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Residential Real Estate Inspections

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Houston Metropolitan Area

RESIDENTIAL FOUNDATION INSPECTION REPORT FOR CHARLES C. WENCK

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FIRM REGISTRATION NUMBER F-767

TEXAS REGISTERED PROFESSIONAL ENGINEER #44735

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CLIENT

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ATASCOCITA, TX 77346
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CHARLES C. WENCK AND MATHILDE ANN WENCK

RESIDENTIAL INSPECTION ADDRESS

2214 HIDDEN CREEK DRIVE
KINGWOOD, TX 77339

INTRODUCTION

In accordance with our inspection agreement, I conducted a limited visual foundation/structural inspection of the above referenced residence on November 30, 2024. At the time of the inspection, this residence was vacant. The garage is not part of this inspection. You are the seller of this property.

CONDITIONS AND LIMITATIONS

PURPOSE

The purpose of the inspection is to inform the Client of visually observable major deficiencies in the condition of the structure and foundation of the subject property at the time of the inspection. This inspection is not intended to be technically exhaustive nor is it intended to reveal all existing or potential defects. Rather, it is a careful but limited visual inspection, intended to assist you in making a more informed decision concerning the sale of this residence. It is not a formal architectural or engineering technical evaluation of the structure, because calculations, structural analysis and/or material testing were not performed.

SCOPE

The inspection to be performed for the Client is a non-invasive visual examination of the structure and foundation of the subject property and does not include the disassembly of any property or the removal of any object including, but not limited to, furniture, siding or panels that may be obscuring this engineer's visual observations. This inspection does not cover items or conditions that may only be discovered by invasive/destructive methods. Although parts of this inspection are based on certain codes, **this is not a code compliance inspection.**

All materials and equipment are subject to deterioration and wear over time. In particular, heat, water and ultraviolet radiation contribute significantly to material deterioration. Accordingly, no prediction of the future condition of materials and equipment in the house can be made. Major visible defects as they exist on the date of the inspection will be noted in the report, which will be prepared by Jay Fischman after the inspection. **The inspection services to be provided are based on the "Guidelines For The Evaluation Of Foundation Movement For Residential And Other Low-Rise Buildings" published by the Foundation Performance Association, for Level A residential foundation performance evaluation. In addition, a floor elevation plan will be provided. The scale of this drawing will be approximate.**

Due to Client's particular needs and the condition of the property, some variation in scope, order of reporting and extent of investigation may be deemed necessary by Jay Fischman. The inspection and report thereon is not a warranty, guarantee, insurance policy, or substitute for real estate transfer disclosures, warranties, or a Seller's Disclosure Notice, which may be required by law. Verbal discussions and statements made at the inspection site are not necessarily part of this report. **The following are not included within the scope of this inspection:**

- ► Past or present violations or the failure to inspect for or disclose any noncompliance of laws, codes, ordinances, deed restrictions or manufacturer installation instructions.
- ► Geological stability, soil tests, ground conditions, subsidence, the location of any geological fault relative to the location of this site, or the determination if site is in any designated flood hazard area.
- ► Determination of the presence of termites, other wood destroying insects, wood rot and/or hidden structural parasitic damage and the extent of any such damage, can only be made by a Texas Structural Pest Control Licensee. This engineer is not so licensed.
- ► Determination of the presence of asbestos materials or air-borne fibers, radon gas, lead in water/paint, mercury, formaldehyde, bacteria, viruses, mold, fungi, dander, spores, pollen, insect parts, insect feces, electromagnetic fields/radiation, contaminated water or interior gypsum board (Chinese Drywall) or surface/subsurface soils, or other potential contaminants and environmental hazards. No Indoor Air Quality (IAQ) tests will be performed.
- ► Determination of the operational capacity, efficiency, quality, durability, expected life, value, insurability, future performance, adequacy and/or suitability for a particular use of any part, component, material or system inspected.
- ► Determination that all safety hazards have been identified.
- ► Determination of absolute structural integrity. This is not possible without an invasive/destructive evaluation.
- ► Estimates of repair on this property. I do not provide repair services and the opinions expressed in this report are independent of the repair process. Only **Licensed Qualified Repair Service Personnel** should be contacted for firm bids to perform the desired prioritized repairs. **Handyman services are not recommended**. You may find that the costs of repair may vary significantly with various repair companies. Sometimes the lowest bid may provide quality results and other times the highest bid may provide inferior results. This engineer shall not be responsible for the means, methods, techniques, procedures or safety precautions followed or neglected by any contractor or worker in connection with any recommended corrective action.
- ► Repairs or items recommended for corrective action should be addressed prior to closing.

