Foundation Work

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Understanding the key components typically included in a detailed engineer's report for foundation issues.

When it comes to addressing foundation issues, one of the most crucial documents you'll encounter is a detailed engineer's report. Moisture detection tools help prevent further foundation damage in homes **foundation repair service market** retaining wall. These reports are typically compiled by third-party engineers who provide an unbiased assessment of the problem. Understanding the key components of these reports is essential for interpreting their findings and making informed decisions.

Firstly, an engineer's report will usually begin with an **Executive Summary**. This section provides a high-level overview of the findings and recommendations. It's a quick snapshot that can help you understand the severity of the issue and the suggested course of action right from the start.

Following this, you'll find a detailed **Introduction** that outlines the purpose of the inspection, the date it was conducted, and the scope of work. This section might also include a brief history of the property and any previous repairs or issues.

The **Observations** or **Findings** section is where things get technical. Here, the engineer will describe in detail what they observed during their inspection. This can include cracks, settlement, upheaval, or other signs of foundation distress. Photographs and diagrams are often included to illustrate these points. It's crucial to review this section carefully to understand the extent and nature of the problem.

Next comes the **Analysis** section, where the engineer interprets their observations. They'll discuss the probable causes of the identified issues, such as soil movement, poor drainage, or construction defects. They might also provide insights into how these issues are impacting the structure as a whole.

The **Recommendations** section is where the engineer suggests steps to remediate the problem. This could include repairs, further monitoring, or additional investigations. Each recommendation is typically accompanied by a sense of urgency or priority level.

A section on **Cost Estimates** might also be included. While these are often rough estimates, they can give you a ballpark idea of what to expect financially. However, it's important to note that more accurate quotes should be obtained from contractors before proceeding with work.

Finally, the report will conclude with **Appendices** or **Attachments**. These can include anything from technical notes and calculations to copies of relevant documents or additional photographs.

To effectively interpret these reports, it's helpful to have some understanding of engineering

terminology and concepts. Don't hesitate to ask for clarification from the engineer if needed. Remember, these reports are designed to provide you with objective information about your property's foundation-the more you understand about themmse reports

Interpreting structural analysis and recommendations provided by engineers for foundation repairs.

When it comes to addressing foundation issues, understanding the detailed reports provided by third-party engineers is crucial. These reports often contain a wealth of information derived from structural analysis, which is essential for making informed decisions about repairs. Interpreting these reports requires a blend of technical knowledge and practical understanding.

Firstly, it's important to grasp the language and terminology used by engineers. Terms like "differential settlement," "load-bearing capacity," and "shear strength" are common in these reports. Differential settlement, for instance, refers to the uneven sinking of a foundation, which can cause cracks and other structural issues. Understanding such terms helps in comprehending the severity of the problem and the urgency of repairs.

The structural analysis section of the report is particularly critical. This part typically includes diagrams, calculations, and explanations about the current state of the foundation. Engineers use these analyses to pinpoint areas of weakness, stress points, and potential failure zones. For example, if the analysis shows that a particular section of the foundation is experiencing excessive stress due to soil movement, it suggests that reinforcement or stabilization measures are necessary.

Recommendations from engineers are equally important. These usually include detailed steps for repairing the foundation, ranging from minor fixes like crack sealing to major interventions like underpinning or the installation of helical piers. Each recommendation comes with an explanation of why it is necessary and how it will address the identified issues. Understanding these recommendations involves not just reading the text but also visualizing how each suggested repair will impact the overall structure.

It's also essential to consider the cost implications and practicality of the recommended repairs. Engineers often provide multiple options with varying levels of complexity and expense. Balancing these factors against the long-term benefits is key. For instance, while a quick fix might be cheaper initially, it may not address the root cause, leading to more significant problems down the line. Conversely, a more costly but comprehensive repair could offer lasting stability and prevent future issues.

Collaboration with engineers is another vital aspect. Regular communication ensures that all stakeholders are on the same page regarding the scope of work, timelines, and expected outcomes. This collaborative approach helps in aligning expectations and avoiding misunderstandings or delays during the repair process.

In conclusion, interpreting detailed reports from third-party engineers involves understanding technical jargon, analyzing structural data, evaluating recommendations, and considering cost implications. Effective communication with engineers further ensures that foundation repairs are carried out efficiently and effectively, ensuring long-term structural integrity.

Evaluating soil conditions and their impact on foundation stability as outlined in the report.

Evaluating soil conditions and their impact on foundation stability is a critical aspect of interpreting detailed reports from third-party engineers. This process involves more than just reading numbers and graphs; it requires a nuanced understanding of geotechnical principles and how they apply to real-world construction scenarios.

When engineers compile these reports, they delve into the physical and chemical properties of the soil, such as its composition, moisture content, and compaction levels. These factors significantly influence how well a foundation will perform over time. For instance, clay-rich soils can expand and contract with changes in moisture, leading to potential instability if not properly managed. Conversely, sandy soils might be prone to erosion or settlement under certain conditions.

Understanding these characteristics allows us to anticipate potential issues before they become problems. A thorough evaluation includes examining the bearing capacity of the soil-its ability to support the weight of a structure without excessive settlement or failure. This is crucial because a foundation that settles unevenly can cause structural damage, such as cracks in walls or floors.

Moreover, engineers consider factors like groundwater levels and seasonal variations that could affect soil behavior over time. High groundwater levels can weaken the soil's stability, while seasonal changes can cause cycles of freezing and thawing that further complicate matters.

Interpreting these reports isn't just about looking at data points; it's about synthesizing this information into actionable insights. It's about ensuring that the design and construction phases are informed by these findings so that appropriate measures are taken to mitigate risks. This might include recommendations for specific types of foundations, such as piles or footings, depending on the soil conditions identified.

In essence, evaluating soil conditions is an integral part of ensuring foundation stability and overall project success. By carefully interpreting these detailed reports from third-party engineers, we can make informed decisions that balance safety, cost-effectiveness, and long-term structural integrity. It's a complex but essential task that underscores the importance of collaboration between various engineering disciplines to achieve robust structural solutions.

Analyzing the cost estimates and budget considerations based on the engineer's recommendations.

When dealing with complex construction or infrastructure projects, it's crucial to interpret detailed reports from third-party engineers accurately. These reports often contain a wealth of information, including technical specifications, risk assessments, and, most importantly, cost estimates and budget considerations. Understanding these financial aspects is vital for ensuring a project's feasibility and success.

Firstly, let's consider the cost estimates provided by engineers. These figures are typically broken down into various categories such as materials, labor, equipment, and contingencies. Each category comes with its own set of challenges; material costs might fluctuate due market conditions, labor costs can vary based on local regulations and skill levels, and equipment costs might be influenced by technological advancements or rental fees. Analyzing these estimates involves not just looking at the numbers but also understanding the context and potential variability behind them. For instance, if an engineer recommends a specific type of steel for structural integrity, it's essential to consider both its current cost and any foreseeable price changes due to market trends or supply chain issues.

