DIRT CHEEP™ STRONGHOLDS SIEGE ENGINES

from MicroTactix Games
www.microtactix.com

MICROTACTIX

DISCLAIMER

We have made every effort to make sure that all parts fit together properly, but sometimes tolerances are tight and mistakes do happen. Test fit all pieces before applying glue. Some trimming may be required.

Before photocopying or printing these pages on cardstock, you may wish to assemble a test copy on plain paper to better understand the construction. A minimum of 65# cover stock is recommended for constructing the final models. Regular 20 lb. bond paper can be used, but these items were designed for a heavier stock for extra durability and coloring.

Tools Required:

Scalpel or sharp-bladed hobby knife
Metal ruler or straightedge

Cutting surface - a self-healing cutting mat is recommended, but a sheet of corrugated cardboard or even heavy poster board will work as well.

Glue - white glue, glue stick or wax stick. Double sided cellophane tape also works well. Rubber cement can be used, but will sometimes stain the cardstock or discolor colored inks and cause them to run.

A Note About Using White Glue

White glue contains a good deal of water. Too much glue will warp the card stock so that its almost unusable. Warping may also cause the parts to fit together incorrectly. If you use white glue, put a very thin coat on the glue tabs - the thinner the better. You can use a cotton swab or your finger to spread the glue thin. Remember to keep a damp paper towel handy to remove any excess glue.

PLEASE NOTE:

Each item has been marked with a series of Grey Lines that are an indicator that these lines are Fold or Score lines. All Tabs which are to be glued to hold the structures together are marked with a capital letter (G). Unless otherwise noted, all Glue Tabs fold inwards to the structure.

THE BALISTA

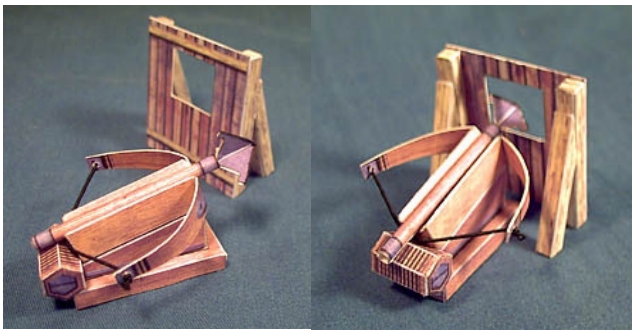
1 Page

The body of the balista consists of three separate pieces, the base, the support block and the arrow trough. Use the photos for reference to placement of all of these pieces. To construct the base, fold down all four side panels and glue the tabs to the inside. The support block will construct the same way. Note that the tabs along the bottom edges will fold under and are used to attach the block to the base. Apply glue to these tabs and center on the base. To construct the arrow trough, fold into a box shape but note that the center panels will fold into a "V" shape, matching the angles of the "V" shaped front and back panels. Glue all tabs to the inside. When dry, attach this piece to the top of the support block as shown in the photograph. Note that the blank panel on this piece must go towards the front. Cut out the bow as a single rectangular piece and score in the middle. Fold and glue the two sides together, front to back to create a piece with the image on both sides. When dry, cut the bow out of the rectangle. Glue the bow to the front of the arrow trough by applying glue to the blank area on the back of the bow and setting in place on the blank area at the front of the trough. Cut out the rope winch and fold the panels into a 6 sides shape. Glue the tab on the first panel to the inside. Fold down the triangular tabs along the top and bottom, apply glue and fold down the side panels and set into place. When dry, attach to the bottom of the base at the back of the balista as shown in the photograph.

The arrow will construct using 2 parts, the shaft and the arrowhead. Cut out and score the arrowhead as indicated. To make the proper folds and to be able to construct the arrowhead so it will turn out right, make sure that the wedge shaped cutout is on the left. This will be exactly as it appeared on the printed page. Starting with the second panel, fold this panel up. Fold the third panel down and glue the second and third panels back to back. Fold up the fourth panel and fold down the fifth panel and glue these back to back. To finish, glue the remaining two panels back to back. Cut out the shaft and roll into a cylinder by wrapping the cardstock around a small wooden dowel or other round object. The opening at the ends need to be big enough to insert the long end of the arrowhead into it. When the shaft is dry, glue the arrowhead in place. For a final touch, a piece of heavy thread can be run from one end of the bow, around the back and to the other end of the bow to simulate a bowstring. A piece of elastic thread was used on the model in the photograph shown here. This did allow the arrow to be fired a couple of times before the cardstock bow lost it's elasticity. It's fun for at least a couple of shots.

To construct the balista shield, cut out and score the shield face. Fold in half and glue the two sides together. When dry, cut out the indicated space. Cut out and score the two

uprights. Fold into a box shape and glue the tab to the inside. Fold down the glue tab and glue the textured panel on top. Set aside to dry. Cut out and score the braces. Fold into a box shape and glue the tab to the inside. Fold down the glue tab, apply glue and fold down the second blank tab. For final construction, glue the two uprights to either side of the back of the shield. The back is the side without the two horizontal boards across the front. The uprights are to be set in place so they are flush with the edge. Glue the blank panel of the brace to the back of the upright so that it sits on the tabletop level and slanting back as shown in the photograph.



The finished Balista shown from the side and from the back, behind the shield.

THE CATAPULT

1 Page

Construction Note: There have been a number of historical liberties taken with the model design on this piece for ease of construction and to make it actually work. Real catapults would be driven by a rope-tension engine to provide lift and would be impossible to construct out of paper or cardstock. This model is designed to be a general representation of a wide design type used throughout history.

Cut out and score the main body first. Glue the top and bottom frame together, front to back as well as the inside and outside of the main body. The outside panels will the ones with the tabs along the bottom edges. When dry, cut out the white space between the support joists on the bottom floor as well as the circles on the left and right sides. This cut out area will be used for the pivot on the swing arm. When dry and the cut outs are done, fold into a box shape and glue the tabs along the outside bottom of the underside of the floor making sure that they are on the outside. Fold the two tabs along the back wall (the metal ones with the rivets) and glue to the outside. Set this section aside to dry.

Cut out and score the swing arm making sure to cut out the circles on the 2 sides at this time. Fold into a box shape and glue the tabs to the inside. When dry, fold down the tabs along the ends, apply glue, fold down the end caps and glue into place. Note at this time that one of the end caps has a wood grain pattern (the one nearest the cut out holes) and the other is blank. Set this section aside to dry.

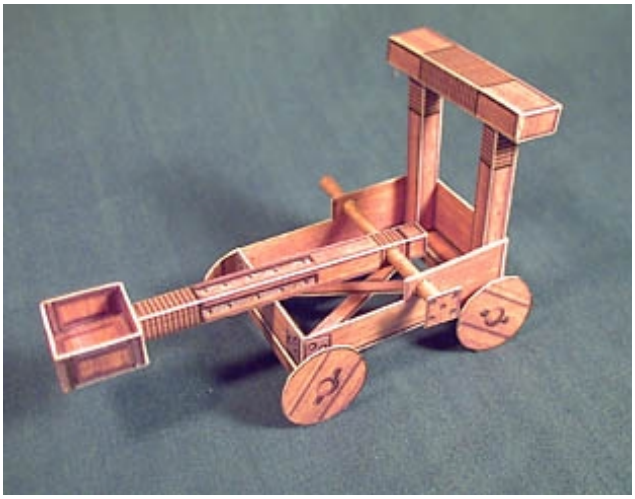
Cut out and score the pivot, located just beneath the wheels. The longest piece is the pivot for the swing arm. The 2, shorter pieces are the wheel axles. Form the pivot into a long tube by wrapping it around a wooden dowel or other small round object until it is a small enough diameter to fit through the holes in the swing arm and the holes in the sides of the main body without binding. A bead of glue along the outside edge will hold the pivot together after forming. When dry, place the pivot through the side of the main body of the catapult, completely through the swing arm and out the other side of the catapult body. When in place, a drop of glue on each side of the swing arm where the pivot hole will hold the swing arm in place. Just below the axles on the page with the rest of the pieces is a small square stopper cap. Cut out, fold in the center and glue together, front to back. When dry, glue this stopper cap on the end of the pivot as shown in the photograph.

