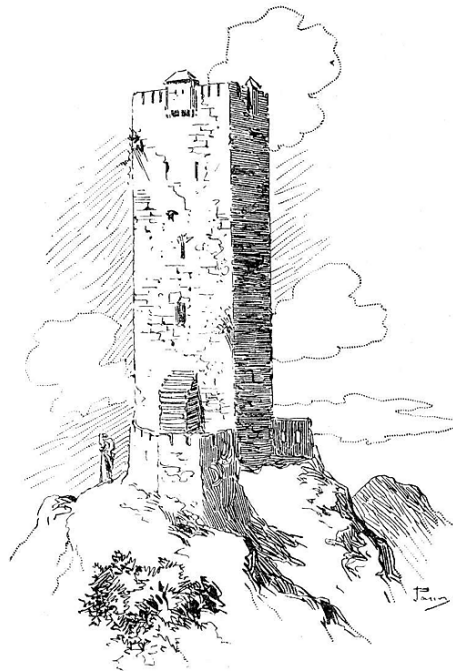


Castle Builder Volume 1:
STRONGHOLDS



*By Richard T. Balsley
and the Skirmisher Game Development Group*

Castle Builder Volume 1: **STRONGHOLDS**

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Introduction

“It is from their foes, not their friends, that cities learn the lesson of building high walls.”

— Aristophanes

Traveling far and wide, our heroes venture forth to new and exotic locations. Despite where they go, they always have a desire to return to a place where their exploits will be met with fanfare and awe. This place is home. One of the unique features of the roleplaying game is the fulfillment of the rags-to-riches story. The heroes we play usually come from humble beginnings. It is part of the allure of the game to venture forth on extravagant journeys of derring-do and come home to tell the tale. But perhaps more deeply seated is the desire to rise from the ranks of the common man and become a member of the recognized elite. This book is predicated, in part, on this aspect of the fantasy setting.

Castle Builder covers construction of the buildings that serve as the most prominent feature of the genre’s background and both the defense of and seigeecraft against these indelible icons of the fantasy landscape. These buildings serve as the homes of the wealthy as well as the infrastructure of a nation’s defenses. Within these pages, you’ll find the tools to give the players a reason to care about buildings, give them a sense of purpose beyond a plot device, and work towards achieving a suspension of disbelief that can take your gaming to a higher level. In a sense, this book is meant to give you the tools to not only lay out and understand these structures but to also do what authors of fiction have done for years to their readers.

The intention is to not only cover the basic types of items typically found in any sort of defensive structure or what comforts the nobility may enjoy, but to provide you with a better foundation of how the buildings are used. From the workhorse of the genre, the manor house, to the massive triple-walled castle, the fortifications this book addresses all have a specific function, feel, and their own unique set of strengths and weaknesses. When you or the players set out to design one of these structures, knowing the hows and whys behind the choices for a building type and location will help enrich the details of the fantasy world.

Is there a reason for the manor house that serves as the town inn to be classified any differently than the local lord’s manor down the street? As the saying goes, “the devil is in the details.” The true separation between any given building is what is inside. You have to know what you want from the outset in order for it to work. To aid you, this book presents a large number of choices in the first chapter with the following seven chapters devoted to an examination of different types

of strongholds.

The stronghold is as much the site of adventure and intrigue as it is the center of the player’s game world. To that end, it must have some meaning vested in it beyond simply being a “home.” This is doubly true when you consider that a character’s enemies may eventually find his home and there attempt to do him harm. To prevent himself from falling victim to his rivals, the hero of an adventure tale must either go homeless or have a defensible position that allows him to protect himself and his loved ones.

The question, then, becomes which type of stronghold is the right one for the character. That is where this book comes in. There are numerous styles of strongholds to choose from. Chances are that by the time you have skimmed through this text, you will find the stronghold that best suits the needs of the character. It is also just as likely that you will find the example strongholds lacking elements you feel are necessary for that character’s situation. Here too, this book will help you design the stronghold the character would need to meet expectations.

This book is not meant to be precise in an architectural sense; however, rather than focus on the details of construction techniques, this work focuses on the importance of the stronghold in all of its forms. The tactical and strategic importance of each type of stronghold is discussed in detail to allow you to choose the structure or elements that most accurately reflect your vision of a stronghold’s function. Thus, you can create a personalized structure by quickly filling in the basic reasons for its existence, costs (to build and maintain), and staffing requirements. This should be especially handy to gamemasters needing to whip up a stronghold on short notice.

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Chapters 2-8 follow an identical format for layout and progress from weakest to strongest fortification. Common features from previous chapters, however, are eliminated to give maximum detail without repetition of material.

The more fantastic elements of the fantasy setting are included, but their role has been limited in the scope of this work. This is not to say that they are of any less importance. However, in the context of strongholds, these elements do not affect the mundane qualities that truly distinguish a stronghold from other buildings in a physical way. Any of the elements described in this work can be strengthened (or weakened) through the use of magic with little difficulty and are best handled via the rules of your favored system.

With that in mind note that the majority of the structures in this book rely chiefly on European strongholds given their prominence in fantasy literature. With a few adjustments, many of the elements described in this book can be used to create anything from a curtain wall the size of the Great Wall of China to the stepped pyramids of Mesoamerica and beyond. While the architectural elements of such structures may differ, the concepts behind the room types are the same. The veneer we dress the walls with has no bearing on the spaces themselves, only on how we look at them.

About This Series

The 10 volumes in this series cover a variety of topics from building a stronghold, benefits and drawbacks of various classifications of fortifications, and how to assault or defend them. A brief description of the volumes appears below.

Volume 1: Strongholds provides the rules for creating buildings of all kinds. Also included are guidelines for fleshing out the reason for the stronghold's existence and placement.

Volume 2: Manor Houses focuses on the iconic building that serves more in the capacity as inns, aristocratic homes, and even farmsteads.

Volume 3: Moat House and Pillboxes adds walls, moats and guard posts to the defensive perimeter of any structure needing protection, especially the manor house.

Volume 4: Towers covers the iconic home of wizards and lookout posts and how they're best used on plains and the highest elevations available.

Volume 5: Keeps looks at the border structure and way station that serves as the first-line defenses of a realm.

Volume 6: Motte-and-Bailey examines the reasons for and against using sculpted and artificial hills as the basis for a stronghold.

Volume 7: Lithic Structures shows how pyramids, ziggurats, and even Vaubaun fortifications can be used in a fantasy setting as last-ditch defenses and shields against some of the largest beings in the milieu.

Volume 8: Castles is the chapter that looks at how the seat of government power can serve not only in the role of ruling, but for controlling the realm as a whole.

Volume 9: Offensive Warfare details the campaign from planning and logistics to the various stages of advancement until the capital itself is placed under siege.

Volume 10: Defensive Warfare works in reverse and examines the tactics available for a nation on the losing side of an offensive advance.

This book and the entire *Castle Builder* series have also been written so as to be fully compatible with the various existing Skirmisher Publishing LLC universal and d20 publications, including *City Builder*, *Experts v.3.5*, *Warriors*, and *Tests of Skill*.

Viewing This Book

This book has been designed to be as user-friendly as possible from both the perspectives of printing out for use in hard copy and viewing on a computer screen. It has been laid out like a traditional print book with the idea that each even-numbered page complements the odd-numbered page that it should face (e.g., the street scene on page 4 is intended to face and illustrate the beginning of the Introduction on page 5).

With the above in mind, the optimal way to view and enjoy this book would be to print it out and organize it in a binder so that the pages are arranged as described above. This is by no means necessary, however, for using and fully benefiting from *Castle Builder Volume 1: Strongholds* and its contents.

Strongholds

Every stronghold, regardless of shape and size, is an enduring symbol of power and wealth. Simply stating that one is powerful or wealthy, however, does not invest in its strength of purpose. The symbolic might of a stronghold is developed through conflict. A new fortress on the edge of civilization is little more than a collection of stone buildings behind a wall until it has proven itself. People are not filled with dread and awe by something that has never been used (although the façade can induce this momentarily). Citizens of a benevolent empire are not confident about a palisade along the frontier's edge unless they know it keeps barbaric hordes at bay.

How does a stronghold gain a reputation? First, it is recognized as a landmark. Its proximity to civilization adds to or detracts from its fame. Whereas a stronghold in the middle of nowhere can only gain reputation through a considerable historical event, a stronghold near a settlement would be readily recognized despite a lack of events. In addition, the disposition and culture of the stronghold's residents can form a reputation that precedes it, marking the structure as a site of social constructs.

The combined effect of these aspects is powerful, and can thus be overwhelming for gamemasters whose only concern is providing a captivating setting. It is understandable that many of the concepts described above may seem intimidating. However, by the time you finish reading this chapter, you should have a clear concept of how to kindle your player's imaginations and create the stronghold setting you desire.

The preceding paragraphs are basic considerations for creating a structure that will serve as more than just a passing landmark. Unless you want your stronghold to be nondescript, it is helpful to know more about how a fortress works, from construction and upkeep to staffing and operation. The small details reveal most of the stronghold's personality. The more you add, the more alive and important your stronghold will feel.

The generalizations in this chapter are the groundwork for the specifics upon which each stronghold is based. With the basics firmly in mind, you will be able to answer the questions necessary to make any fortification fit your campaign.

What is a Stronghold?

Anything can be considered a stronghold. Unfortunately, taking such a broad view would only confuse the subject. A stronghold, for the purpose of this book, then, is any building or series of buildings consisting of mundane materials engineered to protect a region against an attack. While magic may be plentiful in a setting,



most stronghold builders cannot afford to enchant a structure down to the last brick.

Because defense is an edge in a world where fantastic creatures roam, a sturdy wall is just as valuable as a magical shield. A good tactician with a handful of soldiers and a solid defensive barrier can repel an invading force with greater numbers. It is for this reason that strongholds are defined in terms of mundane materials rather than enchantments. Though magic is a welcomed relief, engineers plan strongholds with the assumption that magic may not be available in an attack.

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What Constitutes a Stronghold?

As mentioned above, many buildings can comprise or be a stronghold. All strongholds, however, share unique qualities that protect inhabitants from problems beyond just keeping them comfortable. The chapters that follow break structures down into their general categories. While this chapter will help you determine what you want a stronghold to accomplish, the remainder of the book will help to choose the right type for the job.

Although there is nothing wrong with the example structures presented in their respective chapters, they are a far cry from being ideal for all situations. So-called “cookie cutter” strongholds only work if you have an underlying reason for consistent use of layout. Such a reason could be a proven design that optimizes the structure’s purpose for its location in a terrain type. An example would be a series of cavalry posts along a border that run through a plain. Soldiers from one stronghold would be able to defend an identical one with little trouble as they would already know where most things were located.

Types of Strongholds

This book describes seven categories of strongholds. Each represents a level of security, the number of people designed to protect, and strength of defense. Any



given stronghold will have a relative value proportionate in the aforementioned areas as you progress from least to greatest security. What follows below are brief descriptions of the categories and their use.

The *fortified manor house* is the dwelling of a wealthy individual or family, usually from the non-noble aristocracy, who likely has a few enemies. The manor house is designed to give the residents privacy; its defensive capabilities keep unwanted guests out.

Moat houses are similar to the fortified manor house with the exception of their defensive structuring. Moat houses incorporate the terrain as an element of defense by using walls and natural or manmade waterways to hold the outside world at a distance.

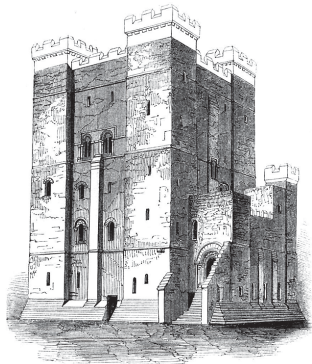
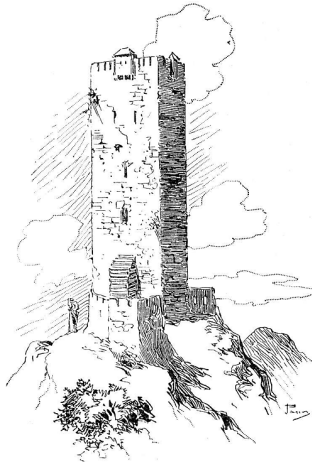


Strongholds

Towers are normally used as a means to increase how far a sentry can see. They are also the iconic structures wizards use to make their homes. Though strong and sturdy, towers are not usually meant to keep opponents at bay.

Keeps are large outposts. Often, they are depicted as the bastions of warlords and dictators. They serve as homes for nobles in embattled lands as well as regional centers of military or governmental might. Regardless of who controls a keep, the point is clear: it holds a sizable fighting force, if not an army. Two derivatives are the *Mott-and-Bailey* and the *lithic fortification*. Due to the differences in construction and usage, they have their own chapters.

Finally, there is the *Castle*. In fantasy settings, the castle is the ultimate symbol of regional might. In addition to being a focus of governmental power, the castle is also the symbol of a region's military strength. Castles are ranked in terms of the number of walls that surround or are attached to the castle itself. The more concentric walls, the greater the castle's defenses as well as its power. Castles are thus classified as single-, double-, or triple-walled.



Developing a Stronghold's Personality

At first glance, a stronghold may seem little more than a collection of raw materials fashioned into a shelter. All buildings, however, have a personality. From design to actual function, a stronghold has an aura that reveals how a viewer feels about it. You may not think about it on a conscious level, but you do take away an impression of a building based on its location, shape, and (if you have been inside) its accommodations.

This section provides a rough guide of how to use the stronghold's location, structure, and accommodations to define its personality. Please note that while these generalizations are based on the average, they are by no means meant to be restrictive in how to present a stronghold. In fact, any deviation will only add to its impact.

Location

Where a person lives has a strong bearing on his personality. The landscape shapes how open people are to outsiders as well as how receptive they are to neighbors. The same holds true for buildings. The design of a building has an impact on the perception of the building's personality, but *only when everything is taken into consideration*. This goes beyond the comparison of a low-peaked roof to a steep one in a region with inclement weather.

For example, a low, sinuous keep on the frigid reaches of a kingdom's northern taiga will elicit a distinctly different impression than a bulky one that overshadows the icy terrain. The first leads one to believe the keep is withdrawn and secretive while the latter gives the impression of projected strength and an air of confident domination. In general the taller the structure, the more imposing it is meant to be. The length/width dimensions provide the degree of openness, so long as the dimensions are close to a 1:1 ratio. This results in the former structure feeling like a cold and hostile snake while the latter the impression of supreme confidence (some may say arrogance) while serving as a beacon of safety.

Compare the same structures in a jungle. The sinuous keep will still have the feeling of a snake slithering along the ground, but it fits in with the landscape as vegetation is more likely to interfere with a taller one. The larger structure appears trapped by the jungle canopy. Also, the upper levels of vegetation may serve as

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a method for attackers to climb above taller structures or erode them if the flora is not cut back.

It is clear through these comparisons that environment plays a large role in the way a structure is viewed and assigned a personality. But what role does elevation play? The examples above illustrated the concepts of strongholds in temperature extremes without considering elevation. The question of elevation is similar but slightly more complex.

The prime location for any fortification is the highest point in the region. The structure itself can be of any height, but it is key to defense. At least, this is the theory. While true more often than not, high ground is not always the most desirable location. If placed in a relatively inaccessible locale, chances are the stronghold will find it hard to protect what it is meant to. And if the local populace can not reach the shield of the land, defenders will be hard pressed to meet invasion forces before substantial damage has been caused.

To combat such problems, the fort occupying the highest point often serves as the regional capitol as well as the primary lookout to warn of invaders. The main fortress will need several garrisons spread throughout the area to govern defenses in the lowlands. The high ground in this example gives the military the ability to alert additional garrisons. Such a setup allows troops from the central stronghold to reinforce the other fortresses or coordinate actions to counter the invaders.

This is not always the ideal setup. If the highest point is unable to sustain or supply a community of any size, then it is as much a liability as a possible advantage. Should there be a resource of importance to the kingdom, the stronghold will be placed closer to it for ease of defense.

Unless there is some overriding circumstance, a stronghold will rarely be placed in a region's lowest point. By placing a fortification in the depths of a ravine, the builder is foolhardy in believing it is protected. All one needs to do is roll boulders down onto the structure to destroy it. If you have sufficient cover (say a jungle), then you would have an advantage. The sacrifice of the high ground in such a case is in return for concealment. In other words, if you cannot see the stronghold, then it does not exist until you run into it.

Structure

As implied, the type of structure is a major part of the

building's personality. A fortified manor house on a plain gives the feeling that it is a farmer's residence in a hostile area. An imperial palace in the same locale denotes the heartland of an empire. If a wizard's tower sat on the site, it would project an image of someone who prefers isolation and wishes to keep his privacy.

All three structures provide the beginnings of a backstory. In the manor house, a minor noble, a rich farmer, or a wealthy merchant could potentially live in an idyllic setting. The spacious grounds of an imperial palace suggest that a nearby metropolis may welcome trade. The wizard's tower makes one pause before venturing further. Note that in this location, it is the structure rather than the environment that makes the impression. This should not be confused with the effect the environment has. It is important to keep in mind that both elements work together.

Since we have established that the type of structure plays a part in developing a stronghold's personality, what about size? As mentioned in the preceding section, the linear dimensions of a stronghold play an important (often subconscious) role in how the structure affects its inhabitants and those viewing it from the outside. Height is a good indicator of how well the builder wants it to be seen. The taller a stronghold is, the greater its presence is meant to be felt. Thus, the type of stronghold is modified by its dimensions.

The emotional impact of linear dimensions is demonstrated thusly: one gains a sense of magnitude of strength or confidence of the stronghold's builders simply by gazing upon a fortification of great height. Less obvious on approach are the dimensions of length and width. One normally does not consider these aspects of a building in personifying its nature until confronted with them.

Compare hallways to living rooms or closets to bedrooms. The length and width have greater impact in such stark comparisons. Despite the length of the hallway or closet, you probably would not want to live with walls so close in the other dimension. The living room is more spacious and gives you a sense of open air and you likely would not want to sleep in your closet. Strongholds follow a similar rule of thumb.

Whenever a person encounters a structure that is wide but shallow, he tends to regard it as a barrier. Thin and deep structures seem confining. Any building with such unusual horizontal dimensions could be seen in either light if the stronghold's entrance can not

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be discerned. Therefore, the placement of the main entrance to the stronghold dictates the building's perceived width and length dimensions. What the inhabitants of the fortification see as the stronghold's personality will thus contrast with the interpretation inferred by outsiders, depending on their angle of approach.

Complexities abound when considering the shape of the stronghold. Walls that slope away from the surrounding terrain suggest a position of guarded defense. Conversely, if the walls slope outward or have an overhang, the structure possesses an aggressive stance. The resulting effect is a stronghold that appears to swallow anyone wishing to assault its walls. Squared buildings with rigid lines are stoic and feel less threatening due to their similarity to most houses. Angular buildings, on the other hand, can conceal or distort weaknesses through optical illusion. Finally, curvaceous strongholds use terrain to maximize defensive capabilities. Then again, depending on the terrain (e.g. craggy mountains), curvaceous strongholds may feel artificial and forced.

Accommodations

A stronghold's accommodations also help define its personality. Buildings that offer little or no amenities seem hard and unforgiving. The mentality they reinforce for inhabitants is bleak and unsympathetic – if not oppressive. At the opposite end of the spectrum, various services and plush furnishings allow characters to lounge about when their skills are not needed elsewhere. Thus, the internal personality of the stronghold is unequivocally tied to the amenities available. This means that varying degrees of hospitality within strongholds can indicate differing levels of tension.

Typical services available to a self-supporting stronghold include a smithy, a stable, an armory, and ample storage space. These four elements are the cornerstones for any outpost to survive a protracted siege. In order of their listing, these items represent defense, mobility, offense, and time. While these accommodations are part and parcel of most strongholds, they are not necessarily required. Each chapter on the types of strong-



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holds illustrates the essential elements for the structure in question as a defensive unit.

