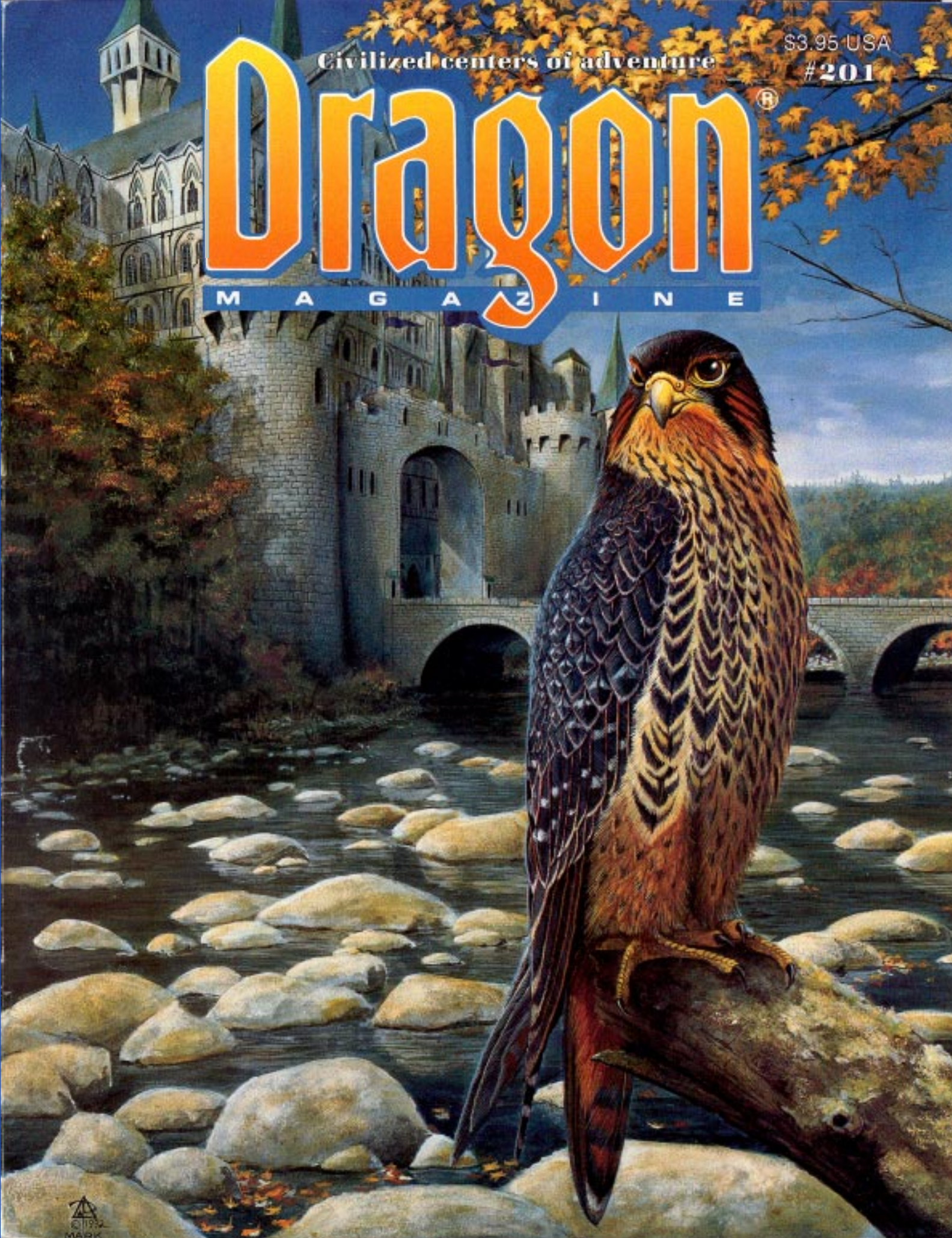

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Seven Steps to a Successful Castle

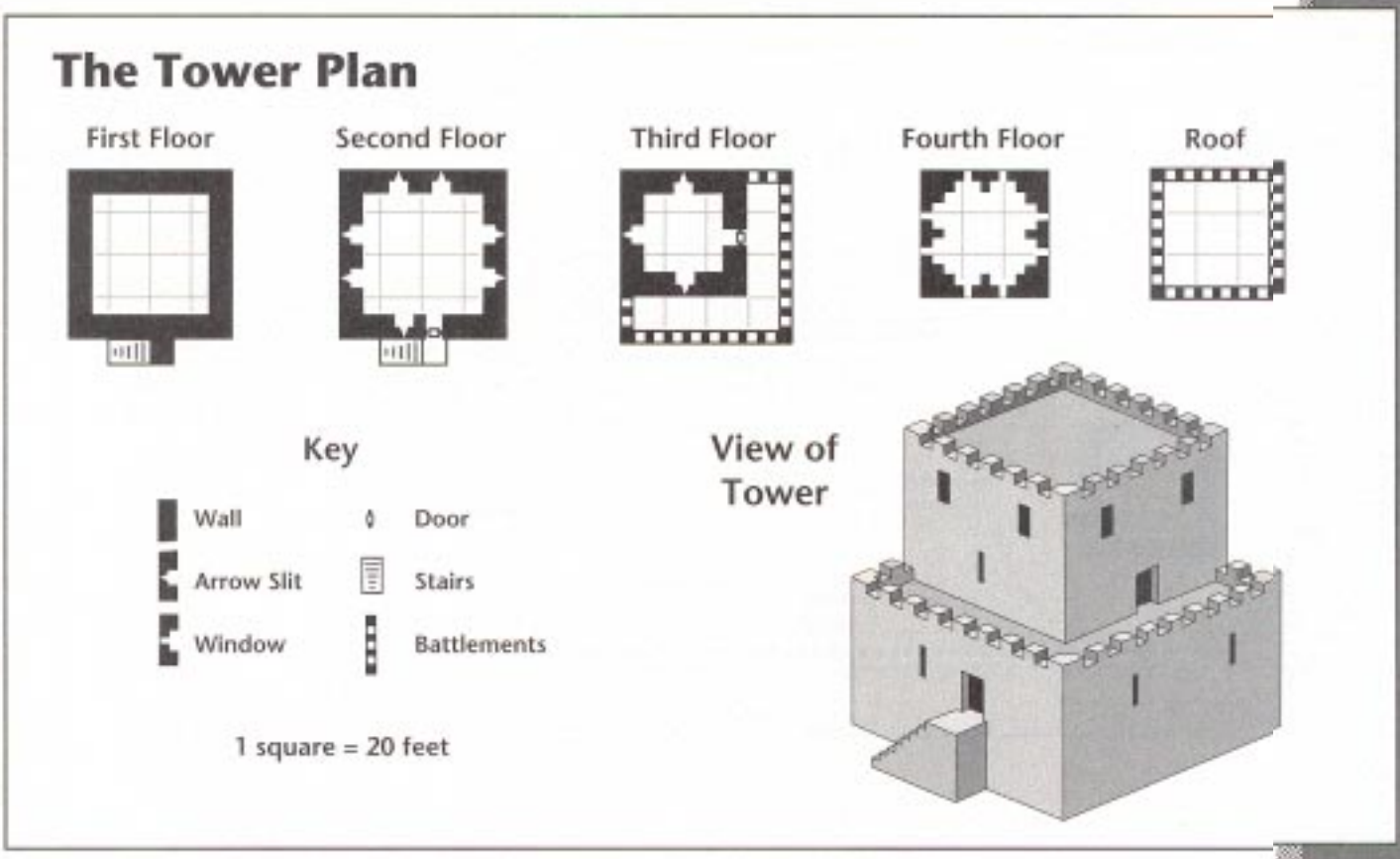
Building a castle by the numbers

by L. Richard Baker III

Cartography by John Knecht

Do you plan to build a castle soon? If you have a D&D® game character above 8th level, you should be thinking about it. The castle is often the drowning point of a character's career, the sign of prestige and power that marks her success. Every powerful wizard has his forlorn tower, every cleric her fortified temple, and every warrior a castle to call his own. The challenge of designing and building a stronghold can add a whole new dimension to a campaign.

The castle-building system described in the following pages lest you decide just



how to put your character's fortress together. When you finish, you'll have a basic plan of your keep as well as an excellent idea of how much it costs and how long it will take to build. Be warned: Even the simplest castle design can cost 50,000 gold pieces! Building a castle is a serious financial proposition.