Cut out and score the load basket, located to the right of the wheels. After scoring, fold down the inside panels and glue to the outside panels. Note that the outside panels are the ones with the tabs along the bottom. Fold up the bottom panels and glue together. When dry, fold into a box shape and glue the tabs along the bottom edges to the outside. The final tab (at the extreme right edge of the outside panels) is glued to the outside to hold the box together. When dry, attach the load bucket to the swing arm by applying glue to the "G" marked section on the bucket and placing it over the unprinted end of the swing arm. Set aside to dry.

Cut out and score the cross beam and 2 uprights. Fold each into a box shape and glue the tab to the inside. When dry, fold down the ends and glue one on top of the other to close. When these 3 pieces are dry, attach the 2 uprights to the main body first by applying glue to the bottom and setting them in the left and right front corners. When dry, attach the cross beam to the top as indicated. Set aside to dry.

Cut out and score the wheels and the axle casings. The wheels will assemble by cutting out the box, scoring in the middle and gluing the two sides together. When dry, cut out in a circle shape. Do not cut out the circles on the backs of the wheels. These are placement markers for the axles. To assemble the axle casings, fold into a box and glue the tab to the inside. When dry, attach to the main body of the catapult so that they are flush with the front and back panels. Roll the axles into cylinders the same way as the pivot for the swing arm. When dry, attach one of the wheels to the end of the axle and allow to dry. When dry, insert the axle and wheel through the axle box and through the other side. Attach the second wheel. Repeat for the rear. To make a non-rolling version of the catapult, when cutting out the axle boxes, include at tab at either end and glue together like the uprights. When dry, attach the axle box to the underside of the catapult and glue the wheels to the boxes.

For an added touch, take a piece of grey construction paper about 1 1/2" square and lightly wad it up for stones. Place in the bucket and fling away. By turning the pivot, the "stone" will fly out of the bucket more or less like a real catapult.



The finished Catapult.

THE BATTERING RAM

2 Pages

Note: In order to complete the model of the battering ram you will need some heavy thread to suspend the ram from the frame. No other type of allowances have been made for suspending the ram.

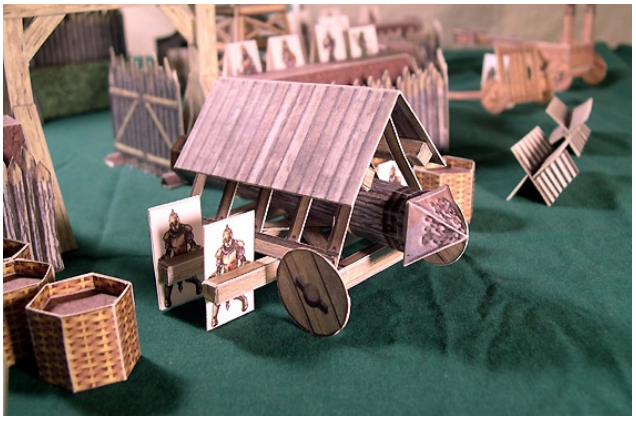
Begin by cutting out the frame on Page One. Make all the scores as indicated but do not cut out the white areas between the slats at this time. Fold the frame in half along the vertical score and glue the two sides together. Set aside to dry. Cut out and score the ram. Fold into a long octagon shape and glue the tab on the side panel to the inside. When dry, fold down the triangular tabs along the top and bottom edges, apply glue and fold the ends into place. To construct the ram head, first fold the top into a pyramid shape and glue the tab to the inside. Fold up the bottom and glue the bottom in place by gluing the tabs to the inside. When dry, attach the ram head to the ram by centering it on end of the ram with the blank panel. Set the entire piece aside to dry.

By this time the frame should be dry enough to cut. Carefully cut out all remaining white spaces between the slats. Fold the piece into a triangle with the sides with the slats on the left and right sides and the panel with the "X" cross beams on the bottom. Glue the wood panel that is attached to the underside of the bottom panel to the outside to close and hold together. Note that there is no correct front and back to the frame so either side you choose for final construction will be correct.

Hang the finished ram from the frame by looping a piece of thread around the ram and attaching it to the frame so that it hangs from the inside. The model shown here has the threads tied off between the first and second slats on either end. Any arrangement will work so long as the ram swings freely.

To construct the roof, cut out the roof section on Page Two and make all scores. Fold in the middle along the horizontal score and glue the two sides together. When dry, fold in the middle to create a peek. On Page Two (just to the right of the page logo) are two roof braces. Cut out and score as indicated. Fold into a box shape and glue the tab to the inside. Fold down the ends, folding in the glue tab first, applying glue and folding down the textured panel on top of the glue tab. When both braces are dry, glue to the inside of the roof over the blank spaces. When this is dry, attach the roof to the top of the frame by applying glue to the outside of the slats of the frame and attaching the brace to the frame. Place the roof high enough on the frame so that it will clear the knots in the threads holding the ram in place.

For final construction, cut out and assemble the wheels, axles and axle casings exactly as given in the instructions for the catapult. These pieces will attach to the underside of the frame at the front and back. The last two pieces on this page are optional and are push bars. Cut out and score as shown. Assemble these pieces like the roof braces given above. The push bars are attached to the underside of the frame. The first bar will attach just behind the second frame slat from the right and the second bar will attach just in front of the second slat from the left. This will insure that the push bars clear the wheels and don't prevent the wheels from rolling freely. A set of four figures have been included on the character stand-up page and can be attached to the push bars if desired. Make sure that the figures are high enough to clear the bottom of the playing surface so that the entire battering ram rolls freely.



The finished Battering Ram in action. Note the placement of the figures just behind the push bars. The figures are folded in half and glued together with the black silhouette on the back like the stand-ups.

THE SIEGE TOWER

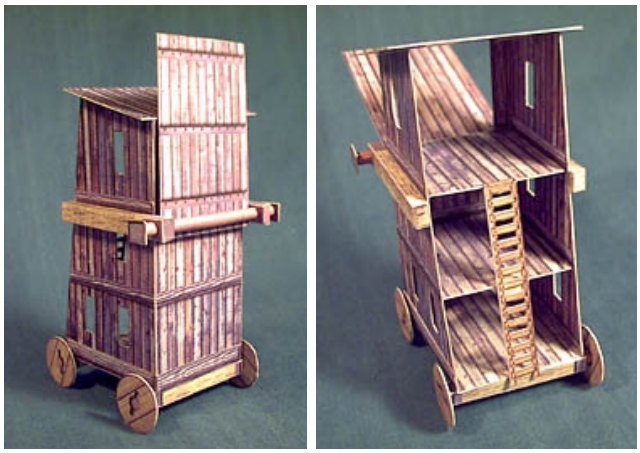
3 Pages

Cut out and score the main body of the siege tower on Page One. Do not cut out the arrow ports of forward gangway at this time. If you do, it will only make lining up the two sides more difficult. Fold the image in the middle and glue the two sides together, front to back. Set aside to dry. Note: The panels on the bottom of the page as printed will form the inside of the siege tower. Also note that there are two textured glue tabs at the very top of the side panels. These will need to be folded in.

On Page Two are the three inner floors and the roof for the tower. Cut out the center floor section first. This will form the bottom floor. The panel on the top of this piece will form the inside of the bottom floor. The three textured glue tabs at the edges of the bottom panel will fold up. Glue the two sides together and let dry. The section on the extreme right of the page will form the second floor. Score and glue the two sides together. In this case, the bottom panels (without the textured glue tabs) will form the top of the floor. The tabs along the edges will fold down so the textured side is to the inside. The section on the extreme left of the page will form the very top floor. This section will assemble exactly the same way as the second floor. When the floor sections are dry, assembly of the tower can begin.

