

Examples of Pre and Post Restoration on the Great Wall

This is the Great Wall of China BEFORE the restoration project. You can see that the original bricks are crumbling and falling apart.



Examples of Pre and Post Restoration on the Great Wall

This is the Great Wall AFTER the restoration was completed. You can see that they used white cement to pave over the original wall.



Being an Architectural Historian

Architectural historians are experts on the following topics related to the Great Wall of China:

Original materials that were used to build the wall:

- Architectural historians know that the wall was originally built with bricks that were made of clay or stone.
- The wall was built by layering bricks with lime mortar. Lime is a mineral that would have been mixed with water and sand to create a type of glue to connect the bricks together.
- The wall was also reinforced with dirt and wood in some sections. These sections have greatly deteriorated over time.



How the original design has changed over time:

- Architectural historians can determine the original design of the different sections of the wall by looking at historical sources about the wall. These sources include travelers' accounts of the wall and even some of the first photographs that were taken of the wall.
- Architectural historians closely examine the wall as it stands today and determine what parts of the wall have fallen apart over time. Architectural historians also look at the environment surrounding the wall to determine what other elements have caused damage to the wall over time.



Original purpose of the wall:

- Limit the number of people who were allowed to cross into China to trade goods, like silk and spices.
- Have more control over who could enter and leave the country. Because many people wanted to come into the country to trade goods, China decided to build a wall to better monitor who could enter and leave.
- Use as a military tactic. Guard towers allowed Chinese soldiers to watch for enemies and communicate with each other over long distances.



Steps to Evaluate Proposals

Step 1: Understand How to Evaluate Proposals

Architectural historians have to carefully read through proposals to look for information that might seem problematic. While reading through your proposal, pay attention to the following things:

- Knowing WHO will be evaluating the current condition of the wall. It is important that someone experienced evaluates the condition of the wall. Has this person conducted evaluations on other historical sites? Is the person familiar with the history of the Great Wall?
- Knowing HOW the wall's current condition will be evaluated. Will the team be using a drone to capture footage of the wall? Will they be walking on foot while taking pictures and measurements? It is important that evaluators pick a method that will ensure the most accurate data is collected on the wall's current condition.
- Knowing what materials will be used. Are these materials similar to the ones that were originally used?
- Knowing that the team will repair the wall in a way that is historically accurate, meaning it looks the same as when the wall was originally built. Does their design change what the wall looked like?

Step 2: Read Proposal and Discuss Potential Problems

Read through the proposal you are given. Then, look through the sources you were given. These sources provide information about the Great Wall of China. You should use the sources to determine whether the proposal will accurately repair the wall in a safe way. As your group is reading the proposal, highlight or circle sentences that could be concerning. For example, you should circle a sentence that says the evaluator has never evaluated a historical site before. This could raise concern because the evaluator wouldn't have the experience needed to restore the Great Wall, which is an extremely important historical site.

Steps to Evaluate Proposals

Step 3: Fill Out Rubric

Fill out the rubric below. You will rank each topic on a scale of 1-5. 5 is the highest score you can give. When you finish filling out the rubric, calculate the total score. Then, write comments about whether you think this proposal should be used to restore the Great Wall.

	1	2	3	4	5
Choice of Materials	Choice of materials will completely change the look of the Great Wall and will not preserve necessary historical details.	Choice of materials is mostly, but not completely inaccurate.	Choice of materials is roughly half historically accurate and half not historically accurate.	Choice of materials is not 100% historically accurate, but changes were necessary for safety or other reason.	Choice of materials is 100% historically accurate and appropriate.
Plan to Evaluate Current Condition	Plan will not allow evaluators to accurately assess the Great Wall's condition.	Plan will allow some details to be collected about the Great Wall, but many questions will remain.	Plan will provide many details about the condition of the wall, but some questions will remain.	Plan will allow evaluators to create a detailed assessment, but at least one question will remain.	Plan will allow evaluators to create a detailed and accurate assessment of the wall that leaves no questions.
Plan to Restore the Great Wall in a Historically Accurate Way	The Great Wall's repairs will be made in a way that completely ignores historical accuracy.	The wall will be repaired with very few accurate materials/structures, but is mostly inaccurate.	The wall will be repaired with an attempt to keep it historically accurate, but includes many differences from the original construction	The wall will be repaired mostly accurately with almost no difference from original construction.	The wall will be repaired completely accurately with no difference from original construction.
Safety of Repair Crew Considered	Repairs are very dangerous and could result in harm to the crew.	Very few safety concerns have been addressed. Most of the project will be risky.	About half of the repairs are safe for the crew, while the other half of the repairs are dangerous.	Repairs are mostly safe with one or two risky steps.	Repairs will be made while considering the safety of all crew and has a plan to avoid or address all risks.