Budget considerations go hand in hand with cost estimates but add an extra layer of complexity by factoring in financial constraints and allocation strategies. Engineers often provide recommendations that balance cost efficiency with quality and safety standards. Interpreting these recommendations requires a holistic approach, weighing short-term savings against long-term benefits or risks. For example, opting for cheaper materials might save money initially but could lead to higher maintenance costs down the line, impacting the overall budget negatively over time. Conversely, investing in high-quality materials might seem expensive initially but could offer substantial savings through reduced maintenance needs or enhanced longevity of structures-a critical point highlighted by engineers familiarized deeply within project specifications themselves ensuring optimal resource allocation throughout phases leading towards completion milestones effectively managed under real-world constraints faced during execution stages ensuring timely delivery within stipulated budgetary guidelines outlined during initial planning phase ensuring success metrics aligned goals achieved efficiently managing stakeholder expectations seamlessly integrating engineering insights derived actionable data points driving informed decision making process yielding desired outcomes successfully concluded projects exceeding benchmark performance indicators setting industry standards surpassed expectations delivering exceptional results sustaining long-term value appreciations establishing credibility reliability confidence among stakeholders fostering conducive environment promoting future collaborations leveraging synergistic partnership opportunities maximizing potential benefits derived collective efforts focused achieving common objectives ensuring sustainable development growth trajectory align strategic vision organizational goals societal benefits contributing positively transformative impact shaping future landscape achieving excellence setting precedence unparalleled achievements establishing legacy lasting impacts creating enduring legacies inspired generations fostering innovation driven progress

transformative leadership guiding pathways future prosperity sustainable harmony balanced ecosystem ensuring holistic development inclusive growth equitable society empowered communities flourishing economy thriving environment harmonious coexistence enriching lives meaningful contributions inspiring journeys fulfilling dreams realizing aspirations unlimited potential infinite possibilities boundless horizons endless opportunities limitless potentialities empowering humanity embracing change adapting challenges overcoming obstacles achieving milestones celebrating accomplishments cherishing moments living dreams fulfilling purposes inspiring generations legacy enduring impacts transformative journey enriching lives meaningful contributions embracing humanity sustainable harmony thriving ecosystem balanced development empowered communities flourishing economy prosperous society nurturing environment holistic growth eq

Identifying potential legal implications and compliance requirements highlighted in the report.

When dealing with detailed reports from third-party engineers, it's crucial to go beyond just understanding the technical aspects; it's equally important to identify potential legal implications and compliance requirements. These reports often contain information that can have significant legal and regulatory consequences, making it essential for stakeholders to be well-informed.

Firstly, consider the legal implications of the findings. Engineers' reports might reveal issues such as structural deficiencies, environmental impacts, or safety hazards. These findings could lead to legal liabilities if not addressed promptly. For instance, if a report highlights a building code violation, ignoring it could result in fines, lawsuits, or even criminal charges. It's vital to consult with legal experts to understand the extent of these liabilities and how to mitigate them.

Secondly, compliance requirements are a critical aspect to scrutinize. Engineering projects often need to adhere to various regulations and standards set by local, state, or federal authorities. The report might point out areas where the project deviates from these standards. Ensuring compliance is not just about avoiding penalties; it's also about maintaining the integrity and safety of the project. Compliance might involve obtaining permits, conducting further assessments, or implementing corrective measures.

Moreover, environmental regulations are a significant area of concern. Engineers' reports may include assessments of environmental impact, waste management practices, or energy efficiency. Non-compliance with environmental regulations can lead to severe penalties and damage to reputation. Hence, it's essential to pay close attention to these aspects and ensure that all environmental standards are met or exceeded where possible... Engaging environmental consultants could prove beneficial here...!!!!!..... Additionally stakeholders must ensure compliance requirements related industry specific standards , company policies , contractual obligations , insurance requirements etc....! Think workers safety , project delay implications , additional cost etc....! In essence identifying potential legal implications requires thorough review , expert consultation , ongoing monitoring ...! !!!! .....It demands

proactive approach rather reactive.....!!!!! success lies taking informed decisions balancing technical feasibility , legal aspects , financial impacts....! This holistic approach ensures project integrity remains intact ..!!!! ..Project progress smoothly...!!!!!! Everyone involved benefits ...!!!!!! Client , Contractor , Engineers everybody happy.....!!!! Successful project outcome ....!!!!!! Yay..!!!!!!!!!

Assessing the long-term maintenance and preventive measures suggested by the engineer to avoid future foundation problems.

When it comes to ensuring the longevity and stability of a building, understanding and acting upon the detailed reports provided by third-party engineers is crucial. These reports often contain a wealth of information about the current state of the foundation and recommendations for long-term maintenance and preventive measures. Assessing these suggestions is not just about reading the report; it's about translating technical jargon into actionable steps that can be implemented to safeguard the property against future foundation problems.

Firstly, it's important to recognize that engineers bring a specialized perspective to the table. Their reports are typically filled with technical details about soil conditions,, water drainage patterns,, structural integrity,, and more., To make sense of these details,, it helps to have some basic understanding of foundation mechanics., For instance,, knowing how soil expansion,, hydrostatic pressure,, or settlement can affect foundations gives context,, making it easier,, To interpret their recommendations., This foundational knowledge allows property owners or managers To appreciate why certain measures are suggested., such as installng drainage systems,, reinforcing walls,, or even modifying landscaping., These steps might seem extensive at first glance but each serves specific purpose aimed at preventing significant issues down line., like cracks,, uneven floors,, Or worse - structural failures., which could ultimately compromise building safety., The key here lies In dissectng these recommendations into manageble tasks While also understanding their collective importance In maintaining foundation health over time., It's also vital To consider these suggestions within broader context Of property management., Budget constraints,, timelines,, And potential disruptions should all factor Into decision-making process., Effective communication With engineers can help prioritize measures based On urgency,, impact,, And feasibility., For example,, if engineer suggests installing Root barriers To prevent tree roots From damaging foundations but landscaping Is integral part Of property's aesthetic appeal - finding Balance between aesthetics And practicality becomes essential., Similarly understanding Why regular inspections And monitoring Are recommended Helps allocate resources effectively Over time rather Than dealing With sudden expenses Due To unexpected damages., Ultimately assessng Long-term maintenance And preventive measures Suggested By engineers Requires blend Of technical comprehension strategic planning And pragmatic execution-, Only then Can one Truely utilize Expertise provided In these detailed reports To ensure durable And trouble-free foundation For years To come.- By embracing Proactive approach Based On engineer'S insights Owners Can protect Their investments while Enhancing overall safety And longevity Of Their buildings.- This collaborative Effort ensures That foundations Remain strong supporting structures They

were intended To Be - reliable pillars Underpinning Our homes offices And public spaces alike.- So next time You receive Detailed report From third-party Engineer take moment To delve Into its depth Appreciate expertise Behind words Translate findings Into tangible actions Protect valuable asset That stands Upon solid ground thanks Thoughtful planning Preventive care.- Afterall safe Sturdy foundation Isn'T mere Engineering feat; It'S cornerstone Of enduring Structures where life Memories Take shape.- Assess interpret Act - foundation Will thank You later.-

Making informed decisions based on the comprehensive insights provided by third-party engineers for effective residential foundation repairs

When it comes to addressing residential foundation repairs, making informed decisions is crucial. Homeowners often rely on detailed reports provided by third-party engineers to gain comprehensive insights into the condition of their homes. These reports serve as a vital tool, offering an unbiased and expert perspective that can guide homeowners towards effective solutions.

Third-party engineers bring a wealth of knowledge and experience to the table. Their reports are meticulously prepared, encompassing a thorough evaluation of the foundation's structural integrity, identification of potential issues, and recommendations for remedial actions. By interpreting these detailed reports, homeowners can understand the underlying causes of foundation problems, such as soil settlement, water intrusion, or construction deficiencies.

One of the key advantages of relying on third-party engineers is their independence. Unlike contractors who might have a vested interest in recommending certain repairs, these engineers provide an objective assessment. This impartiality ensures that homeowners receive accurate information and are not swayed by unnecessary or overly expensive recommendations.

