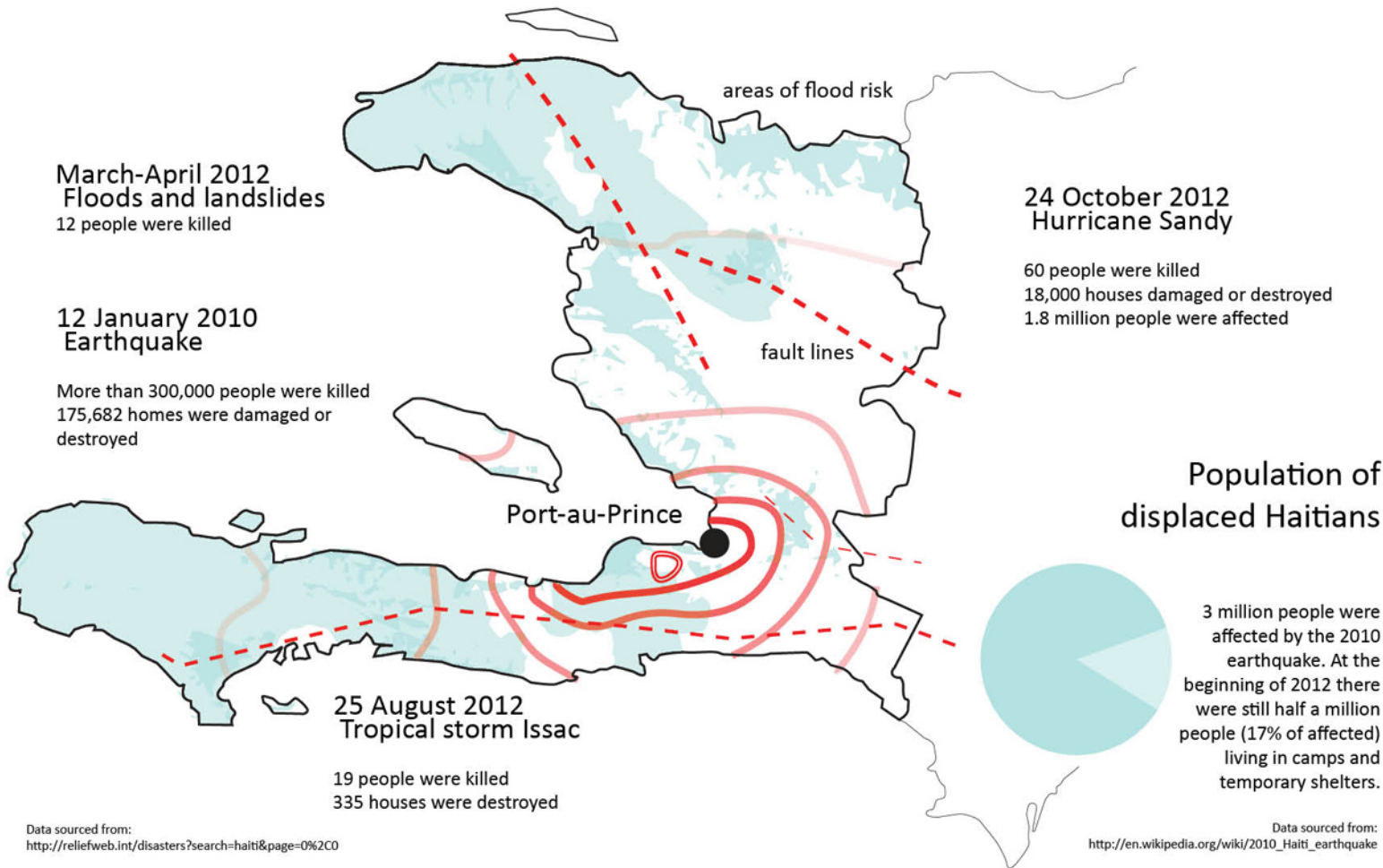


1_Natural Disasters in Haiti



Each year the rainy season in Haiti wrecks havoc on the entire country. The level of deforestation across the country renders the effects of these storms even more severe. They continue to add to the destruction caused by the 2010 earthquake, the second deadliest earthquake ever recorded. The level of devastation is amplified by the current economic and social climate.

Haiti remains a volatile country augmented by its poverty.



rising flood levels



earthquake damage

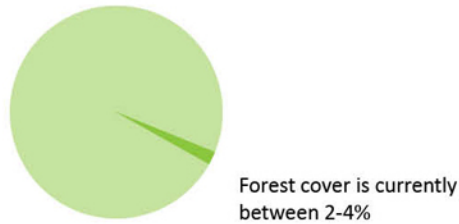


clearing away the mud

How can a building stand in this unstable environment?