Score (out of 20):

Comments:

Group Assignments

On the following pages, you will see documents for group assignments. There are four group assignments total. If you have more than four groups, you can give multiple groups the same assignment.

Group Assignment #1: Guard Tower

Proposal to Evaluate

Restoration Focus:

- 4 guard towers that are disintegrating. Each tower is located 3 miles away from the next.

Plan to Assess Current Damage:

- We are going to send 2 evaluators to look at the guard towers and take notes. We will send the evaluators there for 8 hours total.
- The evaluators will type up their notes and email them to our team to provide their recommendations about what needs to be restored.
- We have not chosen which evaluators we are going to use. However, we don't want to pay them too much, as the repairs will already be expensive.

Plan For Restoration:

- Our plan is to first determine whether the towers are strong enough to be partially repaired or if they have to be entirely replaced.
- After we determine whether the towers need to be entirely replaced or not, we will just repair the bottom half of the towers. This was the only important part of the tower.
- Materials we plan to use: clay and wood. We will only be using these natural materials to make sure the guard towers are restored in an accurate way!

Group Assignment #2: Section of Wall on Mountain

Proposal to Evaluate

Restoration Focus:

- Rebuilding a section of the wall that moves up a mountain at an angle. This is one part of the wall that has been falling apart for years and really needs repair.

Plan to Assess Current Damage:

- We are going to send 4 evaluators to look at this section of the wall and take video footage of the current damage. We will send the evaluators there for an entire week to determine if it is safe for a repair crew to be sent up the mountain. The video footage will also provide us with information on what part of the wall is disintegrating the most.
- The evaluators will type up their notes and email them to our team to provide their recommendations on if it is safe to rebuild this section of the wall.
- The evaluators that will assess the damage have worked on many other projects at historical sites. They come highly recommended.

Plan For Restoration:

- We will focus on repairing the foundation of the wall and all of the bricks used to construct it.
- Because this section of the wall was built on the side of a mountain, it is very dangerous to repair. The repair crew will use a cement to repair the wall so that the repairs can be completed quickly. The cement will be painted to match the bricks.
- We plan to use a combination of brick, metal, and cement to repair the wall.

Group Assignment #3: Section of Wall Near Lake

Proposal to Evaluate

Restoration Focus:

- Building a new section of the wall that runs along a valley and a lake.

Plan to Assess Current Damage:

- We are going to send one evaluator to look at the section of the wall near the lake and take pictures of the wall and the lake. We will send the evaluator there for one day to measure the wall and determine if building the extra wall is necessary.
- The evaluator will type up their notes and email them to our team to provide their recommendations on if it is necessary to build a taller, outer wall to protect the original structure of the wall.
- The evaluator has worked on commercial projects in the past. For example, they have assessed whether an office building is disintegrating and needs to be repaired.

Plan For Restoration:

- We are proposing to build an extra wall that will go around the original wall. This extra wall was not in the original design of the Great Wall. But, we think it is important to add this extra wall to protect the original wall if a flood occurs.
- We will use only natural materials to repair the wall, so it looks as natural as possible.

Group Assignment #4: Military Fort

Proposal to Evaluate

Restoration Focus:

- Rebuilding a section of the wall that holds up the largest military fort on top of the Great Wall. The weight of the fort is causing the wall below it to crumble.

Plan to Assess Current Damage:

- We are going to send 7 evaluators to look at the fort and take notes.
- We will send the evaluators there for two weeks to determine if it is safe to repair the foundation of the wall so that it can support the fort.
- The evaluators have not been chosen yet.