CONSULTING SERVICES FEE

The fee paid to me by Client is for consulting services only and is unrelated to the value of any item, component or system inspected. Since all materials and equipment are subject to deterioration and wear over time, no prediction of future conditions can be made. **This engineer is not an insurer and this report should not be considered as, nor is it, a warranty/guarantee of the adequacy, performance, or useful life of any item, component or system. This report is not intended for home warranty or insurance underwriting purposes. Home warranty companies should provide their own inspections that meet their underwriting standards, prior to issuing any warranty policy. Additionally, please note that I do not provide reinspection services to determine if any or all deficiencies were corrected.**

REPORT & THIRD PARTY RELIANCE

This report expresses the personal opinions of this engineer, based on previously stated inspection standards, for this particular Client. You are not authorized to cut, paste or otherwise manipulate the text and any graphics in this report. This report represents the exclusive work product of this author and any changes made by other persons **shall render the entire report null and void.**

This property may have many desirable qualities, but this report generally provides information and comments about discrepancies. The use of or reliance on the observations and opinions provided in this report by anyone other than this Client, particularly those who were not present at the time of this inspection, is not recommended as a substitute for a current inspection. This report is the property of this engineer and was prepared for the above named Client only. The report is **not transferable** to any other person or entity in any form. **You are not authorized to sell copies of this report.**

Any subsequent buyer of this property should engage another engineer/inspector to conduct a current inspection. This engineer shall not be responsible or liable for any such "third party" reliance or for the unauthorized use of copies of this report, including those that may have been altered or have had pages removed. **Permission is granted to discuss report findings with real estate agents, specialists, counselors, repair persons, or other parties intimate to this transaction for the sake of clarification.**

PROPERTY DESCRIPTION

The structure inspected is a 1 story single family residence with a 2 car detached garage. The structure is approximately 50 years old and the front faces a northerly direction. At the beginning of the inspection, the weather conditions were sunny and cold.

EXTERIOR

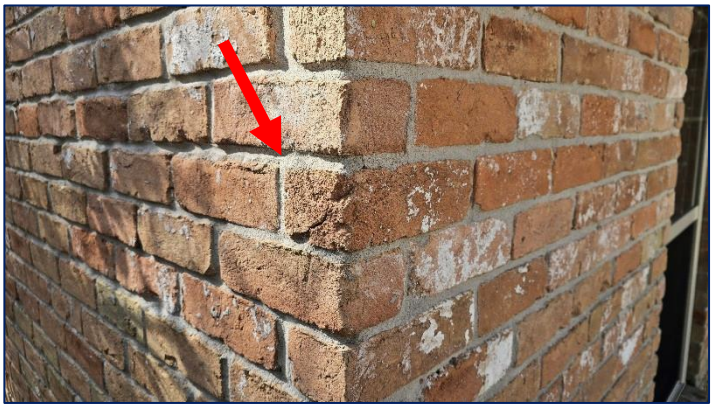
BRICK VENEER

Brick veneer and siding formed the exterior walls. Brick veneer walls provide protection from the elements, provide an intended aesthetic appearance, **but do not support any vertical loads other than the veneered wall itself. The stud wall framing carries the structural loads.**

Most brick masonry units are made from clay or shale, formed while plastic and fired in a kiln. Some are more resistant to water absorption than others. Some molded bricks that are not fired or "burned" at high temperatures and/or burned for short time periods, may absorb some water which can penetrate to the backside of the wall during extended wind driven rainy conditions. Many of these less costly bricks were made in Mexico and are found all over the greater Houston area. Adobe type bricks that are only "sun dried" and other porous bricks, perform better in dry climates. These porous bricks may demonstrate deterioration and/or crumbling in damp and rainy climates as they continue to age. The bricks at this structure appear to be a molded type and were in generally satisfactory condition today. **There were only a few damaged bricks.**

It is possible for water to penetrate through mortar joints, especially during periods of prolonged wind driven rain. Two story brick walls are more likely to experience water penetration, especially when proper bricklaying techniques are not followed. **Generally, the following acceptable techniques are violated to some extent in this area.**

- Following mortar proportions and mixing instructions.
- Using full head joints and full unfurrowed bed joints.
- Maintaining clean cavities, otherwise weep holes will be blocked.
- Laying bricks on mortar spread only several feet at a time during summer heat.
- Using approved flashings under and behind windowsills and the first course of bricks.
- Proper type, spacing and positioning of brick veneer ties. Brick veneer and other masonry assemblies must be securely anchored to the vertical support elements. These include stud walls in the case of brick veneer construction. These brick ties or anchors are made in various shapes from several types of metals including galvanized steel. An invasive/destructive evaluation would be necessary to comment on the presence and condition of any brick ties.