An accommodation also represents how open or closed the stronghold is to visitors. The proliferation or lack of guest quarters is the easiest way to define how amenable the site is. Other indicators of hospitality can be used to personify the stronghold as well. A stronghold that opens itself up to merchants promotes trade, the acquisition of news, and allows soldiers to obtain a smattering of goods otherwise unobtainable. For the benefit of all, a string of strongholds is used to secure a trade route through a region.

Small-scale strongholds must specialize through choices of accommodations as space is at a premium. Larger structures, such as castles, have enough space to afford more luxuries without needing to forego rooms useful in the long run. However, the fact that they can afford such accommodations also lessens the intimacy that gives a smaller structure a powerful personality. As minor of a role accommodations play in the stronghold's personality, these subtleties have an impact.

Developing a Stronghold's Purpose

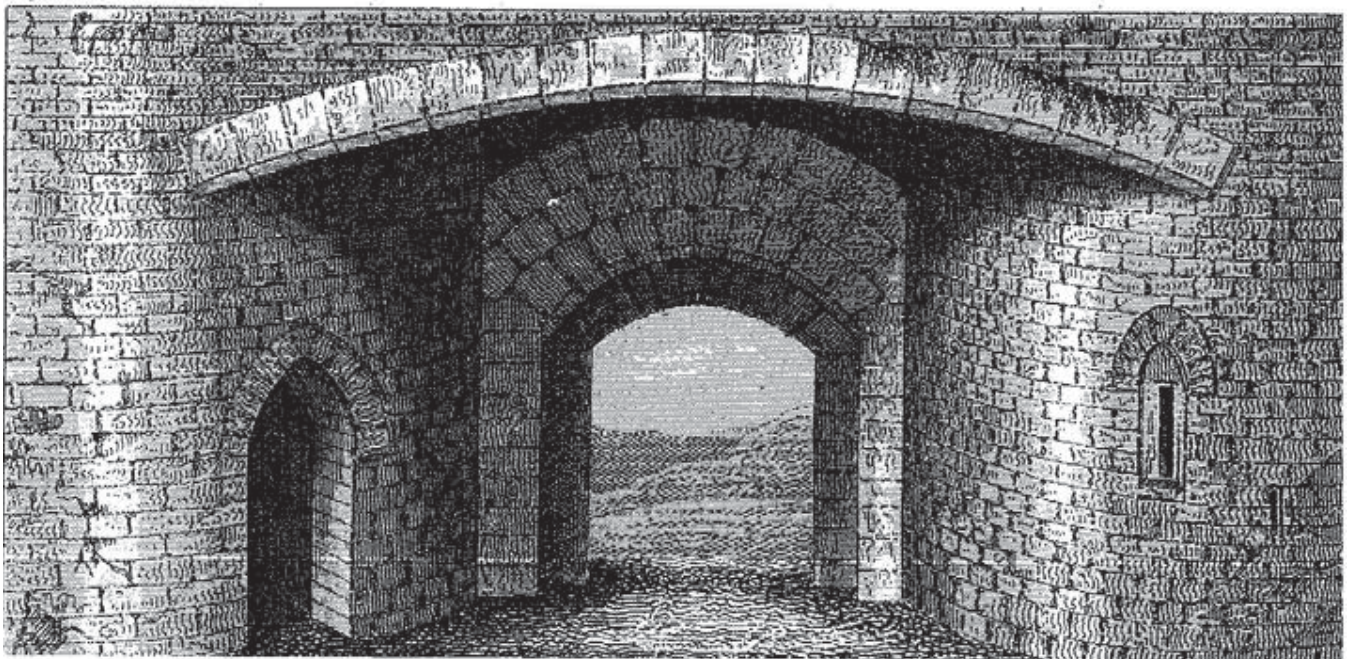
Every building, from a grass hut to a skyscraper, has a purpose. That purpose aids in defining the building's

personality. While the grass hut is designed to give protection from wind and rain, it is far from adequate to meet the demands of a corporation. Strongholds too, are designed with practicality at the forefront. They serve as defensive positions; but just as important, they are designed to provide it without hemming in their occupants.

No matter how defensively-minded the occupants may be, the stronghold also serves as a home. Should a structure fail to meet the basic requirements as housing, the structure is flawed. The basic necessities required for living must be included, even if the kitchen turns out to be a fire pit set in the center of an encampment surrounded by a wooden palisade and the garrison is a bedroll. The ultimate purpose of the stronghold must be secondary to these considerations for its role to be fulfilled.

Location

For some gamers, the placement of a stronghold can be accomplished by picking an arbitrary spot on the map. Perhaps the greatest strategist ever could do such a thing, but more planning is recommended for the rest of us. You can choose to use such a method, but be aware that if you are planning for the structure to be used by professional soldiers and have longevity, it may



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lose its luster fast.

The expression “location is everything” is true when it comes to strongholds and why so much emphasis has been placed on it. There are thus logical rules to placing structures. Keeps that guard mountain passes are placed at their narrowest points because it gives the greatest advantage. Towers do not normally house cavalry due to the stronghold’s confining nature. These are some general traits of stronghold usage.

Each structure has its set of ideal locations described in each chapter. Keep in mind that these spots are for conventional placement. You can go against type, but it is important to know how you are breaking the rules to make such fortifications work in disadvantageous settings. For this reason, you should know the purpose of the stronghold for its placement to make sense.

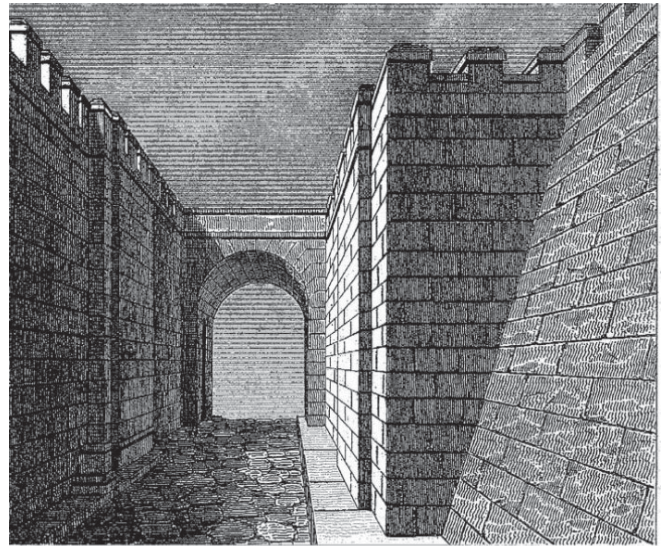
Structures such as the fortified manor house and the tower are examples of strongholds that reveal much about their purpose based on their proximity to civilization. The degree of isolation the inhabitants of either stronghold desire is directly related to how far away they are from urban centers.

Castles and keeps are harder to define. A castle surrounded by a city is a metropolitan locale, but unless you know its purpose, it is difficult to tell from a distance whether the castle is viewed as protector or oppressor. Castles in the wilderness could be new constructions or hidden fortresses. Keeps in the wilderness generally signify a border or regional defense. Conversely, a keep in or near a settlement could be there to protect the community. Then again, that could be part of the mystery the players uncover.

Structure

When it comes to purpose, design speaks volumes. How a stronghold is used can often be learned by a seasoned tactician at first glance. This impression is based on principles of strongholds construction. From the outside, telling details may be spotted to show how the buildings are employed in defense. One reason for a stronghold to occupy high ground is to prevent a top-down view, giving one’s enemies a chance to better understand its weak points, let alone attack.

As an example, if the stable of a border fortress has a clear line to the main gate, it is apparent the cavalry has enough room to burst forth from the compound. Conversely, strongholds with little room between the main buildings and the outer wall are meant to hinder



the progress of invaders. With the gates swinging inward, an assaulting force will be hemmed in at the gate even though they are within the compound. Supported by arrow slits and unseen vantage points, the inviting ruse allows defenders to set up a killing field.

The result is that designs should be anything but what they seem. While a general impression of a stronghold’s structure allows one to gauge its purpose, it is just enough to underestimate the strengths and weakness of the fortification. In a fantasy setting where magic is easily available, this is doubly true. The fortified manor house surrounded by peaceful farmland may look innocuous enough, but it may be the lair of a powerful wizard or the façade for a stronghold that lies mostly underground.

What’s the point to this? Due to the conventionality of the plans illustrated in this book, you will see how taking a “cookie-cutter” approach will weaken a stronghold’s purpose as someone (e.g. the players) will discover this secret. With the rare exception of fortifications with a proven design, most are organized separately. Border fortifications, for example, should vary from one to the next to confuse marauding armies and to maximize defense by forcing different tactics to assault each stronghold.

The purpose can also be evaluated in terms of design. In other words, a fortified manor house is personal protection whereas a castle is a governmental defensive structure. Of all the structures, the manor house and the moat house are the two used exclusively as

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personal protection. The remaining structures are designed with the concept of securing land, power, or governmental systems. Thus, the focus of importance shifts from the individual to the state as you move through the chapters.

Accommodations

Accommodations speak more about the structure's function than anything else. For example, a stronghold that is more warehouse than garrison is intended to provide tough security for goods stored there. A manor house is primarily a residence with hardened protection to reinforce privacy; a castle, a providential or capital seat of power. The space within each is maximized accordingly.

To use a previous example, military quarters surrounded by a wooden palisade will spare just enough space for bathing and kitchens as to not interfere with the martial procedures in which the army engages while garrisoned. Thus, a few cook fires are all that is necessary to ensure soldiers are able to eat, even if they must do so in shifts. This leaves most of the space for the soldiers' tents and a training ground where they can carry out exercises.

For any fortifications you plan to use on a long-term basis, it is best to know what accommodations are available. Does the keep surrounded by a town have store rooms, or does the town provide the keep adequate supplies during lean times? If there is an incursion into that town by monstrous villains, can the keep take in the huddled masses? This is what is meant by accommodations defining purpose. No defensive structure can survive everything thrown at it. However, with a bit of careful evaluation, it is possible to ensure it fulfills its purpose by being self-sufficient in critical areas.

Also, keep in mind that no room stands on its own. No matter how you lay out a stronghold, the proximities of the rooms to each other expresses the importance of certain factors over others. The layout also gives clues to purpose. The arrangement of accommodations to one another amplifies this importance. A garrison placed adjacent (or nearly so) to a stable implies that it houses cavalry rather than couriers or a wagon team. An armory placed near a guard tower emphasizes dependence on ranged weaponry or weapons storage while guards are off duty.

It is important that accommodations fit the intended purpose of a stronghold without hindering its purpose.

This is especially true as the structure should be designed with some aspect of comfort. While this may seem a stretch for the remote outpost where watchful eyes must be vigilant, sleeping conditions that allow for the greatest relaxation increase the awareness of fully rested soldiers compared to a location that only offers cold stones. The sparse conditions may help focus attentions on the stronghold's purpose, but the lack of comfort will undermine intent.

Developing a Perception of a Stronghold

Without knowing what is inside, a stronghold's location and physical aspects provide a superficial perception. Every element of a stronghold's personality and purpose above is from the point of view of an occupant. To develop the viewpoint of someone from the outside, use the same concepts but exclude the interior.

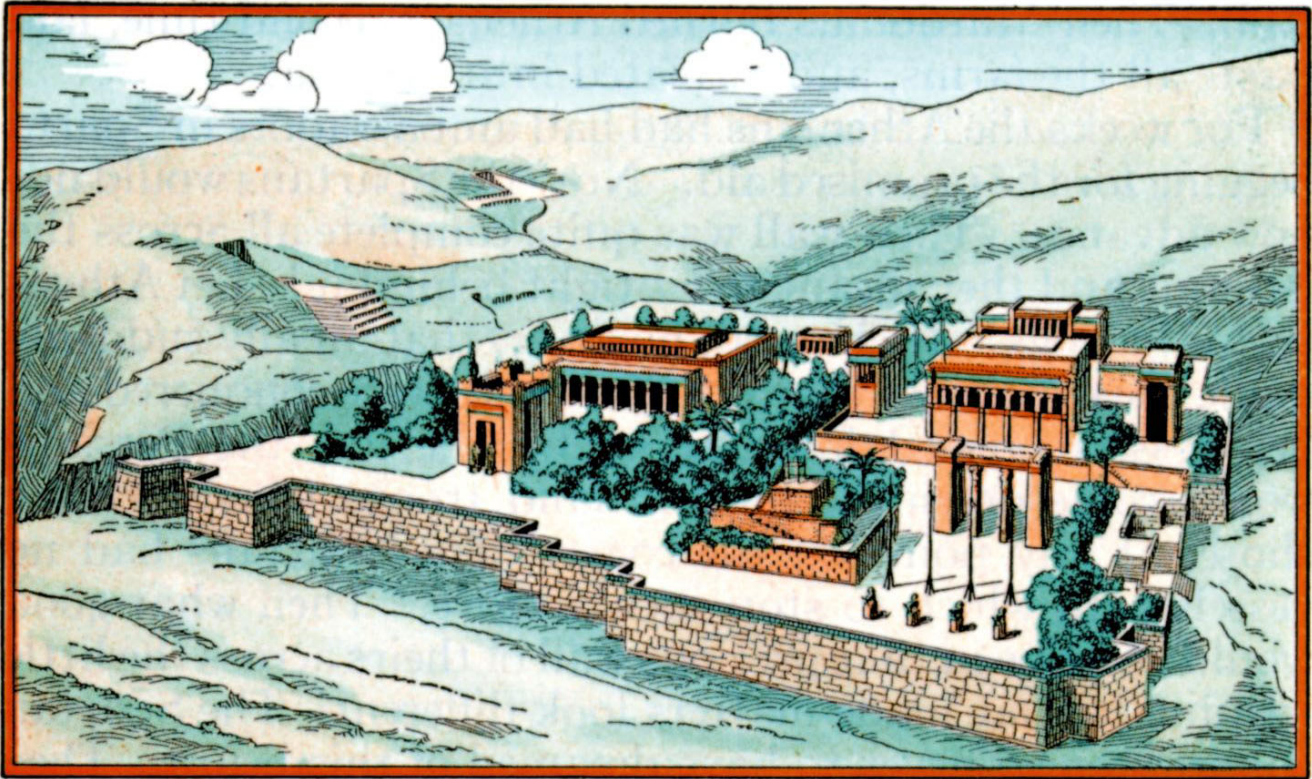
The perception derived from a structure's personality and purpose is affected by the nearest population center. Unlike personality and purpose, perception can vary greatly. On one side, you have the view from the invader who sees the structure as an obstacle. On another, is the view from the local populace; who may know the true function of the stronghold. For example, the stronghold might protect them, but depending on the situation, the locals may get the cold shoulder or worse.

Location

Location is important to someone who wants to invade. While the locals may have a problem with the idea that inhabitants of the stronghold can spy on them from their vantage point, chances are they see the stronghold as their protector. If the fortress is controlled by a ruthless tyrant, it may be the symbol of evil, appearing as a vulture watching its prey. From a rival military's view, however, location has an immediate and practical use. It defines the advantages and disadvantages of the stronghold and gives the planners of an assault a concept of what strategy to employ.

The proximity to civilization or protected resource also projects an image. A stronghold placed far from what it is intended to defend can serve as a screen to delay reaching the object, or it may be perceived as inconsequential. Strongholds surrounded by towns may have once been border guards or regional security/law enforcement, but have since attracted settlers who

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wished to provide one service or another only to accrete more citizens wishing to start an enterprise. In return they live in the shadow of their protectors, allowing a level of security wilderness settlements often lack.

Should the structure lie just outside of a settlement, the perception from the outside is likely the culture either does not tolerate soldiers within civilized areas or the region was conquered. A stronghold set off center in the town leads one to believe that the aforementioned attitudes have changed. Only through closer inspection would the local view be revealed. Especially since the town may have developed in response to the fortification.

Fortified manor houses, conversely, signify not a military presence, but a minor noble or successful merchant. Indeed, such individuals are prime targets, one of the reasons they need some form of protection. A major military force would generally pass by such a "fortification" as it, in their point of view, is of little consequence. The estate of some petty merchant may come in handy at some point, but it is often more hassle than it is worth at the outset. How the locals view

the owner of an estate depends on his reputation rather than his taste in architecture.

Finally, the larger or more heavily fortified a stronghold is, the more important the region, resource, or settlement. There often is a direct correlation between this and the number of soldiers a stronghold can hold. The locals would definitely note this, especially if it is controlled by an occupying force. Also, the larger the structure, the more resources needed to sustain it. This will draw merchants and send rival militaries in search of the stronghold's supply routes to pinch them.

Structure

The shape of the stronghold is more prominent to outsiders than its classification. Yes, the leader of an army determined to assault a stronghold will take its size and layout into consideration. When it comes to laying siege, however, the military commander will give the shape more weight than any other aspect to consider how occupants repel an assault. For the nonmilitary mind, the shape of a stronghold will give pause if aesthetically unusual. The average person will walk away with little change to their expected impression unless

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it has features that make it look disconcerting (spikes, horrific carvings, etc.).

A structure's shape often will not significantly impact its perception unless it has a unique design. Such features stand out. The designs need not be functional, but they have a psychological impact. The more unusual the shape, the more a military commander must spend time puzzling out how it aids the stronghold. For the laity, a disconcerting appearance often signifies either an evil force is venerated or feared by the occupant's enemies.

A stronghold will always be more important than its decorations. However, most people do not perceive buildings in such stark terms. Commoners living in the shadow of a stronghold are more amenable to a structure with symbols showing it as a guardian of the people. The reverse often holds true with a structure covered in symbols of the culture's worst fears. Then again, the reputations of the stronghold's occupants can override such opinions.

All elements of the structure should be combined to give an overall perception for an outsider's viewpoint. With all the information you have, this may seem like a daunting task. To make it easier to establish a perception, start with the look, size, and type. The players can then infer whatever they wish, leaving you free to worry about more important details.

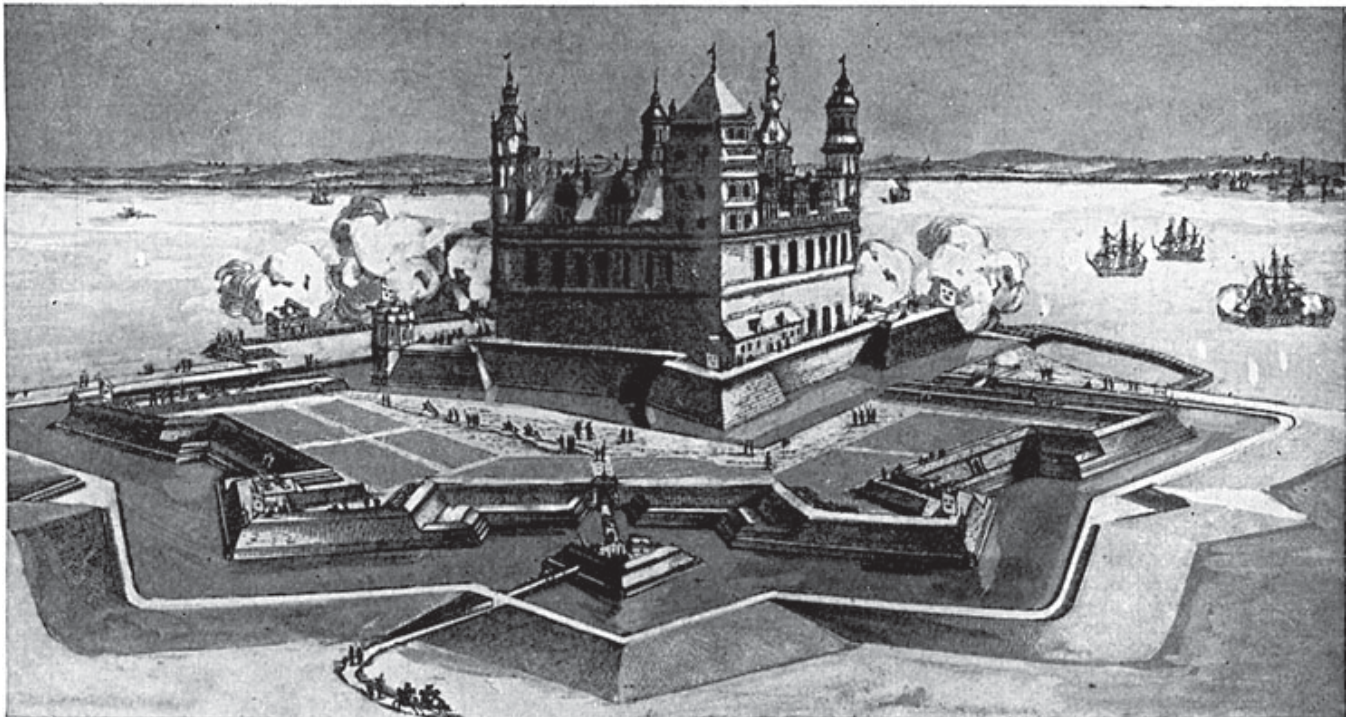
Purpose

The purpose of a stronghold may not be readily apparent. Most outsiders will theorize about the stronghold's purpose while commoners will have a generalized view. All sorts of notions may come from such inference, especially if your stronghold goes against type. The outsider may give it a military quality it lacks while commoners may have rumors they trade amongst themselves. A good example of the latter is the Bastille, which was at one time perceived as a symbol of the corruption of the French ruling class rather than a run-of-the-mill prison during the unrest that led to that country's revolution.