Cut out the arrow ports and forward gangway of the tower body before proceeding. When done, fold the left and right sides of the tower in from the center panel. Starting with the top floor, make sure that the textured glue tab is facing forward. Apply glue to the front tab on the unprinted side and set into place so that it is level with the bottom of the gangway opening. Do not glue the sides at this time. Move down to the second floor. Glue this floor in the same way. The front of the floor should be level with the bottom of the wooden cross support. This will also make the side glue tabs about level with the tops of the arrow ports on the floor below it. Moving down to the bottom floor, make sure that all three tabs on the bottom floor are facing up so that the printed side is showing on the outside and the unprinted side on the inside. Apply glue to the inside of the front tab and set in place at the front of the tower bottom. When these sections are dry, apply glue to the remaining tabs on one side of the floor sections and fold over the side wall of the tower and press into place. The top two floors should be level with the wooden beams on the side of the wall. For the bottom floor, the textured glue tab will go on the outside of the tower wall. Repeat this process for the second side. This completes the basic tower construction.

Page Three contains all the parts needed to construct the moving gangway for the tower. On the extreme right of the page is the pivot needed for the gangway. Cut out and roll using the method described in the sections above. Note:



The finished Siege Tower from the front and the back.

The two other, smaller pieces to the left of the pivot are the axles for the wheels. Cut out and score the gangway. Glue the two sides together to form a panel with printing on both sides. Cut out and score the two crosspieces. Make all folds before cutting out the pivot holes in each end. Fold into a box, glue the tab to the inside. When dry, fold down the triangular tabs first, apply glue and fold down the ends in place. It is important that the pivot be rolled small enough to fit through the holes in the crosspieces. The pivot should be small enough to move freely and not bind, but not so small as to be very loose. When the pivot is dry, it is to be glued to the back of the gangway on the black line at the back panel. Wait until this section is dry before proceeding.

Pass the pivot (with the gangway attached) through one of the side crosspieces and hold up to the side of the tower so that the crosspiece is just below the top most wooden beam. Do not

The Siege Tower with the gangway open.

glue, but check for proper fit. The rear edge of the metal cap on the crosspiece should be even with the edge of the side of the tower. When moving the gangway down, the gangway should just barely clear or bind slightly with the front wall of the tower. When happy with the placement, remove the gangway assembly from the crosspiece and glue one crosspiece in place on the side of the tower. Allow to dry before going on. Insert the gangway assembly and glue into place the second crosspiece on the opposing side. When dry, the two metal textured "keeper" squares can be glued on to the edges of the pivot as an ornamental option. Once the gangway is dry, raise the gangway and glue the roof into place. The front edge of the roof should be flush with the front edge of the tower face. Apply glue to the tabs at the tower top and set the roof into place.

The wheels, axles and axle casings will assemble like those given above. These will glue to the front and rear edges of the bottom of the tower. For a final touch, cut out and score the ladder. Fold in half and glue the two sides together. When dry, cut out the white spaces between the rungs if desired. Fold down the tab at the top and glue to the center of the top floor. Just to the right of the latter is a small, three section rectangle. This can be used to keep the ladder in place on the second floor. Fold up the bottom panel and glue to the inside of the panel just above it. Fold down the top panel and glue to the center of the second floor so that the two sided panel folds down. Apply glue to the back of the ladder and place against the ladder keeper. See photograph for particulars.

TENTS

1 Page

Cut out and score the large officer's tent as indicated. Make all folds before construction. Glue the tab on the top roof to the underside of the opposing panel. When dry fold the side walls around the roof, gluing the tabs to the underside as you go. Glue the last tab to the opposing inside wall to finish.

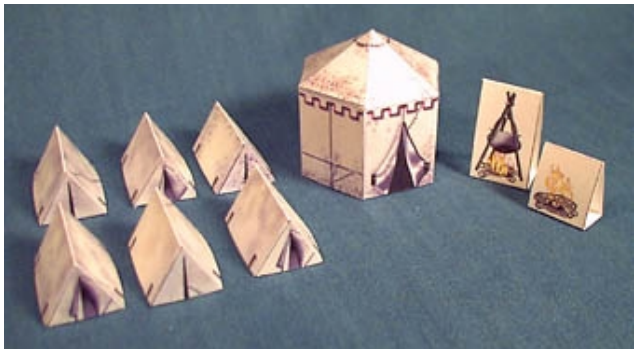
Cut out and score the enlisted man's "dog tent" as indicated. Fold in the middle and fold over the two ends. Glue the tab to the inside to form a wedge shape.

The cook pot and camp fire are simple stand-ups. Fold in the middle and fold the 2 bottom panels under. Glue one of the bottom panels on top of the other to create a triangular shape.

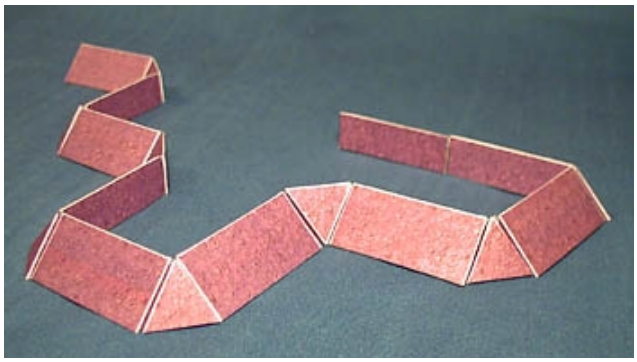
EARTHEN MOUNDS

1 Page

These are a series of wedge shapes that can be set together to make small earthworks to zigzag across a battlefield. They can be glued together or left free standing as desired. Note that there are 2 sets of corners much like the larger earthworks for left and right turns. All of the pieces will construct pretty much the same way. Fold down the side panels (and the back panels in the case of the larger pieces) and glue the tabs to the inside. See photograph for layout concepts.



The finished Tents (above), and the earthworks. The earthworks can be build to many differnt shapes by adding more pieces.



CHARACTER STAND-UPS

1 Page

Cut out each stand-up so that each piece has a front image, a back image and a base panel on either end. Fold the stand-up in the middle and fold the two base panels in. Glue one base panel on top of the other to form a triangle shape.

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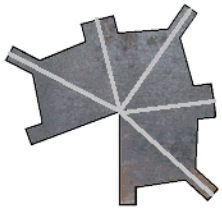

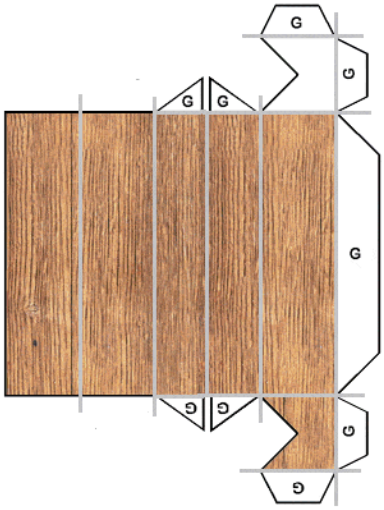

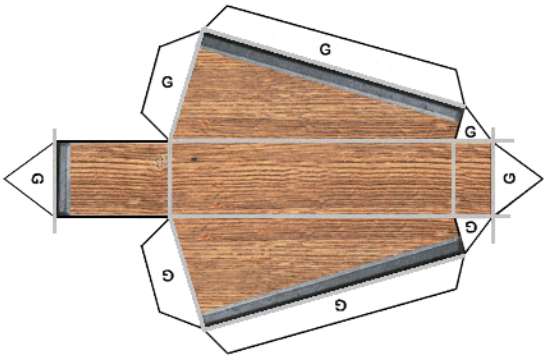

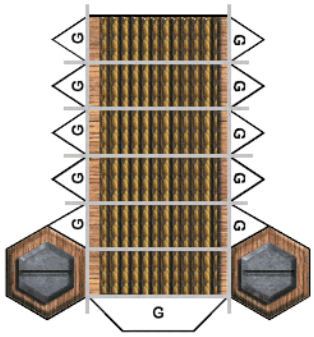

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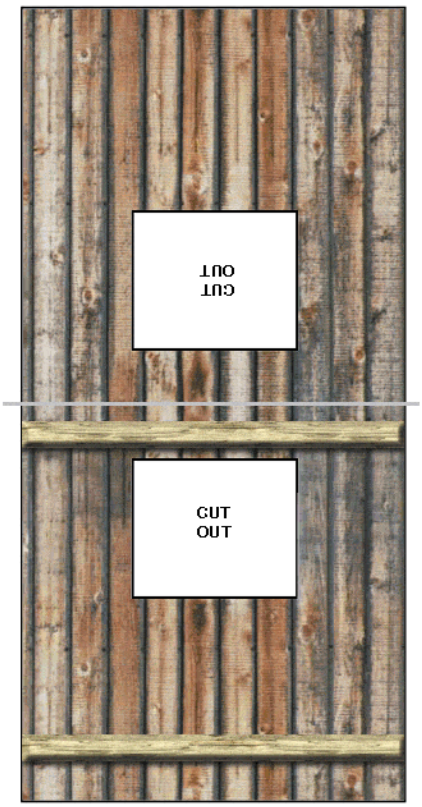

