

A Start-To-Finish Overview of Risks in Building Master Planned Communities

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Building a master planned community of new homes is a massive undertaking and includes many risks that can result in the project costing more than budgeted and taking longer time to complete than planned.

These exposures run a wide spectrum, including property damage and destruction, construction material loss, equipment and vehicle damage and destruction, and various other perils, including weather-related incidents, fire, vandalism and theft.

Managing the development of raw land into an expansive community of homes is an intensive process. A variety of different subcontractors are usually called upon to perform an array of different tasks, and project developers and homebuilders must monitor and manage the inflow and outflow of construction trades to ensure proper sequencing of the construction activity. Materials and equipment need to be properly secured, while debris and trash require regularly scheduled disposal in designated locations. Construction-related risk exposures must be continually assessed and communicated to workers, inspectors, homeowners, prospective homeowners and real estate agents.

Lack of attention to these exposures can be costly to developers and homebuilders, impacting anticipated profit margins. But there are steps that can be taken to mitigate the breadth of risks inherent in developing a master planned community, from initial construction through final completion.

First Things First

The initial phase of a planned community generally begins with infrastructure development, including sitework, grading and drainage, and the installation of underground utilities. Once the initial sitework is completed, further development includes:

- Building streets, sidewalks, curbs and gutters
- Building entry gates and other paved, landscaped surfaces
- Installing utility poles and street lights
- Constructing storage areas for equipment, supplies and fill/backfill materials

A crucial consideration in the project development phase is the need to anticipate and mitigate the impact of severe weather in certain regions of the country. It is not uncommon for an extreme weather event to cause damage during the land improvement phase. For example, if an unexpected and prolonged rainstorm occurs while the infrastructure is partially completed and in a vulnerable state, resulting rainwater and runoff may produce substantial physical damage losses and delays in the project's completion.

The larger the planned community, the greater the risks, given the greater land area that may be susceptible to the impact of an adverse weather event. This highly exposed aspect of the early development process focusing on initial sitework often does not receive the same level of loss prevention attention as later phases.

Once the infrastructure development has been completed, model homes and sales centers are typically built for marketing purposes. These structures generally feature high-quality finishes, furnishings and landscaping. Once these structures are in place, the building of homes commences.

Fires, Theft and Vandalism

Although weather risks remain a prime consideration, other loss exposures include fire, vandalism and theft.

With regard to theft, a wide range of high value items are on premises at the construction site throughout the community development. The theft of equipment and materials from construction sites in 2016 accounts for between **\$300 million and \$1 billion** in annual losses and other costs for homebuilders.¹ It is not uncommon for thieves to drive a large truck onto the worksite during non-working hours to steal high value appliances, lumber, tools and other expensive equipment and materials.

Vandalism, such as tagging newly built homes with graffiti and setting fires for amusement, is another risk that increases after substantial construction has been completed, exacerbating the potential for property damage. Even during work hours, home development sites are at risk of vandalism, theft and fire, as these are typically open access environments often in close proximity to surrounding neighborhoods.

The biggest risk confronting homebuilders is fire. According to the April 2017 report from the [National Fire Protection Association](#) (NFPA), fire departments respond to an estimated average 3,750 fires in structures under construction in the United States each year. Such fires resulted in \$172 million in direct property damage per year from 2010-2014, NFPA estimated.²

Model homes, clubhouses and homes under construction can be partially damaged or destroyed entirely by a fire. Contractors' equipment and construction materials face similar risks, resulting in potentially high



dollar losses. Some materials used in construction such as paints, varnishes and composite panels are highly flammable, potentially increasing the intensity and duration of a fire.

Fires can ignite from different causes. A contractor doing so-called hot work like welding, for instance, can inadvertently create a source of ignition. The use of temporary heating devices situated close to flammable materials can set these items on fire. Careless smoking by construction personnel and visitors to the site is an additional risk.

Storage and Debris Removal

Other homebuilder considerations include the need to identify a safe and secure location for subcontractors to store equipment and materials. A large planned community of homes generally provides ample space to accommodate the storage needs of all contractors. With smaller developments, homebuilders may need to designate specific areas where each contractor is provided an allotment of space. In all cases, storage sites should be situated in low-hazard areas with adequate security and weather protection.