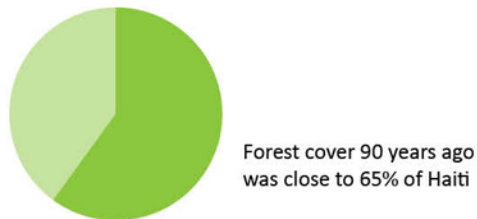
2_Haiti's Building Industry

Percentage of forest cover in Haiti in 2008



Causes issues with soil stability, fertility of crops and water retention

Percentage of forest cover in Haiti in 1923



Data sourced from: <http://reliefweb.int/map/haiti/haiti-deforestation-and-disasters-humanitarian-snapshot-2008>

Cement to concrete ratio in Haiti

1 Unit of imported Portland Cement is used for every 30 units of aggregate. This dramatically reduces the strength of the concrete blocks



Recommended cement to concrete ratio

1 Unit of Portland Cement to every 10-15 units of aggregate is recommended by the concrete industry throughout the world.



Data sourced from: 'Masonry block construction in Haiti' by L. Holliday, C. Ramseyer and F. H. Grant. 2011

A timber framed structure with earth infill is considered as Haiti's vernacular architecture. It follows a tradition of simple and locally based construction that supports the climatic and geographical conditions of the island. However, forest depletion across the country has made timber extremely expensive. During the twentieth century the body of Haitian construction changed and is now built from locally fabricated concrete blocks. These blocks tend to be poorly made with little, if any, reinforcing.



a traditional house 'kay'



deforestation



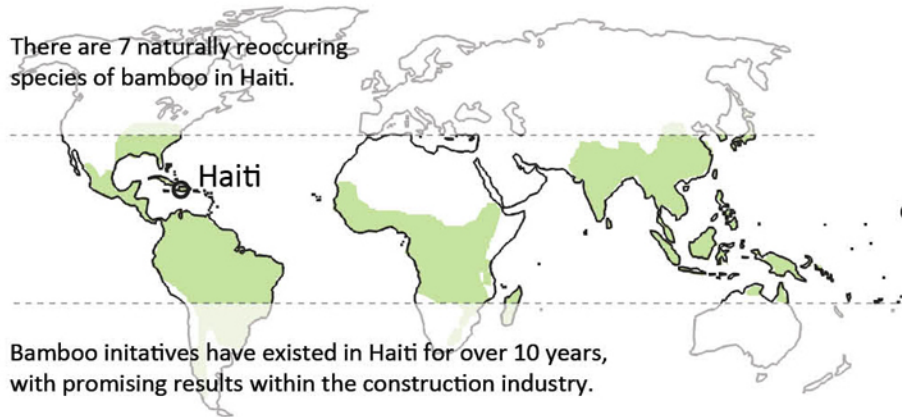
locally made concrete blocks

How can we build with local and inexpensive materials?

3_Bamboo in Haiti

Bamboo distribution

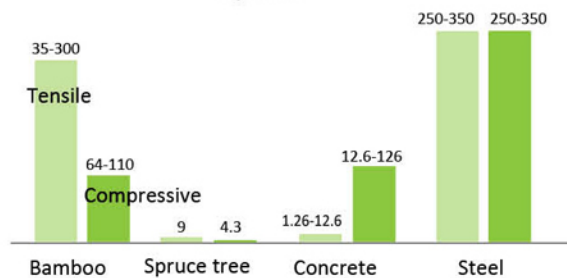
There are 7 naturally reoccurring species of bamboo in Haiti.



Bamboo initiatives have existed in Haiti for over 10 years, with promising results within the construction industry.

Data sourced from:
<http://www.eeob.iastate.edu/research/bamboo/maps.html>
<http://www.psmag.com/environment/bamboo-houses-to-the-rescue-16347/>

Comparison of strength N/mm²



Data sourced from:
 'Bamboo Building and Culture' by Darrel DeBoer and Karl Baresb 2010

Contemporary Bamboo architecture

Crosswaters Ecologie
 Simón Vélez
 Nankun Mountains,
 China 2006



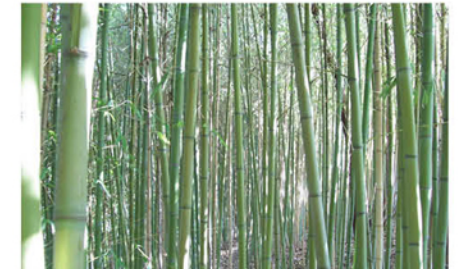
Bamboo Housing for Haiti
 Laurent Saint-Val
 Haiti 2010



Children's Activity and Learning Centre
 24H-architecture
 Koh Kood
 Thailand 2007



Since the earthquake in 2010, several international organizations have implemented projects to introduce Bamboo in areas of deforestation. This plant has the ability to become a locally produced material from which the country and its people can profit. The future benefits extend beyond the scope of local construction. Architects, economists and environmentalists alike are praising the potential of bamboo crops to improve daily Haitian life in a multitude of ways.