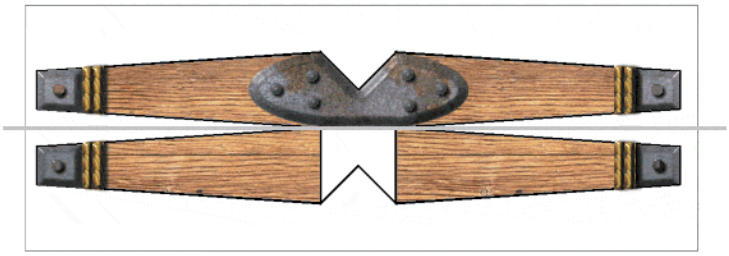

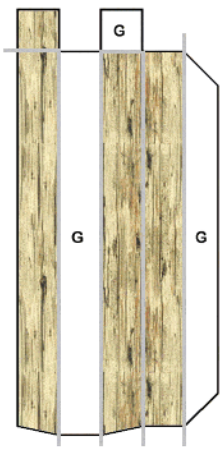

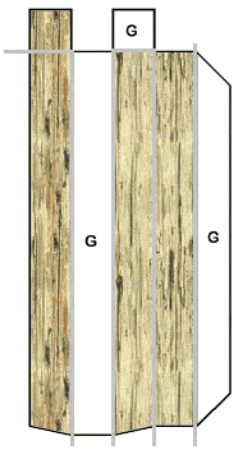

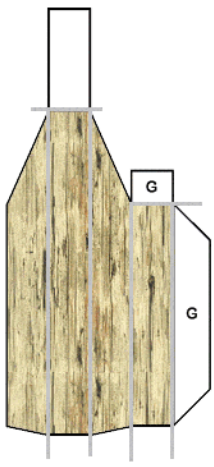

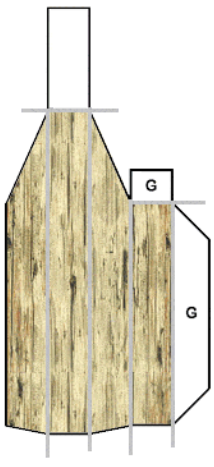

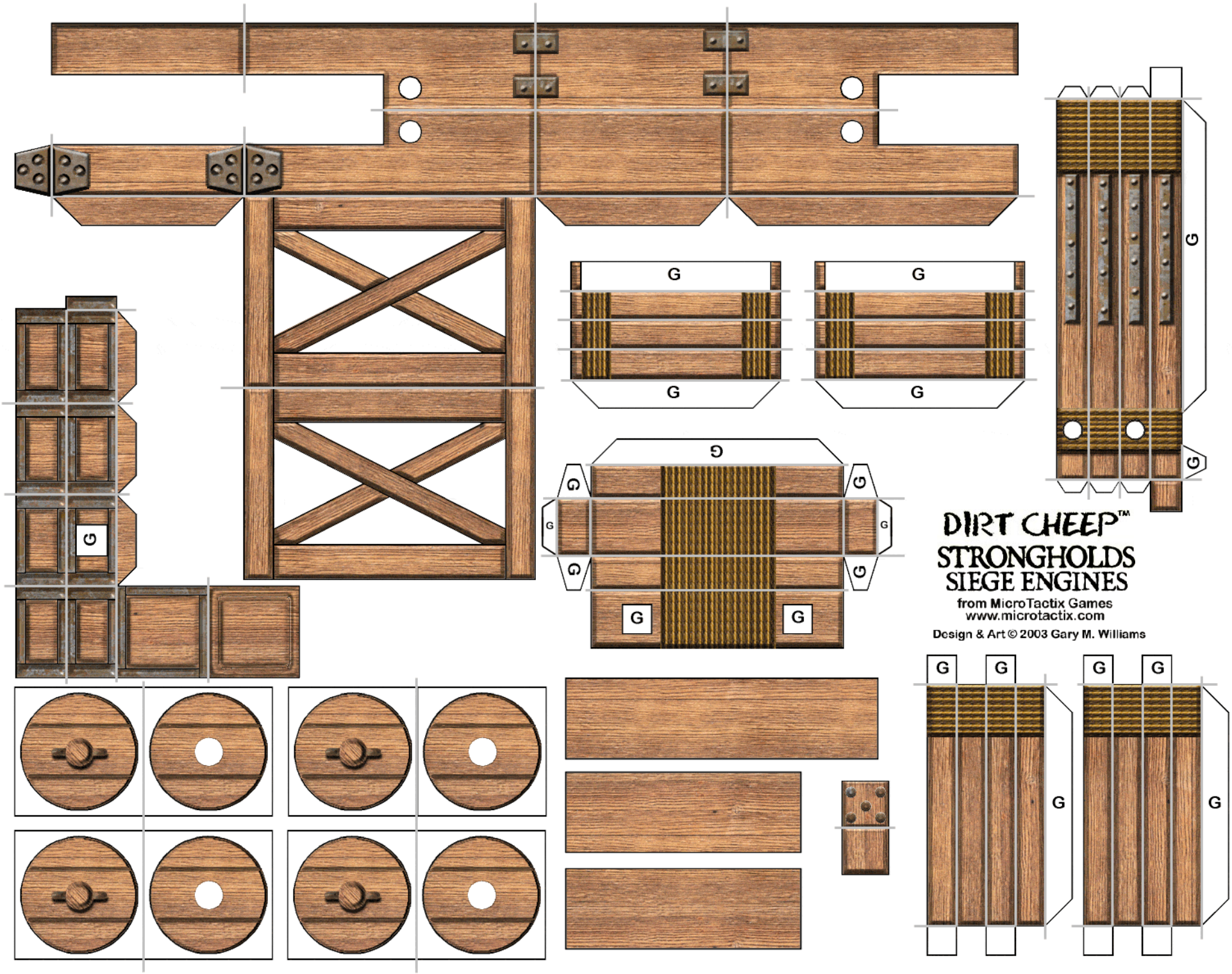
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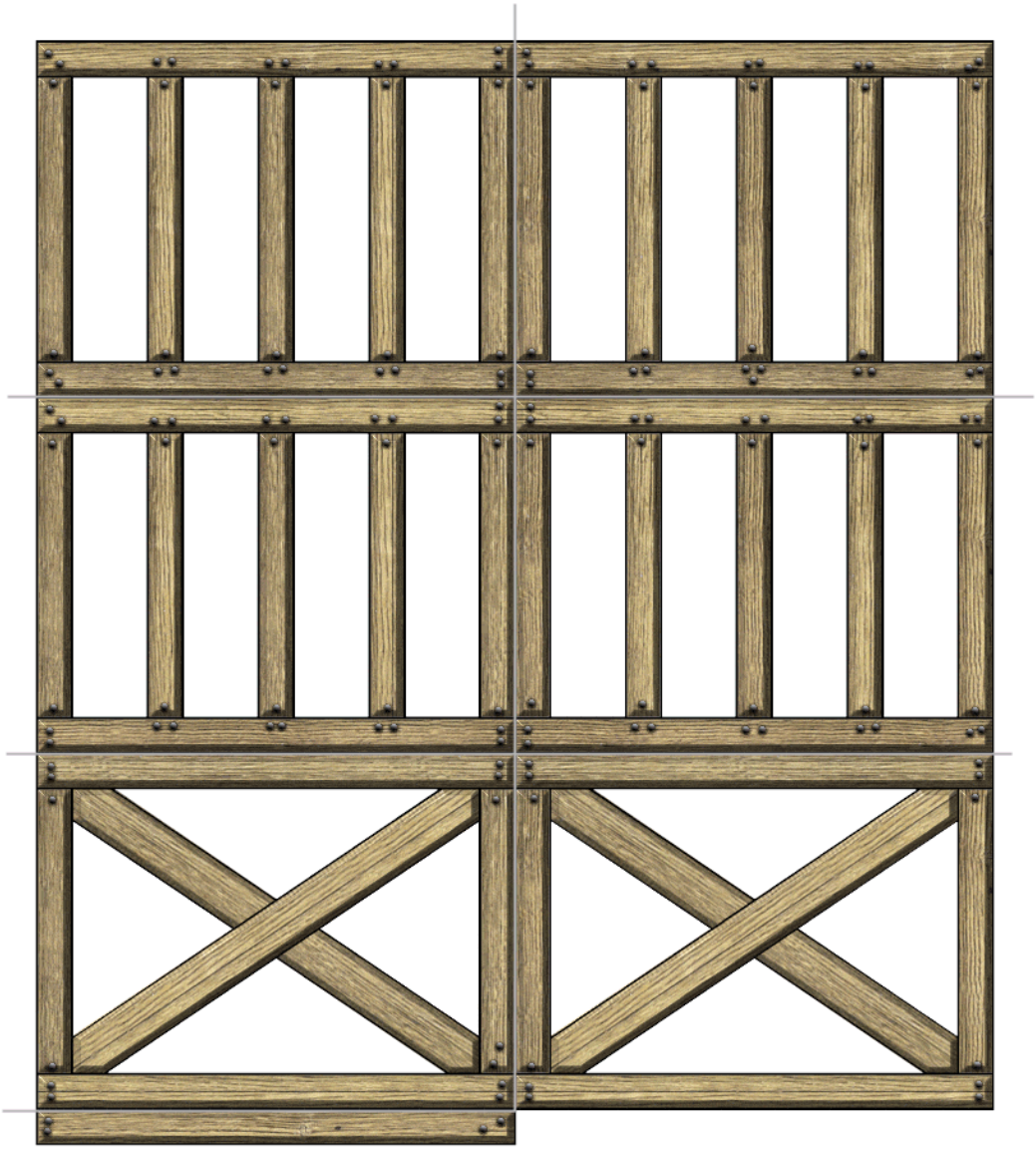