The construction rules expand on the system found in DMGR2 *The Castle Guide*. Having a copy of that book would be very helpful. Also, I'll show you how to put together five different castle designs, and give you a good start towards customizing your own designs from these basic templates. This system also includes several new castle modules that allow you to build smaller and simpler keeps, as well as add defensive features such as weapons emplacements and strengthened walls.

One more note before we get started: These castles are based on historical fortifications found in medieval Europe, but several fantastic variations have been included to reflect common stereotypes found in fantasy literature and role-playing games. Ahistorical options are clearly marked so that the DM can cross them out if he does not wish to allow them in castles built in his campaign.

Design guidelines

This section summarizes the design rules from DMGR2 *The Castle Guide*. In addition, several new castle modules (pieces, or "building blocks" of a castle) are introduced in Table I: The Expanded Castle Modules table. The table lists four characteristics for each module: Tech, Time, Gold, and Dimensions. The various entries on the table are explained below.

Tech describes the technological level required to build a castle module of that type. Societies with crude stone-working capabilities will be very limited in what they can construct. Tech levels are rated from 1 to 8:

l-Early wooden construction
2-Advanced wooden construction
3-Early stone construction
4-Advanced stone construction
5-Early gatekeeps and hoardings
6-Advanced gatekeeps and machicolations
7-Grand gatekeeps
8-Full concentric castles

Time and gold requirements list how many man-days and how much money it takes to build one unit of the listed castle module. A typical castle will have several towers and hundreds of wall modules, so remember to multiply the listed figures by the number of modules used.

Dimensions describe the feature's size and any notes about its composition.

Modules

Doors, windows, or arrow slits can be installed wherever the designer wants, but a good rule of thumb is that no more than one opening of any kind can pierce a 10′ stretch of wall or building. Stairs are assumed to be included in any multi-story building.

All towers are two storeys, (30′ tall and have a ground floor, an upper floor, and a roof. If desired, a one-level cellar equal to the half of the internal measurements of the structure can be added for free. For example, a stone tower with a 30′ X 30′ interior measurement can include a 15′ X 15′ cellar. These chambers make good storerooms or latrines.

Stone walls are assumed to be capped by a parapet. This is an open-air, crenallated battlement with an outer wall 2′ thick, broken by merlons. This means that a stone wall is solid on the ground level, but part of the castle floorplan on its top.

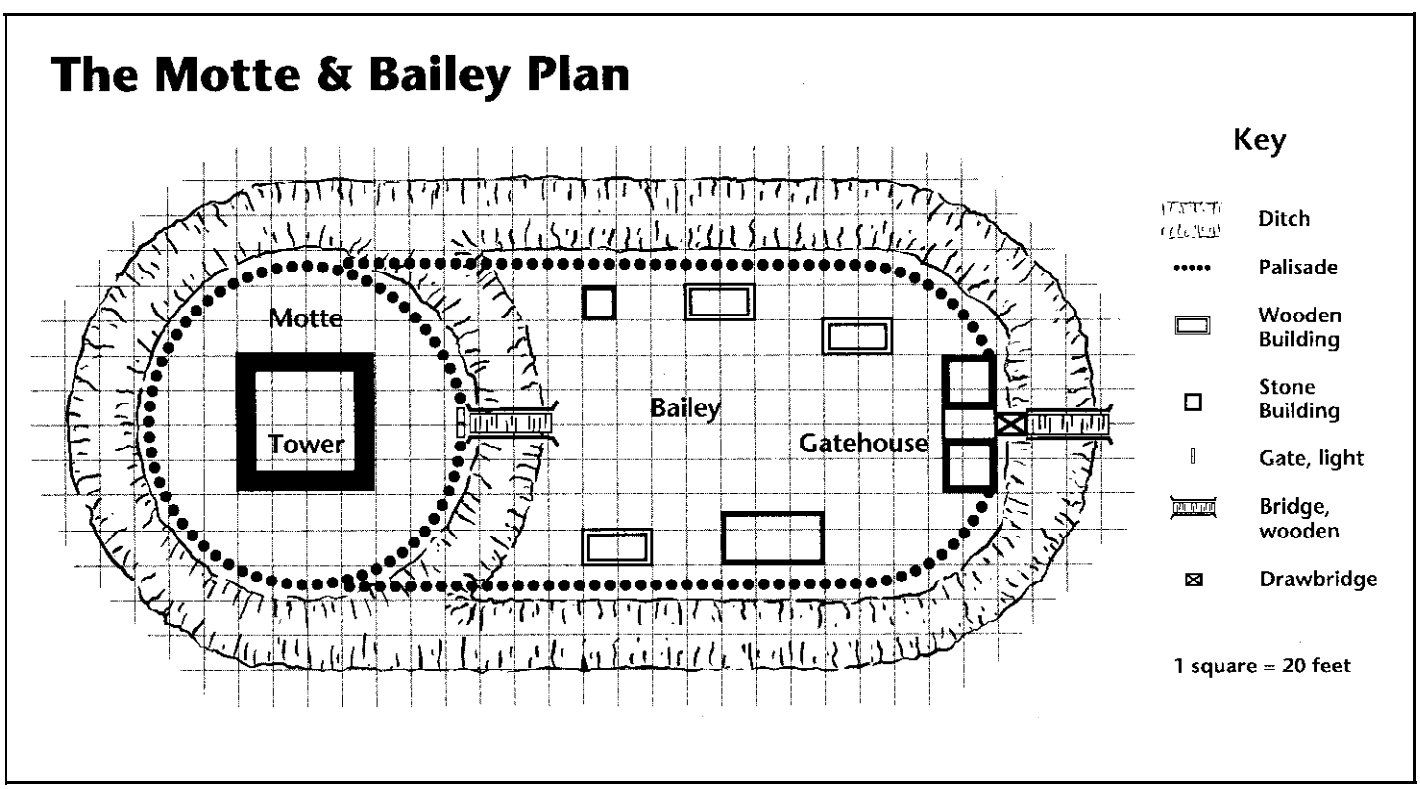
Stacking modules

Many castles are more than one unit high. For example, a stone curtain wall module is 15′ tall, but a curtain wall 30′ or even 45′ tall can be raised. Towers can be doubled in height by building one on top of the other. Barbicans, gatekeeps, towers, and walls can be stacked.

When walls are stacked, they require additional bracing. For each 50′ length of wall, an additional wall module must be bought for each level to be stacked above it. A 30′-high wall requires one additional module per 50′ length of wall, a 45′ wall requires three additional modules, and a 60′ wall would require six additional units.

A tower may support a second tower module of lesser size on top of it with no additional bracing, so a large round tower can support a medium stone tower. If the tower is anchored to a stone wall, it can support a second tower module of equal size. Towers cannot be stacked more than four modules high.

Barbicans and gatekeeps can be stacked by simply stacking tower modules on top of the towers that are included in the structure. A large barbican features two medium round towers, so two small round towers can be stacked on it.



Definitions

Barbican: A barbican consists of two round towers with a building linking them together above an open archway or passage. They are often used as outworks or to guard gates. The small barbican consists of two small towers 20′ apart, the medium barbican consists of two medium towers 20′ apart, and the large barbican consists of two medium towers 40′ apart. The barbican is two storeys tall, and its towers may include cellars or be stacked as described in the Construction guidelines below. All barbicans include a gate of the appropriate size and a portcullis at no extra charge.

Bastion: The bastion is a strong point in a stone wall designed to support a heavy war engine. It is basically a short, solid tower. Bastions are 30′ across and may be round, square, angular, or even D-shaped. A bastion module stands 15′ tall, but they may be stacked to bring them level with the surrounding wall. The bastion's price includes hoardings or machicolations to match the surrounding walls, but does not include the siege engine it is designed to carry.

Bridge/Causeway, stone: This is a stone or earthen roadway that is used as a road up steep hillsides, over lakes or wetlands, or even over dry ditches. A causeway module is assumed to be 10′ long, 10′ wide, and 10′ above the surrounding terrain. Causeways can be stacked to create higher roadways, but cannot be built more than 40′ tall without magical assistance.

A bridge can span an unsupported gap whose width is equal to its height, so a 40′ causeway could span a 40′ wide crevasse with one arch. (This is a gross oversimplification of medieval engineering, but it works for game purposes.) A causeway has to be built from the lakebed or riverbed up, so to create a causeway whose road surface is 10′ above a 20′ deep lake would require three causeway units to be stacked.