fast growing



simple construction

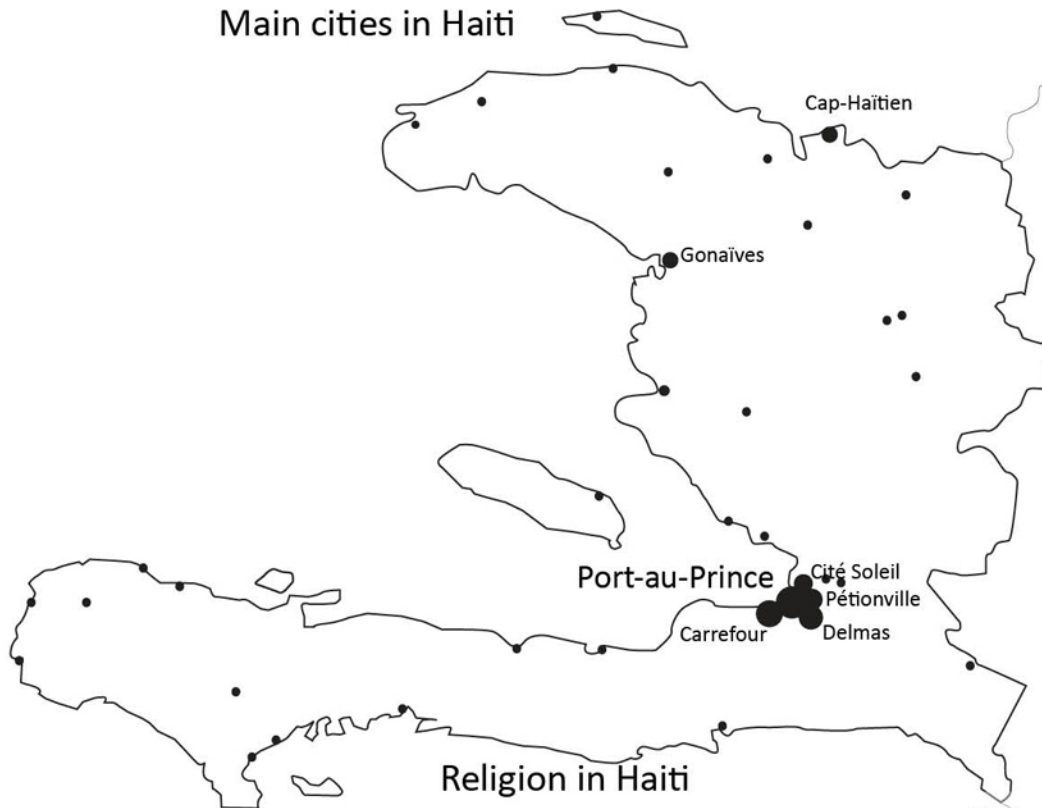


highly flexible

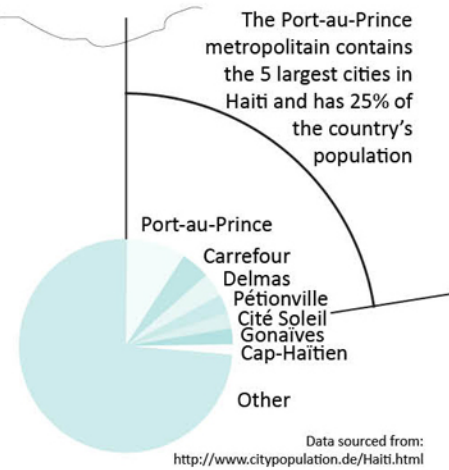
Can the building we create help the future of Haiti's built fabric?

4_Demographics of Haiti

Main cities in Haiti



Population of Haiti



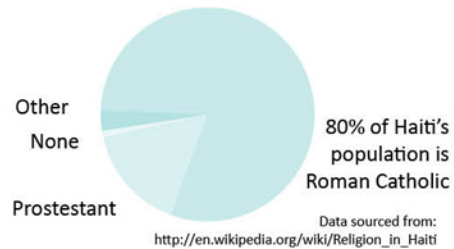
Close to 8 million Haitians are of Roman Catholic faith, with 2 million within the agglomeration of Port-au-Prince. As the capital's sole cathedral, Notre Dame de l'Assomption hosts a major percentage of the population of the city.

Many Haitians were tragically killed when the roof and entry towers of the cathedral caved in during the 2010 earthquake. Haiti's archbishop and the vicar general lost their lives and hundreds of thousands of people were affected by the destruction of the famous landmark.