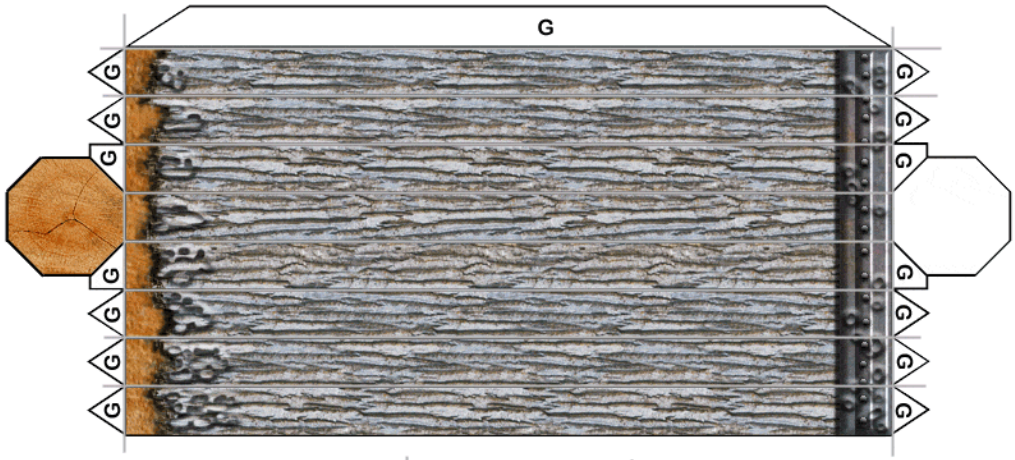

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STRONGHOLDS
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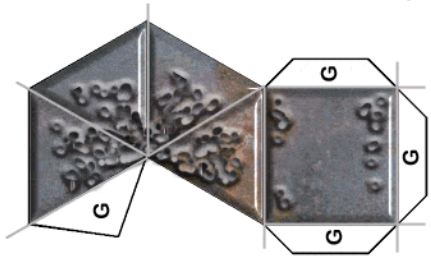

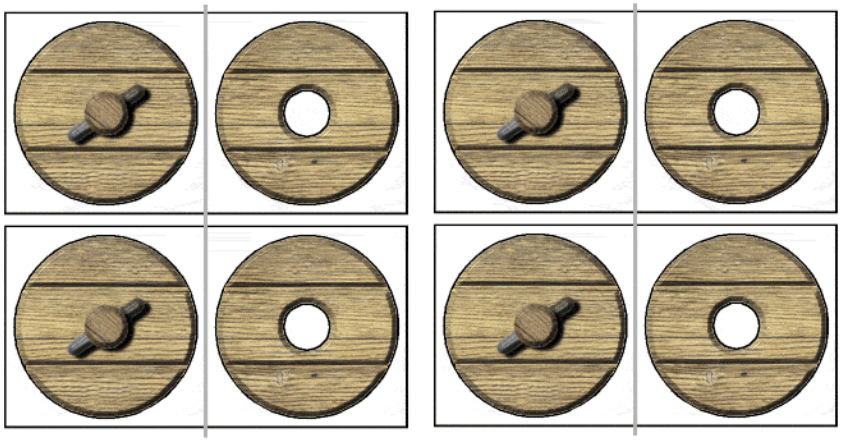

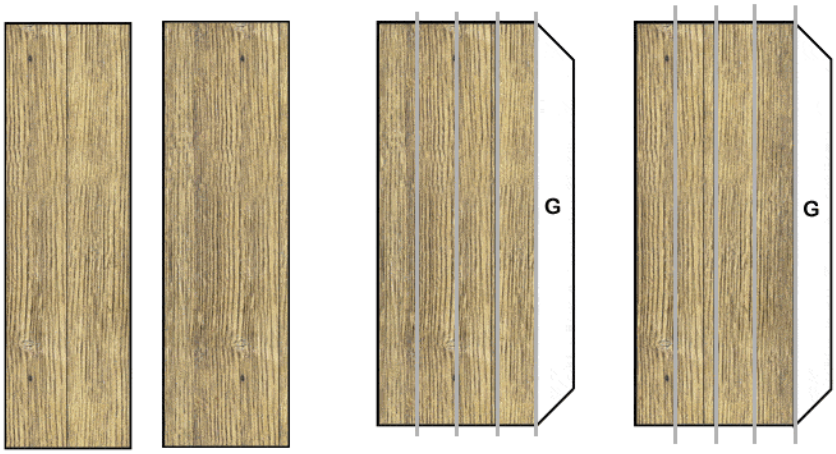

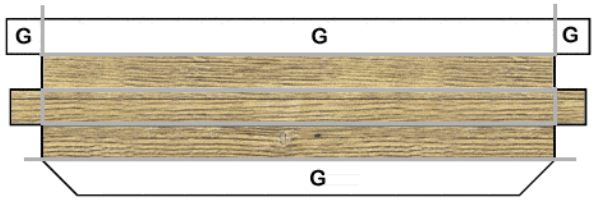

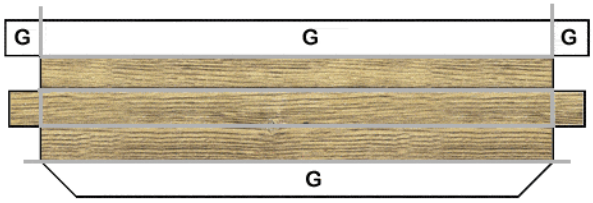

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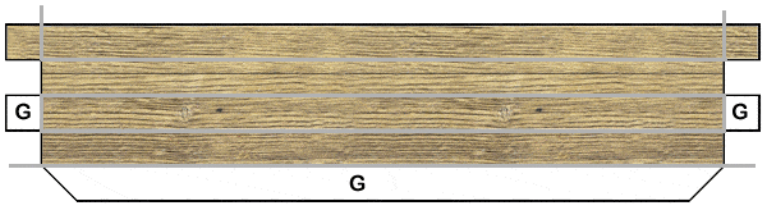