Every homebuilding project produces a wide range of debris and other refuse requiring expedited removal; otherwise there is a heightened risk of fire and worker injury. Trash containers should be situated throughout the construction area. These locations should be far enough away from structures under construction to provide ample ingress and egress for construction workers and equipment.

Certain types of materials should be disposed in designated containers for recycling and inspection purposes. Some debris may be highly flammable, requiring storage in fireproof containers at a farther distance from completed homes and those under construction. At the end of each workday, all containers should be emptied into dumpsters along the perimeter of the construction site for easy pickup and removal.

Lastly, it is incumbent upon contractors to ensure that all debris, scrap materials and trash are consistently and safely removed on a coordinated and scheduled basis. Homebuilders should train contractors with regard to their expectations on debris removal and hold them accountable for noncompliance. In cases of consistent infractions, assessments for clean-up costs should be considered.

To limit the risks heightened by use of inexperienced tradespeople, major developers and homebuilders should cultivate longstanding close relationships with a wide range of subcontractors.



Quality Control

High quality construction depends on high quality contractors and tradespeople. One of the more pressing challenges in the homebuilding industry is the shortage of experienced and professional subcontractors. According to the Bureau of Labor Statistics, employers through the first quarter of 2018 were looking to fill an average of nearly 225,000 construction jobs per month.³

This labor shortage is so acute that 91 percent of more than 2,700 contractors, construction managers, builders and trade contractors report having a difficult or moderately difficult time finding skilled workers. A major reason for such difficulties is the impact of the 2007-08 housing collapse on the homebuilding industry. Out of work, many skilled tradespeople found employment elsewhere and continue to be employed in these jobs.⁴ The good news is that employment levels are gradually returning to pre-financial crisis levels.

To limit the risks heightened by use of inexperienced tradespeople, major developers and homebuilders should cultivate longstanding close relationships with a wide range of subcontractors. In cases where a relied-upon subcontractor is unavailable for an upcoming project, project superintendents should reach out to their peers for references. In such cases, the superintendent should request documentation on the background and training levels of new subcontractors. It is highly advisable to observe these personnel at work on a current project before hiring.

Once retained, new subcontractors should be required to sign off on the homebuilder's site-specific safety requirements. The objective is for the subcontractors to either meet or exceed specifications of the developer's safety program. In some situations, training may be needed. Homebuilders should provide this training prior to the commencement of work.

Close supervision of contractors is often required to ensure they are not cutting corners to conclude their tasks on time. Inferior workmanship is a key risk that often does not present itself until after the homeowner takes occupancy of the house. If the work is substandard and involves multiple instances of repair, it will result in additional cost and could even result in a potential buyback of the home depending on the severity of repairs and contractual requirements.

Lastly, homebuilders must ensure that each subcontractor is in compliance with applicable state, city and municipal design and building codes and specifications. In this regard, a prudent approach might be to retain an independent consultant who can oversee and verify compliance.

Task Sequencing

Pre-planned sequencing and scheduling of subcontractor work assignments is considered a key factor in limiting the potential for property damage losses throughout all stages of building a master planned community.

For example, during the infrastructure development phase, an incremental approach to installing the utilities limits the risk of loss to the exposed values. This practical approach further reduces the exposed values in developing site grading for roadways, building pads, sidewalks and parking lots.

Following the infrastructure development, other subcontractor activities should be progressively sequenced and scheduled. The goal in all cases is to ensure the scheduling of progressive contractor deadlines, which each construction trade agrees to comply with on a timely basis. By managing this process, the possibility of one contractor interrupting and

adversely affecting the work of another contractor is minimized, decreasing the potential for damage to previously installed work.

For example, if a drywall contractor completes installation before the window installers or roofers conclude their tasks, water during a rainstorm may penetrate the unfinished exterior walls or roof, damaging the drywall and other finishes.

Sequencing work tasks is effective in reducing the potential for other types of damage as well. For example, if water systems in a building in a cold climate are charged before the heating system is functioning and the building envelope is complete, the pipes could freeze and rupture, resulting in substantial water damage. In addition to reducing property damage exposures, managing construction task sequencing and scheduling also limits the risk of costly construction delays.

Every homebuilder creates what it considers optimal sequencing and scheduling of contractor tasks. The challenge is adhering to this program and having backup plans in place if challenging weather and other circumstances were to affect the workflow.