ADOBE BRICKS WITH CONCAVE MORTAR JOINTS

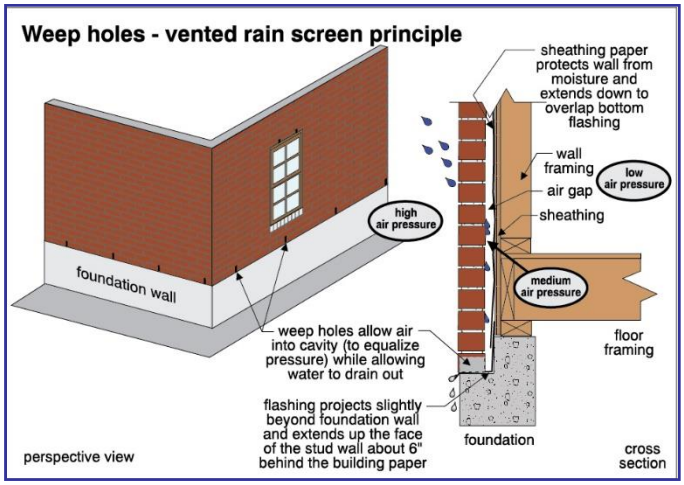
Other than commenting on the type of mortar joint used, it is not possible with this type of inspection, to determine if the preceding criteria have been met. The concave type mortar joint used on this house is one of the most water tight.

BRICK VENEER-NO EXPANSION JOINTS

Expansion joints were not formed within the brick veneer. Expansion joints are used to separate brick masonry into segments to prevent cracking due to changes in wall temperature, moisture expansion, elastic deformation, creep and other foundation or structural movement. The joints are formed of highly **elastic** materials placed in a continuous, unobstructed opening through the single thickness brick wall or section. The lack of joints is common in older structures.

WEEP HOLES

Weep holes are openings placed in mortar joints at the level of any flashing such as window lintels and at the 1st course of bricks in order to permit the escape of moisture. The lack of weep holes above metal window lintels may contribute to lintel corrosion and the lack of weep holes at the 1st course of bricks over the slab brick ledge may contribute to interior water penetration at floor level and wall stains. Mortar droppings behind the veneer wall may restrict air flow and water drainage. Any water penetration within the brick veneer wall becomes a conducive condition for wood destroying insects and interior damage. **Lower level exterior veneer wall weep holes were provided. The presence or condition of any flashing behind the weep holes is unknown to me.**



SIDING AND TRIM

No comment.

EXTERIOR WOOD SURFACE MAINTENANCE

Periodic caulking, painting, and occasional repair will be necessary to help prevent extensive damage to the structure from the elements. Painting problems are usually caused by moisture problems. Most paint fails when moisture causes it to lose adhesion resulting in peeling, flaking, blistering and disintegration of the paint to bare wood. Moisture can usually be traced to poor surface preparation that allows unfilled gaps, cracks and seams, leaky gutters, faulty flashing, or defective roof shingles to permit moisture intrusion. The moisture works its way behind the paint film and the resulting pressure forces the paint from the substrate. The only lasting solution to correct moisture problems is to eliminate the source of the moisture.

SOIL AND GROUND COVER COVERING 1ST ROW OF BRICKS

SOIL LINE/DRAINAGE

Inspection of the perimeter did reveal some visible contact of soil to bricks at a few locations. The soil should always be kept an adequate distance below the top of the foundation ensuring ample drainage away from the structure. Periodically, monitor the exterior of the structure during heavy rainfall. If water does not drain after a reasonable period of time after the rainfall, measures to provide adequate drainage away from the structure should be employed. The overall effectiveness of any underground drains was not determined. Observation of the actual drainage conditions during heavy rainfall would be necessary to determine if the existing conditions are satisfactory.

MORTAR JOINT CRACKS AT MASTER BEDROOM SIDE WALL

DARK STAINS ON BRICKS DUE TO CHRONIC WATER CONTACT

DAMAGED REAR GUTTER

▶EXTERIOR CONDITIONS RECOMMENDED FOR CORRECTIVE ACTION

1. There are some mortar joint cracks at the sides of the house, particularly at the master bedroom side wall. Have an experienced mason repair these cracks to minimize water penetration to the interior and to provide a more pleasing appearance.
2. Some dark stains on the exterior bricks. Pressure wash as needed.
3. Damaged gutter at rear of the house.

ROOF STRUCTURE/ATTIC

ATTIC ACCESS

I entered the attic from the hall ceiling access stairway. Due to reduced head clearance, structural obstructions, and safety considerations, I made my attic observations with a high intensity light from the access area only. No attempt was made to crawl or walk over undecked floor areas. The condition of hidden wood structural members under attic insulation or in areas not readily observable is unknown. Evaluation of the sizing and spacing of the various framing members and adherence to current approved span tables is not part of this inspection.