Like a stone wall, one extra causeway module must be allocated per 50′ section for each level the causeway must carry above it. A 20′ tall causeway requires one additional module per 50′ section, a 30′ causeway requires three additional modules, and a 40′ causeway requires six additional causeway modules.

If the causeway will not leave dry ground (e.g., a road up a hillside or across a dry ditch), the embankment can be constructed from earth and reinforced with timber and stone. The cost and time requirements are reduced to 25% of their listed value if this is done. An earthen causeway can be stacked two units high.

Bridge/Causeway, wooden: The same considerations for a stone bridge apply, but a wooden bridge can be stacked to bridge a gap of 60′. If the builder wishes to pay an extra 50% in cost and time requirements, the wooden bridge can be rigged with a quick collapse framework for easy destruction.

Building, stone: Stone buildings are assumed to have exterior walls averaging 2′ thick and whatever interior partitions their builders see fit. Small, medium and large buildings stand 15′ tall with one level; the greater stone building stands 30′ tall with two internal levels, and the grand stone building stands 45′ tall with three internal levels. The building dimensions are not required to be identical to those listed-the building can have any shape conceivable, so long as the square footage stays the same.

For an extra 25% in cost and building time, the roof of a stone building can be finished with standard battlements.

Building, wooden: Wooden buildings are assumed to have walls averaging 3″ to 6″ thick, and may be designed with any shape or interior partitioning the builder desires as long as the square footage remains the same. Great buildings and grand buildings have the same dimensions as their stone counterparts.

Buttress/Turret: The buttress is a tower with a 10′ interior dimension (10′ diameter for round buttresses, or 10′ × 10′ for square buttresses) and walls equal in thickness to its host tower. It creates a little extra room inside the tower, and also projects far enough from the tower's side to allow fire from the buttresses to affect enemies standing near the base of the host tower.

The buttress is a supporting structure that is built into a tower to strengthen it. Buttresses may be round or square, and are usually found on the corners of square towers or evenly spaced around round towers. Buttresses can be stacked up to one unit higher than their host tower; if the buttress rises above the tower roof, it is often called a turret. Buttresses can be left unstacked or partially stacked, running only part of the way up the side of a tower.

Small towers cannot be buttressed. Other towers cannot have more than four buttresses.

Ditch: Each ditch module is 10′ long, 10′ wide, and 5′ deep. It is possible to build deeper or wider ditches by doubling or quadrupling the number of modules used for a 10′ length of trench.

Gate: Gates can be built into palisades, wooden or stone walls, and wooden or stone buildings. They are assumed to be a part of gatehouses, barbicans, and gatekeeps. Light gates are made of 6″-thick wood, bound with iron, and protected by a sturdy bar. Medium gates are made from 9″-thick wood sheathed in bronze, iron, or steel and protected by several barring devices. Heavy gates are made of 2″-thick bronze or iron plate riveted to an iron frame, with locks and heavy bars.

A gate module is 10′ wide and 10′ tall. More impressive portals can be created by doubling or tripling the number of modules used. All gates come with a free portcullis if the builder wishes to have one in stalled.

Gatehouse: The gatehouse is a strong building that protects a set of gates. Historically, gatehouses were used to guard a castle's gates before barbicans and gatekeeps became popular. They tend to be weaker than a full gatekeep, but are also significantly cheaper.

All gatehouses consist of two towers with a narrow passage between them. A structure links the two halves of the gatehouse at their upper levels. Gatehouses are built as part of the wall defenses and do not project outward as do gatekeeps.

Gatehouses are assumed to come with two of these features: drawbridge, portcullis, or medium gate. Their towers may include cellars, as with other towers.

The small gatehouse consists of two square towers with 5′-thick walls, measuring 20′ × 20′ on the interior. The two towers are spaced 10′ apart. The medium gatehouse consists of two small square towers set 20′ apart. Lastly, the great gatehouse consists of two medium square towers set 30′ apart. The medium and great gatehouse towers can be stacked, if the builder wishes to do so.

Gatekeep: Gatekeeps are sophisticated defenses that enclose the castle entrance within a courtyard of walls and towers. The attacker must pass within the gatekeep to get near the fortress's main gates. Gatekeeps can be assumed to contain medium gates and portcullises, if desired. The tower portions of the gatekeep can be stacked or built with cellars.

The lesser gatekeep consists of two small round towers set 20′ apart, with a linking structure like a barbican. It is set 20′ out from the castle's walls, with 15′-high stone walls connecting the towers to the walls to create an enclosed killing ground before the castle's gates.

The greater gatekeep is built around four medium round towers. The forward pair of towers is 20′ apart and 20′ in front of the castle walls, and is connected by a linking structure. The rear pair of towers is built into the castle walls. Stone walls 15′ high join the outer and inner pair of towers.

The grand gatekeep uses large round towers in place of the medium towers. The outer towers are spaced 40′ apart, and are 39′ in front of the inner pair of towers.

Moat/Channel: Moats are nothing more than ditches that are finished so that they will contain water permanently. A channel is a waterway built to connect the moat with the body of water that will be used to fill it.

Motte: A motte is an artificial mound that provides a castle with the advantage of height. One unit of motte raises a 10′ square section of earth 5′ in height. Mottes must be at least twice as wide and long as they are tall.

Motte modules also can be used to create artificial islands. The lakebed or riverbed cannot be more than 20′ deep. Artificial

islands double building times and costs of the motte.

Palisade: A palisade is a wall of wooden posts about six inches thick. It is often used on the defending side of a ditch. Each palisade module is 10′ long and 5′ tall. Palisade modules can be stacked up to 20′ in height, but if the builder wants his troops to have a catwalk to fight from, a wooden wall module will have to be bought for each stacked palisade module.

Reinforcement: It is possible to build towers and other buildings extra-strong by thickening the bases and the foundations to resist the effects of sapping or bombardment. Reinforcing a structure adds 50% to the building time and cost, but adds 25% to the building's strength.

Walls cannot be reinforced, but they can be built thicker than 10′ by building wall modules side-by-side. Each extra thickness of stone wall adds 50% to its strength.

Tower, round: Towers are used to strengthen walls and provide the defenders of the wall with extra cover and better fields of fire. They also can be used as free-standing defenses. Towers may be stacked as described under the Construction guidelines below, and may include cellars at the builder's option.

Small round towers have an interior diameter of 30′, with 10′-thick walls. Medium towers have an interior diameter of 40′, and large towers have an interior diameter of 60′. Round towers provide less space than square towers, but are stronger and use less stone.

Tower, square: Square towers are built for the same reasons as round towers, but are less desirable because they cost more and are not as resistant to sapping or bombardment. However, people learned how to build square towers before they were able to build round towers, so the designer may be forced to use square towers.

Square towers can be stacked or built with cellars as described in the Construction guidelines below. Small square towers are 30′ × 30′ on the interior, with 10′-thick walls. Medium towers are 40′ × 40′ square, and large towers 60′ × 60′ square.

Tunnel: Each tunnel module represents a 10′ × 10′ × 10′ volume worth of underground chambers. Tunnel modules can be bought to create dungeons, escape tunnels, or even as approaches to the castle.

Wall, stone: A stone walls module is 10′ long, 10′ thick, and 15′ tall. Walls can be stacked as described under the Construction guidelines section. The stone wall is assumed to include a walkway on its upper surface, with crenellated battlements.

Hoardings are wooden structures built at the top of a wall to allow defenders to stand over the wall's base and rain down missiles and other substances directly on enemies attacking the wall. A glacis is a angled skirt of stone at the base of the wall that reinforces the wall against attacks by sappers or bores. A wall built with a glacis includes hoardings, if desired. Machicolations are very similar to hoardings, but are made out of stone. A machicolated wall includes a glacis, if desired.