When interpreting these reports, it's important to focus on several key areas. Firstly, understanding the severity of any identified issues is paramount. The report will typically classify problems as minor, moderate, or severe, each requiring different levels of intervention. Secondly, homeowners should pay close attention to the suggested repair methods. These might include underpinning, slabjacking, or stabilization techniques, each tailored to address specific types of foundation damage.

Additionally, the reports often include cost estimates and timelines for repairs. This financial and temporal data is invaluable for planning and budgeting purposes. Knowing how much time and money will be required can help homeowners prepare for the repair process and avoid any unexpected surprises.

It's also wise to consider seeking multiple opinions if necessary-comparing reports from different engineers can provide additional clarity and confidence in decision making . Homeowners may also find it beneficial to discuss these reports with contractors who specialize in foundation repairs . This collaborative approach ensures that all aspects are

considered before moving forward with any work . Ultimately , making informed decisions based on comprehensive insights provided by third party engineers leads to effective residential foundation repairs , safeguarding both homeowners investments as well as their peace of mind .

About home inspection

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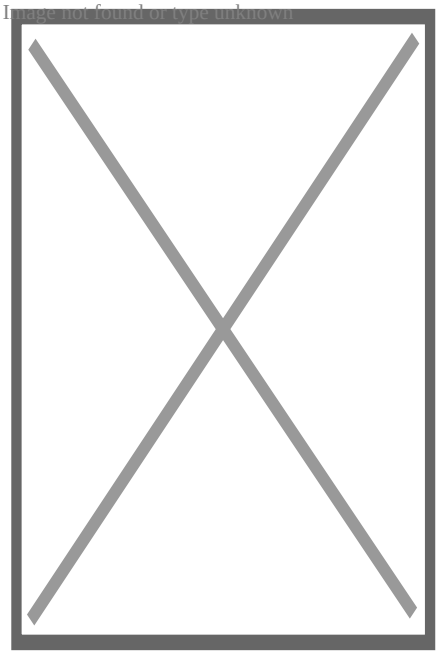

A disaster inspector at work in the United States assessing tornado damage to a house

A **home inspection** is a limited, non-invasive examination of the condition of a home, often in connection with the sale of that home. Home inspections are usually conducted by a **home inspector** who has the training and certifications to perform such inspections. The inspector prepares and delivers to the client a written report of findings. In general, home inspectors recommend that potential purchasers join them during their onsite visits to provide context for the comments in their written reports. The client then uses the knowledge gained to make informed decisions about their pending real estate purchase. The home inspector describes the condition of the home at the time of inspection but does not guarantee future condition, efficiency, or life expectancy of systems or components.

Sometimes confused with a real estate appraiser, a home inspector determines the condition of a structure, whereas an appraiser determines the value of a property. In the United States, although not all states or municipalities regulate home inspectors, there are various professional associations for home inspectors that provide education, training, and networking opportunities. A professional home inspection is an examination of the current condition of a house. It is not an inspection to verify compliance with appropriate codes; building inspection is a term often used for building code compliance inspections in the United States. A similar but more complicated inspection of commercial buildings is a property condition assessment. Home inspections identify problems but building diagnostics identifies

solutions to the found problems and their predicted outcomes. A property inspection is a detailed visual documentation of a property's structures, design, and fixtures. Property Inspection provides a buyer, renter, or other information consumer with valuable insight into the property's conditions prior to purchase. House-hunting can be a difficult task especially when you can't seem to find one that you like. The best way to get things done is to ensure that there is a property inspection before buying a property.

North America

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In Canada and the United States, a contract to purchase a house may include a contingency that the contract is not valid until the buyer, through a home inspector or other agents, has had an opportunity to verify the condition of the property. In many states and provinces, home inspectors are required to be licensed, but in some states, the profession is not regulated. Typical requirements for obtaining a license are the completion of an approved training course and/or a successful examination by the state's licensing board. Several states and provinces also require inspectors to periodically obtain continuing education credits in order to renew their licenses.[*citation needed*] Unless specifically advertised as part of the home inspection, items often needed to satisfy mortgage or tile requirements such as termite ("pest") inspections must be obtained separately from licensed and regulated companies.

In May 2001, Massachusetts became the first state to recognize the potential conflict of interest when real estate agents selling a home also refer or recommend the home inspector to the potential buyer.[*citation needed*] As a result, the real estate licensing law in Massachusetts was amended[1][*non-primary source needed*] to prohibit listing real estate agents from directly referring home inspectors. The law also prohibits listing agents from giving out a "short" name list of inspectors. The only list that can be given out is the complete list of all licensed home inspectors in the state.

In September 2018, the California state legislature passed Senate Bill 721 (SB 721),[2] which requires buildings with specific conditions, such as having exterior elevated structures, to undergo inspections by licensed professionals. These inspections must be conducted by qualified individuals, such as structural engineering firms,[3] and a detailed report must be issued. Failure to comply with these requirements can result in penalties for property owners.

Ancillary services such as inspections for wood destroying insects, radon testing, septic tank inspections, water quality, mold, (or excessive moisture which may lead to mold), and private well inspections are sometimes part of home inspector's services if duly qualified.

In many provinces and states, home inspection standards are developed and enforced by professional associations, such as, worldwide, the International Association of Certified Home Inspectors (InterNACHI); in the United States, the American Society of Home Inspectors (ASHI), and the National Association of Home Inspectors (NAHI)(No Longer active 10/2017);

and, in Canada, the Canadian Association of Home and Property Inspectors (CAHPI), the Professional Home & Property Inspectors of Canada (PHPIC) and the National Home Inspector Certification Council (NHICC).

Currently, more than thirty U.S. states regulate the home inspection industry in some form.

Canada saw a deviation from this model when in 2016 an association-independent home inspection standard was completed. This was developed in partnership with industry professionals, consumer advocates, and technical experts, by the Canadian Standards Association. The CAN/CSA A770-16 Home Inspection Standard was funded by three provincial governments with the intent to be the unifying standard for home inspections carried out within Canada. It is the only home inspection standard that has been endorsed by the Standards Council of Canada.

In Canada, there are provincial associations which focus on provincial differences that affect their members and consumers. Ontario has the largest population of home inspectors which was estimated in 2013 as part of a government survey at being around 1500.[4]

To date, Ontario Association of Certified Home Inspectors is the only association which has mandated that its members migrate to the CAN/CSA A770-16 Home Inspection Standard, with a date of migration set as February 28, 2020. Other national and provincial associations have set it as an option to be added to other supported standards.

In Canada, only Alberta and British Columbia have implemented government regulation for the home inspection profession. The province of Ontario has proceeded through the process, with the passage of regulatory procedure culminating in the Home Inspection Act, 2017 to license Home Inspectors in that province. It has received royal assent but is still awaiting the development of regulations and proclamation to become law.

In Ontario, there are two provincial Associations, OAHI (the Ontario Association of Home Inspectors) and OntarioACHI (the Ontario Association of Certified Home Inspectors). Both claim to be the largest association in the province. OAHI, formed by a private member's Bill in the Provincial Assembly, has the right in law to award the R.H.I. (Registered Home Inspector) designation to anyone on its membership register. The R.H.I. designation, however, is a reserved designation, overseen by OAHI under the Ontario Association of Home Inspectors Act, 1994. This Act allows OAHI to award members who have passed and maintained strict criteria set out in their membership bylaws and who operate within Ontario. Similarly, OntarioACHI requires equally high standards for the award of their certification, the Canadian-Certified Home Inspector (CCHI) designation. To confuse things, Canadian Association of Home and Property Inspectors (CAHPI) own the copyright to the terms Registered Home Inspector and RHI. Outside of Ontario, OAHI Members cannot use the terms without being qualified by CAHPI.