The sequencing of tasks can also be of value in managing the storage of materials. Sequencing reduces the possibility that the materials of multiple subcontractors are concentrated in one area at the same time. This approach limits the possibility of a single major property loss occurring from the damage or theft of materials. Managing the scheduling process also reduces the possibility that materials like structural lumber are left out in the elements for extended periods of time, increasing the potential for mold contamination.

These orderly approaches are crucial to managing project housekeeping and construction waste. Prospective homebuyers and current homeowners will likely be visiting or occupying the planned community while homes are under construction. Untidy homesites increase the opportunity for injury to those onsite and may leave prospective homebuyers with a poor impression of construction quality.

Risk Management Checklist

There are some additional steps developers and homebuilders can take to further reduce risks at homebuilding sites. With regard to fire hazards, subcontractors performing hot work should be trained to conduct such tasks in areas that are not close to flammable materials, and/or follow an established Hot Work Program. More than two-thirds (67 percent) of Hot Work-related losses over the past 15 years were caused by contractors.⁵

A good practice is to require contractors to apply for a Hot Work permit from the homebuilder, and ensure they are familiar with local fire safety regulations and emergency procedures in the event of a fire before authorizing the permit. Lastly, homebuilders should obtain certificates of insurance from all contractors, including those undertaking Hot Work operations, and ensure the insurance certificate includes limits of liability consistent with this work and associated hazards.

Homebuilders should post emergency information throughout the worksite with response protocol for the fire department and other emergency services. These notices should also instruct the nearest location of fire protection and first aid equipment. Training on the use of these devices

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and their routine maintenance and inspection are also recommended.

While perimeter fencing reduces the risks of theft and vandalism, it is often considered overly expensive and impractical at large construction sites. In such cases, electronic monitoring and surveillance cameras can be effective in reducing security threats. The use of gates and barricades can further limit the unauthorized access of people and vehicles onto the jobsite. Another proactive approach is to store high-value equipment and materials inside locked containers or buildings that are not close to roads, making it difficult for thieves to locate, access, and transport the goods.

There is value in homebuilders recruiting homeowners, neighbors and others who visit the worksite as temporary lookouts. Another suggestion is to organize a homeowners' association early in the development process, even if this group is composed of just a few people in the neighborhood. Members can be trained on how to spot potential acts of vandalism, arson and theft, and be informed of whom to contact in the event of suspicious activities.

Coordination with local law enforcement early in the development process and regular communication throughout the project cycle is equally important. Later in the development process, a more formalized neighborhood watch patrol can be organized to provide an additional layer of surveillance and security.

To further reduce theft risks, locking doors and windows should be installed prior to installing appliances and fixtures and constructing expensive interior finishes. Access to model homes and completed houses should be provided on a formal basis, requiring documentation and sign in. The project superintendent should appoint someone to inspect model homes and finished buildings at the end of each workday to make sure the doors and windows are securely locked and the alarm systems, if functioning, have been activated.

Conclusion

To manage the wide range of project risks confronting the development of a master planned community, home builders should consider a systematic approach in which these varied exposures are identified, assessed, mitigated and insured—from the planning stages of construction through the sale of homes. Left unattended or given insufficient consideration, these risks can result in unanticipated costs affecting the profitability of the venture. To minimize this possibility, a specialist insurance company with extensive experience in managing and insuring the risks of home building projects can be a valuable partner, pinpointing potential trouble spots before they rear.



About Chubb

It is important for master planned community developers and homebuilders to partner with a specialized insurance carrier serving all segments of the construction sector. Chubb has decades of builder's risk knowledge and expertise and provides a comprehensive range of related insurance coverages. Chubb has developed a team of highly experienced construction underwriters and risk engineers with a service-oriented approach to coordinating and handling clients' risks. They are ready and able to assist homebuilders by conducting site inspections to assess fire, theft, vandalism and weather-related risks, as well as to suggest needed risk management controls.

Endnotes

¹2016 Equipment Theft Report. National Equipment Register.

²National Fire Protections Association, "Fires in Structured Under Construction, Undergoing Major Renovation, or Being Demolished." April 2017.

³Current Employment Statistics Summary. Highlights September 2018. US Bureau of Labor Statistics.

⁴Commercial Construction Index. Q2 2018. US Chamber of Commerce.

⁵Chubb, "To The Point: Hot Work." December 2016.



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