A more accurate perception can be generated by knowing the stronghold's intended purpose. This is likely encountered along borders of long-standing enemies. The offensive and defensive capacities of each military have been learned by each side. One should not assume they are static, however.

Using variations on a stronghold's purpose through layout and accommodations can give unexpected leverage against attackers. Consider its staffing. The types of soldiers may change over time. Because of this, an enemy force would be foolhardy to expect the same counterattack during successive invasion attempts. The result is a game of prodding defenses for weak spots to predict changes.

Imagine how such changes would play upon the



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minds of commoners. Rumors of events would be the talk of the communities. Each rumor could be the trigger for an adventure. Chances are, even if the players are not involved, someone eventually will try to use changes in the guard to their advantage. The stirrings of rebellion could be amongst the talk of fears, thus causing the perception of the stronghold's purpose to shift.

Personality

Of all the qualities that affect an outsider's perception, the personality of the structure (viewed from the inside) is least noticeable to anyone but locals. It is mentioned because characters might observe reactions between locals and a stronghold's inhabitants. This will likely color how characters react until they know the truth. Thus, this is a tool you can use to develop a web of intrigue.

The colorization of a stronghold from an outside source serves two purposes. First, it allows the players to gauge the feelings of the public's view. Second, it allows you the opportunity to mislead sympathies. As some may argue this is dishonest and unfitting, it must be pointed out that mysteries employ this technique with great frequency and fans of the genre expect it and investigations require puzzles to instigate inquiry.

Advantages & Disadvantages

There is no perfect defense. Strongholds are built with key advantages to maximize their purpose. This means strongholds must be deficient in other areas. The advantages and disadvantages that define a structure are part of specialization. The example of a tower not being the ideal structure for cavalry falls under this heading. The tower's height is its main advantage. It allows the occupants to spot targets from a distance far greater than possible for shorter structures. However, it does not normally provide adequate space for a stable or room to allow horses to sprint out the entrance.

Advantages and disadvantages of stronghold technology make use of the three key factors you have become accustomed to seeing in this chapter. The rules governing what gives boons and detriments are location, structure, and accommodations.

Location

Would you put a stronghold on a cliff or at its base?

Would you put a lookout tower at the bottom of a valley? Chances are you would not place a stronghold at the base of a cliff because someone could rain heavy objects down onto it. Rather you would place it on top of the cliff so troops can roll objects down onto your enemies. The tower in the valley would be highly impractical as a lookout since the surrounding terrain is at a higher elevation. A wizard, however, may put a tower in a valley to keep it isolated and well warded with enchantments.

Unless you are employing a great deal of magical defenses, you should not think in terms of how to break conventional rules of warfare. Rather, use the viewpoint of a general who has no magic at his disposal. Many magically enhanced strongholds will merge the magical with the mundane. A few magical effects that dispel or disrupt a stronghold's magical defenses could render its unique locale a liability, making a commander give pause to any structure that goes against conventional wisdom.

Location also plays a heavy factor in other ways. You should avoid creating strongholds that rely on artificial means to exist without a reason for the unusual circumstances. The chink in the armor of such a stronghold could be exploited, rendering the structure defenseless. By artificial, it is meant as any method that unnaturally sustains the stronghold in a region inhospitable to it or its inhabitants. This could be a castle for air-breathers at the bottom of an ocean, for example.

The vast spread of an imperial palace is best suited for a plain. But what if there is not a significant tract of flat land upon which to build it? The costs to level a large enough section of a mountain would be prohibitive. An alternative solution is to have several outlying buildings on the surface with the remainder of the fortification embedded within. Such a stronghold would be hard to overrun. The classic dwarven stronghold uses this model where a few keeps guard the entrance to the fortification or subterranean settlement.

Unless someone wants to spend extra time, money, and effort to build a stronghold in an area with limited space, many regions will force reconsideration. A castle in a forest or jungle would enjoy relative obscurity from the ground, but the area that must be carved out of the foliage allows it to be spotted from the air. The hole in the canopy alone serves as a beacon. Imagine how noticeable a castle complete with spires thrusting above the canopy would be. Smaller structures would

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be better suited for such environments.

Not only is location an important factor in determining many aspects of a stronghold, it is also key in defining the qualities that allow a particular category to excel in a specific place. Also, the size of the structure will help or hinder it. Location is by far the primary determinant of where a stronghold will go, what size it will be, and what purposes have the greatest advantage (cavalry likes flat ground, artillery and archers have greater advantage from high ground, etc.).

Structure

The category of a structure plays a secondary role in determining advantages and disadvantages. Each comes with its own inherent set of benefits and pitfalls. For instance, the fortified manor house is foremost a dwelling for the occupant with protection and privacy being ensured by its armored nature. A castle, on the other hand, serves not only as housing for a

ruler, but also as the seat of government, a garrison, and defensive structure. Depending on the government, all but a few areas of a castle are truly restricted from public access. A castle must often be all things to all people.

The stronghold, therefore, must be considered advantageous or not based on how well its structure fits the location. Form and function must agree as much as possible for success. Referring back to the illustration of the tower with cavalry, this is disadvantageous in that everything is contained in one building. Without controlling the issue of waste, there is a chance the occupants and the horses could become sick.

The only way a tower could become advantageous for such use would require meticulous detail to sanitation. This is because of the lack of open space needed to keep the stables away from the kitchen and sleeping quarters. To see this in action, think of how a farm is designed. The animal pens are kept as far away from the bedrooms and kitchen as possible. Space is the premium structures use to create advantages and disadvantages. This is a fundamental principle that makes strongholds stand out against a storyline.

Bigger is not always better in the world of strongholds. In fact, the larger it is, the more problems it is likely to face. This is why few are large. Smaller strongholds are cheaper (individually), constructed faster, and a string of fortifications can easily be set in a line. The disbursement of strongholds in this fashion allows for a more equalized distribution of power. In some ways, this is how modern police stations operate. You have a main headquarters, a few precincts, and kiosks to allow maximum coverage. In a fantasy setting this would be a castle, a few fortresses, and small keeps similarly spread about.

No matter which structures are used, nations should have more power concentrated in the interior rather than along the borders. The outlying regions may fall due to this style of defense, but as an invading force moves towards the heart of nation, it faces stiffer resistance. If everything is placed along the borders, one runs the risk of an enemy breaking through and facing weaker forces, overwhelming them, and practically handing over the country. Vast curtain walls could help keep invaders out, but eventually some means will be found to circumvent a defense.

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Accommodations

The advantages and disadvantages associated with a fortification's accommodations come not just from what is present, but how it is arranged. If you look at the structure of a modern house you will notice that the bedrooms are grouped together, the kitchen, family room, den, etc. are in another region of the house with a bathroom located roughly between the two areas. The layout is effective because it minimizes its disadvantages. A similar approach should be used with strongholds.

As with modern dwellings, strongholds generally cluster rooms together. The kitchen will have a pantry or storage room close to it. The stable will be placed away from the kitchen. Strongholds with their own armories and smithies normally see these clustered together. Clustering works to minimize disadvantages in part because of logistics, which improves efficiency, increases productivity, and reduces traffic.

Following the clustering of like-themed rooms, the martial qualities of a stronghold will be similarly arranged. From the outer perimeter of a defensive barrier (such as a wall) to the offensive capabilities, there is a pattern that a stronghold follows. The defenses of a stronghold will be intertwined with the offensive. The crenellations along the wall are one such feature that illustrates this point. The merlons provide cover while the open portions (crenels) offer guards a way to fend off attackers with minimal exposure.

Towers incorporated into a castle's curtain wall and stables with a straight line to the main gates also show how accommodations can be arranged to give a greater edge. The tower allows guards to spot an approaching army without leaving the lookout stranded. The wall prevents the army from overrunning the castle while the troops within prepare a counterattack. By having ample space to run straight when the gates are open, cavalry can explode out of the fortress. This tactic lets them function as shock troops.

The disadvantage to accommodations placed in groups comes when an attacking force breaks through a stronghold's walls. The clusters allow a savvy commander to plan how a stronghold will be raided once its defenses are cracked. While laying siege, the commander will be able to discern where to concentrate his resources to weaken defenses. This means the maximization of the stronghold's advantages will leave other areas disadvantaged.

Strategy & Tactics of Strongholds

If it has not been stressed enough, let it be reiterated that each stronghold category has its own unique strategy and tactics. It would be impractical to detail them here as a result. Also, it would not be wise to stress generalities either. The general strategy for each category does not take into account the structure's layout. This is deliberate as the previous sections have detailed the generalities as much as possible concerning structures, layouts, and accommodations. When designing a stronghold, please refer to the structure's category to devise a feasible set of plans for that particular fortification in conjunction with the rooms selected.

Construction

With planning completed, construction can begin. Building a stronghold is a straightforward process. An engineer or two will be necessary to oversee the process and ensure the stronghold does not end up lopsided or collapse after it is built. Decisions must be made about materials used and whether decorative features will be added. Despite this, note that the times for construction do not necessarily correspond with historical equivalents. Such a model would leave the average castle far from complete during the span of the average campaign.

Costs for constructing a stronghold are based on size, materials used, and whether any additional features (sculptures, carvings, spikes, etc.) are incorporated into the final design. If a room is carved or excavated from the terrain, such as a mountain fortress or a cellar, the costs will increase by at least 3. The amount of material used for the walls of a room built 30 square feet by 10 feet tall and 1 foot thick is equal to 1,200 cubic feet. The same room carved from stone equals 9,000 cubic feet of material. That is more than seven times the material! Of course, if the structure is a mountain stronghold with subterranean features, the stone can be used for the surface buildings.

The materials used in a structure are important as they affect how long it takes to build the stronghold and the cost. One may think that cutting costs and corners will help. When the stronghold is assaulted, he will know whether it was worth the savings. The survivability factor decreases significantly when materials softer than stone are used. On the other hand, if

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your stronghold's greatest advantage is camouflage, it may be best to forego heavy construction materials. If you cannot find the stronghold in the first place, then its camouflage makes up for a lightly armed state.

Last, one should consider the occupants of the stronghold. The structure should be sized to accommodate the intended inhabitants. A gnome would not build a structure on the scale of a giant for himself. The size of a stronghold and the components should be adjusted to the same scale as the primary occupants.

Before proceeding further with the calculations of costs, you should plan out the stronghold. By knowing how large the complex will be as well as the rooms included, the process of determining how long it will take to build it becomes easier. Also, this will help to limit the size of a structure a character is planning if the costs are well beyond what he can afford.

Foundations

The first step in building is to ensure the foundation is a stable surface. There will always be a cost for laying a foundation no matter how many sublevels a building has. The cost for a foundation is equal to .5gp (5sp) per cubic foot prepared to support a structure. Cubic feet are used as the measurement because some ground may require excavation to provide a level surface. This cost includes the removal, adding, or packing of material necessary to build the structure to allow an equal distribution of weight throughout the walls. Without this step, the building will collapse prematurely. This guideline assumes the structure is built on a stable surface; the table below includes other surfaces used and their cost modifiers. Note that only 25gp worth of a foundation can be prepared a week.

Surface	Modifier
Ice	+25% or -10% (if reinforcement is not required)
Sand	+50%
Stone, Porous	0%
Stone, Hard	-15%
Stone, Soft	+5%
Soil, Soft	+10%
Swamp/Marsh	+100%
Hardpan	-5%
Wood	+15%

Transportation

As an option, you can include a modifier for the transportation costs to bring materials to the building site in addition to taxes levied against the stronghold's owner. These values simulate how much it costs for goods and services to be made available to the stronghold. Player characters may desire to have access to such luxuries, but they are not necessary for a building to perform its function.

The most cost-effective option for where a stronghold is built is based on not only the town size, but also proximity to it and what gains the location offers in exchange. Mathematically, this is referred to as break-point theory. The base of the break-point is the distance in which desirability (land value) and the need to create infrastructure offset one another. The tables below represent a simplified version of this principle; their use is optional.

Settlement Size	Cost/ Distance Modifier
Thorp	-30%
Hamlet	-10%
Village	+0%
Small Town	+5%
Large Town	+25%
Small City	+45%
Large City	+50%
Metropolis	+70%

Range	Cost Modifier
0-5 Miles	+40%
6-10 Miles	+30%
10-15 Miles	+20%
16-20 Miles	+10%
21-30 Miles	+5%
31-40 Miles	0%
41-50 Miles	+10%
51-65 Miles	+25%
66-75 Miles	+35%
76+ Miles	+45%



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Height/Depth of Building

The average building is a single story, especially given the level of technology involved. Adding a second story or a basement has no noticeable burden on the project. That said, structures with more than two floors or a single basement level incur additional costs. This reflects not only the difficulty for stabilizing the structure, but also the price of labor, scaffolding, and time requires to ensure building stability and erection of the tools to move materials to the construction site.

Basement sublevels apply this increase first in part because of foundation requirements along with the need to examine the soil and rock for any flaws that could destroy the stronghold before it is finished. This cost applies to both excavations and rooms. Yes, this does mean that sublevels grow very expensive, very fast. In regards to modern skyscrapers, this is why they are only built in fairly dense locations as they usually have a sublevel for every two floors above ground to anchor the building and increase the amount of real estate available for leasing, which helps recoup the costs of construction and building maintenance (the building's implementation of break point theory).

The adjustments are as follows: anything above two floors or below one basement level adds 10% to any construction done for the first level and +5% per floor beyond that. Thus, a third floor costs 10% extra and the fourth costs 15% more. For basements, the second level costs 10% more and the third 15% more. These costs only apply to that floor, **not** the entire structure!

Fees

The costs for buildings can quickly become expensive. This can be a result of delays from the arrival of materials. These may be essential supplies such as nails, lumber, or for the building's ornamentations. Another problem may be that the building's owner cannot pay the construction crew. Calculate the final cost based on guidelines you have chosen to adopt for your campaign along with costs given throughout this book and your chosen game system. However, to allow for these potential problems to affect the time it takes to finish building the structure, in conjunction with how much is spent on labor, you should deduct expenses monthly. If any adventures center on the stronghold during the construction phase, you can adjust the costs as necessary.

Additionally, strongholds require equipment such as



scaffolding, constructed or assembled on site, for buildings with basements or multiple stories. Contracted professionals will also charge for specialty tools required for truly fantastic strongholds. These expenses are extras above and beyond the standard equipment used. Essentially, these are tools not considered part of the professional's standard toolkit.

Building a stronghold can be grueling. As an option, terrain and climate can increase costs for the food and water to sustain the workforce. The table below is a guide to determine how much more should be charged.

Climate/Terrain	Adjustment in Expense and Time
Arctic/High Elevation/ Deep Winter	+20%
Tropics/Summer	+25%
Underwater	+75%

Once a location, the plans, and the estimated costs of the stronghold have been determined, the next step is to figure out how much it is going to cost for workers. The formula for determining how many workers are needed is based on the total cost of the building, the ornamentations it uses, and any non-traditional amen-

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ities it contains (such as plumbing, which was rare to unheard of in Medieval Europe) as shown below:

Worker	Needed per gp
Architect	1 per stronghold
Plumber	75,000 (only needed if structure uses plumbing)
Carpenter	25,000
Laborer, foreman	35,000
Ironsmith	60,000
Sculptor	80,000 (only required if there are decorative features)
Engineer	1 per stronghold
Engineer, Assistants	30,000
Master Mason	50,000
Mason (journeyman)	25,000
Laborer, unskilled	5,000

Professionals and laborers share one thing in common: they expect to be paid. Laborers are cheaper than professionals, but neither will work for free if not forced to. The costs for professionals and laborers, given below, are averages and include room and board. Professionals are likely to vary from their average through differing levels of expertise. One reason is that a professional who knows how to construct a building in less time, without shortcutting the structure's durability, is going to demand a higher cost for his services. If such highly skilled people are required, it behooves a character to pay the professional what he demands. Reputation could be damaged if word gets out that the stronghold's owner is unwilling to pay for service with an agreed-upon price.

The prices below are averages. If your preferred game system has costs, use those. OGL players wishing for more diversity should pick up a copy of *Experts v3.5*

Worker	Cost (per month)
Architect	500gp
Plumber	100gp
Carpenter	100gp
Laborer, Foreman	100gp
Ironsmith	100gp
Sculptor	100gp
Engineer	300gp
Engineer, Assistants	150gp
Master Mason	200gp
Mason (Journeyman)	100gp
Laborer, Unskilled	20gp

Progression

Measuring how much of a stronghold is completed on a weekly basis may be a waste of time for large structures, such as castles, compared to something as small as a pillbox. One reason why a weekly timeframe is impractical (at least during early construction) is that leveling and laying the foundation takes longer to finish than any one part of the structure. Much of this time is spent in meticulous measurements to ensure channels have not been dug too deep, too shallow, or too short. This may seem like an inordinate amount of time, but it is crucial to stabilize the structure. Once the costs for the foundation have been met, you can switch to a weekly schedule (250gp of construction) as the pace quickens. From that point forward, progress becomes more apparent.

For the average stronghold, one month should see the completion of one room, including flooring, walls, and ceiling. This averages out to approximately 400 sq. ft. of enclosed space, or a 20' x 20' x 10' volume. As you can see, the rapidity of the building's completion compared to its foundation is remarkable.

Although strongholds are estimated to have roughly 400 sq. ft. completed each month, the exact value is based on the cost of the room. Thus, a room can take more than a month to complete. This example is meant to show just how long it can take to build a castle. Smaller structures, however, should be completed or nearly so within a year. This book uses the assumption that the construction techniques used are similar to those practiced during the Medieval and Renaissance Eras of Europe. The consequence is that buildings are presented at the cost it would take without magical or other fantastical aid. Since magical aid is considered optional (peasants generally do not have access to magic when building defensive earthworks), it is presented in a section on its own. Magic may be expensive, but the amount of time it takes to build a massive cathedral can be reduced to a year. Many of Europe's great cathedrals and castles took decades to build; a fantasy game relies on a more compressed time scale, leading one to assume that player characters employ the aid of a wizard or two if the structure is to be completed in as little as a year or two.

Materials

The preeminent building material available for a mundane stronghold is stone. However, this is not the only

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material that can be used. Wooden palisades and earthen walls have equally served as defensive works and both materials allow for the construction of homes and makeshift fortifications. Topiary barriers must also be considered. After all, it would be difficult to imagine how one would build a garden labyrinth without shrubbery. The fantasy genre utilizes materials beyond wood and stone in describing structures from grand imperial palatial spreads to ice castles to foreboding rust-colored iron fortresses to arboreal strongholds of sylvan races. There is no reason you should not make use of these materials either; however, you should be aware of their strengths and weaknesses before using them. The list below gives some common fantasy construction materials their multiplier to costs, and their standard thicknesses.