The proclamation of the Home Inspection Act, 2017, requires the dissolution of the Ontario Association of Home Inspectors Act, 1994, which will remove the right to title in Ontario of the RHI at the same time removing consumer confusion about the criteria for its award across Canada.

United Kingdom

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A home inspector in the United Kingdom (or more precisely in England and Wales), was an inspector certified to carry out the Home Condition Reports that it was originally anticipated would be included in the Home Information Pack.

Home inspectors were required to complete the ABBE Diploma in Home Inspection to show they met the standards set out for NVQ/VRQ competency-based assessment (Level 4). The government had suggested that between 7,500 and 8,000 qualified and licensed home inspectors would be needed to meet the annual demand of nearly 2,000,000 Home Information Packs. In the event, many more than this entered training, resulting in a massive oversupply of potential inspectors.

With the cancellation of Home Information Packs by the coalition Government in 2010, the role of the home inspector in the United Kingdom became permanently redundant.

Inspections of the home, as part of a real estate transaction, are still generally carried out in the UK in the same manner as they had been for years before the Home Condition Report process. Home Inspections are more detailed than those currently offered in North America. They are generally performed by a chartered member of the Royal Institution of Chartered Surveyors.

India

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The concept of home inspection in India is in its infancy. There has been a proliferation of companies that have started offering the service, predominantly in Tier-1 cities such as Bangalore, Chennai, Kolkata, Pune, Mumbai, etc. To help bring about a broader understanding among the general public and market the concept, a few home inspection companies have come together and formed the Home Inspection Association of India.[5]

After RERA came into effect, the efficacy and potency of home inspection companies has increased tremendously. The majority of homeowners and potential home buyers do not know what home inspection is or that such a service exists.

The way that home inspection is different in India[6] than in North America or United Kingdom is the lack of a government authorised licensing authority. Apart from the fact that houses in India are predominantly built with kiln baked bricks, concrete blocks or even just concrete walls (predominantly in high rise apartments) this means the tests conducted are vastly different. Most home inspection companies conduct non-destructive testing of the property, in some cases based on customer requirement, tests that require core-cutting are also performed.

The majority of homeowners are not aware of the concept of home inspection in India. The other issue is that the balance of power is highly tilted toward the builder; this means the home buyers are stepping on their proverbial toes, because in most cases, the home is the single most expensive purchase in their lifetime, and the homeowners do not want to come across as antagonising the builders.

Home inspection standards and exclusions

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Some home inspectors and home inspection regulatory bodies maintain various standards related to the trade. Some inspection companies offer 90-day limited warranties to protect clients from unexpected mechanical and structural failures; otherwise, inspectors are not responsible for future failures.[a] A general inspection standard for buildings other than residential homes can be found at the National Academy of Building Inspection Engineers.

Many inspectors may also offer ancillary services such as inspecting pools, sprinkler systems, checking radon levels, and inspecting for wood-destroying organisms. The CAN/CSA-A770-16 standard allows this (in-fact it demands swimming pool safety inspections as a requirement) and also mandates that the inspector be properly qualified to offer these. Other standards are silent on this.

Types of inspections

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Home buyers and home sellers inspections

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Home inspections are often used by prospective purchasers of the house in question, in order to evaluate the condition of the house prior to the purchase. Similarly, a home seller can elect to have an inspection on their property and report the results of that inspection to the prospective buyer.

Foreclosure inspection

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Recently foreclosed properties may require home inspections.

Four point inspection

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An inspection of the house's roof, HVAC, and electrical and plumbing systems is often known as a "four-point inspection", which insurance companies may require as a condition for homeowner's insurance.

Disaster inspection

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Home inspections may occur after a disaster has struck the house. A disaster examination, unlike a standard house inspection, concentrates on damage rather than the quality of everything visible and accessible from the roof to the basement.

Inspectors go to people's homes or work places who have asked for FEMA disaster aid.

Section 8 inspection

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In the United States, the federal and state governments provide housing subsidies to low-income people through the Section 8 program. The government expects that the housing will be "fit for habitation" so a Section 8 inspection identifies compliance with HUD's Housing Quality Standards (HQS).

Pre-delivery inspection

[edit]
See also: Pre-delivery inspection

An inspection may occur in a purchased house prior to the deal's closure, in what is known as a "pre-delivery" inspection.

Structural inspection

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The house's structure may also be inspected. When performing a structural inspection, the inspector will look for a variety of distress indications that may result in repair or further evaluation recommendations.

In the state of New York, only a licensed professional engineer or a registered architect can render professional opinions as to the sufficiency structural elements of a home or building.[11] Municipal building officials can also make this determination, but they are not performing home inspections at the time they are rendering this opinion. Municipal officials are also not required to look out for the best interest of the buyer. Some other states may have similar provisions in their licensing laws. Someone who is not a licensed professional engineer or a registered architect can describe the condition of structural elements (cracked framing, sagged beams/roof, severe rot or insect damage, etc.), but are not permitted to render a professional opinion as to how the condition has affected the structural soundness of the building.

Various systems of the house, including plumbing and HVAC, may also be inspected.[12]

Thermal imaging Inspection

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A thermal imaging inspection using an infrared camera can provide inspectors with information on home energy loss, heat gain/loss through the exterior walls and roof, moisture leaks, and improper electrical system conditions that are typically not visible to the naked eye. Thermal imaging is not considered part of a General Home Inspection because it exceeds the

scope of inspection Standards of Practice.

Pool and spa inspection

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Inspection of swimming pools and spas is not considered part of a General Home Inspection because their inspection exceeds the scope of inspection Standards of Practice. However, some home inspectors are also certified to inspect pools and spas and offer this as an ancillary service.[13]

Tree health inspection

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Inspection of trees on the property is not considered part of a General Home Inspection because their inspection exceeds the scope of inspection Standards of Practice. This type of inspection is typically performed by a Certified Arborist and assesses the safety and condition of the trees on a property before the sales agreement is executed.[14]

Property inspection report for immigration

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The UKVI (United Kingdom Visa and Immigration) issued guidance on the necessity of ensuring that properties must meet guidelines so that visa applicants can be housed in properties which meet environmental and health standards. Part X of the Housing Act 1985 provides the legislative grounding for the reports - primarily to ensure that a property is not currently overcrowded, that the inclusion of further individuals as a result of successful visa applications - whether spouse visa, dependent visa, indefinite leave to remain or visitor visa, can house the applicants without the property becoming overcrowded. Reports are typically prepared by environmental assessors or qualified solicitors in accordance with HHSRS (Housing Health and Safety Rating Scheme). Property inspection reports are typically standard and breakdown the legal requirements.

Pre-Listing Home Inspection

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A pre-listing inspection focuses on all major systems and components of the house including HVAC, electrical, plumbing, siding, doors, windows, roof and structure. It's a full home inspection for the seller to better understand the condition of their home prior to the buyer's own inspection.

See also

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- List of real estate topics
- Real estate appraisal

Notes

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1. **^** A general list of exclusions include but are not limited to: code or zoning violations, permit research, property measurements or surveys, boundaries, easements or right of way, conditions of title, proximity to environmental hazards, noise interference, soil or geological conditions, well water systems or water quality, underground sewer lines, waste disposal systems, buried piping, cisterns, underground water tanks and sprinkler systems. A complete list of standards and procedures for home inspections can be found at NAHI,[7] ASHI,[8] InterNACHI,[9] or IHINA[10] websites.