METAL ROOF SHAKES OVER WOOD SHINGLES

Plywood or OSB roof panels were not installed. This house originally had wood shingles that were subsequently covered with metal shakes. Although a common method for reroofing years ago, it is not an approved method. Should the metal shakes require replacement, the wood shingles will also need to be removed and then approved roof decking panels installed. No comment on the condition of the metal shakes.

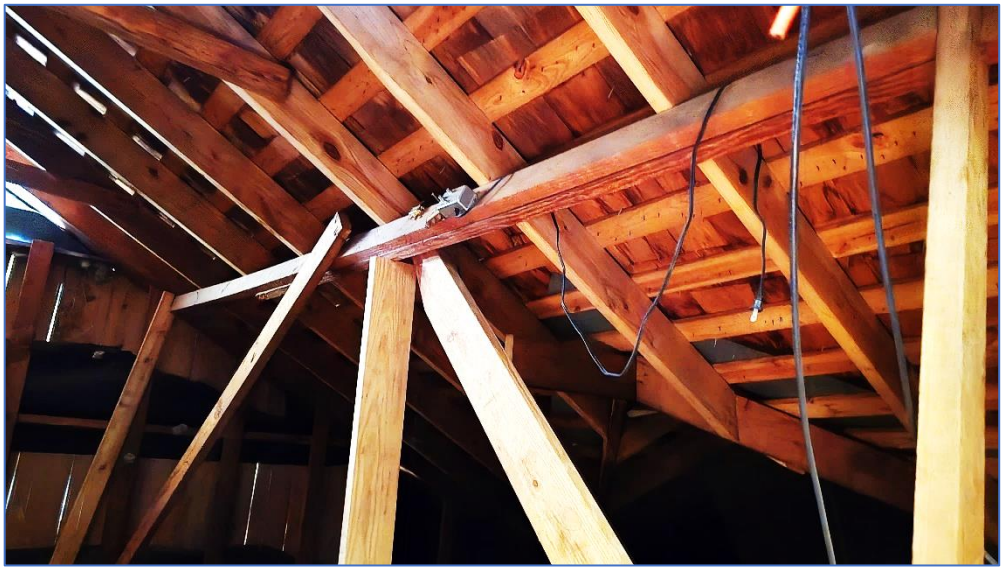
ROOF AND ATTIC FRAMING

The roof framing is a "cut type" or more commonly known as a "stick built type." These terms describe houses and roof structures that are assembled piece-by-piece from lumber at the construction site. Visual observation of the roof planes inside the attic and from the exterior revealed no significant sagging. Where visible, the rafters and the roof sheathing did not reveal any significant damage and there were no excessive separations between the rafters and ridgeboard. Some collar ties were installed. It is best to have collar ties at every other rafter/ridgeboard connection, but that condition is seldom found.

The purlins were 2"x4" material which is smaller than the rafters. Properly sized and installed purlins should use the same size material as the rafters. This condition is common in older structures and did not appear to adversely affect the structure at this time. Upgrade the purlins and struts at the time of the next roof covering replacement or sooner if sagging or sudden changes occur.

FRAMING VARIATIONS

Most roof and attic structures exhibit framing that does not follow industry standards exactly. I do not recommend corrective action unless there are severe deflections, splits or visibly damaged wood members, or other safety and structural concerns. Since these structures are constructed with a number of redundant wood members, minor variations in assembly and spacing can be tolerated. This is not a code or design specification inspection. No comment is made with respect to the adherence to span, material grades, nailing, bracing or other specification schedules.



ATTIC FRAMING IN GENERALLY SATISFACTORY CONDITION

INTERIOR WALLS/CEILINGS/FLOORS

I visually examined the interior surfaces of the walls, ceilings and floors, as related to structural performance. The condition of hidden wood structural members in the wall and ceiling cavities, under the attic insulation or in areas not readily observable, is unknown to me. Except as otherwise stated in this report, no opinion as to the condition of these structural members or of the floor coverings is either intended or implied. Any mechanically or glued floor carpeting was not disturbed, nor were any area rugs moved to reveal the floors.

The determination of structural damage to load bearing walls and other hidden areas as a result of wood destroying insects and/or organisms, or excessive moisture, can not necessarily be determined within the scope of this inspection. Hidden damage may be present even though the visible wall and ceiling surfaces appear satisfactory. **Removal of wall coverings or drilling of holes in the walls would be necessary to access, evaluate and determine the extent of any damage to these parts of the structure.**

REPAINTED WALLS/CEILINGS
Recently, some rooms have been partially or completely repainted. I am unable to determine the extent of any patched gypsum board fractures on these wall/ceiling surfaces.