Plan For Restoration:

- In order to support the fort, the wall will need to be almost entirely rebuilt. But in order to do this, we will need to build pillars that can support the fort while the construction is going on underneath.
- Our new wall will be made of strong bricks and cement that can dry quickly so the construction does not take a long time. But before the bricks can be repaired, pillars will be built. The pillars are needed to support the weight of the structure. The pillars were not an original part of the design, but they are important for safety purposes to add.
- The pillars will be made using bricks and clay. There will be some metal reinforcement, but it will be covered by the brick so you won't see it. The pillars will be made to blend in so it isn't obvious they weren't part of the original design.
- The roof of the fort is falling apart as well. In order to save the inside of the fort from further damage, the roof will be made with steel.

Additional Information to Use

Section 1: Historical Significance

Each part of the wall is historically significant for different reasons.



This section of the wall on the mountainside would have taken a long time to construct because of how dangerous it was to build up the side of the mountain. This section of the wall did not have any watch towers or large structures because it was not strong enough to hold up another structure.



This section of the wall was built alongside a lake. The wall would have been taller than the lake when it was originally constructed, but since then the lake has flooded and caused damage to this part of the wall. Most of this section will need to be rebuilt in the restoration process, with an additional taller wall being built to prevent future flooding.



This military fort is the largest structure to be built on top of the Great Wall. It was located on the wall so that guards could monitor who was coming past the wall at all times. This fort is very large, so the wall below it needed to be strong enough to support the weight of the entire structure.



The guard tower was built to have windows so that the guards could see. The towers also had room for beacons so that they could see at night. Beacons are similar to lanterns but they are much bigger. These beacons would be used to hold a large fire that would signal to other watch towers if someone was approaching the wall. This was how the guards communicated with each other, since they were spaced so far apart and needed to warn the other guards quickly. These features should all be preserved during a restoration project.

Section 2: Materials

Different parts of the wall were built with different materials. This is because the wall was built over thousands of years under multiple rulers.



The section of the wall that is on a mountain was built with bricks and soil. Because this wall was built on the side of a mountain, it is very dangerous to repair.



This section was made with bricks and dried clay to seal out the water. It is important that the wall follows the curve of the valley, but is tall enough to not overflow with water!



This military fort was constructed on top of the Great Wall. The wall itself was built using stone and clay bricks, but the fort was built out of stone and wood.



These original guard towers were built with bricks. The bricks were laid by hand. There were uneven in texture because machines were not used to smooth out the sides of the wall.

Additional Information to Use

Section 3: Techniques to Assess Damage

Read about three techniques that are used to assess damage on the Great Wall.



Drones are often used to capture aerial footage of the Great Wall. Aerial footage refers to taking pictures and video from above the Great Wall. This is helpful because the wall is thousands of miles long. By flying over head, the drones can quickly see what parts are disintegrating.



In the parts of the wall that less damage, it is safe for evaluators to walk on the wall and assess the damage themselves. They can take measurements of the wall in its current state and examine the wall up close.



Another way to assess the damage of the wall would be to look at photographs of the wall taken from satellites. These satellites can take high quality pictures of the wall.

Teacher Key

Group 1:

- 2 evaluators over 8 hours is not enough time to do a detailed evaluation of the towers.
- Unidentified, low paid evaluators does not suggest a proper evaluation.
- Only restoring the bottom of the towers is not historically accurate, but the materials are!
- No safety considerations have been made.
- Suggested Ratings: Materials: 5 Evaluation Plan: 2 Restoration Plan: 3 Safety: 2

Group 2:

- Evaluation plan will allow for a detailed report and the video will allow any remaining questions to be addressed at a later date.
- Evaluators are highly recommended.
- There are modern materials being used for safety purposes, but there are attempts being made to maintain a historically accurate appearance.
- Suggested Ratings: Materials: 1 Evaluation Plan: 4 Restoration Plan: 3 Safety: 4

Group 3:

- Evaluator comes highly recommended, but does not have much time for an accurate evaluation.
- Materials used to repair the wall will be historically accurate.
- The extra outer wall will not be historically accurate, but will help preserve the Great Wall.
- Suggested Ratings: Materials: 4 Evaluation Plan: 2 Restoration Plan: 3 Safety: 3

Group 4:

- Large team of evaluators for a long period of time, but we don't know who they are sending.
- Historically accurate materials are used whenever possible, but exceptions are made for safety and preservation.
- Restoration will closely match original construction, but exceptions will be made for safety purposes.
- Suggested Ratings: Materials: 4 Evaluation Plan: 4 Restoration Plan: 4 Safety: 5