Material	Multiplier	Thickness
Bone	+15%	1'
Brass	+125%	3"
Brick	-15%	6"
Bronze	+110%	3"
Cloth	-90 to +400%	1'
Concrete	-5%	6"
Crystalline	+750%	1" (3" for walls)
Dirt/Soil	-75%	3'
Flesh	+1000%	1'
Glass	+200%	1" (3" for walls)
Granite	+0%	1'
Ice	-95% to +500%	1'
Iron	+100%	3"
Marble	+10% to +50%	1'
Mud/Clay	-80%	3'
Paper	+30%	negligible
Solid Air	+500%	1'
Solid Fire	+500%	1'
Solid Water	+500%	1'
Steel	+75%	3"
Thatch/Brush	-10%	1'
Topiary	-45%	3'
Wood	-25%	6"

Bone is not a common building material except in the most primitive of societies or regions where more conventional materials are scarce. Taiga and sandy deserts are two terrain types that exemplify locales where bone would be a popular building material. Necrotic societies or structures would also make use of

bone. Depending on the size of the bones and the structure, it is likely the structure will serve as a shelter rather than a defensive network as they tend to be brittle.

Brass is an alloy of copper and zinc. It has a mild resistance to tarnishing and is used commonly as decoration, if used in construction. The "Brass City" rumored to exist on an elemental plane most likely is an example of brass cladding for decorative purposes. Using it as a base material, the percentage modifier increases to 5 times that shown on the table. It tends to be weaker and more expensive than iron.

Brick is one of the oldest building materials used throughout history. While it may not be as old as clay, piled stone, and wood, it is one of the earliest known materials purposely created for permanently-standing structures. It was the chief building material of Rome and has been found in ancient settlements in the Indus Valley that are far older. Any civilization with the ability to build kilns can create bricks.

Bronze is an alloy of copper and tin. It served as a mainstay prior to more advanced ironworking technologies and was stronger than early wrought iron. In different fantasy settings its value relative to wrought iron will vary. If used in construction, it is commonly used as cladding. As a base material itself, the percentage modifier increases to 5 times that shown on the table.



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It tends to be weaker and more expensive than iron.

Cloth is presented here less as a building material, but more as what is found for tents and other structures where a frame is temporarily covered. Tepees and yurts used animal hides to achieve this same effect and tents, as well as ceremonial structures which employ a cordoning of the sacred area, often use cloth. The listed cost adjustment reflects the range of quality of the covering. Cloth can also be used for porticoes and other platforms where one or more walls are exposed to the elements in times of inclement weather. Unless magically manipulated, cloth cannot be used as a chief building material.

Next to brick, **concrete** was the most commonly used building material in Roman structures. Rather than being an issue of a lack of stone, concrete allowed for rapid construction. It was more expensive than brick, but did not require the intensive labor needed for shaping stone. Concrete allows a building to be poured in place while still retaining the strength of stone. Hence, reducing costs by eliminating the need to transport stone from quarries.

Crystalline refers to minerals such as gems and other translucent and colored stones. L. Frank Baum's Emerald City is a famous building made of this type of material. Such structures are extraordinarily expensive. Alternatively, the cost may be a result of magic. This

allows for large chunks to be placed without the labor and transportation necessary to dig up and move the crystals. Regardless, strongholds made of or encrusted with this material will be unusual.

Dirt/Soil is a plentiful – and cheap resource. Unless the location is comprised of solid materials (stone, ice, etc.), there should be plenty available for creating crude walls. Dirt can be compacted so that it can become hard enough to be burrowed through to create a rough hovel. Without more solid materials, dirt and soil cannot support larger structures. Often, dirt is used as a filler to save on the costs one incurs when building a structure out of stronger building materials.

One of the more unusual construction materials is **flesh**. Flesh can be used as cladding over some other material. In most cases, it has to be fed. It carries a strong carrion odor that can be smelled for miles and will be debilitatingly nauseous for most characters within such a structure. Generally, it requires a circulatory system and a method of excreting waste. As high as construction costs are for the fortification of flesh, the maintenance costs are worse (5x higher). It is provided here as an example of one of the more gruesome ideas fantasy literature has produced.

Glass makes an interesting building material. The thicker it is, the stronger and more durable it becomes. Normally, this material is too brittle for use as the main material. Several examples exist in fantasy of buildings made of glass and there are buildings where glassworks are the largest components. The glass pyramid of the Louvre is an example of such a construct. A steel frame supports the mass of the building in this instance, but it is primarily made up of glass panels.

Granite is igneous rock formed from solidified lava. It is very hard, making it difficult to use. It requires no special treatment and can last millennia with little maintenance. Heavily used areas will, over a period of centuries, show dips where the stone has been worn away from use. As a common stone, granite is plentiful and readily available. The caveat is the slight difficulty in shaping it; however, it is the default building material in stronghold construction.

Ice, elemental or otherwise, is an unusual choice of “masonry.” It is inexpensive and plentiful in cold climes. Ice tends to melt, and requires a lot of maintenance to hold and freeze water. One of the problems with ice as a construction material is its limited geographic use. The coldest reaches prevent ice from

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melting, so it can last indefinitely. Elemental ice is more resistant, but it is not impervious to temperature. As a result, both types require a significant amount of maintenance (usually magical) to prevent the structure from melting away. Elemental ice requires fewer resources keep its shape.

Iron is an elemental metal. It can only be produced through chemical reduction. In fantasy settings, when iron is referenced, it usually refers to wrought iron. Wrought iron is created by smelting pig iron and adding carbon such as charcoal, as it is hammered and folded, removing slag and rust. Iron is the most plentiful metal, it is heavy, brittle, and is commonly used as cladding. If used as a base material, the percentage modifier rises to 5 times that shown in the table. It is not as strong as steel.

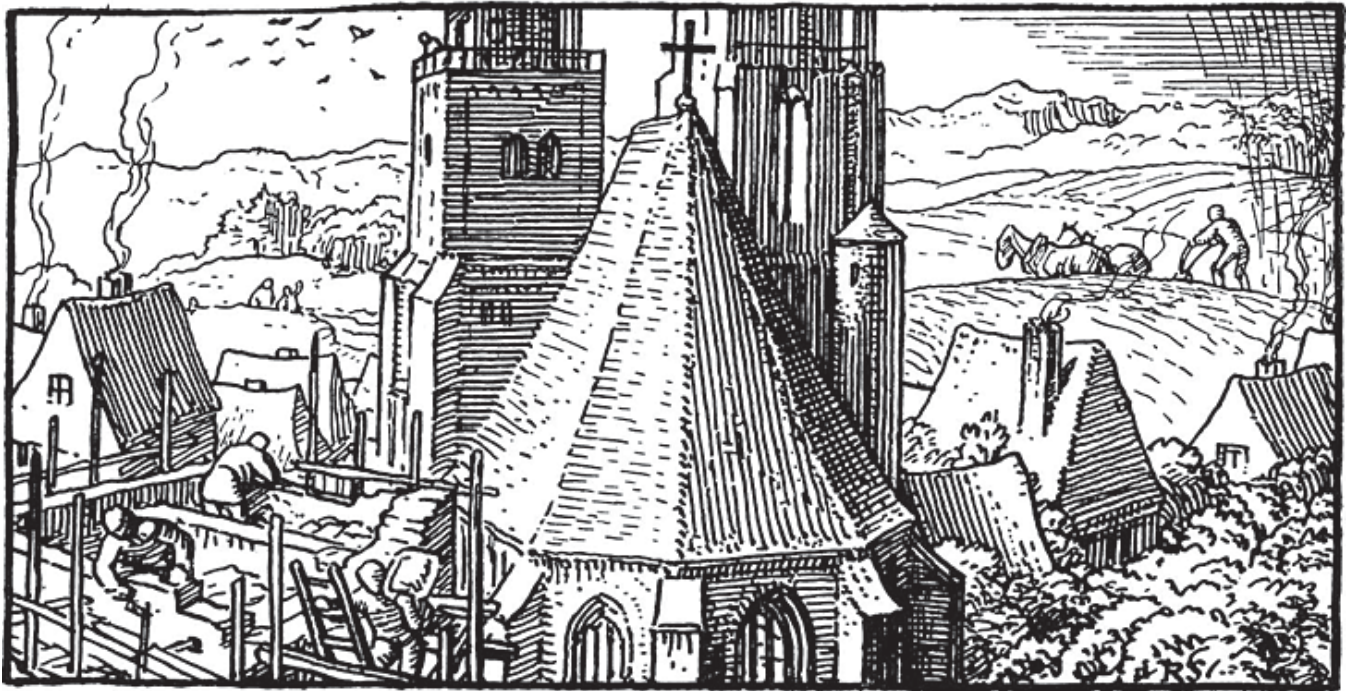
Marble is metamorphosed limestone. It is relatively soft and easier to use than other types of stone. Unfortunately, this softness requires care in construction to shore up stress points to prevent it from crumbling faster than other materials. It requires no special treatment and can last for centuries. Heavily used areas will, over a period of decades, show dips where the stone has been worn away by use.

Mud and Clay are two of the oldest materials used

for construction. They are plentiful in virtually all environments. As a result, they have no cost adjustments. Both materials can easily be pressed into a desired shape to speed up construction and limit or eliminate gaps between other materials. The limitation for using this material is weather. Unfortunately, rain and humidity can rapidly erode mud or clay structures, requiring frequent maintenance. Since the material is free, patching a wall with a thick mud or clay paste from the eroded material is easy.

Paper is like cloth in a lot of ways. While it cannot be used as a supporting material in a building, it can serve as a covering for walls. Paper is often used in areas prone to earthquakes. In Japan, this was used as one of the chief wall materials as it is easy to replace. Paper also reduces the stress to the frame of the building as it tears, preventing much of the structural damage that would otherwise be absorbed.

Solid Air, Fire, and Water building materials come from their respective elemental planes. On their home planes, such items occur naturally. When used as a construction material, they are treated as being similar to granite in terms of toughness and durability. Unlike their terrestrial counterpart, elemental solids retain the characteristics of their parent plane. The descriptions



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below note specific features of these materials:

Solid air, compressed and hardened, ranges in color from clear to a milky blue-white. It generally gets used for traps as the structure is invisible.

Solid fire does not lose its heat and will still set objects. Although it has the same weight as its mundane counterpart, solid fire feels lighter as its heat helps lift the material.

Solid elemental water is often known as “hard water.” It looks and shimmers like water but does not change shape despite appearing fluid.

Steel is an iron-carbon alloy heated to high temperatures to drive out impurities. Steel is very expensive and is generally used as cladding. Using it as structural supports is a modern concept. It is usually attached to the outside of an existing material to give it strength rather than as a base material in and of itself. If used as such, the adjustment rise to 10 times that shown in the table. Steel is subject to rust, stains, and requires a lot of maintenance if exposed to significant temperature shifts or humidity. Steel is very ductile, and will bend rather than break.

The use of local vegetation as potential roofing or flooring material was common in pre-industrial societies. **Thatch** refers to the layering of dried **brush** used to cover a roof. Combined with mud, the material can form wattle and daub walls. Dried plant fibers (chiefly hay or other grasses) are spread on the floor in the rainy seasons to absorb the moisture and prevent floors from turning into slippery hazards.

Topiary also plays a part in the construction process. Its most common use is the hedge maze. Topiary constructs also include trees fused together to form rooms, or treetop fortifications. Topiary takes more time than other materials to finish a project. Plants must be shaped, pruned, fertilized, and watered carefully. Maintenance costs are high as a result. The types of plants used also affects construction, time, and maintenance costs. With dangerous plants, it is to be expected that the gardeners will periodically suffer a mishap.

Wood varies from realm to realm. As a cheap, renewable resource, it is highly desired for most buildings. It lacks the strength of stronger materials, but has a versatility and flexibility matched by few building materials. Before use, it must be treated to resist damage by natural creatures, insects, and parasitic plants. Wooden constructions must be regularly maintained. Otherwise structures built with it will quickly fall apart. The cost listed is rated for oak or an equivalent thereof, rare or stronger woods will be more expensive.

Labor

There are three categories of labor a stronghold builder can choose from. The choices ultimately determine what quality is desired in the final product. When it comes to labor costs: the higher they are, the better the quality. Thus, while slave labor will reduce the overall cost, it is a gamble. Such “employees” are not interested in quality work or defenses designed to give their captors further leverage over them. The last thing a slave is going to do willingly is strengthen the chains that bind him.

If the stronghold employs slave labor for menial work, the character has to determine how many overseers are needed. Unfortunately, this means one has to add the cost of overseers to stronghold’s labor cost. Labor delays and poor quality are common drains on resources and finances. So, while the labor may be cheaper, there are significant disadvantages. This rule applies to structures the slaves are not building for themselves. It is possible that slaves used to build a stronghold will do so willingly, but there must be a reason to do so.

Another possible labor source is indentured servitude. While it is as close to slavery one can get without being a slave, the problems with construction delays and shoddy work are significantly lessened. However, depending on how indentured servants are treated, there is unpredictability in how they perform.

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Room Construction

The basis of room construction relies on a room's main purpose. For instance, a closet is used to store things. One room space stands as the template for all possible rooms. This generic space can conform to anything its user desires. Known as a utility space, this 5' x 5' x 10' area is devoid of any accoutrements with the exception of walls. This empty room can have shelves placed in it, expanded to hold a bedroom suite, create a hallway by being extended, or serve as a cellar. All room spaces below are essentially modifications made to the utility space and are 10' in height unless noted otherwise. For continuity's sake, the descriptions below are listed in alphabetical order, excluding the utility space, which is listed first and does not correspond to any one category.

Another factor to consider is room quality. This book uses a general descriptive system to denote how good the materials within the room are. You can assign a cost value to them other than the numbers below to simulate a different approach to the expenses. The qualities are as follows: Substandard, Poor, Fair, Good, Excellent, and Superior. They are described below with a generic multiplier that can be used with the percentage multipliers for larger sizes to determine how much a room of that quality costs.

Substandard rooms bear little resemblance to their fair counterparts. Rooms with this quality could be described as barely livable. Many of these spaces should be found in areas of squalor or ruins. If part of a ruin, this category describes a portion of the building that has some functionality left. Building a room to this level of "quality" reduces the cost to 1/4 of its listed price. Such horribly constructed spaces have a tendency to collapse with little provocation. Industrial spaces possessing this quality level are hardly productive. The amount possible is halved and prone to frequent work stoppages. The goods produced are shoddy.

Poor spaces are not the greatest rooms to boast of, but they represent places that are old and in need of maintenance, rooms built with cheap materials, or hastily put together. They will last for years, but have some drawbacks such as materials that do not fully insulate from the weather, leaky ceilings, and so forth. These spaces require more maintenance than rooms of better quality, but they are livable. As a result, people living in these conditions have fewer health problems or less worry concerning whether their homes will collapse



than those in substandard ones. Rooms built to this level of quality cost 1/2 their listed price. If an industrial space has this quality, production is 75% of normal with roughly the same for quality of goods. Work stoppages occur at random, but are less likely to happen than substandard workspaces.

Fair is the quality this book assumes rooms are built to. There is no cost adjustment for rooms with this descriptor. Being the standard rooms are assumed to possess, a fair room is one typically encountered in the less seedy parts of town. They are not associated with the aristocracy or the nobility, but this is the sort of quality one should expect to find in the service portions of a stronghold, such as servants' quarters and storage areas. You can also use this descriptor for rooms that may have once been of greater quality, but have not been maintained to the level necessary to keep them in that condition. Any industrial space of this quality works as described in its entry.

Good quality rooms are better than their listed descriptions. They use the percentage increase in the room's description. Rooms of this grade are normally encountered in the homes of merchants and government spaces meant to impress the populace. These areas have a higher maintenance cost to keep the area in pristine condition. Depending on the culture and the stance the government/building owner has towards the general populace, this results in a positive or negative modifier to morale. In some instances, these areas can be used to rally the population to a cause. To produce high quality goods, an industrial space must possess this level or higher. The trade off for work of this

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caliber is that fewer pieces are produced. Alternately, if you want the space to be as productive as possible, then the amount of goods created increases by the quality percentage listed in the room's modifier section. The goods themselves, however, will be average.

Excellent quality refers to rooms built to such a high standard that they are architectural works of art. They are designed to provide a great deal of comfort while being aesthetically pleasing. These rooms are typical of the luxury suites found amongst the upper crust of society. Little is left to the imagination to how much comfort exists. They are meant to be as impressive as they are posh. If the area is a public space, it is designed to inspire obedience/allegiance through coercion and fear or pride. It can be a monument or place of solace. For industrial spaces, the quality of the goods is exceptional. Anything manufactured in such an area usually qualifies as a work of master craftsmanship. By necessity, the workshop will produce few items in exchange. Conversely, if you are looking for an assembly line style of production, this quality of space is able to produce average quality goods rapidly. Excellent quality rooms increase the cost by twice the listed percentage in the entry.

Superior describes rooms that are nearly unearthly in comfort and beauty. The quality of work that goes into a room of this sort is so exquisite that few can afford to possess them, let alone the privilege to set foot in one. These rooms are breathtaking and meant to show the perfection that can be obtained in construction, luxuries, and comfort. This level of quality increases the room's listed percentage adjustment by five. Few rooms of this quality should be found in any given location. More often than not, they will be private places reserved for the ruling nobility. Another thing to consider is that few industrial spaces have this level of quality. Workspaces for artists or those devoted to the arcane arts are an exception. The main public spaces this level of quality is most appropriate for are churches, especially if they are the spiritual hub of a faith in the nation, region, or world.

Utility Space Size: 5' x 5' **Cost:** 62.5gp

Description: The basic room component, this room is empty space. The material for walls, flooring, and ceiling change this into a room with a defined purpose along with the appropriate furnishings. Thus, a utility space wrapped in cloth becomes a tent, while one en-

cased in glass is a greenhouse or atrium. This space also serves to create anterooms, attics, ballrooms, cellars, cloak rooms, closets, conservatories, corridors and hallways, crypts, foyers, garrets, halls (audience or otherwise), solaria, vestibules, and a whole host of other similar types.

Larger Size/Improved Quality Multiplier: Utility spaces are smaller than the standard size for rooms. The largest room that can be created by a utility space without a multiplier is 10' x 10' x 10'. Anything with dimensions larger than this adds a 25% to the base cost of each additional room that increases the empty space beyond these dimensions. As such, hallways, no wider than ten feet, do not incur the multiplier, despite their length. Improving the quality of the utility space also uses the 25% multiplier.

Staffing Requirements: Utility spaces do not require staffing, but their contents may.

Furnished

In addition to the utility space, the rooms in this section constitute those furnished for household use. With the exception of a few rooms designed for state function, most can be found in any structure. The distinction between these rooms and those belonging to the industrial categories is made on the basis that few private dwellings make use of them. A caveat must be made for industrial rooms as many private homes historically doubled as a place of business. For instance, a blacksmith often had his forge attached to his dwelling.



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Room	Base Size	Base Cost (in gp)
Auditorium	20' x 20'	1,350
Chapel	20' x 20'	2,250
Shrine	5' x 5'	250
Theater	20' x 20'	1,500
Barracks	20' x 20'	500
Bath	5' x 10'	300
Bedroom	20' x 10'	300
Common Area	20' x 20'	800
Courtroom	20' x 20'	1,600
Courtyard/Forecourt	5' x 5'	Special
Dining Area	10' x 20'	1,000
Exercise Room	20' x 20'	500
Training Room	20' x 20'	1,000
Kitchen	10' x 20'	1,000
Latrine	5' x 5'	100
Lavatory		
Privy		
Lounge	20' x 20'	3,000
Drawing Room		
Parlor		
Sitting Room		
Salon		
Waiting Room		
Withdrawing Room		
Music Room	10' x 10'	1,000
Nursery/Playroom	10' x 20'	500
Prison Cell	5' x 5'	200
Study	20' x 20'	1,000
Office		
Library		
Torture Chamber	10' x 20'	2,000

Auditorium/Chapel (Shrine)/Theater

Size: (5' x 5') 20' x 20'

Cost: 1,350gp/2,250gp (250gp)/1,500gp

Description: At their core, these rooms have rows of seating facing a central platform against a wall (usually the one farthest from the main entry). Depending on the primary use, the trappings that provide the audience with a focus will give away the room's purpose. In turn, this affects the cost as many of these elements are built into the room. This room type requires a minimum of 20' x 20' with the exception of a shrine housed in an alcove (it only requires 5' x 5'). For seating space, consider that an average person requires 5' x 5'. This includes the space to walk down a row of seats without climbing over other patrons. Additionally, there is



at least one aisle, 5-10' wide, resulting in a room that can seat 4-6 at its smallest size.

