

**PROFESSIONAL ENGINEERING INSPECTIONS, INC.**

P. O. BOX 271492  
HOUSTON, TEXAS 77277  
<http://www.profengineering.com>  
(713) 664-1264

June 19, 2000

Mr. Samuel Underdog  
329 Castle Dr.  
Houston TX 77018

Dear Mr. Underdog:

Re: 329 Castle Dr, Houston, Texas

As requested, we are pleased to send you the attached report for the roof inspection performed on the above property

We understand the reason for the inspection is to provide an opinion as to whether the roof of the building is performing the function for which it was intended or if it is in need of repair/replacement.

Professional Engineering Inspections, Inc. does not warrant or guarantee the continued performance of any property inspected beyond the day of inspection.

This report concludes all obligations related to inspection work provided for the above property for the fee paid. Thank you for asking PROFESSIONAL ENGINEERING INSPECTIONS, INC. to perform this inspection work. If you have further questions, please feel free to call on us.

Sincerely yours



Edward Robinson  
President

EGR/sl  
Attachments

# PROFESSIONAL ENGINEERING INSPECTIONS, INC.

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## ROOF INSPECTION REPORT

Mr. Samuel Underdog  
329 329 Castle Dr.  
Houston, Texas  
June 19, 2000

### I. INTRODUCTION

#### A. Property Description

The property inspected is a house, having brick veneer and wood siding, and single-ply membrane and standing seam metal roof. We understand the age of the roof to be 50 years.

#### B. Purpose

The primary purpose of this inspection was to provide an opinion as to whether the roof of the building is performing the function for which it was intended, or if it was in need of repair. In addition, the inspection was to provide insight into the overall condition of the roof and provide information relating to the normal remaining life expectancy.

#### C. Scope

The scope of this inspection included visual observations of only those portions of the roof components readily visible, without moving or removing items causing visual obstruction. Observations were made at the exterior and interior of the structure, including the attic from the readily accessible interior and the roof from the surface.

### II. ROOF DATA

#### A. ROOF OPINION

The quality of workmanship indicated in the installation of the single-ply roof was considered below normal. The most significant defect being the use of roofing compound improperly applied at the interfaces at the edges of the roofing membrane. Several locations where roofing compound was used were showing evidence of failure at some locations. There is a need for further investigation to determine the extent of repairs which may be necessary if flashings have not been properly installed where roofing compound has been applied. The number and degree of observations of incomplete, improper, or defective workmanship that are listed in this report are the basis for this opinion.

#### B. ROOF OBSERVATIONS

The following observations are presented to provide a basis for the opinions that are stated above. The list of observations should not be considered a total list of irregularities, but a representative list of items considered or existing at the time of the inspection.

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1. Most single ply built-up type roofs with mineral coating have a life expectancy of 10 to 20 years, with an average life of 15 to 18 years. We understand the age of this roof to be less than 1 year.
2. A significant amount of debris was observed on the roof. Debris collecting on the roof surface can lead to premature failure and possible leakage.
3. Some evidences of roof leaks, current or previous, were observed in the form of ceiling stains at the southeast bedroom closet and at the southeast bedroom; nail pulls at the gameroom ceiling; paint spalling at the exercise room and at the roof overhang at the west side of the exercise room; seam bulges at the southwest bedroom; sheetrock patches at the southeast bedroom; and spalling paint at the southwest corner of the skylight at the kitchen. You should make further inquiry as to the status of these evidences of roof leaks. You are cautioned that other evidences of roof leaks may exist which were not detected at the time of this inspection.
4. It was indicated that stains in the ceiling of the game room occurred as a result of previous leaks at skylights that had existed in the gameroom area; however, the skylights had been removed and covered with roofing material. The patches in the sheetrock ceiling were visible at these locations.
5. There were no covers at the drain openings at the roof surface, and the drains were observed to be filled with a significant amount of debris at many locations. Clogging of these drains will allow water to pond on the roof surface and increases the potential for water penetration through the roof.
6. Roofing compound had been used at a significant number of locations, including: at the roof-to-wall interfaces at the area over the dinette and at the perimeter of the upper flat roof sections adjacent to the atrium, along the sides of the living room, at duct penetrations at the roof surface, at all of the skylights installed through the flat roof single-ply membrane, and at the interfaces between the roof and the edge flashings. Roofing compound is not normally necessary if the roof system is properly installed and sealed to the edge flashings, and it is very abnormal on a newly installed roof. Significant amounts of roofing compound had been applied at most locations, making it difficult or impossible to view the flashings in most areas in order to determine how the interfaces were made. Since there is a concern regarding the quality of these interfaces, further investigation to determine if flashings were installed and if there is a need for repair should be performed and will require removal of the roofing compound..
7. There was an edge flashing joint separating at the northeast corner of the roof over the dinette, which may allow water penetration through the roof membrane. Normally, all joints in metal edge flashings are sealed and secured together using mechanical fasteners to prevent the joints from separating and allowing water penetration through the membrane.