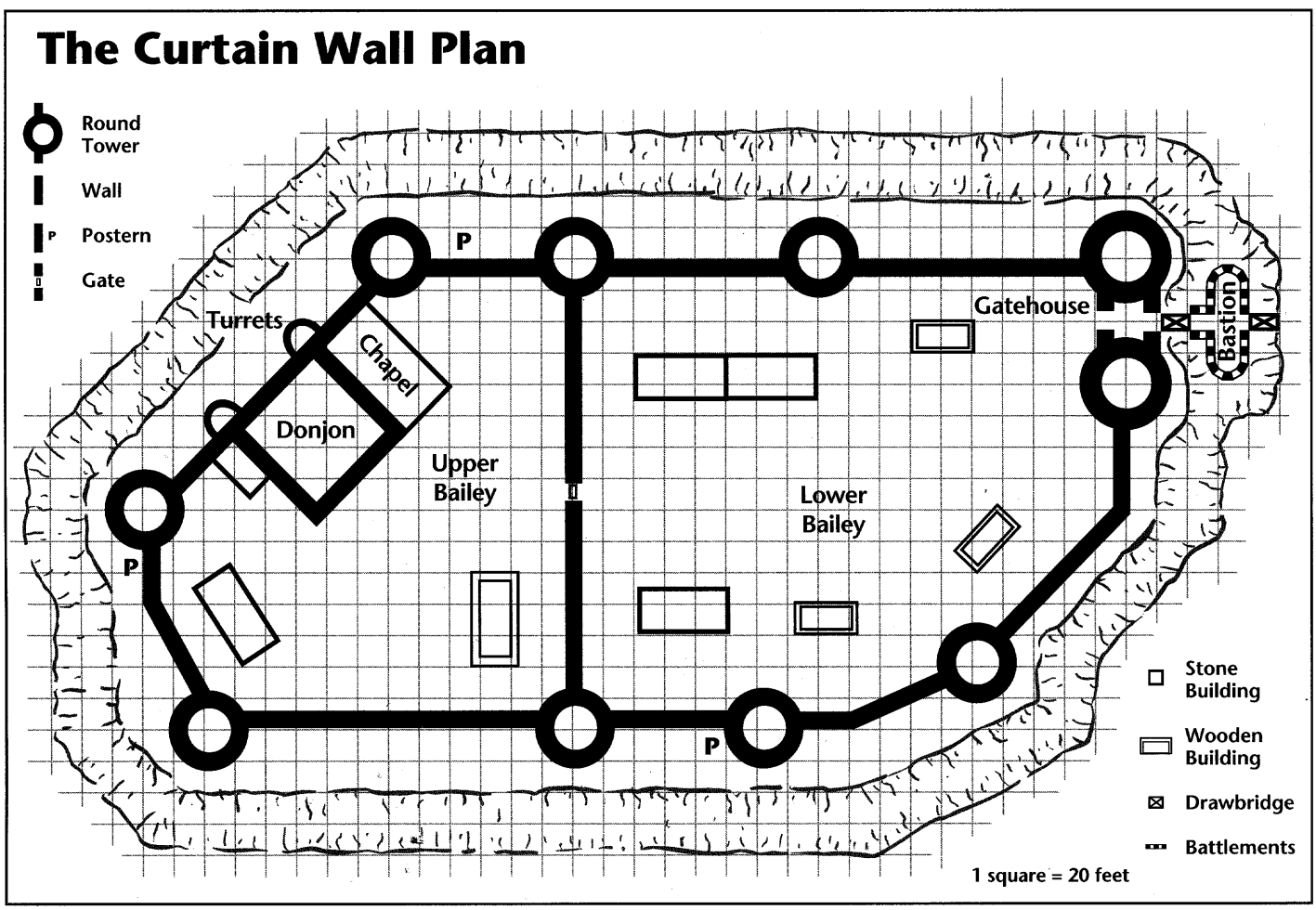
A wall can be built to include a postern gate, which is a small doorway through which defenders can sally to launch raids and counterattacks against their enemies. Add the postern cost to the wall's normal cost.

Wall, wooden: A section of wooden wall is 10′ long, 15′ high, and 3″ thick. It can be stacked using the same rules for stacking stone walls. Wooden walls also can be used as flooring; each unit of wooden flooring covers 150′ square feet.

Construction guidelines

This castle-design process includes seven basic steps, from choosing the site to actually beginning construction. In regular play, a character would be expected to go to extensive trouble to secure permission to put up a castle, find a suitable wilderness to tame, and convince the locals to aid him—but we'll skip over that material here. We're only interested in showing you how to design and build your castle.

The seven steps to building your castle are:



1. Select a site.
2. Choose a style of castle.
3. Determine approaches.
4. Customize design.
5. Finish design and add details.
6. Calculate cost and construction time of castle.
7. Build it!

By following these steps, you will be able to take your castle from untamed wilderness to the drawing board to a polished design just waiting for the first stone to be laid. Before you get started, you probably will want to have a pencil, a calculator, some graph paper, and some scrap paper handy.

Select a site

Before you begin to lay out your castle, you should decide where you're going to put it. We will assume that your characters have already won themselves a piece of land and are pretty sure that they want to construct a stronghold there. Take note, Dungeon Masters: This is a big assumption, and you should seriously consider orchestrating several important adventures around the acquisition of a title and land to build on.

The site you select should enjoy some strategic relevance. If there is something of vital importance in your domain, such as a city, deep-water harbor, or natural resource, you probably will want to locate your fortress nearby to watch over that asset. The castle is useless if invaders choose to bypass it to go after something of greater value.

You should refer to the article by Thomas Reid, "The Evolution of a Castle," in this magazine concerning castle locations and development before you actually select your construction site.

Once you have found a site you want to build on, you need to determine how easy or difficult it will be to build a castle there. This is reflected by the Production Modifier, or PM for short. The site's terrain; geography, and climate all contribute to the Production Modifier and have a significant effect on the castle's cost and time of construction.

During this step, you will figure out your site's PM. If you come up with an astronomical modifier, you may want to consider selecting another site and trying again.

To determine the site's PM, refer to Table II: Production Modifiers table. A castle's cost will be influenced by the climate, geography, and ground cover of the building site. Another important consideration is the location and quality of resources that will be used in the castle's construction. Lastly, the workforce, society type, skill, and morale also will be included.

Make a note of the figures listed in Table II in each of the appropriate categories for your castle's building site. Multiply all the different factors together to determine the Production Modifier for a castle built on that site.

Do this calculation as many times as you want to determine the best location. However, the DM is within her rights to charge a 100 gp survey fee for each site you "survey" (perform the calculation for). After all, someone has to go out and examine each site!

Each of these factors is discussed in detail in DMGR2 *The Castle Guide*. Table II simply repeats the PM associated with each one. If there is any debate over what kind of climate, resources, or workforce prevails at any given site, the DM gets the final word.

Choose a style

Now that you have an idea of where this castle will be built, you should select a basic castle style. Most castles will fall into one of five different categories. These are: the tower; the motte-and-bailey; the curtain-wall defense; the enclosed keep; and the concentric castle.

The tower

The cheapest castle to build is one with only one piece. A simple stone tower can resist small-scale attacks and provide a safe home for a party of adventurers. The tower provides no defense for any outbuildings or surrounding land, cannot house a large garrison, and has limited stores. On the other hand, it's cheap compared with the other designs.

Inside the tower, it was customary to design the entrance hall as a last-ditch defensive position. The room would have only one exit, and sometimes was built with arrow slits or murder holes facing into it so that the defenders could attack invaders who made it past the front door. These features are optional.

Take a look at Diagram #l, the Tower Plan. Naturally, this is a very simple layout. Simply pick the place where you want to build the tower, and place it there. Since this is the entire castle, we'll assume you want to build a large square tower, with a medium square tower stacked above it, for a total of four interior levels plus a cellar and the roof.

The tower's roof is assumed to open and battlemented. Each of the first two floors is 60′ × 60′ on the interior, and the 10′ stone walls make the castle 80′ × 80′ at its base on the ground. The upper two floors are 40′ square. A 30′ × 60′ cellar is included in the price of the large tower.

Some easy options to add to this design in the next step include: surrounding it with a palisade or ditch; adding turrets or buttresses; changing the tower from square to round; or building in a drawbridge to help protect the entrance.

Tower components: large square tower, medium square tower.

Cost: 25,800 gp.

Time required to build: 1,950 man-days.

The motte-and-bailey

This design uses a stone tower or a shell keep as its donjon, or strongpoint, and surrounds the tower with a sturdy palisade. An adjacent area known as the bailey was enclosed in a second stockade. The bailey was often a small village, with stables, barracks, armories, smiths, and craftsmen. Usually, the gate to the castle led into the bailey, and a second gate led into the donjon or centerpoint. The donjon was usually raised on an artificial hill known as a motte.

This design is stronger than a simple tower and provides for a larger garrison. It provides good protection for the surrounding lands, since the bailey can house a number of people in time of war. Its downfall lies in the fact that its defenses do not support one another.