Auditoriums must have a podium or dais, allowing a speaker to stand before those assembled. The speaking area does not need to be more than a 5' x 5' area, but is often at least 10' wide and 5' deep. The speaker will be close to the wall in smaller spaces. Auditoriums often limit this area to no more than 10' deep and 25' long, providing more than an ample space for the speaker to walk around, or for multiple speakers to remain in front of the audience, such as in a debate. As a courtroom, the auditorium works the best of the three when in haste. Auditoriums also double as school rooms, audience chambers, and throne rooms.

Chapels are the most expensive room covered under this entry. To show reverence to one's deity, many cultures spend large sums on ornamentation, gilding, and valued commodities to express devotion and willingness to sacrifice for one's beliefs. This represents artwork, altar, special drapes or colors significant to the deity, and any other relics/tools/vessels common in a place of worship. The space for the altar is normally 5' x 10' with a clearance of no less than 5' around it for patrons to perform ceremonies. A chapel of the minimum size will have half of it dedicated to the altar and ritual space.

The theater is focused on a stage at least 5' deep and any length deemed necessary for a play or other performance to take place. As such, many theaters are much larger than the minimum to allow 10' of depth for the stage and possibly an orchestra pit between it and the seating. Theaters also need storage spaces either behind or to the sides of the stage to allow props or

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other equipment to remain out of view or far enough out of the way to prevent disruption.

Larger Size/Improved Quality Multiplier: Each extension of these types of rooms adds a 25% modifier to the base cost of each section. Increasing the quality adds a 25% multiplier. Improving the quality of these rooms applies not only to the central focus but also to the seating. Fair quality rooms normally come with benches while those of greater quality have benches with backs, individual seats, and even padding.

Staffing Requirements: Auditoriums, chapels, and theaters do not require specialists to maintain them within a stronghold if such areas are of minimum size. It is assumed the general serving staff can maintain this space and that the stronghold's owner can officiate or oversee use of the room. Specialists are necessary when the occupancy of the room exceeds 20 seated patrons and the room is good quality or better. The stronghold's owner can fill this requirement if he possesses the appropriate skills that would allow him to qualify as an expert. Auditoriums and theaters need one usher per 100 patrons. A chapel needs a priest and assistant clergy members per 50 people. The entertainers on the theater's stage are not inherent staffing and must be paid for separately.

Barracks Size: 20' x 20' **Cost:** 500gp

Description: Barracks are designed to provide soldiers with a place to sleep and store some personal items. Many barracks are not designed for a soldier to store a great number of possessions or those of large size. Whether designed for rotational use or long-term living conditions, the barracks room is designed to provide an area for sleeping and little else. Soldiers may relax in the barracks, but many of them spend as much time lounging in the training area as well as in other locations, especially the common area, where meals are eaten. The barracks space described here will hold up to eight soldiers. Officers are housed in bedrooms where they may share space with up to one other person.

Larger Size/Improved Quality Multiplier: Depending on the structure, a larger room may be needed to house soldiers. Expanding this room increases the cost by 25% per space. If the soldiers are given high regard in a culture, or the room is for an elite guard, the quality of the room will be such that the beds will be more than simple wooden pallets with straw mattresses. Improving the quality of a barracks room adds 20% to the base cost.

Staffing Requirements: It is rare to find a serving staff in a barracks. Elite units may have servants that attend to the maintenance of their quarters, but this is an exception. Soldiers housed in the barracks are responsible for maintaining their living quarters.

Bath Size: 5' x 10' **Cost:** 300gp

Description: Baths are uncommon, but important features for the comfort of any self-respecting aristocrat. These rooms allow for the utmost in hygiene in the standard fantasy setting. A typical bath includes a tub to make the experience pleasurable. Most tubs in a standard bath are made of copper. In a mediocre or poorer bath, the tub may be made of wrought iron. A bather may come away cleaner than when he went in using such a tub, but the water used may not look clean. This space does not include a commode; it is dedicated purely to bathing.

Larger Size/Improved Quality Multiplier: To make a bath larger, each extension adds a 25% multiplier to the base cost. The materials used to create a bath are expensive. As such, the cost for increasing the quality is 30% added to the base. The bath room is the component used to create vast bath complexes. When used in this manner, the room space is essentially a utility space with a pool rather than a tub unless specified otherwise. Pools are created according to the section on excavations. This, then, creates rooms such as natatoria.

Staffing Requirements: Bathing is a private affair. It is also a messy one. Baths and bath complexes larger than 20' x 20' require an attendant per 20' x 20' section. They are responsible for ensuring the water drawn for a bath is kept at a comfortable temperature. Also, attendants keep the bath stocked with dry towels, perfumes, scented oils, and other consumables associated with bathing.

Bedroom Size: 20' x 10' **Cost:** 300gp

Description: In its barest form, a bedroom has enough space for a bed large enough to allow one person to rest and have enough space for personal belongings. This is limited to a few changes of clothing, personal grooming implements, and assorted baubles. The furnishings are functional, but do not necessarily offer the greatest comfort. This unornamented space is similar to what a monastery would possess as it allows the room to serve for nothing other than a quiet place to sleep.

Larger Size/Improved Quality Multiplier: Creating a larger-sized bedroom adds 25% to the base cost

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of each additional section. Bedrooms can hold one extra person comfortably per section added. Thus, a bedroom that's 20' x 20' has enough space for two occupants to sleep comfortably. Since bedrooms are meant to provide as much comfort as possible, the quality multiplier is 40%. Each level of quality above Fair should allow a fatigued character to recover at a faster rate than normal.

Staffing Requirements: Bedrooms are not treated as spaces that require specialized staff. There are instances when this is not the case. Consider an inn. Consisting mostly of bedrooms, the building will need more servants to take care of the building's maintenance than the general formula given for a stronghold type. Nobles who have personal servants can assign them specifically to maintain their private quarters rather than the general staff.

Common Area Size: 20' x 20' **Cost:** 800gp

Description: A common area is the space used for anything from drinking in a tavern to an enclosed space that serves as a meeting hall or open market. The room is typically found as the quintessential tavern or inn. There are tables, a barkeep, serving girls, a raised platform for performances, a fireplace, and other accouterments common to the typical tavern. This space also represents a large dining hall where numerous people are served en masse with long benches and rows of equally long tables. Think of this as a multi-purpose room. The number of people that this space can hold comfortably is 30 per 400 square feet.

Larger Size/Improved Quality Multiplier: Common areas are normally large spaces. Despite this, they have a 25% increase to their cost per additional space when creating a larger room. Few public areas of this type have their qualities improved above Fair. Such common areas are mainly located in upscale taverns and inns or as refectories in cloisters and colleges. As much of the furnishings of the common area are tables and chairs, the quality modifier is only 20%.

Staffing Requirements: Additional staffing is not necessary for common areas. They are considered inherent portions of a building. High quality common areas would employ servers for the duration of a feast, but this is not beyond the normal function of the affairs of a stronghold's daily routine.

Courtroom Size: 20' x 20' **Cost:** 1,600gp

Description: Depending on the culture and era of



play, this room may be unheard of. Other rooms or buildings may serve as courts (churches, audience halls, taverns, inns, and the like have all been used historically). The room is designed around a space for the accused, who may be isolated and chained in the center, and the judging body. Based on the culture and how much you want your campaign to reflect the modern world, the courtroom can be designed with areas for judge, jury, plaintiff, and defendant. This configuration requires at least 20' x 40' of space and it is atypical in a fantasy setting. Assume that each person needs a 5' x 5' space for comfort. The arbiter(s) of a case will normally have a table or desk, adding to the space required.

Larger Size/Improved Quality Multiplier: Courtrooms have their quality increased based on the level of law they deal with. For instance, a court that deals mainly with debtors will often be of fair quality or less because of the volume of traffic. Compared to a courtroom that deals with religious or national law, a debtor's court is a pale imitation. Increasing the size of a

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courtroom adds a 25% to each space. Improving the quality of the room increases the base cost by 25%.

Staffing Requirements: Unless the owner of the stronghold is well versed in the legal affairs of the nation/region, a lawyer who can serve as a judge is needed. Additional personnel include a bailiff and prosecutor (for nations with greater freedoms for the populace or to relieve the noble from carrying out this aspect of rulership). Some courts have a security force permanently assigned to preserve order.

Courtyard/Forecourt **Size:** 5' x 5' **Cost:** Special

Description: Whether used as a bailey or as a fenced-in, open-air space, the courtyard is an open area. Other than the land, there is no cost associated with the courtyard. Each space, however, may have an added cost based on what fills it. Thus, if you have a grassy area, the only cost is the landscaping. Adding ornaments, fountains, or other topiary (see the labyrinth entry for an example) uses the cost for those items. If paved, use the costs for flooring to determine the price.

Larger Size/Improved Quality Multiplier: There are no multipliers for the courtyard since it has no ceiling. Quality multipliers are also inapplicable. The costs from other objects determine the price of the courtyard.

Staffing Requirements: Courtyards and forecourts do not require specialized help unless some portion of the space states otherwise. For example, a gardener is needed to maintain the hedges in a labyrinth as is an artificer for a mechanical wonder. Otherwise, no additional staffing is needed.

Dining Area **Size:** 10' x 20' **Cost:** 1,000gp

Description: The dining room covered by this entry is not the sort often found in a run-of-the-mill tavern or inn. That space falls under the domain of the common room. Rather, the type of dining room this represents is one where aristocracy and nobility have private meals. These rooms are essentially intimate affairs where meals are eaten with a select few. As such, they resemble modern dining rooms compared to a restaurant (akin to the common area described above). A dining area holds 6 people.

Larger Size/Improved Quality Multiplier: Dining rooms used for affairs of state, especially in a palatial stronghold, will be large. Increasing the size of the room increases the cost of each section by 25%. Given the amount of ornamentation tables, walls, and other decorations of a dining area can possess, the quality multiplier is 30%.

Staffing Requirements: No additional staffing is necessary. While the serving staff may be taxed during usage of this room, most of the time these personnel will be drawn from other duties in the stronghold for the duration of the feast.

Exercise/Training Room

Size: 20' x 20' **Cost:** 500gp/1,000gp

Description: An exercise room has equipment to help a person maintain physical fitness. These rooms look less like a modern gym filled with weight machines or free weights than one filled with a few heavy rocks, lumps of metal, etc. that one would use to help develop muscles. In some instances, this room is an empty space as most exercises historically were done without equipment, relying instead on calisthenics. This differs from a training room, which is filled with equipment for developing martial skills. Training rooms can include indoor archery ranges (or firearms, if your campaign uses such weapons); but, unless noted otherwise are assumed to refer to melee training. This space can comfortably hold 4 people actively engaged in exercise or training and can squeeze in up to 8 people who are practicing the same regimen.

Larger Size/Improved Quality Multiplier: Rarely would you find a stronghold that houses a standing contingent of soldiers without a training room. If used for ranged weapons, the size has to be increased to at least 100 feet long and would only allow four people to practice at a time. Increasing the size of this space adds 20% to the base cost of each if roofed. Quality is normally less of an issue except when detailing the equipment and its durability. For rooms with a quality above Fair, increase the base cost by 30%.

Staffing Requirements: Neither room requires a full-time expert. A master-at-arms can oversee a training room without reducing any quality modifiers. The same holds true for a fitness trainer. These individuals can maximize the potential of these spaces, but they are not mandatory.

Kitchen **Size:** 10' x 20' **Cost:** 1,000gp

Description: This space represents an area designated for preparing meals. While a hut will have a fire for cooking food and many small cottages have a hearth that can serve the same purpose, a kitchen is a room segmented so it can hold a pantry, a place for washing dishes and the household's laundry (called a scullery) and a stove, oven, or fireplace where foods are cooked.

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Some items typically found in a kitchen fitting this description are storage areas for utensils, spices, and an assortment of dry goods. Thus, the kitchen that fills this space is not common amongst the middle and lower classes. The kitchen here has enough space to prepare meals for up to six people.

Larger Size/Improved Quality Multiplier: A Fair quality kitchen is bland and serves as one commonly found in the home of a well-to-do farmer in many fantasy novels. The meals are hearty and healthy, but not spectacular. A larger kitchen is not necessary to prepare meals for families. To serve exquisite and/or exotic meals, however, requires the kitchen be of a higher quality. The time to prepare a meal is approximately 25 minutes per person up to the kitchen's limit. Additional people increases the time by 30 minutes each. Improving the quality of the kitchen alleviates this by adding one additional person to its limit per quality above Fair. This is in exchange for creating exotic meals when used in this capacity.

Staffing Requirements: Anyone with the proper skill can use a kitchen. To cook for more than a family or anything exotic, however, requires a professional. To help this individual, at least one assistant cook is needed for each extension to the kitchen and at least one scullery maid. It should come as no surprise that increasing the size of the kitchen necessitates the cook's skills be greater as well. Being an administrator is not enough, however. Imagine the CEO of a major corporation trying to run the kitchen of a five-star restaurant if the only thing he knows how to make (or cares to) is grilled cheese. Such is the importance of a chef's abilities.

Latrine/Lavatory/Privy

Size: 5' x 5' **Cost:** 100gp

Description: It is a dirty job, but someone has to do it, right? While it is one of the most overlooked aspects of fiction, having a place to take care of bodily functions is important for inclusion in any space that is meant as a living space. Whether the barracks on the frontier or the grand palatial spread of the largest empire, everyone has to relieve themselves sometime. As disgusting as the subject may be, you should have at least one space in a building with domestic rooms where people can take care of this overriding need. It can be a room with a hole in a seat where waste falls into the moat below (a garderobe), a box with a chamber pot that gets emptied by servants, or even plumbing.

Larger Size/Improved Quality Multiplier: There

are two reasons to increase the size of this space: to feel less claustrophobic while in the room or so multiple people can relieve themselves at once. The Romans were obsessed with hygiene. One of the many public facilities available to the masses was the communal latrines. To keep them as clean as possible, these latrines had flowing water to wash away waste as well as sponges on sticks one could use to clean up afterwards. It is not the most pleasant thing to think about, but imagine the scenarios that could play out where traveling to/through one of these rooms is necessary. After all, sewers have a source for effluence. Increasing the size adds a 5% to the base cost of each room after reaching the 10' x 10' limit. When quality is improved, however, the base cost is increased by 25%.

Staffing Requirements: It may not seem likely that one of these rooms would be staffed full-time, but it is possible. The system used to remove the effluence is critical to knowing what help, if any, is needed. If the privy is an overhang above a river, there is no need for specialized help. Rooms utilizing a sluice or piping may need staffing if the design does not allow for the removal of waste or if it backs up. Incidences where this need is likely are privies of less than Fair quality.

Lounge/Drawing Room/Parlor/Sitting Room/Salon/Waiting Room/Withdrawing Room

Size: 20' x 20' **Cost:** 3,000gp

Description: This entry covers six very similar rooms. They are designed for receiving and entertaining guests. The drawing room and withdrawing room are specifically designed for entertaining guests after they have been received, and the waiting room is meant to hold people outside another room before admittance. The lounge, parlor, or sitting room is where guests are seen and entertained during the course of the day in an aristocrat's home. The drawing room (or withdrawing room) serves the same function, but is often visited in the evening and filled with games, a musical instrument or two, chairs, sofas, and (perhaps) shelves of books. The other rooms have similar diversions, but are more subdued (drinking, reading, and talking with smoking are normally confined to the lounge). These rooms often have large windows and a fireplace. Due to the amount of furniture, these rooms can comfortably hold 5 people at their base size.

Larger Size/Improved Quality Multiplier: These rooms are designed to entertain small groups of people. Since guests are involved, these rooms are gener-

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ally larger than the base size. Increasing their size adds a base 25% to the cost of each section. These rooms have comfortable and lavish furnishings. The result is a 40% increase to the base cost for improving quality.

Staffing Requirements: Unless the room is used for a specific type of entertainment that requires the use of a skilled professional, no additional staffing is needed.

Music Room Size: 10' x 10' **Cost:** 1,000gp

Description: The music room is essentially a storage space for musical instruments at first glance. The room, however, is designed to provide better sound. This room is commonly found in cultures where music is an important part of life and given its own place, rather than shared in a crowded space. Music rooms also serve as orchestral pits in front of a stage, as arcades (for chamber music), and as alcoves. In spite of a loss in acoustic quality, these open-faced rooms still enhance the sound of the music.

Larger Size/Improved Quality Multiplier: The music room is too small for many instruments. The base size can only accommodate four people seated next to one another, assuming small instruments are played. Increasing the size of this room adds 25% to the cost per section. Improving the quality of a music room increases the acoustics of the room. This is difficult when most of the materials used in a fantasy setting are stone, metal, and wood. As such, increasing the quality adds 40% to each section.

Staffing Requirements: Unless this is a private room for the structure's owner and only family and friends will be playing instruments, everyone using this space must be a competent musician. This can raise costs in short order. To counter the expenses necessary to pay these professionals, music rooms are often small.

Nursery/Playroom Size: 10' x 20' **Cost:** 500gp

Description: A nursery is used for infants and toddlers and contains furnishings to keep them comfortable and entertained. A playroom is similar, but is designed for adolescents who need a place to go that keeps them entertained and out of the way while their parents conduct business. Few nobles will reside in a building that does not have at least a nursery. It makes life easier for them to keep children out of the way while working. In combination with a school room, they form the majority of the childhood world of the aristocratic and noble classes.

Larger Size/Improved Quality Multiplier: Anyone who remembers days stuck indoors should recognize how little space this room represents in regards to the time kids generally spend running around. Even in a medieval/fantasy setting, children are full of energy. Increasing the size of these rooms adds 25% to the cost per section. Improving the quality of these rooms adds to the level of comfort and quality of furnishings and toys. This is represented by a 30% increase in base cost of the room.

Staffing Requirements: In addition to the normal cleaning staff that maintains the building, nobles often employ nannies, doctors, and other specialists who are able to raise their children. This does not connote that nobles and aristocrats are unaffectionate. Rather, the daily routine of these individuals leaves them little time to raise their offspring.

Prison Cell Size: 5' x 5' **Cost:** 200gp

Description: Criminals have to be placed somewhere. Regardless of the society's view on punishment, a prison cell serves to detain the accused as long as needed for the legal process to determine his fate. Depending on how criminals (accused or convicted) are viewed, the cell may contain shackles, a ball-and-chain, or other similar device to restrict movement. Placing a group of prison cells together creates a dungeon. Each space holds one person. If you want a more modern type of prison cell where two prisoners share the space with bunks, the space must be at least 10' x 10' without shackles to attach the prisoners to a wall or floor.

Larger Size/Improved Quality Multiplier: For prisoners of status, the cell will often be larger. Incarceration of political rivals who one cannot kill need more space than one of these rooms by themselves provides to keep them from speaking out. "Political prisoner" in a medieval or fantasy setting generally refers to someone of royal lineage or aristocracy who commands the respect of the laity. This results in the need for a higher quality of conditions. Any prison cell larger than 10' x 10' adds 5% to the cost of each space. Increasing the quality of the space ranges from 5-20%, depending on how plush the conditions of the prison are.

Staffing Requirements: Depending on the location of the prison cell, soldiers can be used as guards. If this space is used to create a prison complex, designating it as a military or civilian prison determines whether it should be staffed with soldiers or the local constabulary.