References

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1. **^** *"General Laws: CHAPTER 112, Section 87YY1/2". Malegislature.gov. Archived from the original on 2012-04-27. Retrieved 2012-05-29.*
2. **^** *"SB 721- CHAPTERED". leginfo.legislature.ca.gov. Retrieved 2025-02-13.*
3. **^** *"SB721 Inspection California | DRBalcony". 2024-09-12. Retrieved 2025-02-13.*
4. **^** http://www.ontariocanada.com/registry/showAttachment.do?postingId=14645&attachmentId=22 Archived 2017-06-27 at the Wayback Machine [*bare URL PDF*]
5. **^** *"Home Inspection Association of India". Archived from the original on 2019-09-07. Retrieved 2019-08-30.*

6. ^ *"End-to-End Expert Property Inspection Services". Archived from the original on 2022-08-26. Retrieved 2022-08-26.*
7. ^ *"NAHI". Archived from the original on 1998-01-29. Retrieved 2011-02-05.*
8. ^ *"ASHI". Archived from the original on 2008-05-09. Retrieved 2009-12-11.*
9. ^ *"InterNACHI". Archived from the original on 2010-08-30. Retrieved 2010-08-27.*
10. ^ *"IHINA". Archived from the original on 2012-01-07. Retrieved 2012-02-09.*
11. ^ *"NYS Professional Engineering & Land Surveying:Laws, Rules & Regulations:Article 145". www.op.nysed.gov. Archived from the original on 2018-02-27. Retrieved 2018-04-04.*
12. ^ *"Material Defects & Useful Remaining Life of Home Systems". Archived from the original on 2019-02-02. Retrieved 2019-02-01.*
13. ^ *"InterNACHI's Standards of Practice for Inspecting Pools & Spas - InterNACHI". www.nachi.org. Archived from the original on 2019-03-21. Retrieved 2019-04-09.*
14. ^ *"Property Inspection Report | From £80". Property Inspection Report - Immigration & Visa. Archived from the original on 2022-05-19. Retrieved 2022-05-12.*

About structural failure

Redirect to:

- Structural integrity and failure

This page is a redirect. The following categories are used to track and monitor this redirect:

- **From a subtopic**: This is a redirect from a subtopic of the target article or section.
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  - For redirects with substantive page histories that *did not result from page merges* use R with history instead.

When appropriate, protection levels are automatically sensed, described and categorized.

About radon mitigation

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Radon mitigation is any process used to reduce radon gas concentrations in the breathing zones of occupied buildings, or radon from water supplies. Radon is a significant contributor to environmental radioactivity and indoor air pollution. Exposure to radon can cause serious health problems such as lung cancer.[1]

Mitigation of radon in the air by active soil depressurization is most effective. Concrete slabs, sub-floors, and/or crawlspaces are sealed, an air pathway is then created to exhaust radon above the roof-line, and a radon mitigation fan is installed to run permanently. In particularly troublesome dwellings, air exchangers can be used to reduce indoor radon concentrations. Treatment systems using aeration or activated charcoal are available to remove radon from domestic water supplies. There is no proven link between radon in water and gastrointestinal cancers; however, extremely high radon concentrations in water can be aerosolized by faucets and shower heads and contribute to high indoor radon levels in the air.

Testing

[edit]

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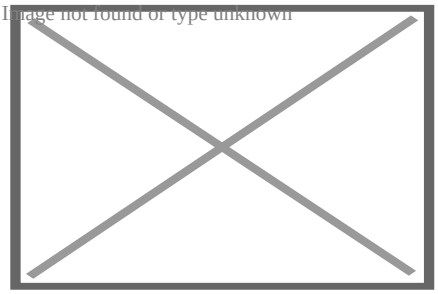

A typical radon test kit

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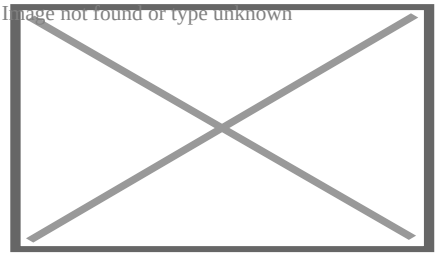

Fluctuation of ambient air radon concentration over one week, measured in a laboratory

The first step in mitigation is testing. No level of radiation is considered completely safe, but as it cannot be eliminated, governments around the world have set various *action levels* to provide guidance on when radon concentrations should be reduced. The World Health Organization's International Radon Project has recommended an action level of 100 Bq/m^3 (2.7 pCi/L) for radon in the air.[2] Radon in the air is considered to be a larger health threat than radon in domestic water. The US Environmental Protection Agency recommendation is to not test for radon in water unless a radon in air test shows concentrations above the action level. However, in some U.S. states such as Maine where radon levels are higher than the national average, it is recommend that all well water should be tested for radon. The U.S. government has not set an action level for radon in water.

Air-radon levels fluctuate naturally on a daily and seasonal basis. A short term test (90 days or less) might not be an accurate assessment of a home's average radon level, but is recommended for initial testing to quickly determine unhealthy conditions. Transient weather such as wind and changes in barometric pressure can affect short-term concentrations as well as ventilation, such as open windows and the operation of exhaust fans.

Testing for radon in the air is accomplished using passive or active devices placed in the building. Some devices are promptly sent to a laboratory for analysis, others calculate the results on-site including digital Radon detectors. Radon-in-water testing requires a water sample being sent to a laboratory.

Retesting is recommended in several situations, for example, before spending money on the installation of a mitigation system. Test results which exceed accuracy tolerances also require re-testing. When a mitigation system installation is warranted, a retest after the system is functional is advised to be sure the system is effectively reducing the radon concentration

below the action level, and after any mitigation system repairs such as replacing a fan unit. The US EPA recommends retesting homes with radon problems every two years to ensure proper system function. Due to the vast fluctuation in indoor radon levels, the EPA recommends all homes be tested at least once every five years.[3]

Testing in the United States

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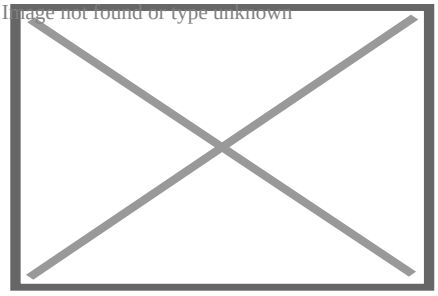

Radon map of the United States

ASTM E-2121 is a US standard for reducing airborne radon in homes as far as practicable below the action level of 4 picocuries per liter (pCi/L) (148 Bq/m^3).[4][5] Some states recommend achieving 2.0 pCi/L or less.

Radon test kits are commercially available[6] and can be used by homeowners and tenants and in limited cases by landlords, except when a property is for sale.

Commercially available test kits include a passive collector that the user places in the lowest livable floor of the house for 2 to 7 days. The user then sends the collector to a laboratory for analysis. Long-term kits, taking collections from 91 days to one year, are also available. Open land test kits can test radon emissions from the land before construction begins, but are not recommended by the EPA because they do not accurately predict the final indoor radon level. The EPA and the National Environmental Health Association have identified 15 types of radon test devices.[7] A Lucas cell is one type of device.

Retesting is specifically recommended in several situations. Measurements between 4 and 10 pCi/L (148 and 370 Bq/m^3) warrant a follow-up short-term or long-term radon test before mitigation. Measurements over 10 pCi/L (370 Bq/m^3) warrant only another short-term test (not a long-term test) so that abatement measures are not unduly delayed.