Refer to the Motte-and-Bailey Plan diagram. Our design uses a stone tower as the donjon, but many historical designs substituted a shell keep for a stone tower. The shell keep consisted of a curtain wall that boxed in several stone buildings. The center of this arrangement was an open courtyard. To build a shell keep, you buy as much curtain wall as you need for the exterior keep dimensions, and then buy stone buildings to fill the inside. Don't forget a gate!

Our motte-and-bailey design raises the central tower on a motte 30′ high, while surrounding the entire castle with a ditch and palisade. The central donjon is exactly the same as the tower described in the Tower Plan above-a medium square tower stacked on a large square tower. As in the previous example, the builder gets a free cellar 30′ by 60′ in size.

In the bailey, we will assume that the designer needs to build two stone buildings (an armory and a barracks) and three wooden buildings (stables, a mess hall, and a storage building.) The entrance to the bailey is guarded by a small gatehouse and a drawbridge to span the surrounding ditch. The gates between the bailey and the keep are not protected by a gatehouse, and are considered light gates.

The ditch itself is 40′ wide and 20′ deep. Wooden bridges have been added to span the ditch between the motte and the bailey, and from the gatehouse to the castle approach.

Variations on this design may include: adding a gatehouse between the keep and the bailey; increasing the size of either the keep compound or the bailey; adding buildings to the bailey; replacing the tower keep with a shell keep; adding a drawbridge between the bailey and the keep. You can save a lot of time and money by finding a natural hill to build on, instead of creating your own motte.

Motte-and-Bailey components: large square tower, medium square tower, small gatehouse, light gate, small stone building, large stone building, three medium wooden buildings, 1,884 motte modules (200′ diameter motte, raised 30′, 2,321 ditch modules (40′ wide and 20′ deep), 18 wooden bridge modules (two bridges 10′ wide,

20' tall, and 40' long), 145 palisade modules (1450' long palisade, 5' tall).

cost: 108,490 gp.

Time required: 12,422 man-days.

The curtain-wall defense

The curtain-wall castle descended from motte-and-bailey designs, shifting the defensive emphasis to the outer walls. Like the motte and bailey, the castle is divided into two parts: a bailey and a keep. The two parts of the castle do not support each other. Despite this flaw, the walls themselves are quite strong and are often protected by flanking towers.

Replacing a wooden palisade with a thick stone wall and adding towers as reinforcement vastly improves the castle's strength, but also makes the curtain-wall defense quite costly.

The keep is still the center of the castle, and may rest on a tall motte or natural hill. A stone wall surrounds the keep, and towers protect the wall. One gate leads from the keep's compound to the bailey, which is also protected by a stone wall and small towers. The keep and the bailey share a common outer wall, but an attacker who captured the bailey would still have to fight his way through the partitioning wall to take the inner compound.

Refer to the Curtain-Wall Castle Plan diagram. In case you're curious, the design is loosely based on the castle at Arques, France. Our plan takes some liberties with the proportions and the locations of the towers and buildings.

The curtain-wall plan pinches pennies by making the donjon itself double as one of the towers defending the outer wall. This works especially well if the castle builder can position the donjon so that it commands difficult terrain. The donjon consists of the same keep we've used in the previous two designs, but we've added two turrets to anchor the outside corners of the keep and included an escape tunnel, Two stone buildings have been built adjacent to the keep to add to the lords living space.

The keep's compound, or upper bailey, includes three small round towers to provide flanking fire along the walls. A medium gate guards the entrance from the lower bailey. In the lower bailey, five more small round towers and a medium barbican (acting as a gatehouse) complete the castle's defenses. A bastion (actually two bastions built back-to-back) helps guard the gate with two drawbridges. Several extra stone and wooden buildings are thrown in to provide more living and storage space.

The outer walls of the castle are stacked two modules high, and are 30' tall. They are defended by a glacis, or stone facing along their outer bases, and hoardings—wooden fighting platforms along their battlements. The small round towers are 30' tall as well, with two interior levels and a 15' × 30' cellar in each.

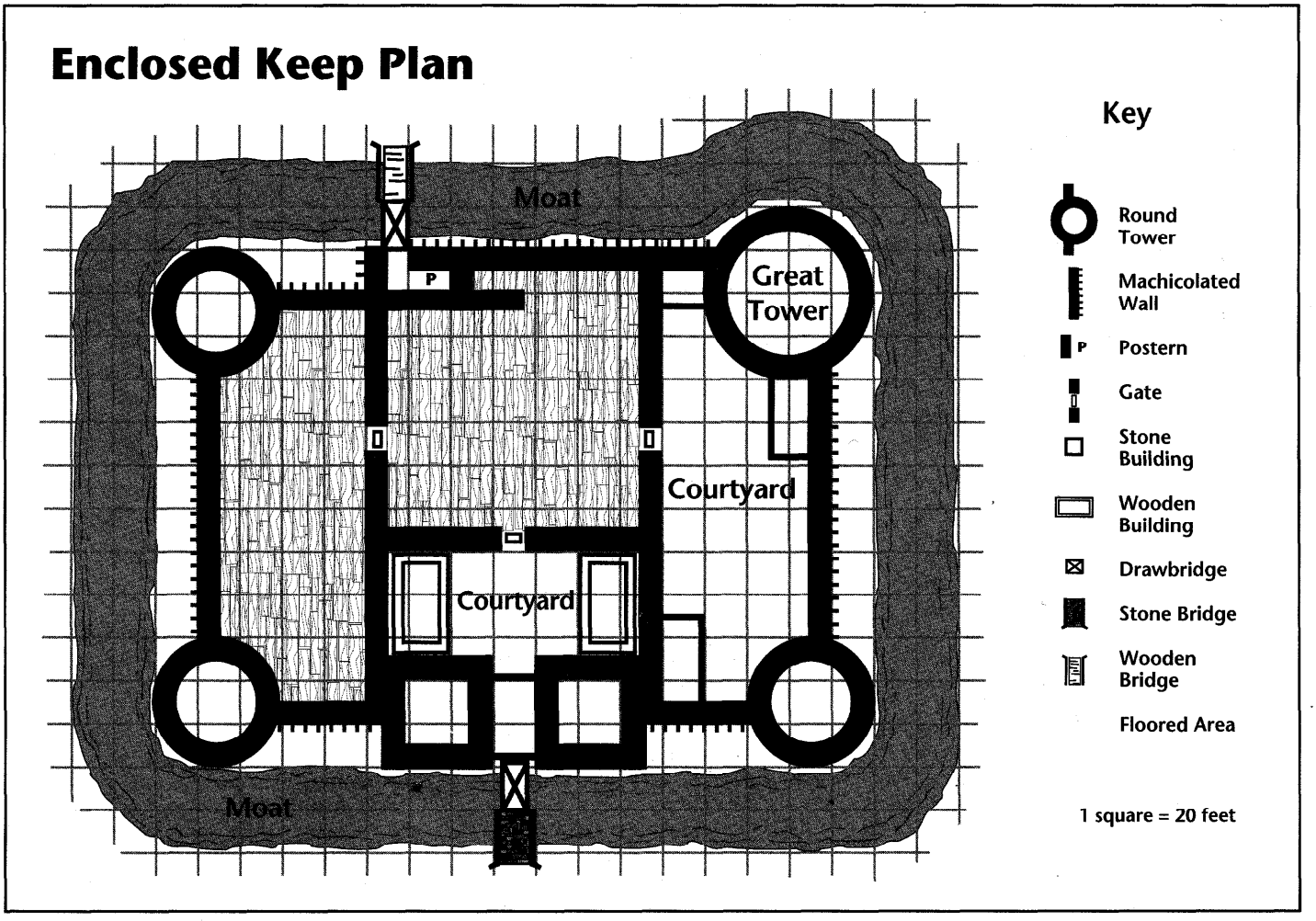
The entire castle is surrounded by a ditch, crossed by only one set of drawbridges. This is a fairly sophisticated castle when all is said and done, and you'll pay dearly for this fortress.

Variations on this design would include expanding the lower bailey to enclose a larger area, adding a barbican or outwork to help guard the approaches to the gatehouse, stacking the towers, replacing the wooden hoardings with stone machicolations, or replacing the barbican with a gatekeep.