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8. The roof membrane and/or roofing compound were separating from the edge flashing at locations, including along the west side of the garage. This may create a potential for water penetration into the building and should be repaired.
9. Drip stains were observed over the south windows at the dining room. Drip stains of this type over windows are sometimes an indication of water penetration through the edge of the roof.
10. Skylight lenses were cracked in the kitchen. Replacement of the skylight lenses may become necessary if the cracks leak.
11. Wood flooring was observed to be loose at the east end of the hall and in the area of the living room. Loose wood flooring is sometimes an indication of water penetration. Evidences of water penetration may have been related to past or current roof leaks.
12. Patches were observed in the soffit adjacent to the study. This is an indication of previous water penetration through the roof.
13. Water was observed to be standing at the roof surface at a few locations, including: along the east side of the gameroom, at the east area of the roof over the southwest bedroom and adjacent to the air conditioning equipment at the north side of the east roof. Some standing water is not considered unacceptable; however, significantly low areas are normally corrected prior to installing the roof surface in order to prevent water from standing, especially around drains. The depth of the water in the area of the east roof was considered to be slightly more than normal.
14. The roof decking appeared to be uneven in some areas at the roof, with the most significant areas occurring over the kitchen. At some areas, popping of the roof decking could be heard when stepping across the roof, indicating that the underlayment may not have been securely fastened in place. These irregularities can result in premature wear at the roof surface.
15. The roofing compound applied at some of the skylights was separating from the sides of the skylights, leaving large gaps that were accumulating water. Locations included: at the skylight at the kitchen and at the skylight over the master bedroom area at the east roof. Investigation to determine if these locations are properly flashed is recommended since the openings were holding water.
16. Counterflashings had not been replaced at the fireplace flues of the study or living room. The counterflashings appeared to have been bent up during installation of the roof, tearing at the corners, and had not been pushed back down and folded at the corners to prevent water penetration. Roofing compound had been applied at the corner joints, but the roofing compound will probably dry out in the future and allow water penetration to occur.

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17. There was no counterflashing installed between the upper section of roof and the fireplace flue over the living room, and the roofing compound used at this joint was beginning to separate. A counterflashing and flashing should be installed at this location.
18. There was a gap between the roof and the edge flashing at the southeast corner of the screened porch and at the southwest corner of the living room that should be repaired to prevent potential water penetration through the roof.
19. Wrinkles existed in the roof membrane where it was secured down to the edge flashing along the south side of the roof over the living room. In some cases, these wrinkles could result in water penetration if they were not sufficiently sealed during the process of heating them down to the edge flashing. It is considered poor practice to allow the wrinkles to occur.
20. There was a section of roofing along the south side of the roof over the living room at the southeast corner that did not appear to have any mineral coat protection. This may have occurred as a result of the end section of a roll being used at this location. This section may wear prematurely.
21. There were gaps at the joints in the edge flashing at some locations where mechanical fasteners had not been used and the joints had been poorly sealed. These joints are normally sealed or soldered together and secured together using mechanical fasteners to prevent them from separating due to temperature changes in the roof surface and flashings. As the roof becomes older and more brittle, tearing of the roof membrane may occur at these joints, which could allow water penetration. Water penetration may also occur where gaps exist at the joints.
22. There appeared to be a section of metal flashing improperly installed at the east end of the parapet wall adjacent to the air conditioning unit at the east roof. Further investigation of this installation will require removal of some roofing compound to determine the best method for repair of the flashing. The flashing appeared to extend up through the roofing compound.
23. There were no vibration pads or protective pads placed below the supports of some of the air conditioning equipment at the roof surface. This could allow the air conditioning equipment to wear holes through the surface of the roof.
24. There was evidence of an old roof under the new roof at the small sections of roof adjacent to the atrium at the east and west sides of the atrium. This was indicated by old gravel guard flashing observed below the new flashing around the edges of the roof.
25. There was a soft spot in the roof adjacent to the air conditioning ducts at the east area of the roof at the parapet wall that may indicate a blister or soft decking. This should be further investigated to determine if there is a need for repair.

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26. Significant amounts of roofing compound had been applied around the duct penetrations. If properly flashed, the duct penetrations do not require roofing compound, which may indicate previous problems with water penetration at these locations.
27. There was a fish-mouth opening in the roof membrane where the joint was poorly made. Openings such as this where wrinkles exist may allow water penetration.
28. Locations where roofing compound has been applied to the wood siding at the interface to the roof creates a potential for water penetration. Water penetrating the joints in the siding may be sealed behind the siding at its lower edge, creating a potential for wood rot.
29. Additional information may be obtained by having the roof inspected by the roofing membrane manufacturer to ensure it was installed to all the manufacturer's required specifications. A roof not meeting the roofing manufacturer's specifications may not be covered under the manufacture's warranty.

### III. RECOMMENDATIONS

The following recommendations are not to be considered a specific design, but guidelines that should be utilized in developing a specific design to correct the irregularities noted in the observations portion of this report.

- A. It is recommended that you consult with a qualified roofing company to make repairs to the roof, as discussed above, as well as any other repairs which may be considered necessary.
- B. The debris build-up on the roof should be removed to prevent it from holding moisture, which can lead to premature failure of the roof. It is also possible for the debris to wash to a valley and cause leakage.
- C. The gutters were observed to be filled with debris; cleaning is suggested.
- D. Locations where roofing compound has been applied and where flashings normally exist should be investigated to ensure flashings have been properly installed. Roofing compound is not considered an acceptable long-term replacement for properly installed flashing.
- E. A counterflashing should be installed at the fireplace flue interface to the roof.

### IV. SPECIAL NOTICE

Opinions and comments contained in this report are based on observations of apparent condition and performance of the roof of the building inspected. Performance and condition standards are based on knowledge gained through experience and professional studies of the inspector. Opinions related to compliance with specifications, legal, and/or code requirements are specifically excluded as being a part of our agreement to perform this inspection. There is no guarantee or

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warranty as to future performance, life, and/or need for repair of the roof, nor should same be assumed as a result of Professional Engineering Inspections, Inc. performing this inspection.

PREPARED BY:

A handwritten signature in black ink that reads "Edward Robinson". The signature is written in a cursive style with a prominent initial "E".

Edward Robinson  
TREC Lic. #3594

EGR/sl  
Attachment