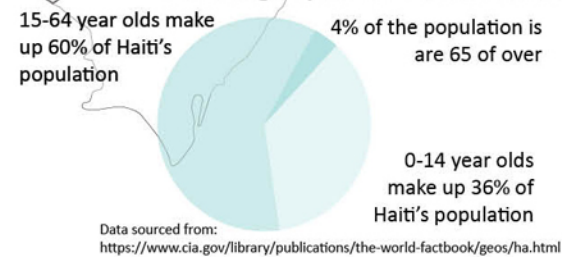


urban life

Religion in Haiti



Demographic breakdown



make shift housing



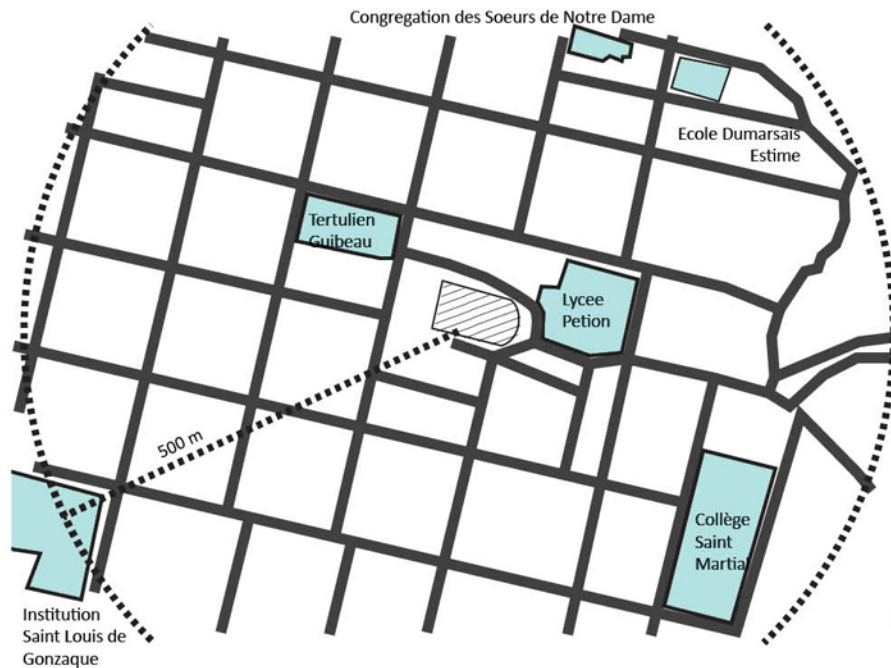
in the classroom

How can we build to support a wider community?

5_The Neighbourhood of the Notre Dame de L'Assomption Cathedral

Neighbourhood schools

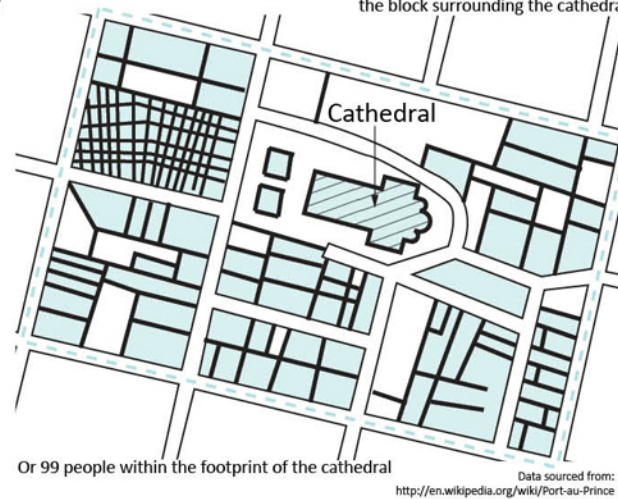
5 Schools exist within 500m² radius of the cathedral. Lycee Petion was also destroyed during the 2010 earthquake. Temporary classrooms have been constructed around the ruins.



Surrounding built fabric

It was estimated in 2009 that Port-au-Prince density had reached 25000 people per km².

Based on this estimation, there are approximately 2500 residents within the block surrounding the cathedral.



The cathedral was built from 1883 to 1914. Its size and construction techniques were new to Haiti.

Current data suggest that of a possible 2,500 people who live inside the street block of the cathedral, 425 people remain homeless following the 2010 earthquake. This, coupled with the indication that a large community of Haitian children live within the neighborhood create a context and a starting point for this project.



a distinctive form



the neighbourhood's landmark

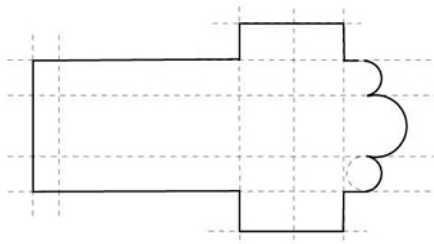


Lycee Petion playground

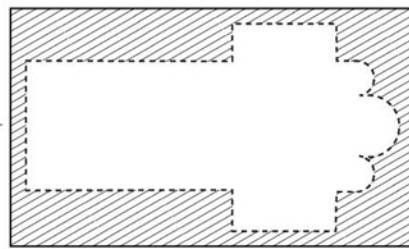
How can a building embody the past, present and the future of a community?

