if staining was builder’s responsibility.
   **Builder Repair Responsibility**
   Builder to repair in accordance with performance standard.

8. **Common Defect or Problem**
   Lap on wood bevel siding.
   **Performance Standard**
   Lap shall be no less than ¾” prior to shrinkage.
   **Builder Repair Responsibility**
   Repair to meet performance standard.

9. **Common Defect or Problem**
   Delamination of veneer siding.
   **Performance Standard**
   All siding should be installed according to manufacturer’s accepted standards. Delaminations shall be repaired or replaced. If owner is responsible for staining or painting of exterior surfaces and does not do it, builder is not responsible for delamination.
   **Builder Repair Responsibility**
   Builder will repair or replace siding as needed unless caused by homeowner’s neglect to maintain siding properly. Repaired area may not match in color and/or texture. For surfaces requiring paint, builder
will paint only the new materials if builder was responsible for exterior painting or staining. The homeowner can expect that the newly painted surface may not match the original surface in color.

10. **Common Defect or Problem**
    Paint peels or fades on wood siding.

    **Performance Standard**
    Exterior paints or stains should not fail during the first year. However, fading is normal and the degree is dependent on climatic conditions.

    **Builder Repair Responsibility**
    If paint or stain peels and builder is responsible for painting, builder will properly prepare and refinish affected areas, matching color as close as possible. Where finish deterioration affects the majority of the area, the whole area will be refinished. The builder shall repaint in accordance with standards of good workmanship, but no warranty will be extended on the newly repainted surfaces.

11. **Common Defect or Problem**
    Cracks in exterior stucco wall surfaces.

    **Performance Standard**
    Cracks are not unusual in exterior stucco wall surfaces.

    **Builder Repair Responsibility**
    Builder will repair cracks exceeding 1/8” in width or where causing water damage.
CHAPTER 25
WINDOW STANDARDS

Background

Air infiltration around double-hung and slide by windows.

Homeowners are cautioned not to use razor blades when cleaning windows.

1. **Common Defect or Problem**
   Scratches, cracks or breakage of glass not caused by vandalism.
   **Performance Standard**
   If glass damage is not reported to builder in writing prior to occupancy, it is the homeowner’s responsibility.
   **Builder Repair Responsibility**
   Builder to repair only if noted in writing prior to occupancy.

2. **Common Defect or Problem**
   Holes in screens not caused by vandalism.
   **Performance Standard**
   If screen damage is not reported to builder in writing prior to occupancy, it is the homeowner’s responsibility.
   **Builder Repair Responsibility**
   Builder to repair only if noted in writing prior to occupancy.

3. **Common Defect or Problem**
   Window check rails not even or flush.
   **Performance Standard**
   Acceptable tolerance is 3/16”.
   **Builder Repair Responsibility**
   Builder to correct.

4. **Common Defect or Problem**
   Out of plumb windows.
   **Performance Standard**
   Windows must operate with reasonable ease as designed.
   **Builder Repair Responsibility**
   Builder to repair to be operable.

5. **Common Defect or Problem**
   Windows do not operate properly.
   **Performance Standard**
   Windows shall operate with reasonable ease as designed.
   **Builder Repair Responsibility**
   Builder to correct as required.
6. **Common Defect or Problem**  
Air infiltration around doors and windows.  
**Performance Standard**  
Drafts around the doors and windows are cold spot sources. Proper weather-stripping and insulating around these areas can minimize air passage. However, under certain temperature and wind conditions, some infiltration will be observed by the homeowner.  
**Builder Repair Responsibility**  
Builder to adjust poorly fitted doors, windows and weather-stripping.

7. **Common Defect or Problem**  
Moisture condensation on windows.  
**Performance Standard**  
Moisture condenses on the window because it is the coldest object in any given room. Glass has a much higher rate of heat transmission than other surfaces; hence, it is the colder surface during the normal heating season. Moisture condensation on windows is an indication of either too much moisture in the room, or poor circulation of the moisture that is present. The owner can minimize this condition by merely opening a window to permit the excess moisture to escape or by installing a dehumidifying system if the condition persists. It should be noted that in homes with humidification equipment, the formation of moisture on the windows is an indication that the humidifying equipment is set too high and producing too much moisture. It is also recommended that screens be removed from casement windows during the heating season.  
**Builder Repair Responsibility**  
None, except to explain to the owner more thoroughly how this condition is caused.
CHAPTER 26
SKYLIGHT STANDARDS

Background

1. Common Defect or Problem
   Condensation on skylights.
   Performance Standard
   All skylights can develop condensation due to high humidity levels.
   Builder Repair Responsibility
   Builder not responsible for humidity levels in home. Bathroom ventilating fans should always be used or window opened.