BEDROOM CLOSET WALL TO WALL INTERSECTION SEPARATION

TILE FLOORING

Some floors were tiled in this structure. Ceramic or stone floor tiles are bonded to a variety of materials including concrete slabs using any one of a number of mortar mixtures. Mortars are a wide range of materials made primarily, but not exclusively, of Portland cement, lime, retarders, accelerators, polymers, etc. The thickness of the mortar bed and the cleanliness of the slab at the time of tile installation, can have a direct effect on the bonding of the tiles to the slab floor. Some mixtures are designed for very thin mortar layers and others for thicker layers. I have no knowledge if the proper type or thickness of mortar was used. Improper mortar selection and/or applied thickness along with tiles fitting flush against wall trim can cause hollow sounds under the tiles, buckling/heaving tiles and/or cracked tiles. Tapping every floor tile in the house to determine if any hollow sounding tiles are present is not part of this inspection. The future performance of any tiled floors cannot be determined during this inspection.

WOOD FLOORING

This dwelling has some wood flooring, which appeared to be laid directly over the slab. Monitor the condition of the floors periodically, especially near entry doors and windows, for evidence of water intrusion such as dark stains or buckling. Note that gaining or losing moisture from one side of the flooring faster than at the other side can result in surface cupping. **The wood flooring strips appeared to be in satisfactory condition today.**

PERIODIC INTERIOR EXAMINATION

Most windows, doors, chimneys, roof/vertical wall intersections and roof flashing protrusions **are not impervious** to water penetration, particularly during periods of heavy wind driven rain. Exterior maintenance must be performed on a regular basis for maximum protection from the elements. During heavy rainfall, monitor the interior of the structure, including any accessible attic space, for water intrusion.

WALLS AND/OR CEILING FRACTURES - MOVEMENT

The interior walls and ceilings were covered primarily with gypsum board, which showed some indications of foundation and/or structural movement. Some patched areas and fractures were found at, but not limited to, the following locations.

- Master bedroom wall crack over windows facing the patio.
- Many wall to wall intersections have been sealed or patched due to shear movement.
- Middle bedroom closet has significant wall to wall separation.

MASTER BEDROOM WALL FRACTURE

Paneling was installed on some walls. This material is flexible and does not show movement as readily as a more rigid material like gypsum board. Differential foundation and/or framing movement can affect the alignment of door frames and the operation of the doors. The readily accessible doorframes were reasonably plumb/square, but some doors did not latch when closed.

FLOOR SLAB

The floor slab inside the house was not visible as it was covered with various floor-covering materials. It is not uncommon for floor slabs to experience some cracking.

- The residence floor slab did reveal noticeable deflection or unlevelness, particularly in the master bedroom.
- The tiled floors did not reveal any visible cracks.

FOUNDATION

FOUNDATION FAILURE/PERFORMANCE

The determination of foundation performance is a "subjective opinion" based on the knowledge and experience of the inspector coupled with some physical measurements, visual observations and the functional aspects of the structure. This **Level A Foundation Performance Evaluation** typically includes, but is not restricted to the following:

- Interviewing the home owner and/or client if possible, regarding a history of the property and the performance of the structure. A "Seller's Disclosure Notice" is one of the important documents used for historical information.
- Request from client and review any provided documents, such as previous construction drawings, previous geotechnical reports, previous testing and inspection reports and any previous foundation repair information.
- Make visual observations during a physical walk-through of the subject property.
- Observe factors influencing the performance of the foundation.
- Provide a written report describing the scope of services, observations made during the physical walk-through of the subject property and any other data deemed pertinent by the engineer. Discussion of major factors influencing foundation performance and rationale in reaching conclusions concerning the subject property, and recommendations for further investigation and remedial or preventative measures.

Please note that higher level evaluations/investigations that include new geotechnical tests/reports, invasive/non-invasive plumbing tests, materials tests and other invasive techniques, are not included in this Level A Investigation. My opinions concerning foundation failure/performance take into account that in many cases the repair process may introduce new problems, generate extensive interior repair and possibly provide no net benefit. I generally do not recommend invasive repairs for in my "subjective opinion" are minor to moderate evidence and consequences of differential foundation movement. My opinions are also based on my inspection experience with houses of similar construction type, age and geographical location.