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Study/Office/Library Size: 20' x 20' **Cost:** 1,000gp

Description: There is little difference between a study, an office, or a library. They all have books, a place to read, and usually a desk. The study and office allow for smoking and drinking, but are used in a similar manner as the library. These rooms offer a quiet place for reading and taking care of paperwork. It is not unusual for an aristocrat or noble to use these spaces thusly along with studying or research.

Larger Size/Improved Quality Multiplier: While a character may not need a larger office or study beyond the base size, libraries are another story. Wizards almost always possess a library beyond the minimum size. Larger libraries increase the bonuses commonly added to research in many game systems. As a consequence, persons of importance try to build large libraries to attract the attention (and possibly the services) of spellcasters and scholars who can improve their standing. Increasing the size of this room adds 25% to the cost of each section. Improving the quality, which includes the usefulness of the tomes/scrolls/books, adds 45% to the cost.

Staffing Requirements: Libraries larger than 60' x 40' require a librarian to catalogue and maintain the volumes. At this size, there is 20,000 cubic feet of space in which written records can be stored (the remaining space is given over to furniture. Ensuring documents are easily accessible is a full-time job. The position requires someone with excellent administration skills to keep track of where everything is located. Libraries above this 60' x 40' limit require one assistant for every such increment (or fraction thereof) under the supervision of the librarian.

Torture/Punishment Chamber

Size: 10' x 20' **Cost:** 2,000gp

Description: It is best to leave much of the contents of these rooms vaguely described. Torture and punishment chambers are included for historical reasons. In the fantasy genre, heroes rarely use torture as a means to extract information or to punish criminals. However, this does not mean governments are barred from these techniques. In fiction, as well as in games, villains are often the ones that resort to these extreme measures. The more humane treatment of prisoners is to house them in prison cells.

Larger Size/Improved Quality Multiplier: Increasing the amount of space for these rooms inflates the



cost of each section by 25%. On the issue of quality, it is difficult to describe how you could improve the materials in a torture chamber other than to inflict more pain and suffering. To reflect “better” implements used in this room, the quality increases the cost by 15%.

Staffing Requirements: While anyone can inflict pain on an individual, it takes someone skilled in anatomy to know how to cause as much anguish as possible without damaging the body too much.

Storage

The spaces below can be found attached to any sort of building. There are several types of storage spaces. Like furnished rooms, they are modeled on the utility space. Many of them are empty, but there are a few accouterments that separate these spaces from their parent. Storage rooms are unique in that they do not easily fit in either an industrial or domestic capacity, as several work well in both. Please note that while these rooms focus on the concept of holding specific items, this does not mean storage rooms are related to one another.

Room	Base Size	Base Cost (in gp)
Animal	5' x 5'	100
Botanical	10' x 20'	500
Display	10' x 10'	2,000
Landfill	20' x 20'	600
Waste Disposal	20' x 20'	600
Magical Waste Disposal	20' x 20'	1,200
Shelving	10' x 20'	300
Water	10' x 10'	2,000
Wine	10' x 10'	600 (3,000)

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Animal Size: 5' x 5' **Cost:** 100gp

Description: Most commonly known as a holding pen, this area is considered a storage space as it holds animals in a confined area. Whether this is a chicken coop, a cattle pen, stable, or caged environment for ferocious animals, the function is still the same. Housing animals is a delicate balance. Not only must the walls of the space be strong enough to confine the creature, they must also contain enough room for the animal to stay healthy. For instance, while a 5' x 5' space is suitable for a chicken or three, it is not ideal for ten or more. The amount of space should be based on the minimum size of the creature and then doubled as a base measure. Common sense will be your best guide to determine if the room should be larger.

Larger Size/Improved Quality Multiplier: The listed size of animal storage spaces, like the utility space, is smaller than the standard of most rooms. The largest block that can be created for an animal storage space without the need of a multiplier is 10' x 10' x 10'. Anything with dimensions larger than this adds a 25% multiplier to the base cost of each additional 5' x 5' increase beyond these dimensions. Improving the quality of the animal pen also uses a 25% multiplier.

Staffing Requirements: Other than a basic understanding of animal husbandry or equivalent skill, there is little one would need to know to care for common livestock or domesticated pets. Exotic creatures (fan-

tastical or otherwise) require special handling specific to their unique needs. In these instances (or where a large number of domestic animals are housed), greater skill is required.

Botanical Size: 10' x 20' **Cost:** 500gp

Description: Part solarium, part atrium, this space represents a greenhouse or garden. The length and breadth of the room is devoted to housing plants. In its most basic form, it is designed for the growing of local varieties of plants. Plants may be placed on shelves to maximize space. Depending on the size of the plant and how much sunlight is needed, the planters between aisles may be waist high and without plants stored above or below others. Such a set-up is encountered in a greenhouse where the quality of the plant is of the utmost importance.

Larger Size/Improved Quality Multiplier: Larger sizes are necessary if the plants require more space. An example of foliage that needs additional room is a tree. Regardless if it is potted or planted, the tree is likely to grow beyond the 10' ceiling of a typical room. The botanical storage space represents indoor gardens. Increasing the size of the room adds a 25% multiplier to the cost of each room. Improving the quality of the room adds a 20% multiplier.

Staffing Requirements: Large-scale usage of the botanical space requires at least one caretaker per 20' x 20' section. Such an individual must have more than just a passing familiarity with the plants kept in this room. He must possess agronomy skills, to tend the area. Botanical storage spaces larger than 20' x 20' require one assistant for every such increment (or fraction thereof) under the supervision of a head groundskeeper.

Display Size: 10' x 10' **Cost:** 2,000gp

Description: Using a storage space to showcase or house objects studied from a multitude of angles falls under the domain of this category. A display space fills multiple purposes. It essentially is a catch-all room for objects that cannot be stored in the other spaces presented. Many of these items are either exotic or do not fit the standards other spaces impose. Display rooms are sized so that observers can freely move about while examining the objects stored here. In many ways, the display room is to storage spaces what the utility space is to all other rooms.

Larger Size/Improved Quality Staffing Require-



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ments: Creating larger display areas is necessary when the items showcased are of unusual size. The space may be increased to 20' x 20' before incurring a 25% penalty for every additional space. Improving the quality of a display room has a 30% increase per space.

Staffing Requirements: Any display exceeding 60' x 60' requires at least one curator. This individual does not need any specific training to fulfill this role, but must be present to keep the items in their proper place and cleaned. Depending on the nature this room, additional staff may be needed under the direction of the curator who then must have some skill in administration.

Landfill/Waste Disposal/Magical Waste Disposal

Size: 20' x 20' **Cost:** 600gp/600gp/1,200gp

Description: This space is not often thought of as a requirement for strongholds. The problem is that the amount of trash created by any one building is high. All of that refuse (which includes broken pottery) has to go somewhere. Composting piles, general refuse, and even magical waste must be moved or else it can accumulate and cause numerous health problems amongst other difficulties for the routine functioning of a building. Landfills are used for trash that cannot be consumed through normal fires or composting. Waste disposal storage areas are often use for things such as broken pottery, scrap metal, broken stone, and other sorts of detritus which must be dealt with magically or can be reused. Magical waste disposal is included not because it is part of the standard fantasy milieu, but rather because references to the hazardous effects and ecological disasters that can be caused by magical waste are on the rise in fiction. To reflect this, the cost of the magical waste disposal space is higher.

Larger Size/Improved Quality Multiplier: Larger landfill spaces are common. As this space is normally outdoors, there is little cost incurred to “construct” a disposal area other than excavations, wall, and precautionary elements to prevent spillage. The same rules apply to a waste disposal area. Magical waste disposal spaces require walls and a ceiling to prevent this material from affecting its surroundings. There is a 25% cost increase to every space used to create the disposal area. Increasing the quality of this space does nothing to beautify it, but allows for a greater level of containment for unwanted material.

Staffing Requirements: There is no staffing requirement for these spaces. If desired, a guard force can be used to patrol a magical waste disposal.

Shelving Size: 10' x 20' **Cost:** 300gp

Description: A shelving space describes an all-purpose general room containing rows of shelves from floor-to-ceiling. Many rooms of this sort are used as the basis of a pantry or a library. The room allows for organizing or categorizing materials. There are no restrictions on the types of items that can be stored here. The description of the room should determine how much space is between shelves. If necessary, the gamemaster should adjust the cost of the room based on whether he feels the price reflects the sturdiness of the shelving.

Larger Size/Improved Quality Multiplier: Creating a larger shelving room increases each space by 25%. The base quality of fair is adequate for most needs. To improve the quality, increase the cost of each space by 30%.

Staffing Requirements: This space does not require any specialized staff unless the room exceeds a 60' x 60' area. The skills necessary to oversee the room depends on the types of materials stored here. For example, if the room is used as part of a dry goods store, then at least one individual must have skill in both administration and commerce.

Water Size: 10' x 10' **Cost:** 2,000gp

Description: The water storage space described here is an internal space. In other words, the “room” is a cistern. Depending on how deeply it is set into the ground, a cistern can have a door placed in the ceiling or have a window-like opening as the entrance point. This access allows an inspection of not only the level of water, but also its purity. A cistern is used to assure that a stronghold will have water during dry periods as well as a siege.

Larger Size/Improved Quality Multiplier: Water storage spaces are often larger than the base size listed. Creating a larger cistern increases the base price by 25% for spaces above 20' x 20'. Potability is also an issue. The greater the purity the water is intended to possess necessitates materials better suited to the task than semi-porous rocks. As a consequence, improved quality increases the cost by 30%.

Staffing Requirements: Cisterns do not require additional staffing.

Wine Size: 10' x 10' **Cost:** 600gp (3,000gp)

Description: This space describes a wine cellar. The room will be furnished with specialized shelving that keeps bottles (or kegs) separated from one another. This is often done in a similar manner as catalogued books.

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Use of this space assumes it is being placed underground. This does not have to be the case, however. The design of the building can allow for the storage of wines in other locations. See the ventilation and plumbing accoutrements that can be added to a room for such instances. These additions simulate the cool, dry conditions of a traditional cellar. The parenthetical price represents a fully stocked room.

Larger Size/Improved Quality Multiplier: In some circles, the size of one's wine cellar says a lot about his status. The larger the space, the more sophisticated he is believed to be. This assumes the cellar is well stocked. Otherwise, there is no telling how such a character would be viewed if it came out that his wine selection was limited. Increasing the size of this room adds 30% to the cost of the room for each section beyond 20' x 20'. To preserve the quality of the alcohols, improving the quality increases the cost by 35% per space.

Staffing Requirements: No staffing is required. If desired, however, someone with administration skills could oversee the cataloging of the liquors kept in the room.

Workspace

This section deals with rooms that can be found in a stronghold, but are often separated from the living quarters of a structure or placed on the far side of a dwelling (if costs and space constraints dictate otherwise). Workspaces fall into different categories based on the pollution they are likely to generate. While it may not sound important to factor waste into a campaign, this small detail reinforces logical realism. It can make a world more believable and feel alive. The level of detail may not mean much to the players, but the vibrancy will be remembered.



Room	Base Size	Base Cost (in gp)
COMESTIBLES		
Brewery/Winery	10' x 10'	5,000
Dairy	10' x 20'	4,000
Livestock	10' x 20'	3,000
HEAVY INDUSTRY		
Forge/Armory	10' x 20'	5,000
Metal Shop	10' x 20'	5,000
Mill	20' x 20'	6,000
Tannery	10' x 20'	4,000
Textile	20' x 20'	6,000
Woodshop	10' x 20'	4,000
LABORATORY		
Alchemic	10' x 20'	8,000
Magical	10' x 20'	10,000
Medical	10' x 20'	6,500
LIGHT INDUSTRY		
Chandlery	10' x 20'	3,000
Laundry	20' x 20'	2,000
Paints	10' x 10'	5,000
Plumbing	10' x 20'	6,000
Pottery	20' x 20'	5,000
Tailor	10' x 20'	4,000

COMESTIBLES

Comestibles are the least polluting workspaces. This does not mean they are without waste, however. Waste materials generated by these spaces are organic and merely need to be disposed of as composting materials or removed to an area where refuse is collected. Anyone who is exposed to the waste while ill may suffer harmful effects, but they will otherwise be unaffected unless such material is ingested. Thus these workspaces are kept away from domestic areas.

Brewery/Winery Size: 10' x 10' **Cost:** 5,000gp

Description: The fermentation of grains and fruit into alcohol is a foul-smelling business. Distilleries, such as a brewery or winery, will be kept downwind as much as possible. Alcohols serve well as disinfectants, meaning there is often little chance of illnesses being contracted from exposure to equipment or ingredients. While other rooms may need plumbing or ventilation accoutrements, breweries and wineries contain all of the necessary mechanisms to make the creation of alcohol possible. The organic waste by-product of distilling can also serve as a food source. One only needs to look at the solid grain matter spread that Australians

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enjoy as testament to this fact. If the facility is large enough, additional plumbing will be needed to move the alcohol to cistern-sized vats.

Larger Size/Improved Quality Multiplier: Alcohol is a staple of many societies, past and present. These potent potables are so enmeshed in history that one cannot separate agriculture from brewing. Whether discovered by accident or not, the benefits of a liquid that does not become stagnant makes it a staple product. Distilleries are so important that towns without one will pay to have barrels shipped to them. As a result, most distilleries are larger than the base size. These locations often constitute a building on their own and have a 30% increase to each space. The quality of the alcohol is reflected in that of the distillery. With so much emphasis on how good the liquor is, quality multipliers for these locations results in a 45% increase to the price.

Staffing Requirements: Any distillation of alcohol requires the brewer, vintner, and so forth, to have a high rank in the professional skills the game system uses to simulate this occupation. The greater the quality of the distillery, the higher the skill level the brewmaster must have. Spaces above the 20' x 20' limit require an assistant for each 20' x 20' section.

Dairy Size: 10' x 20' **Cost:** 4,000gp

Description: The dairy represents a facility where numerous cows are brought together to collect milk. The room does not house the animals, but can do so. The dairy is equipped with the devices necessary to make milk, butter, cheese, and other dairy products. As with a brewery, the issue concerning the status as an industrial space has more to do with waste products and smell.

Larger Size/Improved Quality Multiplier: The base size describes a dairy typically found on a single fam-

ily farm to sustain the residents. Larger dairies are necessary for the needs of a stronghold that wishes to have its own supply of dairy goods. Each section that extends the size above 20' x 20' increases the cost of each by 25%. Improving the quality affects the number and types of dairy products that can be made and is represented by a 20% increase to the cost of each section.

Staffing Requirements: Animal husbandry skills are necessary for this room to be used efficiently.

Livestock Size: 10' x 20' **Cost:** 3,000gp

Description: A livestock space is not a holding pen. It is used in the preparation of livestock for consumption. In effect, this is a slaughterhouse. There is enough room for one animal with the rest of the space dedicated for curing and salting meats. Given the amount of waste generated from the gore and unused portions of the animal, a room with this type will be kept as far from living quarters as possible.

Larger Size/Improved Quality Multiplier: Larger spaces are only necessary if the room is used for multiple animals. Essentially, if it is meant to serve a fortress or a city, the workspace will be larger. Each space that increases the size above 20' x 20' adds 20% to the cost of each. Increasing the quality affects how clean the workspace can be kept. Such additions add 20% to the cost of each.

Staffing Requirements: Anyone using this space must possess the professional skills or equivalent training needed for a butcher.

HEAVY INDUSTRY

Heavy workshops are high-polluting industrial spaces. While nowhere near the capacity of a modern factory, these spaces pose some of the same risks as their contemporary counterparts. Many of which are of bodily harm more so than ecological. These rooms represent the technological capacities of a fantasy society.

Forge/Armory Size: 10' x 20' **Cost:** 5,000gp

Description: The forge is the quintessential industrial space in fantasy. It is here where metals are worked into usable forms. The forge is responsible for producing most everyday use metal goods. The forge will contain, at minimum, a bellows, an open pit fire, and an anvil. Some detail work is possible, but this is limited and would require an attached metal shop. An armory is in essence a 10' x 20' forge that specializes in the



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repair and creation of weapons and armor. Portable armories will specialize in either weapons or armor to maximize their efficiency.

Larger Size/Improved Quality Multiplier: At the default size, the forge is limited in scope and function. This facility is designed mostly for crafting common necessities, like horseshoes, pots, pans, and nails. A skilled craftsman can use a small forge to repair any item, but he could do little to improve it. Doubling the forge to 20' x 20' gives enough space for a blacksmith to craft any item he has the talent to create. Larger spaces add the benefit of producing more items as assistants can be employed to rivet, polish, and clean finished products. Increasing the size above 20' x 20' adds 20% to the cost of each section. Higher quality facilities increase the cost by 30% to the price of each section; but, the tools the blacksmith uses are also of a greater caliber.

Staffing Requirements: In order for a forge to be used properly, someone skilled in blacksmithing must be employed. For every 10' x 20' section, the space can hold two individuals, including the blacksmith.

Metal Shop Size: 10' x 20' **Cost:** 5,000gp

Description: A metal shop is akin to a forge, but specializes in the artistic use of metals. The metal shop is also capable of minor repairs, but is limited to easily fixed items, such as patching a pot. The majority of work found in this shop will be scrollwork, engraving, and other decorative features. The exacting detail that can be achieved by a master metalsmith is a form of art unto itself. Given the reliance needed on a forge, a metal shop is usually attached to one. The greatest potential hazard this workspace presents comes from the use of caustic chemicals and the hazards associated with a forge.

Larger Size/Improved Quality Multiplier: This facility is designed for crafting artwork. A skilled craftsman can use a metal shop to detail any item. Doubling the metal shop to a 20' x 20' gives enough room for a metalsmith to craft any item he has the talent to create. Larger spaces can produce more items as assistants can be employed to etch, polish, and clean finished products. Increasing the size above 20' x 20' adds 20% to the cost of each section. Higher quality facilities increase the cost by 30% to the price of each section; but, the tools the metalsmith uses are also of a greater quality, giving the added benefit of creating true works of art.

Staffing Requirements: A metalshop needs someone skilled in metalsmithing to be used properly. For every 10' x 20' section, the space can hold two individuals, including the metalsmith.

Mill Size: 20' x 20' **Cost:** 6,000gp

Description: The mill is one of the most important staples of a community. It is here where grain is processed. In order to make the grain last as long as possible, the mill grinds it into flour. This facility preserves the majority of the harvest for the year to come. As such, the mill is also seen as a symbol of power. Cereals are not the only things processed within a mill. Outside of harvest time, the millstone may be used to grind other materials important to the village. The greatest hazard comes from the possibility of having fingers or toes caught within the millstone. Mills are powered by wind, water, beasts of burden, men, or magic.

Larger Size/Improved Quality Multiplier: The mill is capable of producing a good amount of grain a day for a village. As a result, there is little need for a mill larger than the base size. If a larger mill is desired, increase the cost of each section by 20%; improving

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the quality increases the cost by 25%. Most cereal will be processed close to the field where it is grown. This allows for it to be kept longer with the least amount of loss to vermin and bacteria, provided it is stored properly.

Staffing Requirements: Unless the mill requires manned operation, only a miller is needed. Such a character knows how to properly grind grains to desired consistencies.

Tannery Size: 10' x 20' **Cost:** 4,000gp

Description: Tanneries smell horrible. Other than a few caustic chemicals, most materials used to cure animal hides are unappealing. The room space is used to house the chemicals and hides being treated. Once treated, the hides can be stretched and placed outside to dry where they will become cured. Cured hide (leather) is used as clothing and protective coverings. Leather is employed in many industries as a binding agent (wagon wheels, for example). As a result, the tannery is a necessary evil a town needs. It will be kept downwind or as far away as possible.

Larger Size/Improved Quality Multiplier: Larger tanneries can produce great numbers of cured hides from numerous animals simultaneously. Each space that increases the size above 20' x 20' adds 20% to the cost of each. Tannery spaces with this extra space can produce 25% more hides when laid out in a square as opposed to a long series of spaces. Improving the quality increases the cost of each space by 25%.