2. Common Defect or Problem
   Leaks around skylights.
   Performance Standard
   Skylights should not leak.
   Builder Repair Responsibility
   Builder to repair.

3. Common Defect or Problem
   Scratches, cracks or breakage of glass to skylight not caused by vandalism.
   Performance Standard
   If glass damage is not reported to builder in writing prior to occupancy, it is the homeowner’s responsibility.
   Builder Repair Responsibility
   Builder to repair only if noted in writing prior to occupancy.

4. Common Defect or Problem
   Discoloration on plastic skylight windows.
   Performance Standard
   This is inherent in the product.
   Builder Repair Responsibility
   None.
Background

Site drainage must comply with all applicable building codes in subject jurisdiction. All sites must be prepared initially to prevent or reduce erosion from excessive water run off. Homeowner maintenance is required after possession of site.

1. Common Defect or Problem

   Heavy rains will cause erosion where grass and sod has not had time to be permanently established. Additional landscaping by homeowner or his agent’s can change the topography of site.

   Performance Standard

   The defects or problems can be determined by visual inspection or by additional information gathered at site inspection.

   Builder Repair Responsibility

   Builder to repair to original finish as closely as possible. Repair will be made no more than one time during first year.
CHAPTER 28

STUCCO STANDARDS

Background

Hard coat (not EIFS) stucco products should be mixed and installed to specifications.

1. Common Defect or Problem
   Cracks in exterior stucco wall surfaces.
   Performance Standard
   Cracks are not unusual in exterior stucco wall surfaces.
   Builder Repair Responsibility
   Builder will repair cracks exceeding 1/8” in width or where causing water damage. Builder to match color as close as possible. Builder is responsible for water intrusion for the first ____ months (time period to be determined by the adopting state).

2. Common Defect or Problem
   Weep screeds missing on frame walls or not properly installed;
   Stucco too thin. Wire lath visible;
   Voids in stucco at beams, columns, etc.;
   Stud locations visible on stucco wall;
   Stucco falling or chipping around window or door frames.
   Performance Standard
   The above defects should not be visible under normal lighting conditions.
   Builder Repair Responsibility
   Builder will repair defects so they are not visible under normal lighting conditions.
CHAPTER 29
MANUFACTURER INSTALLATION STANDARDS

All building material affixed to the residential structure, shall be installed in accordance with the adopted building codes and/or the manufacturers installation instructions.
CHAPTER 30
OTHER SPECIALTY FUNCTIONS

The construction of pools, decks, fencing, asphalt and other specialty functions may be associated with residential construction; however, in some states they may not be included in the residential license law. If these specialty functions are not included in the state residential law, the following may be adopted as a part of this standard.

FENCING

1. **Common Defect or Problem**
   Fence posts not properly installed.
   **Performance Standard**
   Fence posts are to be installed to manufacturer’s standards.
   **Builder Repair Responsibility**
   Builder to repair or place post to manufacturer’s standards within one year of date of competition

2. **Common Defect or Problem**
   Improper or malfunctioning hardware.
   **Performance Standard**
   Hardware and fasteners that do not perform their intended function is a deficiency.
   **Builder Repair Responsibility**
   Builder to repair or place post to manufacturer’s standards within one year of date of competition.

3. **Common Defect or Problem**
   Fencing not installed along property lines.
   **Performance Standard**
   Fencing installed along property lines, unless contractually stated, contractor has no responsibility to establish property lines (homeowner’s responsibility).
   **Builder Repair Responsibility**
   None, unless contract to determine property lines.
1. **Common Defect or Problem**
   Cracks appear in asphalt paving.
   **Performance Standard**
   Cracks are not unusual in asphalt paving. Cracks in excess of 1/4” are a deficiency.
   **Builder Repair Responsibility**
   Builder to repair or replace within the first after year after competition.

2. **Common Defect or Problem**
   Puddling of water.
   **Performance Standard**
   A limited amount of puddling is common. Puddling in excess of 1/4” measured in an 18” diameter is considered a deficiency.
   **Builder Repair Responsibility**
   Builder to repair or replace within the first after year after competition.

3. **Common Defect or Problem**
   Improper pitch.
   **Performance Standard**
   Asphalt paving that pitches toward a house foundation, garage door, or any other critical area is a deficiency.
   **Builder Repair Responsibility**
   Builder to repair or replace within the first after year after competition.

4. **Common Defect or Problem**
   Roller marks.
   **Performance Standard**
   Roller marks in asphalt paving are common and not considered a deficiency.
   **Builder Repair Responsibility**

**EXCLUSION TO ABOVE STANDARDS:** An asphalt "overlay" may be exempt from the above standards when condition of the base layer cannot be determined.