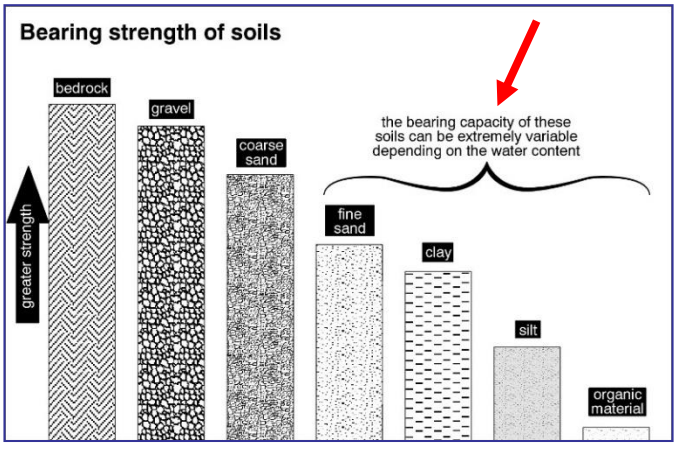
Properly designed foundations can perform satisfactorily; however, in the real world there can be a great discrepancy between the foundation design and the execution of that design. Sometimes the soils have not been properly prepared before casting the slab or other important factors not considered. Since my presence at the inspection site occurs some time after construction, I am unable to comment on whether the foundation design has been faithfully executed or whether the soils have been properly evaluated and/or prepared.

Slab-on-ground foundations are the most common type of foundation in the Greater Houston Area for residential foundations. When supported by active or expansive soils, this type of foundation will frequently deflect enough to result in cosmetic damage (usually sheetrock, brick veneer cracking and floor tile cracking) and possibly some minor functional problems such as sticking doors. **Any owner of a building founded on a slab-on-grade foundation should be prepared to accept a degree of cosmetic distress and minor functional problems due to foundation movement.**

SOIL CONDITIONS

Generally, foundation movement frequently seen in our geographical area is usually the result of:

- Soil movement and inadequate consideration to foundation design to cope with the volumetric changes in the soil supporting the foundation. This particularly applies to foundations cast on expansive clay soils in areas of widely variant soil moisture.
- Poor workmanship in executing the foundation design.
- Improper preparation of the site below the foundation prior to the placement of the concrete.
- A combination or all of the above.



An increase or decrease of soil moisture content causes soil movement in clay soils. The best of foundations can show signs of distress with accompanying drywall and masonry damage after periods of severe dryness. Typically, the perimeter of the foundation will settle due to drying and shrinkage of the soil, while the center areas of the foundation will remain at a higher elevation due to retention of moisture. The result is a dome or crown shape of the slab foundation.

Similarly, an unusually wet period will result in damage to structures if the underlying soils have been dry for prolonged periods. The perimeter of the foundation will rise due to swelling of any clay content in the soils. If the soils become saturated, a loss of soil bearing is possible and settlement results.

Some of the soils in Harris County have montmorillonitic clay content. These soils swell when wet and shrink and crack when dry. The pressure can be so great that walls and foundations crack even when specially reinforced. Only by taking and analyzing core samples from any subject site, can the actual soil conditions be determined. The soils at any subject site may have been chemically or mechanically altered, or fill or landscaping soils brought to the site from other geographical areas, which could have altered the shrink-swell potential. **Some degree of foundation movement can be expected when expansive soils are present.**

Other factors that can contribute to moisture imbalance, detrimental accumulation of water under the foundation and subsequent foundation problems are:

- Poor drainage of water away from the foundation.
- Standing water at one or more points around the foundation.
- Leaking plumbing lines and swimming pools.
- Non-uniform watering of plants and lawns around the house.
- **Excessive vegetation, plants, and trees adjacent to foundation.**
- **Insufficient watering during dry weather conditions.**
- Soil erosion

CONCRETE SHRINKAGE CRACKS

Shrinkage occurs due to volumetric changes during the “curing” process. Water content, water/cement ratio, slump or consistency, placement/finishing techniques, proper location of reinforcing steel or cables, ambient temperature during placement and curing additives/methods have an effect on shrinkage. Any one or a combination of these factors may result in the formation of shrinkage cracks. Testing the concrete is beyond the scope of this inspection.

RIBBED SLAB FOUNDATION

The visible portions of the ribbed slab type foundation and interior slab floor were examined for signs of differential movement. The visible condition of the interior/exterior walls and other accessible structural components were observed for evidence and consequences of foundation movement. No comment can be made on the presence or condition of any vapor barrier between the slab and the soil.

I have no knowledge of any type of underpinning originally incorporated into the design of this slab nor of any soil evaluations that may have dictated a specific slab design. Since most concrete slab foundations in the Houston area are of the slab-on-ground type and without any design information, I therefore assume this is a slab-on-ground foundation. Cracks and/or separations that are not open to view (i.e. under various floor coverings, hidden by furniture, concealed by vegetation, etc.) cannot be reported. Cracking is a normal property of concrete and no responsibility is assumed by this inspector/engineer whatsoever should any cracks be found after coverings are removed. Since differential movement can occur rapidly under certain conditions, the future performance of the foundation cannot be predicted.