Progress has been made regarding radon in the home. A total of 37 states have now[*when?*] passed legislation requiring home-sellers to disclose known radon levels before completing the transaction (although only a handful have introduced criminal penalties for misrepresentation).[8] And over half the legislatures have written radon into their state's

building code.[9] Purchasers of real estate may delay or decline a purchase if the seller has not successfully abated radon to less than 4 pCi/L.

The accuracy of the residential radon test depends upon whether closed house conditions are maintained. Thus the occupants will be instructed not to open windows, etc., for ventilation during the pendency of test, usually two days or more. However, the occupants, if the present owners, will be motivated to pass the test and insure the sale, so they might be tempted to open a window to get a lower radon score. Moreover, there may be children or immature teens or young adults in the house who will open a window for ventilation notwithstanding instructions not to do so, particularly in uncomfortably hot weather. Accordingly, whether the potential purchaser should trust the result of such a test is problematic.

Management of radon service provider certification has evolved since being introduced by the EPA in 1986. In the 1990s this service was "privatized" and the National Environmental Health Association (NEHA) helped transition the voluntary National Radon Proficiency Program (NRPP) to be administered by private firms. As of 2012, the NRPP is administered by the American Association of Radon Scientists and Technologists (AARST).[10]

Some states, such as Maine, require landlords to test their rental properties and turn the results in to the state. In limited cases the landlord or tenants may do the testing themselves. The rules in each state vary. In many cases there are private contractors that will inspect hired by the city.

Testing in Canada

[edit]

Health Canada recommends regular annual testing, either by hiring a qualified tester or by using a home-testing kit that should be checked quarterly.[11]

Canadian Government, in conjunction with the territories and provinces, developed the guideline[12] to indicate when remedial action should be taken was originally set at 800 Bq/m^3 (becquerels per cubic meter) and since reduced to 200 Bq/m^3. This new guideline was approved by the Federal Provincial Territorial Radiation Protection Committee in October 2006.[13]

Testing in the UK

[edit]

Radon testing in the UK is managed by UKradon and the UKHSA.[14]

Testing in Norway

[edit]

The Norwegian Radiation and Nuclear Safety Authority (DSA) developed the protocol[15] for radon measurements in residential dwellings[16] with respect to rental accommodation, which is governed by The Radiation Protection Regulations.[17]

Methods of radon gas mitigation

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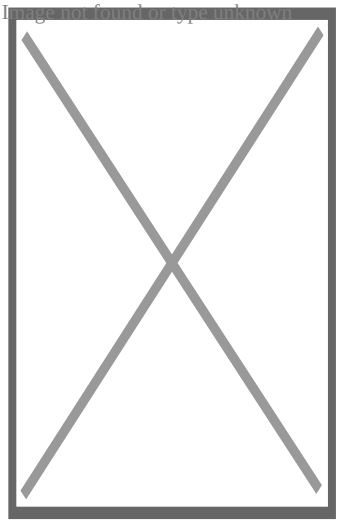


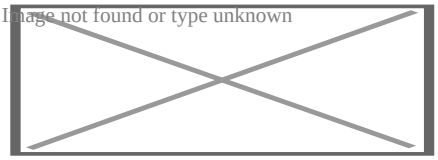
Part of a radon mitigation system including the fan and vent pipe is visible near the gutter downspout.

Because high levels of radon have been found in every state of the United States,[18] testing for radon and installing radon mitigation systems has become a specialized industry since the 1980s. Many states have implemented programs that affect home buying and awareness in the real estate community; however, radon testing and mitigation systems are not generally mandatory unless specified by the local jurisdiction.[19]

Anticipated high radon levels can be mitigated during building design and construction by a combination of ensuring a perfectly sealed foundation, allowing sufficient passive dispersal of under-slab gas around rather than through the building, and proper building ventilation. In many instances, such approaches may achieve a sufficient reduction of radon levels

compared to other buildings where such approaches were not taken. However, quality of implementation is crucial and testing after construction is necessary. For instance, even a small gap in the sealing of the slab may be sufficient for excessive quantities of radon to enter, given pressure differentials.

Where such approaches were not taken during construction or have proven insufficiently effective, remediation is needed. According to the EPA's "A Citizen's Guide to Radon",[20] the method to reduce radon "primarily used is a vent pipe system and fan, which pulls radon from beneath the house and vents it to the outside", which is also called sub-slab depressurization, soil suction, or active soil depressurization (ASD). Generally indoor radon can be mitigated by sub-slab depressurization and exhausting such radon-laden air to the outdoors, away from windows and other building openings.[21] "EPA generally recommends methods which prevent the entry of radon. Soil suction, for example, prevents radon from entering your home by drawing the radon from below the home and venting it through a pipe, or pipes, to the air above the home where it is quickly diluted" and "EPA does not recommend the use of sealing alone to reduce radon because, by itself, sealing has not been shown to lower radon levels significantly or consistently" according to the EPA's "Consumer's Guide to Radon Reduction: How to Fix Your Home".[22] Ventilation systems can utilize a heat exchanger or energy recovery ventilator to recover part of the energy otherwise lost in the process of exchanging air with the outside. For crawlspaces, the EPA states,[22] "An effective method to reduce radon levels in crawlspace homes involves covering the earth floor with a high-density plastic sheet. A vent pipe and fan are used to draw the radon from under the sheet and vent it to the outdoors. This form of soil suction is called submembrane suction, and when properly applied is the most effective way to reduce radon levels in crawlspace homes."



High radon levels in a Minnesota (USA) basement with a passive under slab vent pipe system can be seen in the left half of the graph. After installation of a radon fan (ASD), a permanent reduction in radon levels to approximately 0.6 pCi/L can be seen in the right half of the graph.

- The most common approach is active soil depressurization (ASD). Experience has shown that ASD is applicable to most buildings since radon usually enters from the soil and rock underneath and mechanical ventilation is used when the indoor radon is emitted from the building materials. A less common approach works efficiently by reducing air pressures within cavities of exterior and demising walls where radon emitting from building materials, most often concrete blocks, collects.
- Above slab air pressure differential barrier technology (ASAPDB) requires that the interior pressure envelope, most often drywall, as well as all ductwork for air conditioning systems, be made as airtight as possible. A small blower, often no more than 15 cubic

feet per minute (0.7 L/s) may then extract the radon-laden air from these cavities and exhaust it to the out of doors. With well-sealed HVAC ducts, very small negative pressures, perhaps as little as 0.5 pascal (0.00007 psi), will prevent the entry of highly radon-laden wall cavity air from entering into the breathing zone. Such ASAPDB technology is often the best radon mitigation choice for high-rise condominiums as it does not increase indoor humidity loads in hot humid climates, and it can also work well to prevent mold growth in exterior walls in heating climates.