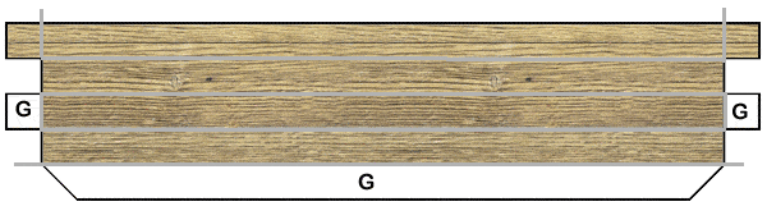

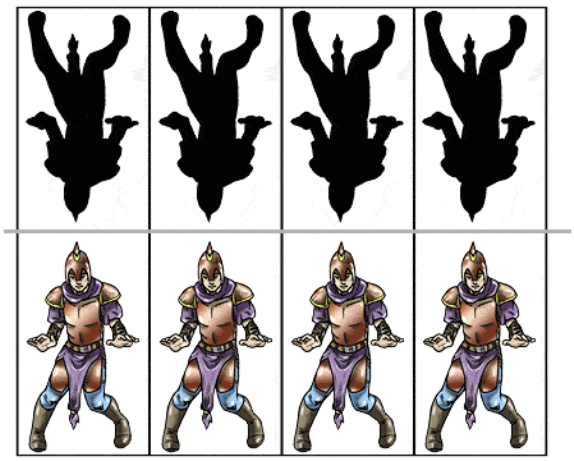

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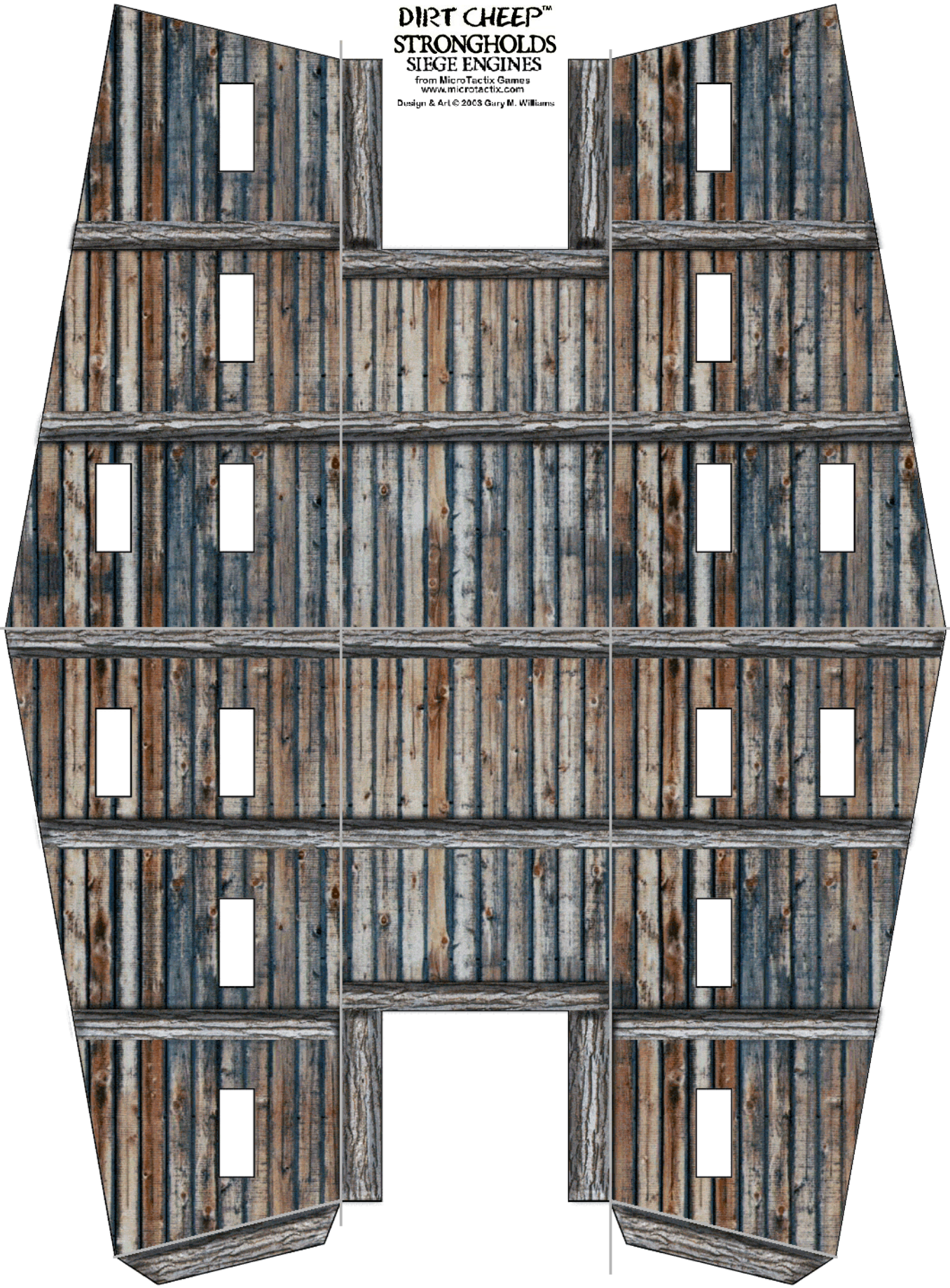

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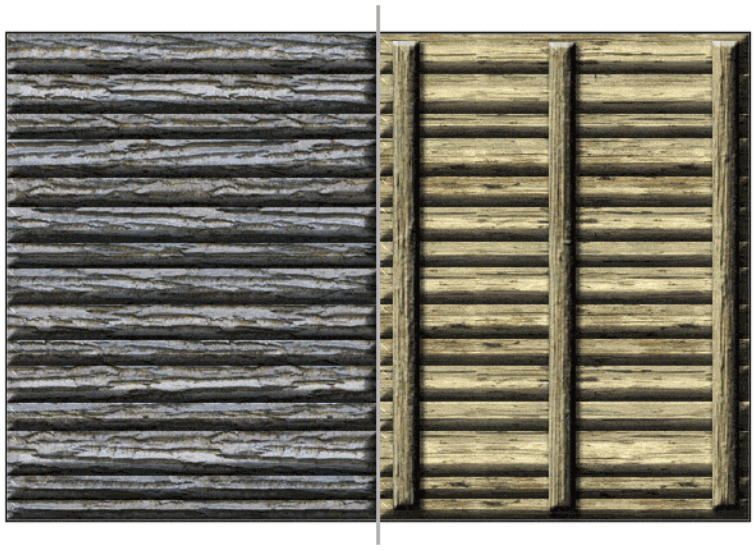