6_Our Process

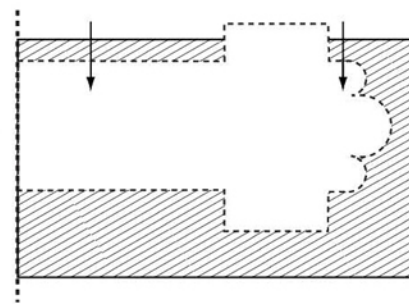
the existing form of the destroyed cathedral



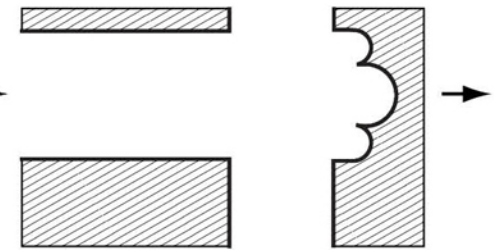
the space surrounding this form



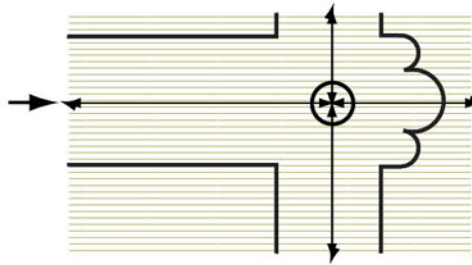
this space cut and pushed askew



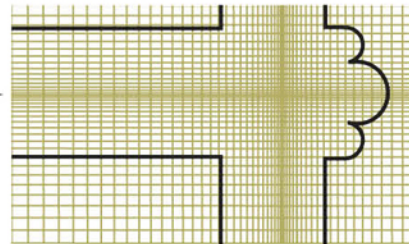
a form created from this negative space



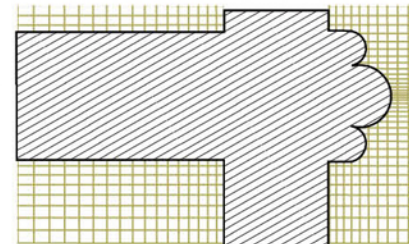
a bamboo framework introduced



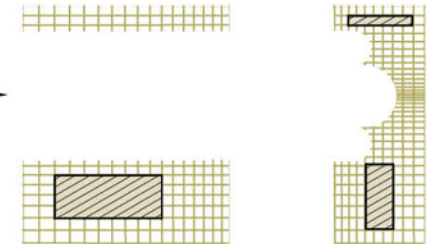
the intensity of framework increased at centre