- In hot, humid climates, heat recovery ventilators (HRV) as well as energy recovery ventilators (ERV) have a record of increasing indoor relative humidity and dehumidification demands on air conditioning systems. Mold problems can occur in homes that have been radon mitigated with HRV and ERV installations in hot, humid climates.[*citation needed*] HRVs and ERVs have an excellent record in cold dry climates.
- A recent technology is based on building science. It includes a variable rate mechanical ventilation system that prevents indoor relative humidity from rising above a preset level such as 50% which is currently suggested by the US Environmental Protection Agency and others as an upper limit for the prevention of mold. It has proven to be especially effective in hot, humid climates. It controls the air delivery rate so that the air conditioner is never overloaded with more moisture than it can effectively remove from the indoor air.
    - It is generally assumed that air conditioner operation will remove excess moisture from the air in the breathing zone, but it is important to note that just because the air conditioner cools does not mean that it is also dehumidfying. If ?*t* is 14 degrees or less, it may not dehumidify at all even though it is cooling.
    - Factors that are likely to aggravate indoor humidity problems from mechanical ventilation–based radon installations are as follows and an expert radon mitigator/building scientist will check for and correct any and all of the following when he or she performs radon mitigation procedures:
        - Air conditioner duct leaks located outside the breathing zone, such as in the attic.
        - Excessive exhaust fan operation
        - Oversize or over-capacity air conditioners
        - AC air handler fans that do not stop running when the air conditioner compressor stops running.
        - Delta *t* (?*t*), which is the amount that the air is cooled as it is passed through the air conditioner's cooling coils. A good ?*t* performance figure for home air conditioners is about 20 °F (11 °C). In comparison, automobile air conditioners deliver ?*t* performance of 32 to 38 °F (18 to 21 °C). A ?*t* of 14 °F (8 °C) will dehumidify poorly if at all.

In South Florida, most radon mitigation is performed by use of fixed rate mechanical ventilation. Radon mitigation training in Florida does not include problems associated with mechanical ventilation systems, such as high indoor humidity, mold, moldy odors, property

damage or health consequences of human occupation in high humidity of moldy environments[*citation needed*]. As a result, most Florida radon mitigators are unaware of and do not incorporate existing building science moisture management technology into mechanical ventilation radon installations. Home inspectors may not necessarily be aware of the mold risks associated with radon mitigation by mechanical ventilation.

The average cost for an ASD radon mitigation system in Minnesota is $1500.[23] These costs are very dependent on the type of home and age of construction.[24]

Methods of radon-in-water mitigation

[edit]

Radon removal from water supplies may be at a treatment plant, point of entry, or point of use. Public water supplies in the United States were required to treat for radionuclides beginning in 2003 but private wells are not regulated by the federal government as of 2014. The radon can be captured by granular activated charcoal (GAR) or released into the air through aeration of the water. Radon will naturally dissipate from water over a period of days, but the quantity of storage needed to treat the water in this manner makes home systems of this type impracticably large.[25]

Activated carbon systems capture radon from the water. The amount of radiation accumulates over time and the filter material may reach the level of requiring disposal as a radioactive waste. However, in the United States there are no regulations concerning radiation levels and disposal of radon treatment waste as of 2014.

Aeration systems move the radon from the water to the air. Radon gas discharged into the air is the release of a pollutant, and may become regulated in the United States.

References

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1. **^** *Nunnally, Diamond (2022-03-30). "Dangerous radon gas dangers and detection tips". WBMA. Retrieved 2022-04-10.*
2. **^** *WHO Handbook on Indoor Radon: A Public Health Perspective. World Health Organization. 2009.*
3. **^** *US EPA, OAR (2013-08-27). "Radon". www.epa.gov. Retrieved 2023-02-04.*
4. **^** *"Recommended Residential Radon Mitigation Standard of Practice". United States Environmental Protection Agency. Archived from the original on 2008-01-16. Retrieved 2008-02-02.*
5. **^** *"ASTM E2121-03 Standard Practice for Installing Radon Mitigation Systems in Existing Low-Rise Residential Buildings". ASTM International. Retrieved 2008-02-02.*

6. **^** *"Commercially Available Radon Kits". Alpha Energy Labs. Archived from the original on 2012-07-12. Retrieved 2012-04-19.*
7. **^** *"Radon Measurement Method Definitions". The National Environmental Health Association—National Radon Proficiency Program. Archived from the original on 2007-12-24. Retrieved 2008-02-02.*
8. **^** *"State Radon Laws". lawatlas.org. Retrieved 2021-07-12.*
9. **^** *"National Conference of State Legislatures (NCSL) - Radon".*
10. **^** *"National Radon Proficiency Program - NEHA and NEHA-NRPP History". Nrpp.info. Retrieved 2015-03-30.*
11. **^** *"Home radon testing important for health". lethbridgeherald.com. 18 March 2022. Retrieved 2022-04-10.*
12. **^** *"Radon Gas | Vancouver, BC, Canada". Radoncontrol.ca. Retrieved 2015-03-30.*
13. **^** *"Radon Frequently Asked Questions - Health Canada". Hc-sc.gc.ca. 2014-07-30. Retrieved 2015-03-30.*
14. **^** *"UKradon - Home". www.ukradon.org.*
15. **^** *"Radon measurements in residential dwellings".*
16. **^** *"Radon boliger 2013" (PDF).*
17. **^** *"Legislation".*
18. **^** *"Radon: Myth vs Fact". Radon-Rid/EPA. Retrieved 2009-11-13.*
19. **^** *"Listing of States and Jurisdictions with RRNC Codes". EPA. Retrieved 2009-11-13.*
20. **^** *"A Citizen's Guide to Radon" (PDF). EPA. Retrieved 2024-12-27.*
21. **^** *"Radon Mitigation Methods". Radon Solution. Archived from the original on 2008-12-15. Retrieved 2008-12-02.*
22. ^ ***a b*** *"Consumer's Guide to Radon Reduction: How to Fix Your Home" (PDF). EPA.*
23. **^** *"Radon Mitigation System - EH: Minnesota Department of Health". Health.state.mn.us. 2014-12-10. Retrieved 2019-03-26.*
24. **^** *"Featured Radon Mitigation System Archives". Radonreductioninc.com. Retrieved 2015-03-30.*
25. **^** *""Radon in Drinking Water Health Risk Reduction and Cost Analysis: Notice"" (PDF). Federal Register. **64**. February 26, 1999. Retrieved 2015-03-30.*

External links

[edit]

- Radon at the United States Environmental Protection Agency
- National Radon Program Services hosted by Kansas State University
- Radon and Lung Health from the American Lung Association
- It's Your Health - Health Canada
- Radon's impact on your health – Quebec Lung Association

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Radiation protection

Main articles	○ Background radiation ○ Dosimetry ○ Health physics ○ Ionizing radiation ○ Internal dosimetry ○ Radioactive contamination ○ Radioactive sources ○ Radiobiology
Measurement quantities and units	○ Absorbed dose ○ Becquerel ○ Committed dose ○ Computed tomography dose index ○ Counts per minute ○ Effective dose ○ Equivalent dose ○ Gray ○ Mean glandular dose ○ Monitor unit ○ Rad ○ Roentgen ○ Rem ○ Sievert
Instruments and measurement techniques	○ Airborne radioactive particulate monitoring ○ Dosimeter ○ Geiger counter ○ Ion chamber ○ Scintillation counter ○ Proportional counter ○ Radiation monitoring ○ Semiconductor detector ○ Survey meter ○ Whole-body counting

Protection techniques	○ Lead shielding ○ Glovebox ○ Potassium iodide ○ Radon mitigation ○ Respirators
Organisations	○ Euratom ○ HPS (USA) ○ IAEA ○ ICRU ○ ICRP ○ IRPA ○ SRP (UK) ○ UNSCEAR
Regulation	○ IRR (UK) ○ NRC (USA) ○ ONR (UK) ○ Radiation Protection Convention, 1960
Radiation effects	○ Acute radiation syndrome ○ Radiation-induced cancer

See also the categories Medical physics, Radiation effects, Radioactivity, Radiobiology, and Radiation protection

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Heating, ventilation, and air conditioning