Curtain-Wall Defense components: large square tower, medium square tower, six buttresses (stacked in two turrets), eight small round towers, medium barbican, two bastions, medium gate, medium stone building, four large stone buildings, one grand stone building, three medium wooden buildings, one large wooden building, two drawbridges, 119 stone wall with glacis (hoardings included), 148 stone wall modules, three postern gates, 3,264 ditch modules (40' wide, 20' deep), 50 tunnel modules.

Cost: 462,220 gp.

Time required: 32,100 man-days.



The enclosed keep

The enclosed keep is a design that saw very little historical use. However, it is often found in fantasy literature and role-playing games. While real-life castles usually included open courtyards (or baileys) between the outer walls and the inner defenses or donjon, the enclosed keep actually roofs over this space. The castle becomes one huge building—even though it may still include towers, gatehouses, and other structures.

The enclosed keep lacks the open spaces of the bailey and can house only a limited number of people before it becomes crowded. It is not good for area defense. However, it can be held with a minimal garrison and is perfect for an adventuring party's stronghold or a wealthy retreat. "The Castle on the Moors" from DMGR2 is of this design.

The enclosed keep has to be fairly small. If the outer walls are built to include too large an area, the cost of roofing the space between becomes astronomical. Another disadvantage lies in the lack of a second line of defense; once invaders are past the walls, they are in the castle. Even a motte-and-bailey design forces invaders to pass through the bailey before they can assault the keep itself.

On the other hand, there are advantages to this kind of design, especially in a fantasy setting. Its roof makes airborne attacks difficult. Since it is small and concentrated, it is cheaper than a curtain wall or concentric castle, while it is stronger than a simple stone tower. Its small ground area also means that it can be built in places where larger designs aren't feasible, such as small islands or steep hilltops.

Refer to the Enclosed Keep Plan diagram. Our design features three small round towers and one large round tower as the corners of the castle. An additional medium round tower is stacked on top of the large tower, and will rise two levels higher than the rest of the keep. The curtain wall linking the towers is capped by machicolations and is doubled in height to match the towers themselves.

A medium gatehouse controls access to the keep through a drawbridge and a portcullis. A postern gate at the keep's rear leads to a second drawbridge, guarded by baffled walls. Inside the main gate, the castle is partitioned into three areas by internal walls. Part of the castle consists of courtyards open to the sky, but most of the keep is roofed over with wooden wall modules.

Each of the medium towers has a cellar 20′ in diameter, while the large tower has a cellar 30′ in diameter. We also will include an additional dungeon area 100′ square beneath the keep itself.

Since the castle is two levels high, we will need to buy wooden walls for two levels of flooring, plus a third section as a roof, for the space enclosed by the curtain walls. We will surround this keep with a moat 40′ wide and 10′ deep.

Options for customizing this design might include: enlarging the keep by using medium or large round towers instead of small towers; providing a barbican to guard the gatehouse; adding turrets to the corner towers; stacking the entire castle another two levels high; or saving time and money by not building the moat.

Enclosed keep components: four medium round towers, one large round tower, medium gatehouse (drawbridge included), two large wooden buildings, two medium stone buildings, one small stone building, one drawbridge, four wooden bridge modules, five stone bridge modules, three light gates, 54 stone wall with machicolations modules (glacis included), 191 stone wall modules, one postern, 1008 moat modules (40′ wide, 10′ deep), 100 tunnel modules (100′ × 100′ dungeon), 506 wooden wall modules.

cost: 303,011 gp.

Time required: 24,622 man-days.

The concentric castle

Representing the ultimate in castle design, the concentric castle uses two or more curtain walls to create a layered defense. The outer wall and its towers are supported by an inner wall of greater height, also reinforced by towers. The donjon becomes obsolete in this design, but may still be used as a central citadel. A well-designed concentric castle built on good terrain can be impregnable.

The size of the concentric castle allows it to support a considerable army and house a great number of people. Frequently, the cisterns and storehouses of the concentric castle are the deciding factors in its strength. If it can withstand a long siege, it may not be worth attacking.

Refer to the Concentric Castle Plan diagram. This design is loosely based on the castle at Beaumaris, Anglesey, Wales. The entire castle is built on an artificial island in the middle of a lake, so the first order of business is to buy a gigantic motte with the artificial-island option. We will assume that the lake is 20′ deep and that we want the island to stand 10′ above water level.

We'll begin our design at the center and work outward. Although the concentric defenses have rendered the central donjon somewhat obsolete, we'll still build an impressive central tower as a seat of government. Two large round towers are built side by side and buttressed; because they support each other, they can both be stacked three units high for a six-level tower standing 90′ tall. We also will place several stone buildings and a wooden building in the inner courtyard,

The central courtyard is surrounded by a high curtain wall anchored by four double-stacked medium round towers 60′ in height. The towers are joined by a stone wall with machicolations, stacked two modules high for a 30′ curtain wall. This wall is pierced by two heavy gates, which are protected by two lesser gatekeeps.

Beyond the inner wall lies the outer bailey. The bailey is surrounded by a machicolated wall 15′ high, with four small round towers to protect and support it. Ten bastions are added to strengthen the wall even more. The outer wall is pierced by two gates, protected by medium gatehouses with drawbridges. Note that two bastions are built jutting out on piers to provide extra covering fire for the approaches to the gatehouses. The bailey itself is partitioned by battlemented walls that ensure that an attacker who breaches the outer wall will be contained in one small area of the castle.

Two stone causeways span the lake that surrounds the castle.

This design is extremely expensive, but would stand against a ground-based or waterborne assault for months with a small garrison. If it has a weakness, it lies in the castle's vulnerability to magical or monstrous attack—but none of the other designs can accommodate those considerations, either.

Variations on this design would include changing its size by making the towers larger or smaller or joining the defenses to a small town and surrounding the town with a curtain wall to protect it. It is possible to save an enormous amount of labor (about half of the time requirement) by building this castle on dry land or on a natural island, instead of building an island from scratch.

Concentric castle components: six large round towers, 12 buttress modules, 12 medium round towers, two small gatekeeps, four small round towers, two medium gatehouses, 10 bastions, six medium gates, four heavy gates, three medium wooden buildings, two large stone buildings, four medium stone buildings, 200 stone wall with machicolations modules (glacis included), 122 stone wall modules, two posterns, 72 stone causeway modules, 14,496 Motte modules (artificial island).

Cost: 1,241,670 gp.

Time required: 113,726 man-days.

When you finish with this step, you should have a castle plan of the appropriate style. You can copy the plan to a piece of graph paper in order to customize it in later steps, or you can leave the plans as they appear here.

If you wish to generate detailed floor plans from these overviews, feel free to improvise. You can place doors, stairwells, windows, or arrow embrasures wherever you wish, but you should remember two things: first, a section of wall or building should not have more than one opening (door, arrow slit, etc.) per 10 feet; and secondly, it's a bad idea to put windows or exterior doors on the ground floor, since they can be stormed during an enemy attack.

Determine approaches

You now should take a look at the build-

ing site and try to imagine just how your castle will be situated on this terrain. If you are building a castle on a plain where it can be attacked from any direction, you shouldn't worry about this step—you will have to make certain that the castle can defend itself equally well on all sides. Otherwise, determine the avenues of approach that enemies are likely to take if your castle is assaulted.

Again, you may want to refer to Thomas Reid's article in this issue about castle evolution and placement. In addition to suggesting a plan for your fortress, a diagram of the surrounding area also can be useful for determining siege lines and artillery positions should your castle ever come under attack.

If desired, the castle's approaches can be altered by purchasing enough ditch, causeway, or motte modules. Excavating is easy, but the DM will have to judge any efforts to create ramps and roadways by moving earth around. Mark these improvements on a copy of your terrain diagram, and don't forget to include this in the castle's overall price.

Customize the plan

In this step, you can alter your design to fit the exact terrain and considerations for the castle you are building. You may want to substitute pieces to make your castle stronger (and more expensive), or try to economize by settling for smaller and cheaper components. Stone and wooden buildings can be added to the courtyards and baileys to provide for additional barracks, storerooms, and work areas. New outworks can be used to guard the approaches to the castle.

The most important consideration in this step is the castle's topography and how to take advantage of it. Does the castle sit on a natural hilltop? If it does, you probably don't need to buy a motte, but you may need to build a causeway to the castle's gates. Does one wall of the castle overlook impassable terrain, such as a gorge or a body of water? You may be able to save money by skimping on the defenses there, since it is unlikely an attacker will be able to assault the wall in question.