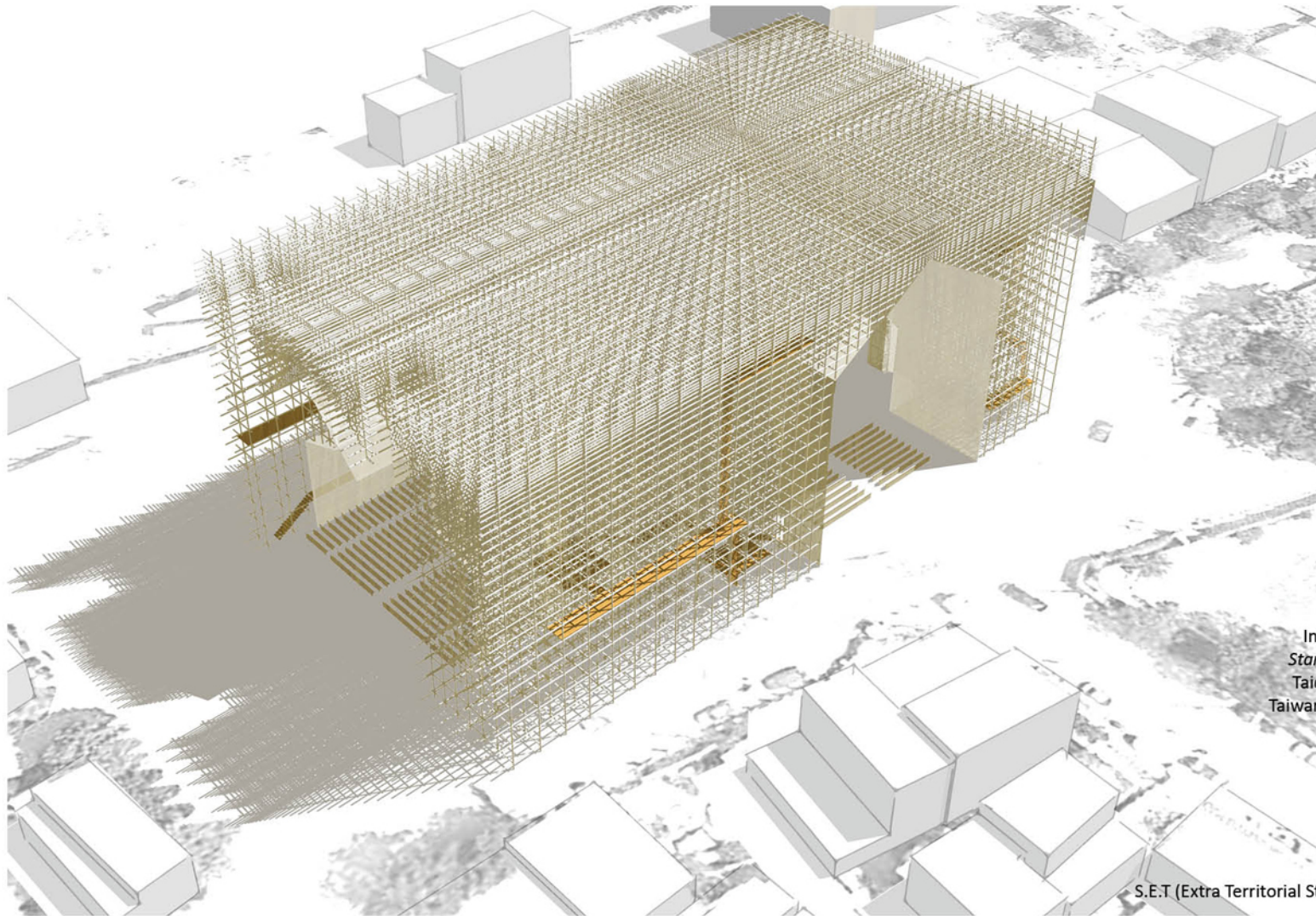
the existing form an inner void



an inhabitable structure created



7_Our Response



Our reconstruction of Notre Dame de l'Assomption seeks to envelope this renewed religious facility within a structure that can help support and shelter a neighborhood devastated by the 2010 earthquake.

Recognizing, celebrating and memorializing the existing cathedral was the starting point for this project. Yet, instead of negotiating with the implications that a reproduction of this cathedral in any traditional sense would generate, our project seeks