Fundamental concepts	○ Air changes per hour (ACH) ○ Bake-out ○ Building envelope ○ Convection ○ Dilution ○ Domestic energy consumption ○ Enthalpy ○ Fluid dynamics ○ Gas compressor ○ Heat pump and refrigeration cycle ○ Heat transfer ○ Humidity ○ Infiltration ○ Latent heat ○ Noise control ○ Outgassing ○ Particulates ○ Psychrometrics ○ Sensible heat ○ Stack effect ○ Thermal comfort ○ Thermal destratification ○ Thermal mass ○ Thermodynamics ○ Vapour pressure of water

Technology

- Absorption-compression heat pump
- Absorption refrigerator
- Air barrier
- Air conditioning
- Antifreeze
- Automobile air conditioning
- Autonomous building
- Building insulation materials
- Central heating
- Central solar heating
- Chilled beam
- Chilled water
- Constant air volume (CAV)
- Coolant
- Cross ventilation
- Dedicated outdoor air system (DOAS)
- Deep water source cooling
- Demand controlled ventilation (DCV)
- Displacement ventilation
- District cooling
- District heating
- Electric heating
- Energy recovery ventilation (ERV)
- Firestop
- Forced-air
- Forced-air gas
- Free cooling
- Heat recovery ventilation (HRV)
- Hybrid heat
- Hydronics
- Ice storage air conditioning
- Kitchen ventilation
- Mixed-mode ventilation
- Microgeneration
- Passive cooling
- Passive daytime radiative cooling
- Passive house
- Passive ventilation
- Radiant heating and cooling
- Radiant cooling
- Radiant heating
- Radon mitigation
- Refrigeration
- Renewable heat
- Room air distribution
- Solar air heat
- Solar combisystem

- Air conditioner inverter
- Air door
- Air filter
- Air handler
- Air ionizer
- Air-mixing plenum
- Air purifier
- Air source heat pump
- Attic fan
- Automatic balancing valve
- Back boiler
- Barrier pipe
- Blast damper
- Boiler
- Centrifugal fan
- Ceramic heater
- Chiller
- Condensate pump
- Condenser
- Condensing boiler
- Convection heater
- Compressor
- Cooling tower
- Damper
- Dehumidifier
- Duct
- Economizer
- Electrostatic precipitator
- Evaporative cooler
- Evaporator
- Exhaust hood
- Expansion tank
- Fan
- Fan coil unit
- Fan filter unit
- Fan heater
- Fire damper
- Fireplace
- Fireplace insert
- Freeze stat
- Flue
- Freon
- Fume hood
- Furnace
- Gas compressor
- Gas heater
- Gasoline heater

Measurement and control	○ Air flow meter ○ Aquastat ○ BACnet ○ Blower door ○ Building automation ○ Carbon dioxide sensor ○ Clean air delivery rate (CADR) ○ Control valve ○ Gas detector ○ Home energy monitor ○ Humidistat ○ HVAC control system ○ Infrared thermometer ○ Intelligent buildings ○ LonWorks ○ Minimum efficiency reporting value (MERV) ○ Normal temperature and pressure (NTP) ○ OpenTherm ○ Programmable communicating thermostat ○ Programmable thermostat ○ Psychrometrics ○ Room temperature ○ Smart thermostat ○ Standard temperature and pressure (STP) ○ Thermographic camera ○ Thermostat ○ Thermostatic radiator valve

Professions, trades, and services	○ Architectural acoustics ○ Architectural engineering ○ Architectural technologist ○ Building services engineering ○ Building information modeling (BIM) ○ Deep energy retrofit ○ Duct cleaning ○ Duct leakage testing ○ Environmental engineering ○ Hydronic balancing ○ Kitchen exhaust cleaning ○ Mechanical engineering ○ Mechanical, electrical, and plumbing ○ Mold growth, assessment, and remediation ○ Refrigerant reclamation ○ Testing, adjusting, balancing
Industry organizations	○ AHRI ○ AMCA ○ ASHRAE ○ ASTM International ○ BRE ○ BSRIA ○ CIBSE ○ Institute of Refrigeration ○ IIR ○ LEED ○ SMACNA ○ UMC
Health and safety	○ Indoor air quality (IAQ) ○ Passive smoking ○ Sick building syndrome (SBS) ○ Volatile organic compound (VOC)

See also

- ASHRAE Handbook
- Building science
- Fireproofing
- Glossary of HVAC terms
- Warm Spaces
- World Refrigeration Day
- Template:Fire protection
- Template:Home automation
- Template:Solar energy

About Cook County

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Things To Do in Cook County

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Sand Ridge Nature Center

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River Trail Nature Center

4.6 (235)

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Palmisano (Henry) Park

4.7 (1262)

Driving Directions in Cook County

Driving Directions From Palmisano (Henry) Park to

Driving Directions From Lake Katherine Nature Center and Botanic Gardens to

Driving Directions From Navy Pier to

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Reviews for

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Jeffery James

(5)

Very happy with my experience. They were prompt and followed through, and very helpful in fixing the crack in my foundation.

Image not found or type unknown

Sarah McNeily

(5)

USS was excellent. They are honest, straightforward, trustworthy, and conscientious. They thoughtfully removed the flowers and flower bulbs to dig where they needed in the yard, replanted said flowers and spread the extra dirt to fill in an area of the yard. We've had other services from different companies and our yard was really a mess after. They kept

the job site meticulously clean. The crew was on time and friendly. I'd recommend them any day! Thanks to Jessie and crew.

Image not found or type unknown

Jim de Leon

(5)

It was a pleasure to work with Rick and his crew. From the beginning, Rick listened to my concerns and what I wished to accomplish. Out of the 6 contractors that quoted the project, Rick seemed the MOST willing to accommodate my wishes. His pricing was definitely more than fair as well. I had 10 push piers installed to stabilize and lift an addition of my house. The project commenced at the date that Rick had disclosed initially and it was completed within the same time period expected (based on Rick's original assessment). The crew was well informed, courteous, and hard working. They were not loud (even while equipment was being utilized) and were well spoken. My neighbors were very impressed on how polite they were when they entered / exited my property (saying hello or good morning each day when they crossed paths). You can tell they care about the customer concerns. They ensured that the property would be put back as clean as possible by placing MANY sheets of plywood down prior to excavating. They compacted the dirt back in the holes extremely well to avoid large stock piles of soils. All the while, the main office was calling me to discuss updates and expectations of completion. They provided waivers of lien, certificates of insurance, properly acquired permits, and JULIE locates. From a construction background, I can tell you that I did not see any flaws in the way they operated and this an extremely professional company. The pictures attached show the push piers added to the foundation (pictures 1, 2 & 3), the amount of excavation (picture 4), and the restoration after dirt was placed back in the pits and compacted (pictures 5, 6 & 7). Please notice that they also sealed two large cracks and steel plated these cracks from expanding further (which you can see under my sliding glass door). I, as well as my wife, are extremely happy that we chose United Structural Systems for our contractor. I would happily tell any of my friends and family to use this contractor should the opportunity arise!

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Chris Abplanalp

(5)

USS did an amazing job on my underpinning on my house, they were also very courteous to the proximity of my property line next to my neighbor. They kept things in order with all the dirt/mud they had to excavate. They were done exactly in the timeframe they indicated, and the contract was very details oriented with drawings of what would be done. Only thing that would have been nice, is they left my concrete a little muddy with boot prints but again, all-in-all a great job

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Dave Kari

(5)

What a fantastic experience! Owner Rick Thomas is a trustworthy professional. Nick and the crew are hard working, knowledgeable and experienced. I interviewed every company in the area, big and small. A homeowner never wants to hear that they have foundation issues. Out of every company, I trusted USS the most, and it paid off in the end. Highly recommend.

Interpreting Detailed Reports from Third Party Engineers**View GBP**

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