Staffing Requirements: A tannery needs someone skilled in tanning to be used properly. Apprentices can also be utilized. For every 10' x 20' section, the space can hold two individuals, including the tanner.

Textile Size: 20' x 20' **Cost:** 6,000gp

Description: A textile workshop contains a loom to process some sort of fiber used to create cloth. The type of cloth spun/woven in this space does not affect the room's cost. Rather, the designation defines the machinery available and which types of fabric can be created. The textile room is not equipped for tailoring or creating clothing. It is the space where the rough fibers are softened and combined into bolts of cloth. Many strongholds that serve as personal homes will have a textile room somewhere. In some cultures, this space is reserved as a place where the wife creates her own cloth. *The Odyssey* is an example where the textile room is used in this manner. The greatest hazard

associated with this workspace is the possibility of getting caught in the mechanism.

Larger Size/Improved Quality Multiplier: Each space that increases the size above 20' x 20' adds 20% to the cost. Improving the quality increases the cost of each space by 25% and allows for the production of higher quality fabrics, such as silk.

Staffing Requirements: A textile room needs someone skilled in mechanical weaving to be used properly. Apprentices can also be utilized. For every 20' x 20' section, the space can hold two individuals, including the weaver.

Woodshop Size: 10' x 20' **Cost:** 4,000gp

Description: The woodshop differs from a lumberyard in that goods can be produced here, ranging from tables and chairs to ornamental pieces. Woodworkers are highly skilled artisans that can produce nearly anything from the functionally mundane to the artistic. This versatility allows the woodshop to serve as an important workspace in the community. One of the reasons



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woodworkers are able to do this stems from the tools of their craft. The majority of which, stored in this location, are hand tools and a few devices that hold wood-working tools (or wood) in place. A lathe may also be amongst the equipment in this room. The main hazards from this workspace are the shavings and small pieces of unused wood.

Larger Size/Improved Quality Multiplier: Each space that increases the size above 20' x 20' adds 20% to the cost and allows for the construction of larger pieces. Improving the quality increases the cost of each space by 25% and allows for the use of higher quality woods in production, such as oak and mahogany.

Staffing Requirements: A woodshop needs someone skilled in woodworking to be used properly. For every 20' x 20' section, the space can hold two individuals, including the master woodworker.

LABORATORY

Laboratory workspaces are highly dangerous. While their hazards may be unique, they pose a significant risk to not only those who use them but also to anything in their proximity. The view of a laboratory space as an ecological hazard in fantasy appears to be grow-

ing in usage. In a setting that follows the traditional roots, hazards happen only when things go awry and cause an explosion or let loose some menace on an unsuspecting world. Gamemasters are encouraged to choose which option they will go with in light of the descriptions presented below.

Alchemic Size: 10' x 20' **Cost:** 8,000gp

Description: If one strips the symbolism out of alchemy, what remains is the basis of modern chemistry. In a fantasy setting, alchemy exists as a viable "science" as fantastic elements are integral to the otherworldly characteristics of the milieu. Many chemical compounds are harmful, especially when combined with otherwise inert substances. When one imagines a chemical laboratory, the most common items that spring to mind are test tubes, beakers, piping, and controlled flames. Alchemical labs also have this paraphernalia. With an alchemical lab, quasi-magical products can be made that range from cleaning agents to powerful explosives.

Alchemy runs the risks of contaminating an area from its byproducts. The waste generated by combining substances into more useful items can be over-



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whelmingly powerful. To combat wide scale effects, a waste disposal space is used to store contaminated leftovers.

Larger Size/Improved Quality Multiplier: Each space that increases the size above 20' x 20' adds 25% to the cost. Improving the quality increases the cost of each space by 30% and allows for the production of mixtures with higher potency.

Staffing Requirements: An alchemic laboratory needs to be staffed only if the stronghold's owner does not possess any skill in this area. The most common professional who fits the requirements is a wizard.

Magical Size: 10' x 20' **Cost:** 10,000gp

Description: The magical laboratory is the stock laboratory often described in fantasy literature. This is the room where wizards brew magical concoctions from substances mundane and supernatural. In addition to potions, magical laboratories facilitate the creation of items imbued with eldritch power. Some of the equipment found in this room is the same as an alchemical lab, but the emphasis is on supernatural ingredients and techniques. Magical labs are more dangerous as a result. Where the conditions under which certain ingredients react can often be controlled in an alchemical lab, this is not the case with magic. Even a highly skilled wizard has the potential of unwittingly creating a disaster.

For settings where pollution has interesting implications, magical refuse is akin to toxic waste. This comparison stems from stories where creatures exposed to the magical energies in byproducts or discarded potions are often transformed into horrific beasts. Magical waste can also simulate the oft-used superhero origin story of unique powers granted from exposure to indeterminate materials.

Larger Size/Improved Quality Multiplier: Each space that increases the size above 20' x 20' adds 30% to the cost. Improving the quality increases the cost of each space by 35% and allows for the production of more powerful magic items.

Staffing Requirements: A practitioner of magic is necessary for a magical laboratory.

Medical Size: 10' x 20' **Cost:** 6,500gp

Description: Medical laboratories are also apothecaries. The materials used in the creation of ointments, poultices, and other restoratives come in many forms

and levels of toxicity. For the most part, a medicinal laboratory is safe. The chief way for a character to become injured is to come into contact with ingredients without being aware of their effects. The compounds created in an apothecary can be harmful to the environment, but this should be rare as the components are naturally occurring.

Larger Size/Improved Quality Multiplier: Each space that increases the size above 20' x 20' adds 20% to the cost. Improving the quality increases the cost of each space by 25% and allows for the production of more exotic medications.

Staffing Requirements: A medical laboratory requires someone knowledgeable in the medicinal properties of herbs. For every 20' x 20' section, the space can hold two individuals, including the master apothecary.

LIGHT INDUSTRY

Workshops that fall under this category produce little to no waste. More importantly, what little waste they do produce causes minimal damage to characters or the workshop's surroundings. Light workshops represent the common industries that offer wares essential to daily life. Depending on the arrangement the government has with its people, it is possible to find many of these workspaces in the local stronghold to allow the ruler direct control over these industries.

Chandlery Size: 10' x 20' **Cost:** 3,000gp

Description: The chandlery is where most light sources are created. The chief materials used in creating candles are tallow and/or beeswax. Chandleries specialize in creating these products, but can also manufacture oils and other materials used for light. Many of the tools used in creating candles are molds and scraping implements.

Larger Size/Improved Quality Multiplier: Each space that increases the size above 20' x 20' adds 15% to the cost. Improving the quality increases the cost of each space by 20% and allows for the production of increasingly complex or exotic candle designs.

Staffing Requirements: A chandler must be proficient in artisan and craft skills for creativity as well as the proper creation of candles. For every 20' x 20' section, the space can hold two individuals, including the master chandler.

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Laundry **Size:** 20' x 20' **Cost:** 2,000gp

Description: Someone has to do the wash. Even in fantasy settings, the need for a laundry room exists. While the materials used in removing detritus from soiled clothing may be less than savory (the Romans used human urine as a bleaching agent, for example), the need for fresh linens and garments is a must for the aristocracy. It is not enough to be in the upper echelons of society, one must also look the part. This leads to the need for a laundry facility capable of keeping ones garments as clean as possible. Unlike the scullery, this space only cleans articles of clothing and the like.

Larger Size/Improved Quality Multiplier: Each space adds 15% to the cost and improving the quality increases the cost by an additional 20%.

Staffing Requirements: No specialized staff is required. Much of the work carried out in the laundry room will be done by servants. If the facility is not part of a stronghold, it is likely that slaves or indentured servants fill this role, dependant on the culture.

Paints **Size:** 10' x 10' **Cost:** 5,000gp

Description: A paint shop creates much of its wares from plant or mineral bases. Some colors may come from other sources, but few are created without the use of a plant or mineral. Paints are extremely expensive as the process begins with grinding or refining the base material to produce the desired color. From this point, oils are added to moisten and thicken the pigments into paint. This is a laborious process that results in a small quantity of finished product. Dyes are cheaper to produce and may be used to help create slightly larger quantities. Dyes, however, are often used as staining materials.

Larger Size/Improved Quality Multiplier: Each space that increases the size above 20' x 20' adds 15% to the base cost and improving the quality increases the cost by 20%.

Staffing Requirements: Creating paints requires someone proficient in artistry skills. This individual is often a master painter. For every 20' x 20' section, the space can hold two individuals, including the master painter.

Plumbing **Size:** 10' x 20' **Cost:** 6,000gp

Description: A plumbing shop specializes in the creation of pipes. This room is not considered a heavy industrial workshop because it does not often create the rough forms of pipes. Metal pipes found in a work-

shop often have been poured into molds in a blacksmith shop. The plumbing workspace often adds threading to the ends of metal pipes. Clay pipes, on the other hand, may be created in a plumbing workspace. These pipes may not be as durable as their metal counterparts, but they resist rust and work well as a method for redirecting the flow of water. The only waste one may find in a plumbing workspace is metal shavings.

Larger Size/Improved Quality Multiplier: Each space that increases the size above 20' x 20' adds 15% to the cost and improving the quality increases the cost by 20%.

Staffing Requirements: A plumbing workshop needs to be staffed by someone possessing the crafting or profession skill(s) necessary to perform the work described above. For every 20' x 20' section, the space can hold two individuals, including the master plumber.

Pottery **Size:** 20' x 20' **Cost:** 5,000gp

Description: Pottery shops are messy affairs. In addition to the potter's wheel, there are areas where raw materials are stored, mixed, and fired. Depending on the quality of the shop, the kiln can range from an open-pit fire to a proper oven. The works crafted in this space range from the mundane to the artistic. One should bear in mind that the emphasis is on creating containers more so than art.

Larger Size/Improved Quality Multiplier: Each space that increases the size above 20' x 20' adds 20% to the cost and allows for the construction of larger pieces. Improving the quality increases the cost of each space by 25% and allows for the production of higher quality works.

Staffing Requirements: Anyone possessing an artisan, craft, or profession skill for the creation of pottery is required. For every 20' x 20' section, the space can hold two individuals, including the master potter.

Tailor **Size:** 10' x 20' **Cost:** 4,000gp

Description: The tailor shop is necessary where uniforms are required as part of a soldier's kit and for basic clothing for the populace. Also, an aristocrat or noble is likely to have space in a stronghold for a tailor. This workspace contains several bolts of fabric along with sewing instruments, allowing the tailor to create or repair clothing. Improving the quality of this space represents not only better tools, but also a finer cut of clothing as well as better fabrics.

Larger Size/Improved Quality Multiplier: Each

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space that increases the size above 20' x 20' adds 20% to the cost and improving the quality increases the cost of each by 30%.

Staffing Requirements: Anyone possessing an artisan, craft, or profession skill as a tailor is required for this workspace. For every 20' x 20' section, the space can hold two individuals, including the master tailor.

Ventilation/Plumbing

To some extent, all strongholds possess ventilation and plumbing. The draftiness of a fortification and a waterless toiletry system are examples, although they lack piping. The concept remains the same despite differences in materials. Many ancient civilizations employed these techniques well before the Greeks or the Romans and thus may be found in otherwise primitive constructions. In a fantasy setting, many of the entries below are strengthened by the use of magic to ensure that the system remains functional. Prices below are multipliers to the cost of each room section to be fitted with these components. The pipes used to make these systems work can be found in the miscellany accouterments section.

Air Size: 10' x 20' **Cost:** +10%

Description: As strongholds are drafty places, the use of a ventilation shaft is probably the least used type of conduit control. Rooms are more likely to possess a system that restricts the flow of air entering them. This allows for better climate control in spaces where cool, dry conditions are ideal. Spaces that use an airtight seal are those where the contents are meant to be preserved, or as a barrier to create a vacuum between two rooms (the latter is accomplished with the aid of magic).

A room placed underground is where a free flowing air channel is likely needed. The deeper a room is set in the ground, the greater the likelihood that conduits are needed. Oxygen supplies are often adequate for a single individual in subterranean rooms for extended periods of time. When multiple people occupy the room, the lack of a breeze to refresh air supplies allows waste gasses to build up and lead to death. In sieges where a section of the stronghold is buried, air flow is important should defenders retreat to this area. A 6" x 6" conduit is necessary per 10' x 20' section of a room. These vents must be connected to a piping system created either by gaps in the building's walls or through plumbing that brings in air. The later is used to prevent a collapse from blocking air passages.

Larger Size/Improved Quality Multiplier: Not applicable if conduits cannot be crawled through.

Staffing Requirements: None. The base staff of a stronghold maintains these features.

Gravity-Fed Size: 10' x 10' **Cost:** +10%

Description: Gravity-fed plumbing is used in drainage systems. The area equipped with a drain will be slightly angled to a central low point to prevent fluids from accumulating. While the hole of an overhanging privy is technically a gravity-fed system, the plumbing detailed in this entry is for piping that carries away wastes some considerable distance before pooling it elsewhere. Drains normally have a 3" diameter for every 10' x 10' section they help keep free of flooding.

Larger Size/Improved Quality Multiplier: Not applicable if conduits cannot be crawled through.

Staffing Requirements: None. The base staff of a stronghold maintains these features.

Heating/Cooling Size: 10' x 20' **Cost:** +30%

Description: Heating or cooling a room in a stronghold involves a complex system of plumbing, sets of double walls and sub flooring for maintenance. The Romans, for example, used this system to keep the stone floors warm in winter from the fires under the main floor of the building. The furnaces, housed their own room(s), warm by pumping steam through pipes in the walls to reach higher levels of the structure as well as laterally to reach rooms not directly above the furnace. A furnace needs two or more people to monitor and keep the fires stoked and the cauldrons filled with water to produce steam, depending on its size.

Air conditioning is not something one would think to find in a medieval structure, let alone any other time before modern convenience. The method that best represents how strongholds were cooled is a series of large windows. The problem is that it depends on wind to move air through the structure. Without these, there is no cooling. A piping system can be used to create an air condition system following the principles of condensing steam in a shaded portion of piping. This can then be pumped through the stronghold to provide cooling. This system uses half the number of servants required to maintain the furnaces. More reliable systems of cooling should use magic.

Larger Size/Improved Quality Multiplier: One can improve the quality of the furnace and pipe system used to control it, but it requires pipes to extend the

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system beyond the first room. Additional furnaces are needed to prevent heat loss for an area larger than 40' x 40'.

Staffing Requirements: None. The base staff of a stronghold maintains these features.

Pressure-Fed Size: 10' x 10' **Cost:** +40%

Description: The water that flows from the tap, fire hydrants, and water fountains are examples of pressure-fed systems. In conjunction with gravity-fed plumbing, it creates the method by which water flows into and out of modern homes. The weight of a body of water (somewhere) pushes on the water in the pipes, causing it to flow out the other end. The system can be open-ended, meaning there are no valves, or it can be closed. In either case, the amount that can flow through the pipes depends on how much force can actively push on the water in the plumbing. This will not work if there is not enough water to maintain the pressure. To this end, many systems are built using a renewable body of water higher in elevation than the stronghold. The Roman aqueducts can attest to how expensive (and extensive) running water can be.

Larger Size/Improved Quality Multiplier: A larger size is normally associated with a pool or fountain. Few structures will need to have a larger water source feeding into an area. If there is a need to extend the access to water from one location to another, then it is best handled with plumbing connecting to the main water source or faucet. The quality is much more likely to be increased. Such improvements are often confined to the pipes water flows out from and the basin into which it is poured. Higher quality increases the cost of each space by +10%.

Staffing Requirements: None. The base staff of a stronghold maintains these features.

Mechanical/Clockwork

The mechanical or clockwork room accouterments are similar to ventilation/plumbing. They are not intended to stand as rooms, nor are they dressings akin to windows, stairs, fireplaces, and so forth. These entries describe components that affect volumes of space in order to drive other processes. In the case of the entries below, they are commonly found as part of gatehouses, clocks, waterwheels, and so forth.

Simple Size: 5' x 5' **Cost:** +300%

Description: Simple clockworks or mechanical gears

are often driven by muscle power. Thus, a mill's central feature for grinding grain, a rope or chain wench used to open or close a portcullis, or raising/lowering a drawbridge are examples of simple gear work in action. If the mechanism uses a series of sprockets like a clock, the power mechanism is either a crank used by people, waterwheel, windmill, or is intended to be driven by animals. This system requires less physical force through the use of pulleys, gear stops, and other similar measures to prevent the weight of the objects manipulated from impeding their movement. Gear systems are highly complex, however. The more space they require, the higher the chance of a breakdown. The base chance of failure should be between 25-50%, depending on the mechanism's function.

Larger Size/Improved Quality Multiplier: Increasing the size of a simple gear system increases the chance of failure by 5% per 5' x 5' section. The mechanism begins taking on a complexity that makes it un-



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wieldy and requires creative engineering to actively fix if it breaks. However, increasing the quality of the gear work decreases the chance of failure by 10% at the cost of a +50% multiplier per space.

Staffing Requirements: Approximately two people or one animal are required for each 5' x 5' section for the mechanism to operate efficiently. An engineer must inspect the equipment periodically to ensure that it is running properly (and possibly oiled/greased).

Complex Size: 5' x 5' **Cost:** +500%

Description: Mechanisms of this sort are often used as clocks. These mechanisms can also be models of the heavens, quick release systems to ensure a gate closes, and even as monuments to technological ingenuity. The main difference between this gear system and the simple one described above is that this is spring powered. Depending on how it is designed, it can be self-regulating (it winds itself), or it can be manually wound as a method of storing energy, such as a quick release mechanism. Complex gear systems are more prone to failure. The base chance of failure should be between 30-55%, depending on the mechanism's function.

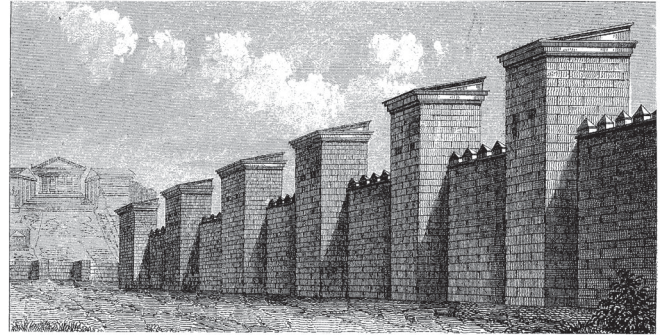
Larger Size/Improved Quality Multiplier: Increasing the size of a complex gear system increases the chance of failure by 10% per 5' x 5' section. As it grows in size, the mechanism becomes unwieldy and requires creative engineering to actively fix if it breaks. However, increasing the quality of the gear work decreases the chance of failure by 15%.

Staffing Requirements: An engineer must inspect the equipment periodically to ensure that it is oiled and running properly.

Walls and Supports

The room descriptions above include walls of granite 6" thick. While the typical materials for walls were given previously, this section discusses the creation of barriers, free-standing or as extensions, without belonging to any of the room types above. As a result, you are not limited to the above descriptions to create your strongholds, nor are you without a method for creating crenellations along a rampart. The guidelines below help you quickly work out the amount of material necessary for each type of barrier desired along with the recommended thickness and costs for such augmentations.

Also included in this section are supports such as columns and half columns. They require quite a bit of



material, but are used to create massive structures that would otherwise be impossible without modern construction techniques. For the pre-Industrial Revolution world, the arch, flying buttress, and other weight distributing features allowed for the construction of buildings with multiple levels on a grand scale that would otherwise have been unachievable. The Roman aqueducts and the Colosseum are built with one such important support feature: the arcade, a series of stacked arches. Thus, these elements are included in this section.

WALLS

Walls are one of the most important support structures for a building. In addition to allowing a roof to protect inhabitants from inclement weather, they serve as protective barriers, decorative features, and a way to compartmentalize enclosed spaces. The exterior walls of most strongholds will be made of stone at least 2' thick with a good portion of the interior space being predominately wooden; hardened interiors use 1' thick stone walls, however. Depending on the size of the building, that can amount to upwards of 80% of the interior comprising of wood! The rooms described above are the most commonly used structures in strongholds, and some of them serve in multiple roles, but all are assumed to possess stone walls. It is easy to have fully interior rooms with wooden walls, but how do you calculate the costs of rooms that have some exterior stone walls and wooden interior ones? By defining a section of wall as a 5' x 10' unit, reducing the costs for such spaces becomes manageable.