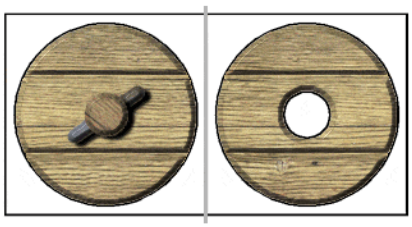

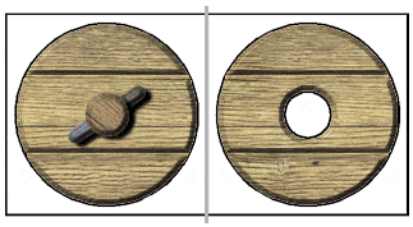

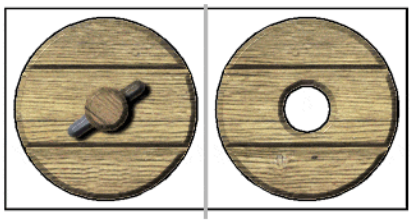

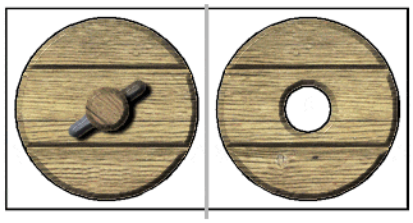

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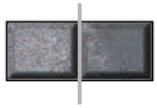

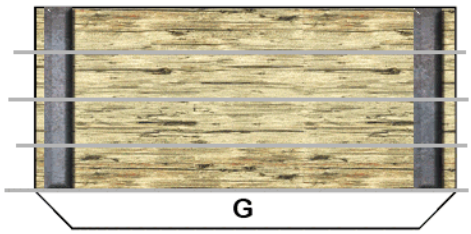

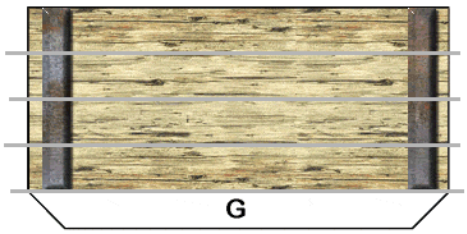

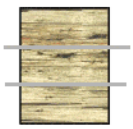

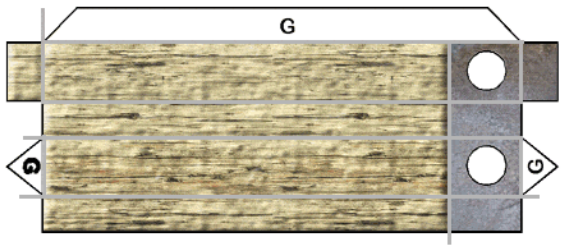

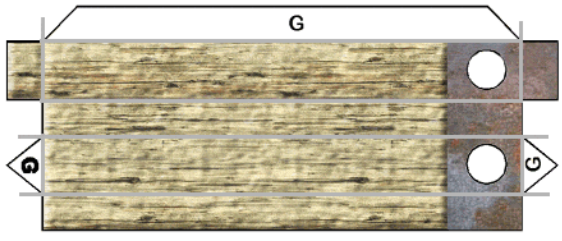

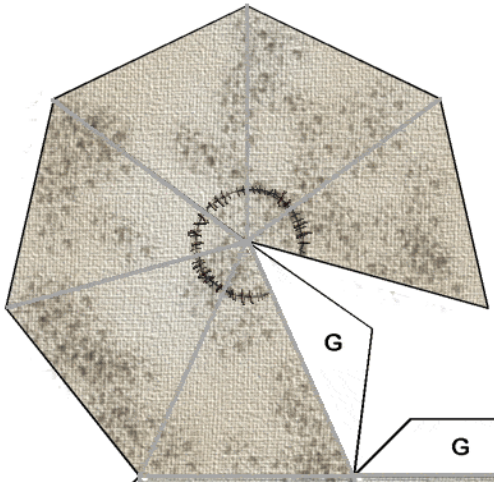

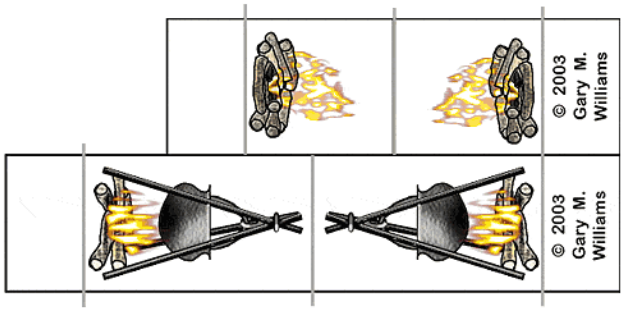

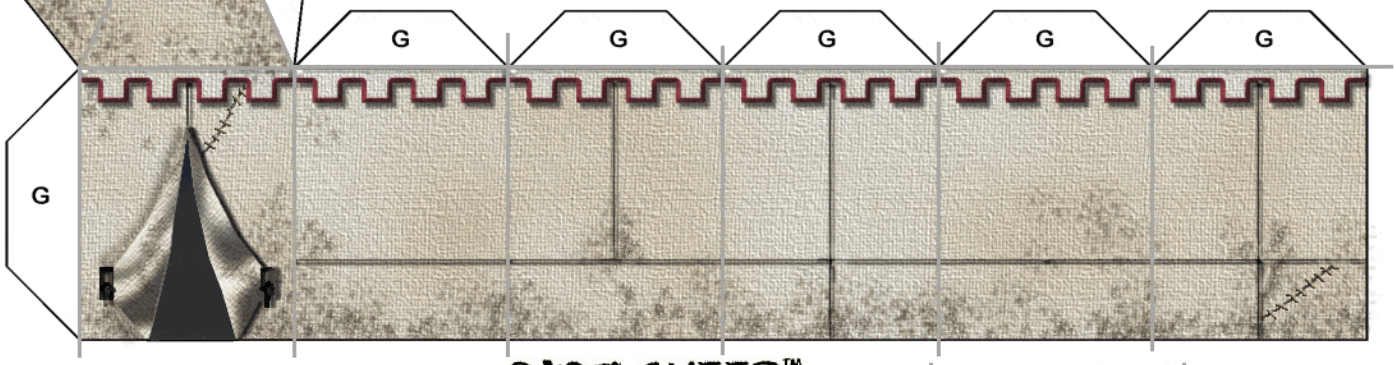

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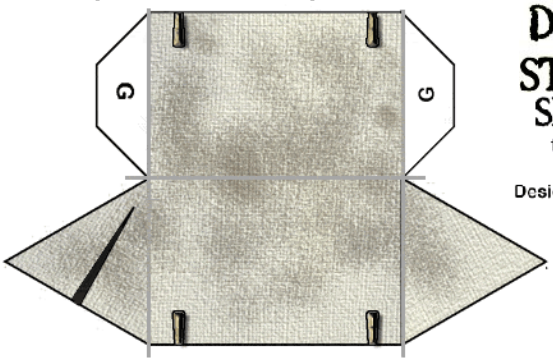