Very few castles sit on a flat plain that is equally vulnerable in all directions—look for ways to channel attackers toward your castle's strong points. For example, by locating your castle on an artificial island in the middle of a lake, you can guarantee that the attackers will be forced to concentrate their assault on the causeway that bridges the lake.

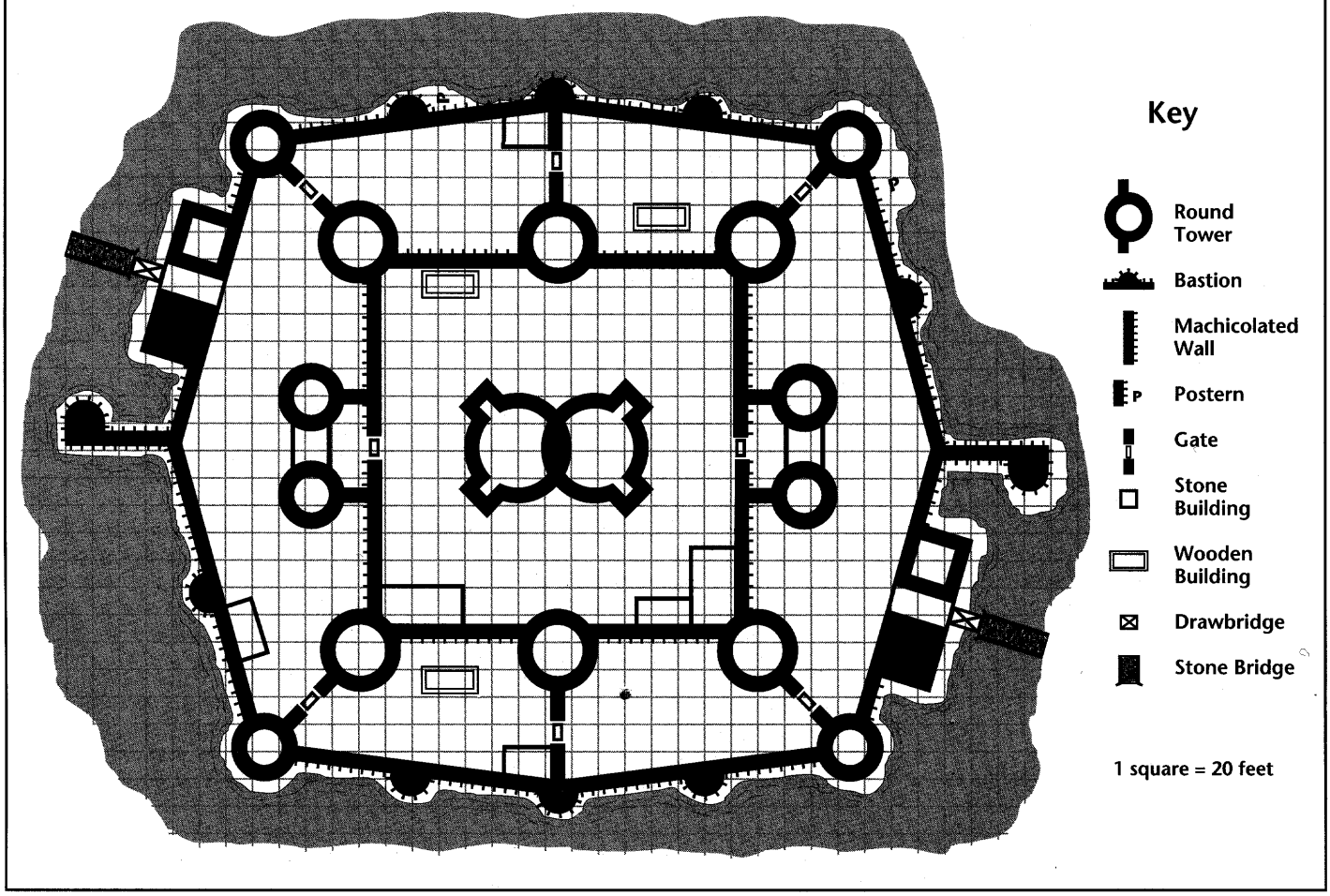
You can use the generic castle designs here as a guide in customizing your own design, but don't be constrained by them. You may be able to alter the designs provided and re-calculate only the portions you changed, but don't be afraid to throw them out and start from scratch.

Finish and add details

In this step, you should add any final details to the design that you wish to include. Are there any magical or unusual features that aren't covered otherwise, such as crocodiles in the moat or a stone golem gatekeeper? Are there any spells that will be used to add to the castle's defenses, such as a permanent *wall of fog*, *wall of ice*, *wall of fire*, or *distance distortion*? How about a landing platform for hippogriff cavalry? In most cases, the DM will have to decide what a special feature will cost and how it must be constructed.

One special note on finishing the design: The times and costs for castle components that appear in this article assume that the designer is creating a typical castle that will be used as both a fortress and a living place. The builder may skimp on all unnecessary luxuries and build a spartan keep that is suitable for use only as a military base, or he may decide that his castle should be a work of art that is pleasing to the eye. Spartan castles save the builder 25% of the normal time and gold

The Concentric Castle Plan



costs, while extravagant castles cost 50% more than normal and require 50% additional construction time.

Calculations

Now, add up the costs and time requirements of all the components of your castle. This represents the fortress's basic cost. Don't forget to increase or decrease this figure if you are making your castle a spartan keep or an extravagant work of art. Once you have totalled the castle's basic cost and time of building, you will need to add 10% to both figures to reflect overhead costs.

Overhead costs cover the cost of recruiting and training laborers, housing and feeding them while they're on the job, putting furniture in the castle when it's finished, and paying any architect's fees or other special charges. Overhead does not cover the costs of hiring and equipping a garrison, paying for any unusual hirelings or services such as spell-casters, or the costs of any sabotage or disasters, although routine mishaps are considered to be part of the building process.

Take the new costs and times with overhead included and multiply these by the Production Modifier mentioned above. This will give you the castle's actual cost and time of building.

Example: Eric is building an enclosed keep and decided that the basic plan was good enough for him. The enclosed keep has a base time requirement of 18,932 man-days and a base cost of 254,712 gp. The overhead increases these figures to 20,825 and 280,183 respectively. Eric already calculated his Production Modifier to be 2.34, so his final building time is 48,730 and the final cost is 655,628 gp.

To determine the workforce required to build your castle, take the final construction time and divide it by 52. This will give you the number of workmen required to build your castle in one year of continuous work. In our example above, Eric finds that his character will need to find 938 laborers to do the job. Remember, the castle and overhead costs cover the worker's wages for an average workforce.

You can increase the speed of construction by hiring more workers. Each extra worker costs 520 gp per year, including food,

Table I: Expanded Castle Modules table

Name	Tech	Time	Cost	Dimensions
Barbican, small	4	1,665	28,600	50′×120′
Barbican, medium	5	2,050	35,200	60′×140′
Barbican, large	6	2,880	49,500	60′×160′
*Bastion	4	450	6,700	30′×30′
*Bridge/Causeway, stone	4	32	370	10′ × 10′ × 10′
*Bridge/Causeway, wooden	3	6	20	10′ × 10′ × 10′
Building, small stone	3	64	2,000	20′×20′
Building, medium stone	3	96	3,000	20′×40′
Building, large stone	3	144	4,500	30′× 60′
Building, great stone	4	300	10,000	30′×60′
Building, grand stone	4	600	19,000	40'×80'
Building, small wooden	1	8	40	20′×20′
Building, medium wooden	1	12	60	20′×40′
Building, large wooden	1	18	90	30′×60′
Building, great wooden	2	40	200	30′×60′
Building, grand wooden	2	75	375	40′×80′
*Buttress/Turret	5	360	6,000	30′×30′
Ditch	1	2	10	10′×10′ ×5′
Drawbridge	2	40	550	20' long
*Gate, light	1	15	175	10′ × 10′ high
*Gate, medium	2	85	630	10′ × 10′ high
*Gate, heavy	3	225	13,800	10′ × 10′ high
*Gatehouse, small	3	980	16,500	70′×30′
*Gatehouse, medium	4	1,550	25,800	120′×50′
*Gatehouse, great	5	2,040	34,800	150′×80′
Gatekeep, lesser	5	1,950	33,275	70′×120′
Gatekeep, greater	6	4,625	40,620	140′×140′
Gatekeep, grand	7	6,410	110,800	200′× 190′
Moat/Channel	3	6	30	10′×10′×5′
Motte	1	2	10	10′×10′×5′
Palisade	1		5	10′ long, 5′ high
*Reinforcement		(×1.5)	(×1.5)	
Tower, small round	4	720	12,000	50′ exterior
Tower, medium round	5	900	15,000	60′ exterior
Tower, large round	6	1,260	21,000	80′ exterior
Tower, small square	3	840	14,000	50′×50′
Tower, medium square	4	1,080	18,000	60′×60′
Tower, large square	5	1,440	24,000	80′× 80′
Tunnel	4	25	100	10′ × 10′ × 10′
Wall, stone	3	30	500	10′ × 10′ × 15′
Wall, stone w/hoarding	4	36	600	10′ × 10′ × 15′
Wall, stone w/glacis	5	44	720	10′ × 10′ × 15′
Wall, w/machicolation	6	53	864	10′×10′×15′
Wall, stone and postern	4	5	100	10′ × 10′ × 15′
Wall, wooden	1	1	5	10′×15′×3″

*New castle modules (explained in text).