to manipulate the space surrounding the once impressive edifice. We sought a response that could support a larger upheaval of current building techniques and materials in Haiti. Our bamboo structure has generated a building both flexible in a physical and organizational sense. It has opened up a once enclosed building to the Haitian people. It offers a physical framework for refuge, inhabitation and enterprise centered around the continued spiritual hub of this neighborhood, city and country.



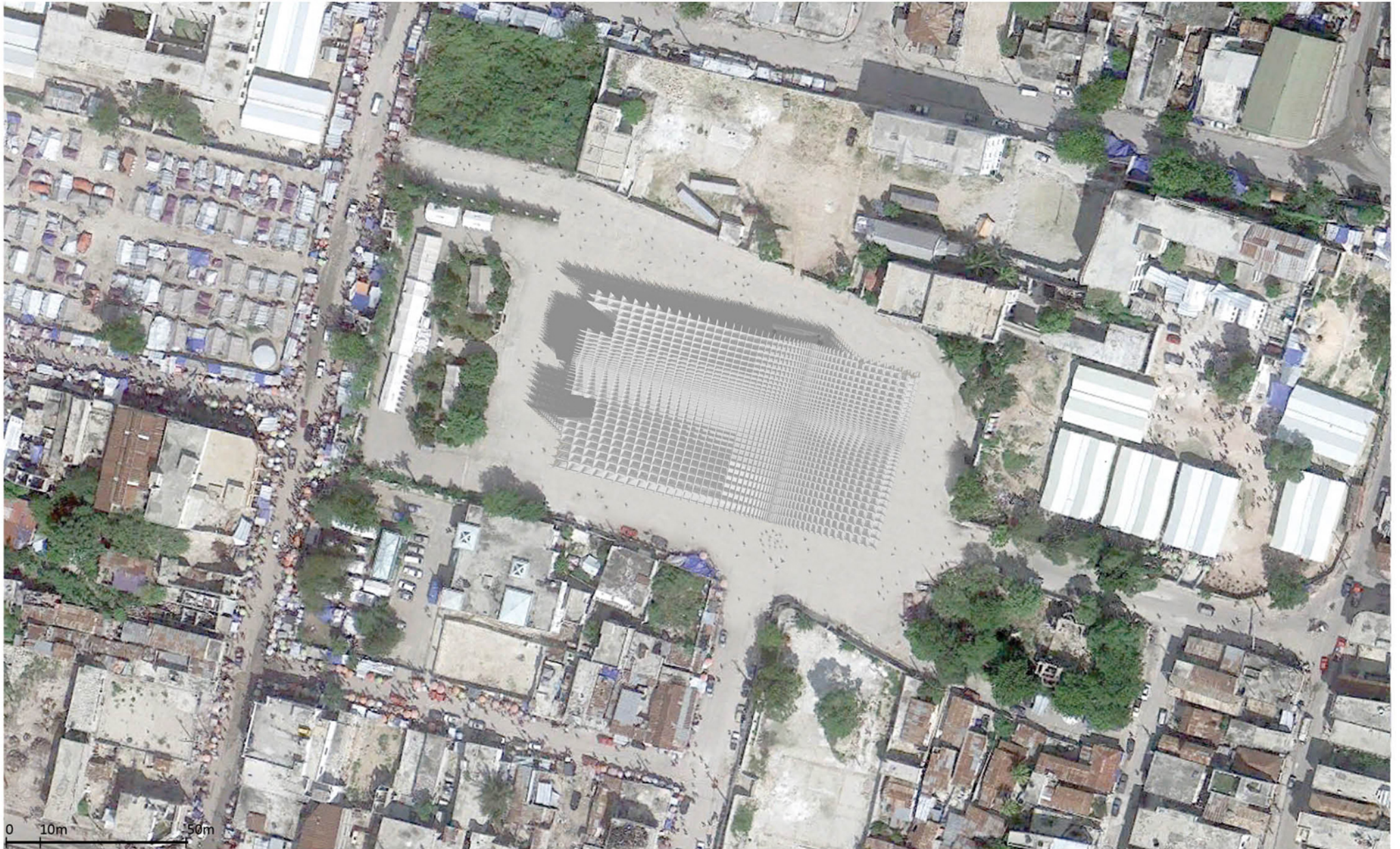
Info Box
Stan Allen
Taichung,
Taiwan 2009



