RESIDENTIAL HOUSE REPAIRS

INTRODUCTION

Many houses are unique. How and what to repair on a certain house can be summarized as follows:

1. Repair must be done.
2. Repair should be done.
3. Repair would be a good idea.
4. Repair is not needed or wanted.
5. Repair is infeasible.
6. Repair is not recommended.
7. Repair cannot be done.

The reasons for concluding what to repair and why to repair can be cloudy. This document is a guide regarding the reasonable approach to residential building repairs.

TABLE CONTENTS

1. DEFINITIONS

Code Provisions – The specific wording found in the building code that address the process or materials to be used in construction.

Building Official – The government designated person in a jurisdiction having the authority to oversee the permitting and regulation of building construction and use.

Structural Design – The process of sizing members to resist loads such as snow and wind.

Construction – The process of fabricating and erecting building materials to create a structure.

Alternative Means and Methods – The process of fabricating and erecting building materials that are outside the code provisions when the materials or methods are equivalent and acceptable to the Building Official.

International Residential Code (IRC) – The governing code for residential construction.

2. Purpose of Existing Building Codes

> The purpose of the Code is to encourage the continued use or reuse of legally existing structures.

IRC Appendix J AJ101.1))

The use of like kind and quality material is encouraged by the code. Like kind and quality will likely be acceptable even if the code has changed since original construction.

Current building codes are updated on a regular basis. Many houses throughout the United States were built under old standards, old codes, or no codes at all.

The purpose of the building code is not to have every building modified to be “up-to-code” in every aspect whenever a deficiency is found or when the code changes.

3. Damage

Often, there may be a number of items that are weakened from the original state. There may be many things that are damaged, and there may be many causes of damage.

Damage is defined as:

Damage - physical harm caused to something in such a way as to impair (lessen, weaken, reduce, diminish) its value, usefulness, or normal function.

The photo below is of a damaged exterior deck. It has rot, deformation, old repairs, and was in a recent storm.

If there was storm damage to the deck, could it be repaired? Could it be brought back to a pre-loss condition? Probable not.

4. Defining a Scope of Repair Work

The scope of work must be clearly identified on construction documents. The documents presented to the building department may include drawings, simple reports, or a written description on a permit application.

There are two facts regarding residential construction:

1. New construction must follow current building codes.
2. Existing buildings are not likely "up-to-code" depending on when they were built.

The magnitude of an existing building project will have an effect on the level of code compliance that is mandated. Modern codes attempt to classify building projects as small or big. The terms often found are:

1. Repair
2. Renovation
3. Alteration
4. Reconstruction.

For example, a small minor repair may not need a code review or the involvement of a professional engineer. Simply removing and replacing a few minor items may be all that is needed to fully restore a building to a pre-loss condition.

Large projects or damage to complicated non-standard buildings may need the involvement of many design professionals.

5. Conformity and Non-Conformity

There is a hierarchy for what is strictly allowed and not allowed when dealing with existing conditions. When it comes to conforming to the current code there are two statements that must be considered.

Statement 1:

> The work shall not cause the structure to become unsafe.

Statement 2:

> The work shall not make the building any less conforming to modern construction standards or codes.

A structure may be "light" when evaluating it for current loads and member sizes, but it may also have survived for many years. It is difficult to argue with the test of time.

If a few structural members are damaged, it may be prudent to replace only the few members. However, life safety issues should never be at risk.

6. Alternative Means and Methods

Alternative Means and Methods is the process of fabricating and erecting building materials that are outside the code provisions when the materials or methods are equivalent to the code and acceptable to the building official.

Building Officials are able to think and reason. Everyone knows there are times when old materials are not the best, but they still are working. Owners, contractors, and design professionals are able to present solutions to building officials that are acceptable but are not necessarily code compliant. The code allows alternative means and methods of construction.

7. Non-Equivalent Methods

Non-Equivalent methods or materials may still be acceptable to continue in service or be repaired with like kind and quality materials if correcting the non-conformity is technically infeasible or would impose a disproportionate cost.

These situations require a little more thinking in the overall scope of the project. If found to be infeasible or disproportionately too costly, the building official has the authority to accept repairs that do not correct a larger pre-existing problem.

8. People and Responsibilities

A building repair project can have many individuals involved that have different responsibilities. Below are simple descriptions of different individuals that have different roles or obligations. They must not be confused.

Owner 1 may only want compensation for damages.

Owner 2 may need to restore the building ASAP.

Owner 3 may want to repair damages and improve the property with better materials and additions. (upgrades)

Future Owners Future owners expect a building to be safe when purchasing a building. Future owners should be protected from buying faulty substandard buildings.

Contractors must turn a profit, but also desire to satisfy the owner. Contractors must be satisfied with their work product. Contractors must follow industry standards, codes, and regulations.

Professional Engineers uphold the general welfare of the population. Engineers inspect, evaluate and offer recommendations. Engineers determine extent of damage and cause of damage.

Insurance Adjusters desires to properly issue the correct amount of coverage to loss as stipulated in the policy; not wanting to overpay or under pay. Damages may need to be separated out as to what is covered and was is not covered. Not all causes are covered losses.

9. The Role of the Building Official

The Building Official has the authority to render interpretations of the code and adopt policies and procedures in order to clarify the application of the provisions.

> "The building official is authorized and directed to enforce the provisions of the code. The building official has the authority to render interpretations of the code and adopt policies and procedures in order to clarify the application of the provisions."

https://www.revisor.mn.gov/rules/1300.0110/

Building Officials oversee the issuing of permits and stop work when not permitted. Building Officials review documents and conduct inspections. They temporarily condemn or permanently condemn buildings. They protect safety of the general population. A Building Official can mandate that a Professional Engineer inspect a property.