OTHER OBSERVATIONS

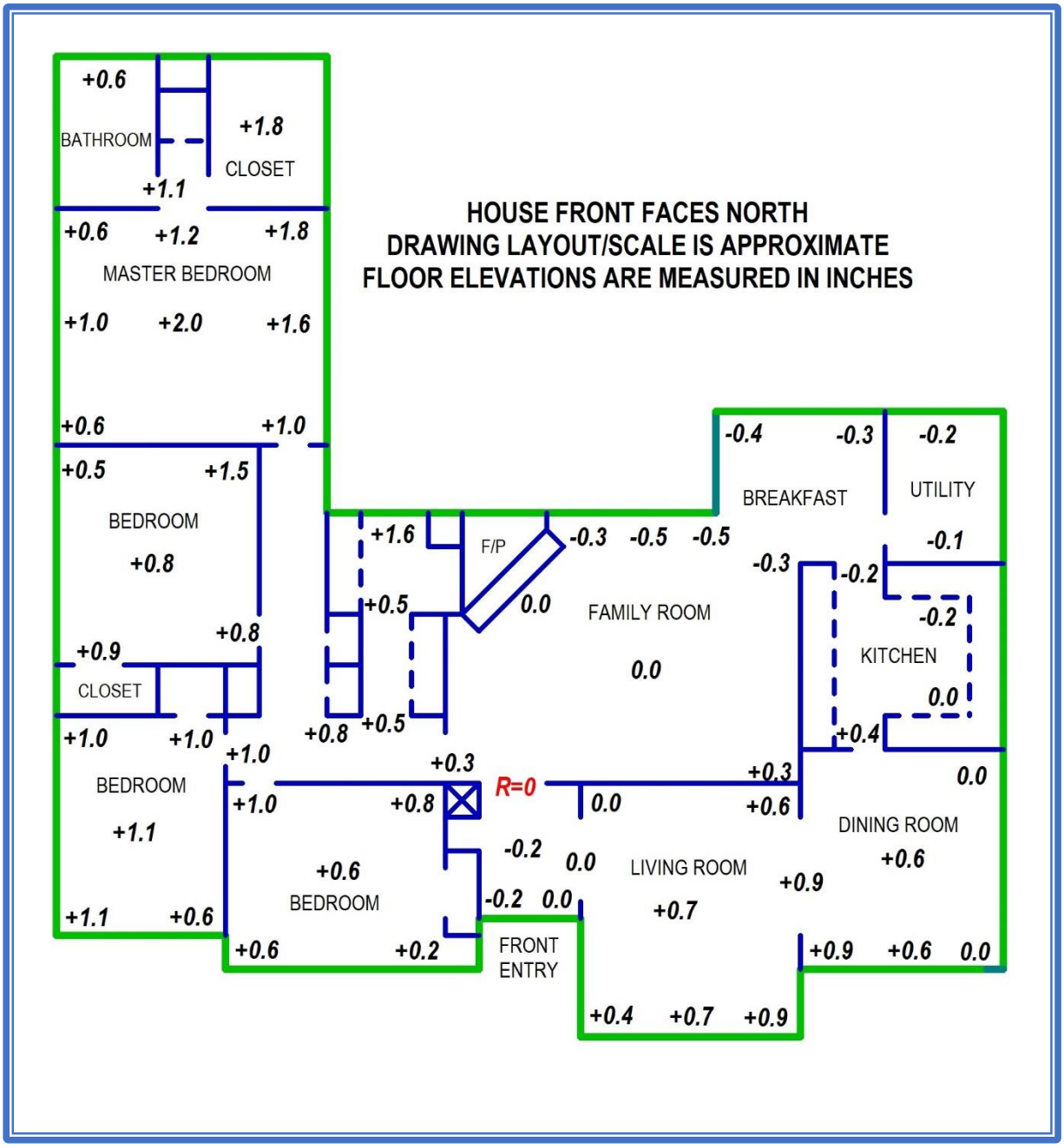
The foundation perimeter beam was hidden in areas by a high soil line, vegetation and other concrete. These conditions prevented an inspection of these areas for fractures and irregularities. Where visible, the perimeter beam revealed no significant signs of distress.

- A ZIPLEVEL PRO-2000 INSTRUMENT was used to determine the "relative flatness" of the top of the concrete slab by measuring the elevation of the slab at 63 selected points on the interior floor surfaces with respect to an arbitrary reference point. Most concrete slabs are not level at the time of concrete placement and typical unlevelness and localized high/low areas may have been present initially. Height adjustments were made for variations in the height or thickness of the various floor coverings. The greatest elevation change within the selected points or "relative flatness" was 2.5 inches, which is considered moderate movement, particularly in the master bedroom. Since there is no data available to indicate the "relative flatness" when the foundation was cast, the actual change in elevation due to movement cannot be determined. Note that these elevation data were collected as supplemental information and may not be adequate to generate a reference datum.
- The readily accessible window/door frames were reasonably plumb and square.
- The interior wall/ceiling surfaces did reveal some cracks.
- The brick veneer did reveal visible cracks at the side walls..
- No significant separation between window/door frames and adjoining brick veneer was visible.
- The frieze boards were not separated from the brick veneer.
- Visual sighting along the horizontal brick mortar bed joints revealed no significant deflection.