S.E.T. (Extra Territorial Station)
EXYST
Barcelona,
Spain 2005

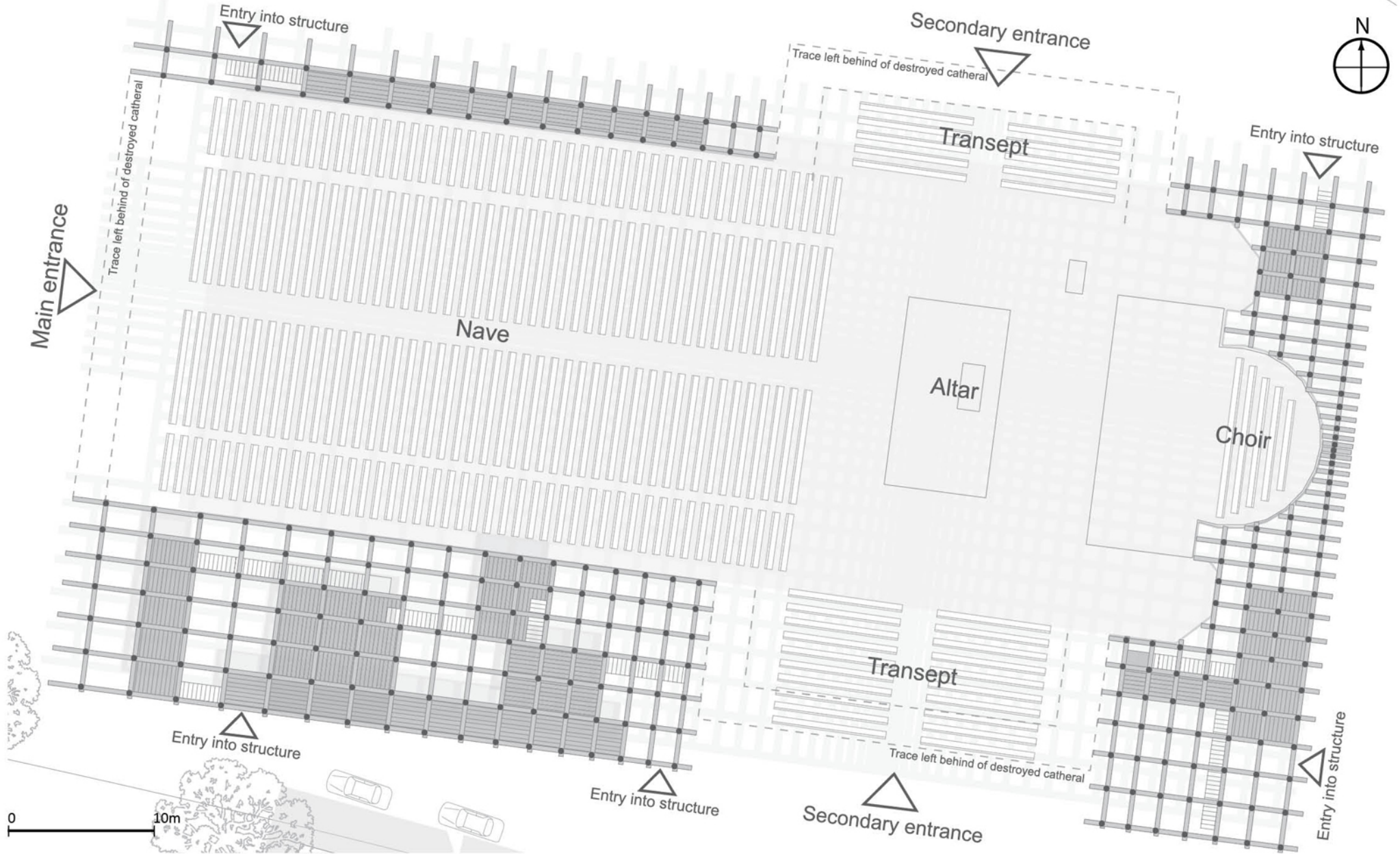
8_Site Plan

1:1000 at A3



9_Floor Plan

1:250 at A3

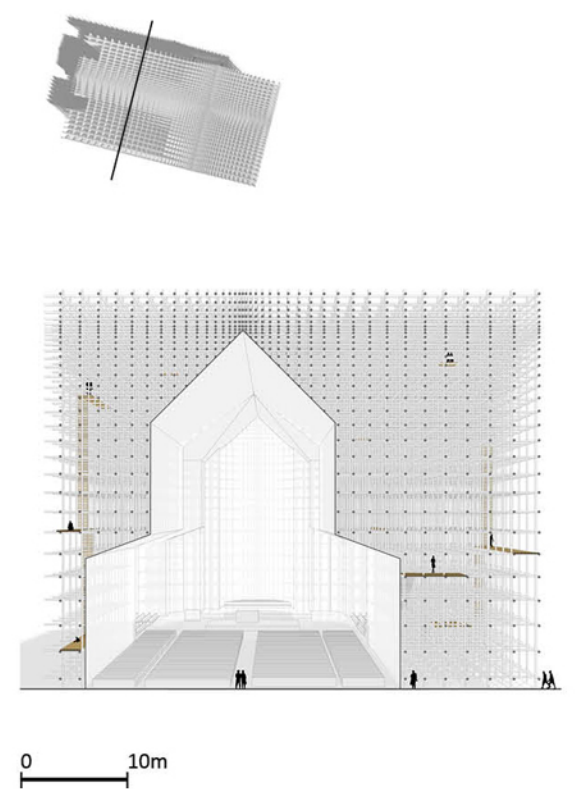


10_Inside the Cathedral



Transverse Section

1:500 at A3

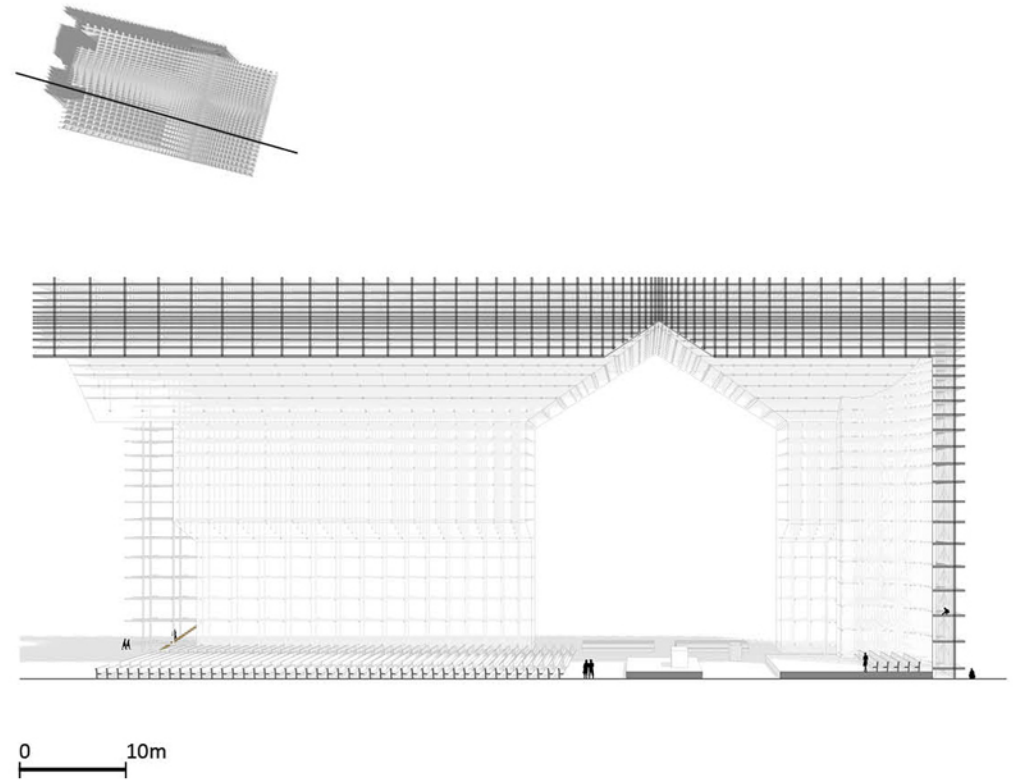


11_Inside the Bamboo Structure



Longitudinal Section

1:500 at A3



12_ Notre Dame de l'Assomption

Port-au-Prince, Haiti