Table II: Production Modifiers table

Climate
Arctic: 4.00
Moderate: 1.00
Sub-arctic: 2.50
Sub-tropical: 1.25
Temperate: 1.25
Tropical: 1.75

Geography
High mountains: 4.00
Foothills: 1.50
Moderate mountains: 3.00
Rolling hills: 1.00
Low mountains: 2.00
Plains: 0.75

Ground cover
Jungle: 3.00
Grasslands: 0.75
Dense forest: 2.00
Barren: 1.50
Light forest: 1.50
Desert: 2.00
Scrub: 1.00
Swamp: 2.00

Resource availability
Distant and poor: 2.00
Distant and good: 1.50
Near and poor: 1.25
Near and good: 1.00

Local social structure
Nomadic: 2.50
Semi-nomadic: 1.75
Primitive agricultural: 1.25
Agricultural: 1.00
Advanced agricultural: 0.75

Workers' skill
Very poor: 3.00
Poor: 2.00
Average: 1.00
Good: 0.75
Very good: 0.50

Workers' morale
Very poor: 3.00
Poor: 2.00
Average: 1.00
High: 0.75
Very high: 0.50

housing, and skilled supervisors. If the workforce is doubled, the construction time is cut to 75% of normal. If the workforce is quadrupled, the time is cut to 50% of normal.

You can save money by hiring fewer laborers, although this will slow construction time. Each man cut from the labor pool saves 10 gp per week of construction. If enough workers are removed to reduce the workforce to 75% of its normal value, the construction time is doubled. If the force is cut to 50% of its standard value, the construction time is quadrupled.

Example: Eric's character is short on money and wants to cut the workforce down to 75% of its normal value. He hires 704 men instead of 938, saving 2,360 gp per week over two full years, for a total savings of 245,440 gold pieces off the castle's final cost!

In a role-playing setting, a group of PCs also can save money by assisting in the construction. The characters need not be an actual part of the workforce, but are instead devoting their time to making sure that supplies arrive as scheduled, monsters don't trouble the workers, and so on. Each PC can replace a number of workers equal to his level, and spell-casting PCs replace an extra man per spell level that they can cast in a day. A 5th-level wizard does the work of 16 men, by this calculation.

Magical items used in construction can count for a number of men equal to 5% of their experience-point award if they are particularly suited for construction, or 1% if they are useful but not especially so. The DM will have to decide which category any given magical item falls into.

Monsters also may be used as additional or replacement workers. If they are well-suited to the task, each monster does the work of a number of men equal to 5% of its XP award. Monsters that are only moderately useful are only worth 1% of their XP award.

Unfortunately, castles can't be worked on all year-round in most climates. Cold weather or torrential rains will put a stop to the building process until the weather clear again. To determine the actual work season available, multiply the PM for climate type and ground cover to generate a Work Time Modifier (WTM) for the construction site. Eric's castle, described above, has a WTM of 1.875. Divide 52 by the WTM to determine how many weeks are available for work in a given year. In the case of Eric's castle, the result is 27 weeks per year.

If the result is more than 52, then the work just goes that much faster—you've found an ideal place to build a castle.

Since Eric skimped on his workforce, his castle's basic building time was two years, or 104 weeks. Since 27 weeks of work can be done in any given year, it will take his character a little less than four years to build the castle.

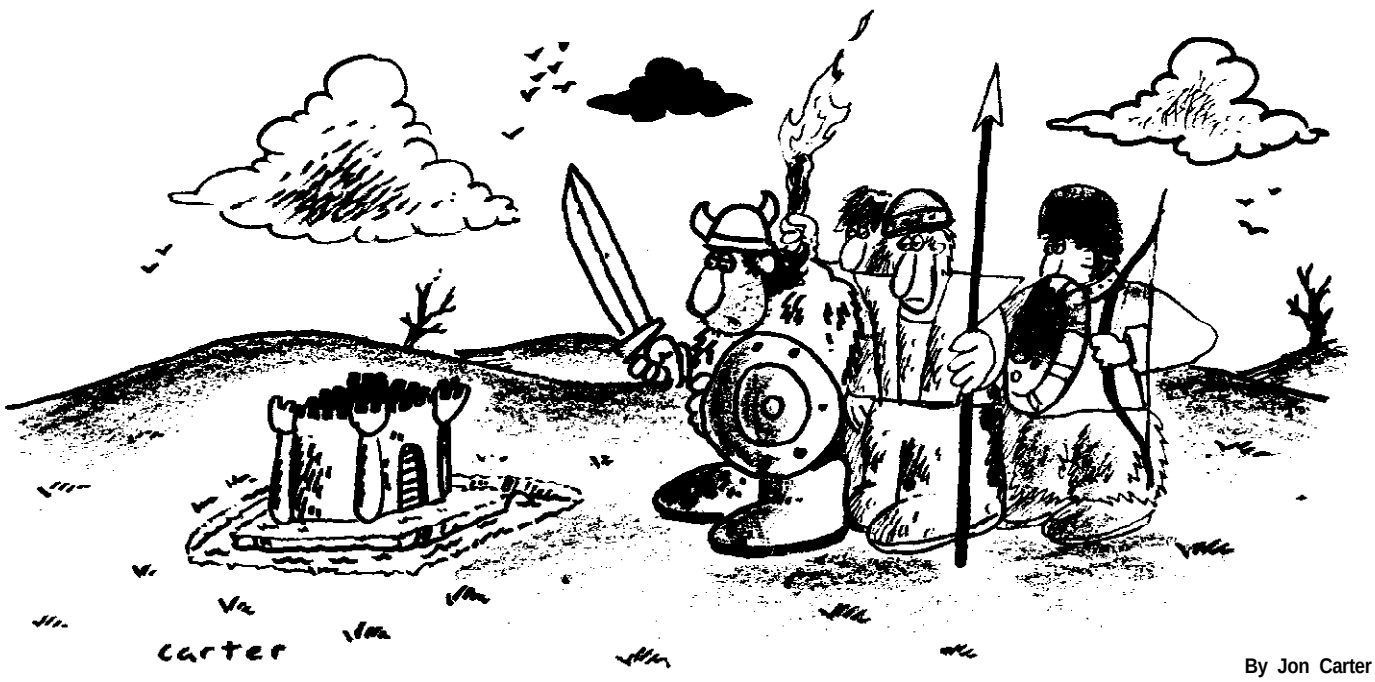
Build the castle

Now you have a castle design, an idea of how long it will take to build it, and how much it will all cost. You're ready to begin! Of course, the campaign doesn't conveniently stop for your characters when they undertake a project of this scope. All kinds of trouble can find the PCs while they're building their fortress.

War may come before the PCs are ready for it, and the attackers may make a beeline for the partially-completed castle to tear it down before it is finished. A war on the other side of the kingdom may arise, and the lord of the land may insist on drafting some of the workers who are erecting the castle. Monstrous incursions may force the PCs to hunt down the creatures troubling their workers. Corruption and treachery also can slow things down.

While all of these things may sound like a tremendous pain in the neck, a resourceful DM can make the process of building a castle a series of exciting adventures that can sustain a campaign for quite some time. Most PCs have spent years hunting down monsters or participating in intrigues at the request of others—now they get a chance to see what it's like to defend their own people and property against such horrible threats.

Ω



By Jon Carter

"Crud! I though it was just really far away. . .
Well, so much for *that* castle raid."