LARGE TREE ROOTS

Some of the movement may be attributed to the large tree root system around the house. The tree root systems remove water from the soil causing a drying or shrinking effect. Some movement may be arrested or reversed by proper deep root watering and/or properly installed root barrier systems. **Note that most foundations will not resist the upward forces that may occur when any tree is removed or dies, particularly when expansive soils are present.**

TREE CLOSE TO FRONT OF HOUSE


HOUSE FRONT FACES NORTH
DRAWING LAYOUT/SCALE IS APPROXIMATE
FLOOR ELEVATIONS ARE MEASURED IN INCHES
BATHROOM
CLOSET
MASTER BEDROOM
BEDROOM
CLOSET
BEDROOM
BEDROOM
F/P
FAMILY ROOM
BREAKFAST
UTILITY
KITCHEN
DINING ROOM
LIVING ROOM
FRONT ENTRY
R=0

EMOTIONAL CONSIDERATIONS

Most of the houses in this area are frame structures and a majority of them exhibit signs of differential foundation movement. However, it is only a small number, whose problems are sufficiently significant to warrant remedial foundation work. Usually the functional problems are minor such as; binding doors, gypsum board cracks, brick and mortar cracks, and the like.

- Some foundation movement can be expected as a result of seasonal soil moisture changes beneath foundation.
- Gypsum board cracks may become more numerous and wider with aging of structure.
- Periodic repair of cosmetic distress should be considered a normal maintenance item and does not necessarily indicate a serious structural problem. This includes ripples under wallpaper and small wood trim separations.
- Searching for a residence without any fractures, and expecting the structure to remain free of fractures as the years go by, is an unrealistic expectation.

It is beyond the scope of this inspection and the vision of this engineer to determine the future effect that any of the symptoms of foundation movement, including any visible or hidden slab cracks, may have on any subsequent buyer. The future performance of the foundation cannot be predicted.

MOISTURE CONTROL

Achieving and maintaining moisture equilibrium in the soils around the structure is the goal of a watering program in both new and existing structures. Generally, the history of landscaping and watering around an older home that has experienced foundation distress is usually not known to the inspector or homebuyer.

A recommended maintenance program for controlling the rate of differential movement includes maintaining proper drainage around the house in such a way that water runs away from the house and off the site using surface or underground drainage systems. A suggested degree of soil slope at the perimeter of the house would be 4 inches in the first 4 feet of distance. A properly installed gutter and downspout system, directing water away from the house, can be beneficial for controlling water runoff and minimizing soil erosion.

The above drainage measures, coupled with liberal watering of the soil at times of excessive dry periods, may aid in controlling the rate of movement. Water should never be poured directly into an open crack that might develop in dry soil adjacent to the face of the foundation perimeter. A better procedure when watering is to place a soaker hose 6 to 18 inches from the perimeter for more efficient water distribution. **Excessive watering can also be detrimental when fine sands or silts are present.** Any method that controls and extricates excess surface water is beneficial to foundation stability.

FOUNDATION OPINION

Although there are indications of prior movement, the foundation appeared to be providing adequate support for this structure. In particular, the slab floor in the master bedroom is noticeably unlevel when walking across the floor. The stairstep exterior side wall mortar joint fractures indicate some settlement along this wall.

I measured 63 floor elevation locations with the highest elevation at the center of the master bedroom and the lowest at the rear of the family room. The difference across these points is approximately 2.5 inches, which is considered to be moderate movement.

This movement may or may not continue in the future. Since there was no serious problem with the frame structure or serious functional problems resulting from the movement, underpinning and leveling the foundation are not considered as requirements at this time. Sometimes foundation repair can introduce new damage and then no net benefit is realized. The cosmetic conditions can easily be repaired. Only by monitoring the structure for a period of time, about 6 months, can a determination of active movement be made. If movement continues or sudden changes occur, a reevaluation would be appropriate.

CERTIFICATION

I hereby certify that, I, Jay Fischman, personally conducted the foundation/structural inspection of this residence located at 2214 Hidden Creek Drive in Kingwood, on the date of November 30, 2024. The reporting of my findings is based upon my visual observations, experience, specific client concerns and professional standards. No responsibility is assumed for events that occur subsequent to the time of this inspection. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act.

Jay Fischman
Registered Professional Engineer #44735
Firm Registration Number F-767

Copy: Kim Fazzino