For any wall that is not freestanding, the cost is 15gp per 5' x 5' x 1' section, assuming stone is used (all thicknesses are based off the measures presented earlier). There is essentially extra material if one compares it to the Utility Space. However, each section requires bracing or anchoring to the foundation, floor,

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or adjacent wall to form corners and provide stability. Some of the values used in the rooms listed above are *ad hoc* to include furnishings. Material used for each wall can also adjust this cost.

In many fantasy worlds, lead is used as a way to shield rooms from magic. As a material, it is too soft to use in construction for stable structures and has not been presented with other materials for this reason. Lead has a +50% multiplier and has a standard thickness of 3".

SUPPORTS

The construction of buildings has gone through a series of evolutionary stages that led to the development of increasingly more impressive structures. Proceeding from the rudimentary cave-like techniques of burrowing out mounds of earth or using Cyclopean masonry to create vaults that resemble caves, to the post-and-lintel and moving up through the attached ribbing of proto-Doric columns through freestanding ones, and finally up to the arch and the flying buttress. While this encapsulates much of the support changes from the Neolithic to the Gothic era in one sentence, it is in effect the monumental points in the arc of architectural development one would encounter in fantasy settings. Without these improvements, the great diversity of building styles that we now have would be impossible.

Columns and arches are the only systems of support not included in the costs of buildings with multiple levels. This is because their usage is not assumed as an integral element in the design of a building. While they are often used, a simple manor house can avoid the use of either element when it is no more than two stories in height. Large structures with a tall and airy feel, like Gothic cathedrals, need flying buttresses to distribute their weight to keep from collapsing. As a result, it is assumed that as a structure's height increases, the support elements are included in the design. This is reflected with the added cost. The post-and-lintel is likewise assumed as part of the design in regards to doorways and basic framing for roofing.

The cost of a column is based on the amount of space it takes up. As it is not quite the same as a wall, the cost is based on the diameter as if that were the square volume for a section of wall. Thus, each square foot of space required for the column is the equivalent of 10' x 1' x 1' of wall; 3gp per square foot. This is the smallest possible square footage that a column can be for a 10'

space between floor and ceiling. In this manner, a column that is 2' square costs 12gp (4 1' x 1' sections). As the building's height increases, the need for thicker columns does likewise. Unless using a hypostyle support system, thin columns cannot support the weight of a building's upper levels or roof. The area a column must cover increases 1' square for every two feet of material overhead that exceeds 10 feet in height, every foot over 10 feet of the column, and for every 10-foot increment between columns in excess of 10 feet. These measurements assume the material supported is the same or lighter.

Arches add a whole new dimension to construction. By removing material from the ceiling, these elements alleviate the stress placed on the columns from the sheer weight of a structure, but increase the pressure that pushes down upon them. It is part of the conundrum of the column, but the weight distribution is often absorbed by multiple elements to prevent the collapse of one column from destroying a building. The columns that hold an arch are often thicker at the base than at the top to facilitate this stress. For the purposes of these guidelines, assume that an arch increases the distances between columns by 5 feet and reduces the amount of material above the arch. (The arch removes between 2-1/2' to 10' of material of the ceiling supported by the columns.) As such, the columns do not have to be thicker until a 15' limit is reached. If a series of arches are stacked upon one another, they should become increasingly shorter to prevent collapse of the lower structures. For a good example of this, look at pictures of Roman aqueducts.

The flying buttress is essentially a half arch; but given its size, it is better thought of as a cross between an arch and a column. Any time a window or hollow space equals a third or more of its wall, flying buttresses are necessary to transfer the stress from the top to the ground. Depending on the height of the wall, a column may be necessary to aid the flying buttress. A good rule of thumb to use is each side of an empty space needs two flying buttresses and each needs a support column. Flying buttresses have to be lighter than the walls they support (2' or less in thickness). Thus, for very large structures, two or even three arches may be needed along with several subsequent retaining columns with their own flying buttresses. The support pillars are quite thick and are usually half-a-story shorter than the wall or column being supported. For cost

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purposes, the flying buttress' length is calculated as 1.5 times the distance it spans and costs the same as a column of the same dimensions.

FREE-STANDING BARRIERS

Walls, berms, and abatises are all free-standing barriers one may construct as a method for preventing unwanted people from entering an area. In addition to providing cover for troops who can repel forces much larger than their own, these barriers allow strongholds to redirect the flow of traffic. Free-standing barriers are difficult to design and erect, however. To begin with, they must be thicker than attached walls. Sinking a wall into the ground will give it some support, but if it is too thin, it will easily be broken. Too thick and it is as much a detriment to the defender as it is the attacker; not only in costs, but also in the time it takes to build and the distance it places between the defender and his assailant.

Thick slabs of stone work well in creating a solid defense against an attack. However, stone is expensive to move and put in place. **Walls** must become increasingly thicker as they grow in height at a ratio less than 1-to-1 to absorb the impact of the weight placed on the base. Most walls taper to save not only on building material, but also on the stress placed on the levels beneath. Another method is to use stone compartments and fill them with packed dirt, creating a casement wall. The stone frame helps by providing the box that allows for ever-increasing levels of height with less weight placed directly on the stone base. The curtain wall of the Hittite city Hattusa was built in this manner and the Great Wall of China used a variant, with much of it remaining to this day as a shield against long-deceased enemies! While dirt may be cheap and readily available, when it is packed, the structure takes as much time as a foundation being laid into place. The cost for such barriers has to be calculated separately for the materials involved.

A question arises as to how much a section of a curtain wall should cost if it must be at least as wide as it is tall. If you so choose, the table below can be used to calculate how much such a slab of stone should be worth. The table assumes that the volume being expressed is 1 cubic foot. Note that the costs are percentage values as the material in use can vary. Any structure that has a slope of less than 23° ceases to be a barrier as it is easy for a healthy individual to walk to its apex, albeit he may be winded.

Slope (in degrees)	Cost Adjustment
80-90	100%
65-79	95%
50-64	75%
45-49	50%
23-44	25%
11-22	10%
0-10	5%

Berms are essentially the same as curtain walls; however, they do not conform well to the vertical shape stone easily accepts. What a berm is good for is creating gulfs between the defender and the attacker. By piling up mounds of earth to hide behind, the defender can create an open space the attacker must traverse without cover. The defender uses the berm as he would a hill or bluff. While the drop may not be as great, he is essentially forcing the attacker to scale the berm while being fired upon from above. Lying low, the defender can minimize his exposure and present a formidable obstacle for his opponent.

The greatest difficulty with the use of this defensive structure is its instability and impermanence. A berm is not the ideal fortification in most settings. Unless your campaign uses the Iron Age as the height of technology, the piling up of dirt as a barrier is not meant to serve as a permanent solution. However, as a method for channeling traffic through an area, berms serve as one of the most effective tools given their low cost.

Berms are the basis of most earthworks in warfare. The most common are the redan (a defense with an open back) and the redoubt, (fully enclosed by earthworks). Regardless of the other accoutrements used in the construction of such fortifications, their main component is soil that has been packed and shaped to present a steep face toward the enemy while providing cover for defenders. Berms also give a defender a height advantage against oncoming troops.

The **abatis** is often associated as a hasty defensive fortification. This is due in large part to the use of splintered trees, sharp branches, or dense shrubbery anchored between the defender and his target. As the foliage used can cause grievous injuries to a careless opponent, time must be spent clearing a path through the detritus. Time consumed in this task places the attacker at the disadvantage of exposure to continuous enemy fire. Hence, the abatis is useful in stalling or redirecting an opponent's forces.

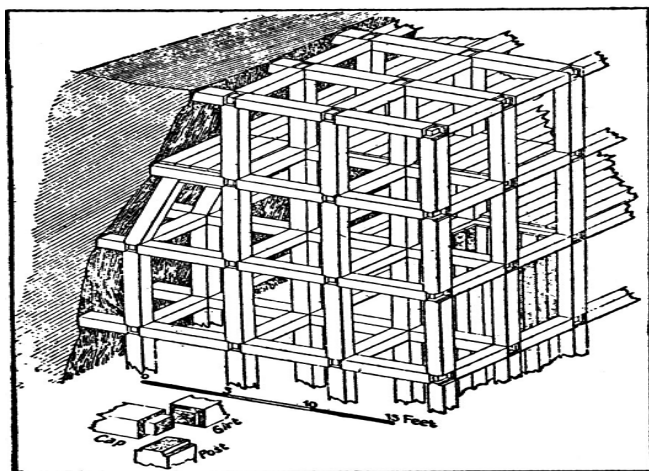
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It is highly conceivable that a permanently designed abatis would be made out of materials other than wood, but their effectiveness is questionable. Steel rods, stone lances and other objects embedded in a curtain wall may serve in this stead; however, the maintenance costs to prevent them from failing and kept in good repair may render it impractical. The important element for an abatis is to retain its deadly appearance of jagged pieces that could easily lodge themselves within the flesh of foes. The appearance is often enough to make an opponent balk.

Excavations and Foundations

Whether as a cellar, reservoir, or mountain stronghold, excavations are important in designing portions of a stronghold in areas where the terrain does not cooperate. They are also useful for creating expedient barriers, landscaping, storage, and as a form of attack. Foundations are required for all buildings, regardless of whether or not they are built on solid surfaces. No location is so perfectly flat that an engineer or architect can be excluded from a project. It will come together only with survey lines, necessitating the talents of those capable of discerning the slightest change in elevation and ground composition before the first stone is set.

Excavations are much more time consuming than buildings. This is due in part to the volume of material involved. Add to that the density of the material being hollowed out and it should be easy to see why. Excavations can be completed at the rate of 125gp per week. The slowness is due in part to the need to brace the ceiling and (possibly) to shore up the walls. On the upside, rooms that are excavated only cost 50% of their



listed price, after the costs for carving the room out of the ground have been totaled.

Doors, Windows, and Holes

Portals of all sorts are necessary for rooms to have any use to inhabitants. As a result, every room comes with a free door and window. Each 5'x 10' section of wall can either hold a door or a window. Creating larger doors and windows can easily be handled by putting the window or wall from one section next to another. Each additional window or door added to a room costs money. For windows, this may seem strange as they are empty space; however, windows weaken walls. They require additional reinforcement to compensate for the missing material. Doors do as well, but, unlike windows, have supports that are anchored to the floor. As a result, most windows in medieval construction are small and offer little light. Holes in another manner are also common in stronghold construction. Their most likely usage is for murder holes, drainage and drizzle channels (a covered latticework of runnels liquids can be poured into to rain down on unsuspecting foes).

Below is a sample list of costs for various portals and holes along with their size.

Portal	Size	Cost (in gp)
<i>Doors</i>		
Beaded Strings	8' x 3'	5
Metal	8' x 3'	
Brass		60
Iron		50
Steel		40
Reinforced	8' x 3'	10
Stone	8' x 3'	15
With loophole	8' x 3'	+20%
Wooden	8' x 3'	3
<i>Windows</i>		
Arrow slit	5' x 4"	x3
Bay	5'x 10'	x5
Cathedral	5' radius	x10
Clerestory	1'x 4'	x2
Loophole	4" radius	+10%
<i>Holes</i>		
Murder holes	6" x 6"	+5%
Drizzle Channels	5' x 5'	+20%
<i>Modifications</i>		
False		+50%
Secret		x5
Trapped		x3 plus mechanical space

Strongholds

Floors and Ceilings

None of the rooms described in this chapter come with floors or ceilings. However, they do include the costs for supporting a ceiling. Rooms often have very different materials for their floors and ceilings. Considering that the materials used often for the walls become increasingly prohibitive cost-wise as a ceiling, lighter materials allow for less bracing – which translates to a more spacious room. The price for a floor or ceiling is the same as those for a wall. Unlike a wall, however, one room's ceiling serves as the floor of another. Floors and ceilings are anywhere from 6" to 1' thick.

One industrial "room" that went unlisted was the loading dock. In effect, it is multiple layers of flooring stacked atop one another. Docks are often 4' in height for easy loading/unloading of wagons.

Stairs and Ramps

If you want your character to move from one level of a stronghold to another, and it is a good bet that you do, then you need to place a staircase somewhere. This is easier said than done, however. Several factors play into the overall cost of the staircase. For those who want a simple design, do not worry, a default is included.

The average staircase is 2-1/2 feet wide and ascends approximately one foot for every foot of elevation, which is a 45° angle. This staircase would thus be 10' x 10' x 2.5' of cubic space. Using the formula from the free-standing barriers section above, this is 125gp worth of granite (which has a multiplier of +0%). With its 45° angle, this results in a final cost of 62gp, 5sp. You may wish to round this down to 60gp so that wood stairs of the same dimensions cost 45gp (which reflects the bracing and other work needed for stabilization).

So, how does one construct a customized staircase? There are a few rules one should consider. For starters, a staircase fills a volume. If it did not, no one could walk up or down it. Also, as one nears the ceiling, there has to be a hole to accommodate the person using the staircase, meaning a structural weakness is created. Hence, the use of the formula in the excavation section and resulting cost of the staircase includes the work necessary to prevent a collapse of the floor above.

Determining the cubic volume requires a bit of geometry as one needs the angle of the slope and the hypotenuse in order to know the length for the height difference between the two points being linked. The



angle is critical as it determines the percentage of the volume of actual material used, and thus the overall cost of the stairs. To save space, one can create a spiral staircase. While more expensive than a linear section of stairs in the same space, the spiral staircase costs 75% of its linear counterpart and takes up approximately half the space.

Ramps work the same as stairs. They are designed to traverse elevations, cost the same as stairs, and need to have the dimensions that accommodate whatever was intended to be transported across them. Ramps offer something stairs do not: weight reduction of objects transported across them. For simplicity's sake, assume that the incline reduces the weight lifted based on the percentage of the angle using the formula $x \div 90$ where x is the angle of the incline. In effect, the ramp translates most of the weight that would be lifted to weight that is pushed/pulled along the ramp. Ramps are often less steep than stairs to take advantage of this bit of mechanical leverage and are often 2-3 times longer as a result.

Miscellany Accoutrements

The stronghold construction is finished. All that remains are the decorative features that may be used to soften its appearance. The items in this section have little bearing on the defensive capabilities of the building.

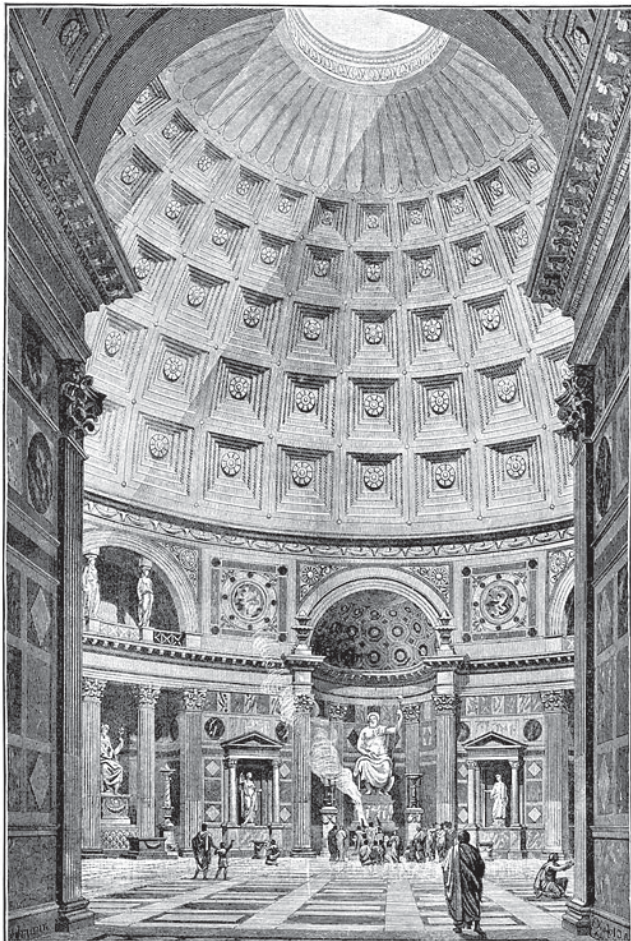
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Rather, they are mostly for aesthetics and provide a touch of detail, personality and depth to the grounds upon which the stronghold sits.

Additionally, traps fall under the category of miscellany accoutrements. Any device, room, door, or other element of a stronghold can be rigged to cause harm or trap a foe. Such traps require not only the mechanism or clockwork to spring the trap, but also must be disguised to appear innocuous when part of the decorations of the stronghold. Using the miscellany accoutrements to create that effect helps to hide the trap when it is not contained within a room.

The list below represents a sampling of decorative items. Multipliers for materials still apply. Default multipliers listed in the room qualities can be applied as well.

Accoutrement	Size	Cost (in gp)
<i>Landscaping</i>		
Basic	5' x 5'	1
Fancy	5' x 5'	10
Ornate	5' x 5'	20
Exotic	5' x 5'	x10
Relief	1' x 1'	10
<i>Statuary</i>		
Miniature	1 cu. in	100
Tiny	1 cu. ft	50
Small	3 cu. ft	150
Medium	5 cu. ft	500
Large	10 cu. ft	2,000
Huge	20 cu. ft	5,000
<i>Trimming</i>		
Basic	1' x 5'	1
Fancy	1' x 5'	75
Ornate	1' x 5'	200
Exotic	1' x 5'	x10
Pipes	1' x 6"	5



Infrastructure & Upkeep

The last feature to contend with when a stronghold has been constructed is the infrastructure that will support it. This includes supply lines that ensure the stronghold is able to do its job.

Infrastructure is in monthly increments for the amount needed to sustain the occupants. If the infrastructure is somehow removed from the stronghold, as in a siege, problems result. The stronghold types provided in each chapter will include information about how each is supported and the minimum infrastructure for each.

Maintenance requires a monthly stipend as well. The cost for maintenance runs the gamut for cleaning and inspections to repair work necessary to keep the building from crumbling. The upkeep is tedious work that remains in the background. In fact, the costs assume that the servants/staff are the ones who perform these functions. Skimp on the maintenance costs, however, and within a few months to a year, disadvantages as hindrance of movement within the stronghold to the weakening of the walls themselves may appear.

A stronghold without an infrastructure or ability to maintain itself will be abandoned and left to fall into ruin. Many ancient ruins in your campaign may very well have fallen victim to this fate. Any ruins and the

Strongholds

story of their fall are left to your imagination, whether it is the tragic tale of war, the consequence of a successful siege, or the failure to plan a workable stronghold.

Magic & Stronghold Construction

Magic adds an entire new dimension to stronghold construction that violates much of the information presented in this chapter, let alone the rest of the book. Depending on the game system, magic can be used to create sections of walls, move construction supplies with little effort, and for enchantments to rooms or portions of the walls. No system is presented in this book as it cannot possibly cover every gaming system. Imagine that the very rules of physics become suspect when magic is integrated into the campaign. Essentially, this is the state of affairs when incorporating enchantments into strongholds.

There is no rule of conventional warfare or construction that cannot be violated by magic. As a result, it is left to the gamemaster to determine how much of an impact magic should have on strongholds and how expensive its use will be. Assume that the cost of a

spellcaster will be 10,000gp or more a month and that he will charge for each spell applied to the stronghold. Most games include some sort of formula for determining how much a spell or enchantment costs monetarily. If your preferred system has no such information, estimate the costs as the spell's level of potency multiplied by 1,000.

In exchange for the use of magic during construction to help build the stronghold, times for construction are decreased by 5% of the base cost for every 10% of the structure completed with magical aid. Enchantments, on the other hand, increase the time of construction as if the stronghold's base cost were 5% more. The cost of magic is not included in the price of the stronghold's construction; it is kept separate for purposes of calculating construction time.