The sole authority for the interpretation and enforcement of the Building Code resides with the designated building official in the jurisdiction. In essence, the Building Official's interpretation is the State Building Code.

10. Professional Engineer (PE)

PE signed and sealed drawings are often required:

1. All new commercial buildings require PE signed and sealed drawings.
2. New residential houses typically do not require a PE unless there is something tricky or the house is significantly large.
3. Repairs to a residential house may require a PE depending on the scope of work.

Some contractors like to tell insurance companies that they have to build to code or risk losing their state license. Then they try to interpret the code for themselves in a way that maximizes the repairs that have to be done so they can get as much money from insurance companies as they can.

It is not a bad approach. New is generally better, but it may not be required, or it may not be the best economical solution. The one that has the final word on concluding that a specific repair must be made to a structure is the Building Official.

Normally, a Building Official will accept the conclusions of a registered professional engineer's assessment rather than a contractor's assessment.

Repairing older non-conforming residential houses is quite interesting. The easy answer is to tear everything apart and build new, but that is not the intent of the Building Code. If there is no "reasonable" voice to repair existing conditions, the building official is not going to stop that approach.

11. The PE Inspection and Evaluation

Often a Building Official, owner, or insurance company may need a building inspection by a professional engineer in order for them to satisfactorily complete their tasks.

Prior to inspecting a property, it is essential to know the task required. The person inspecting the property must know what questions needs to be answered? What is the scope of work of the inspection? The following are typical scopes of work given to a professional engineer:

1. Determine the extent of damage(s).
2. Determine the cause(s) of damage(s).
3. Offer recommendations.
4. Determine if the building is repairable or should be torn down.

As with any problem, the first task is to gather all pertinent information needed to solve the problem. The following information is typically needed:

1. When was it built?
2. When were the additions built?
3. When was it repaired?
4. What happened?
5. How was it damaged?
6. When was it damaged?
7. What are the concerns of the contractor?
8. What are the concerns of the owners?
9. Are there any eyewitness accounts of the event?
10. Who are the people involved?
11. Are there local concerns such as floodplain issues, drainage, lake front, DNR, etc.
12. What governing authorities are involved?
13. Was there a permit and required inspections?
14. What observations were made?
15. What has been changed?
16. Are there any measurement to be taken?

The above photo is of a fire damaged building. The structure in the photo was obviously damaged beyond repair, but what about the remaining structure? Can it be saved?

12. Unsafe Structure – Hazard Warning

Unsafe conditions may be found during an inspection and may be outside the scope of work of the inspecting professional. However, professional ethics may warrant the need to issue a Hazard Condition Letter. By ethics, engineers are obligated to report unsafe conditions.

The following is reproduced from the MN state building code.

1300.0180 UNSAFE BUILDINGS OR STRUCTURES.
https://www.revisor.mn.gov/rules/1300.0180/

> "A building or structure regulated by the code is unsafe, for purposes of this part, if it is structurally unsafe, not provided with adequate egress, a fire hazard, or otherwise dangerous to human life."
>
> "The building official shall order any building or portion of a building to be vacated if continued use is dangerous to life, health, or safety of the occupants. The order shall be in writing and state the reasons for the action."
>
> "All unsafe buildings, structures, or appendages are public nuisances and must be abated by repair, rehabilitation, demolition, or removal according to Minnesota Statutes, sections 463.15 to 463.26."

Not every building that is unsafe, needs a hazard warning letter. A damaged building is normally understood to be a hazard.

A hazard letter would be prudent in situations where those walking in or around the building do not fully realize the severity of the danger.

The above photo was taken after a tornado. The house was significantly damaged. There were unsafe conditions. The house was boarded. No one was allowed to enter.

All involved understood the dangers. There was no need to issue a Hazard Condition Letter.

13. Professional Recommendation

Looking closer at the responsibilities of the different individuals involved in an existing residential building repair project, it becomes clear that everyone has overlapping but different responsibilities. They do not all have the same goals.

The owner's goal may be to return it to service as soon as possible. Or, they may want to receive as much money as they can get from insurance, demolish the building, thus cutting their losses to a minimum.

An insurance adjuster may only be able to pay for damaged items, and an engineer may not be able to close an eye to damaged or hazardous conditions beyond the damaged areas.

If asked to provide repair recommendations, the repair recommendations from a professional engineer must contain the minimum work required to fix the property. The repair recommendations should be sound, complete, and acceptable to a building official. The recommendations must be complete and include all items whether covered by insurance or not covered.

Considering that insurance may not be able to pay for items outside policy coverage, repair recommendations should identify cause or causes of listed damage.

According to the Merriam Webster Dictionary a "Cause" is defined as "a reason for an action or condition". A specific damaged item might have several causes.

"Proximate Cause" is a term that identifies an event or action as the ultimately reason for the damage. Proximate cause is the primary cause. Without this event or action, the loss would not have occurred.

14. Conclusion

There are many considerations when inspecting, evaluating, and analyzing a residential house that has been damaged.

There are a number of important individuals that are involved with the process of fixing a damaged property. Each has a role to play, and each have different responsibilities.

Building standards and building codes are ever changing making existing buildings appear to be "inadequate." Sometimes the best approach it to tear down and start over. However, with a thorough inspection, sound judgement, and reasonable thinking, good solutions can be found. Alternatives to remove and replace are often available and acceptable per Current Code Requirements.

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