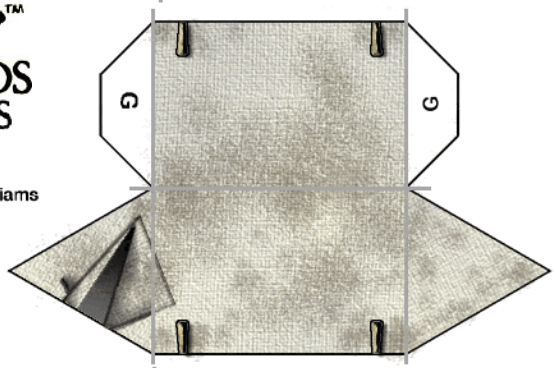

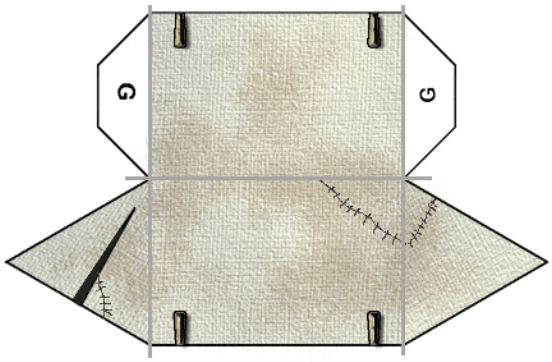

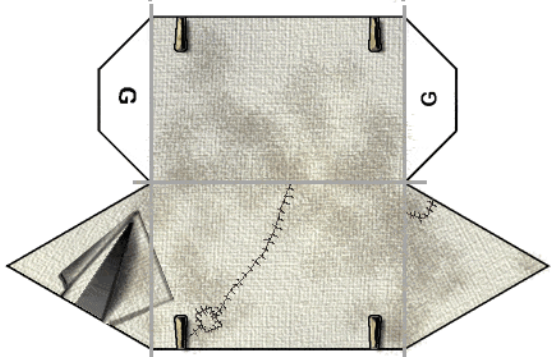

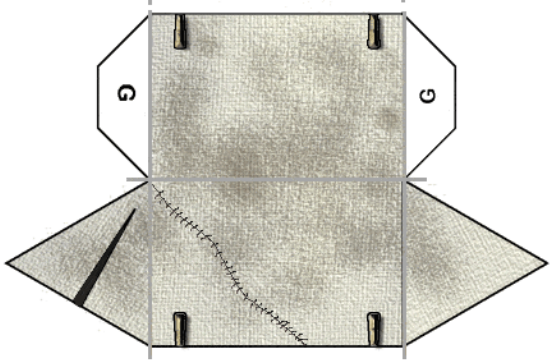

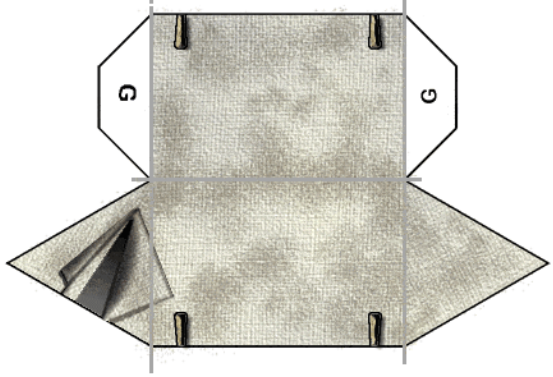

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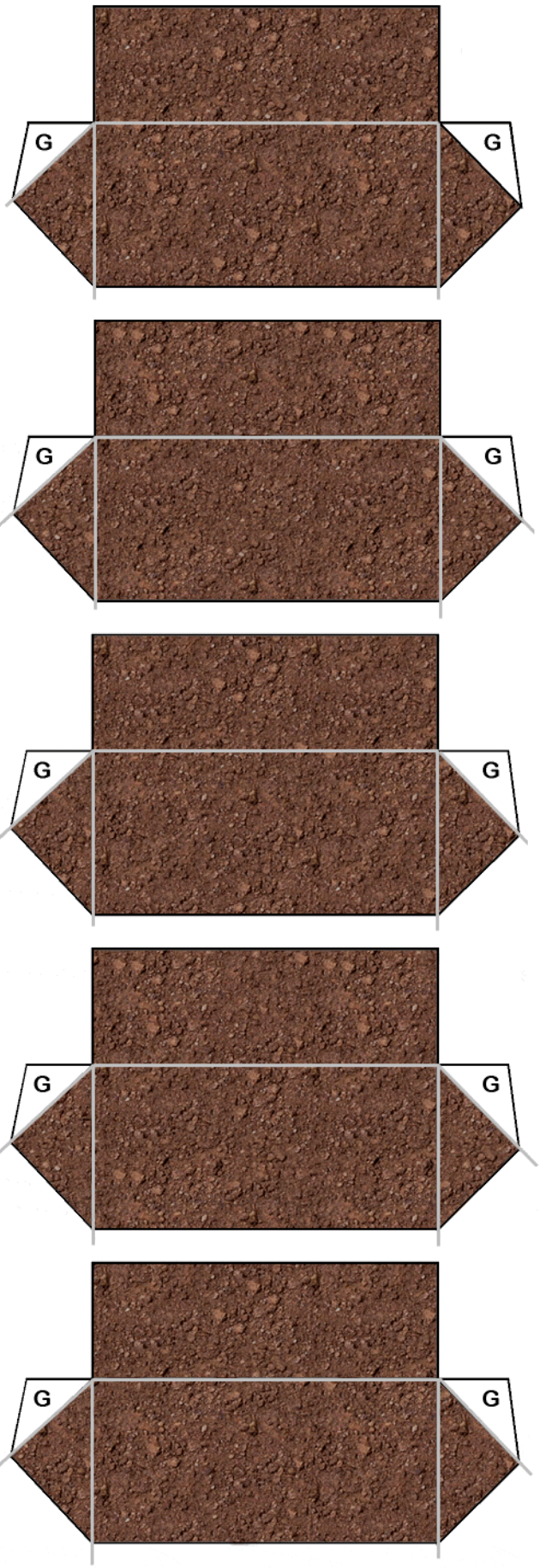

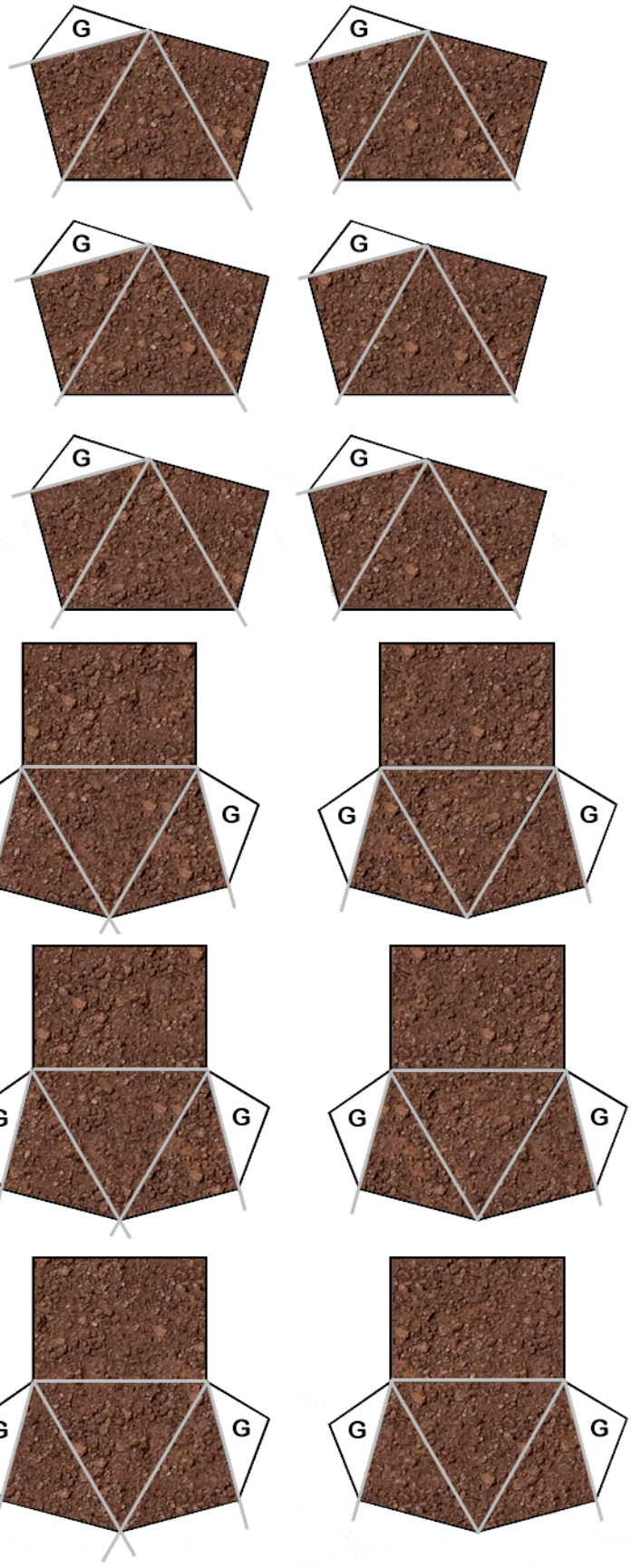

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