

JOURNEYMAN INTERNATIONAL

HUMANITARIAN DESIGN FIELD GUIDE

DRAW LESS. LISTEN MORE.

A FIELD-TESTED FRAMEWORK FOR DESIGNING RESPONSIBLY
ACROSS CULTURES, CLIMATES, ECONOMIES, AND BORDERS.

BEGIN WITH HUMILITY. BUILD WITH COMMUNITY.



JOURNEYMAN INTERNATIONAL HUMANITARIAN DESIGN PROGRAM AN INTRODUCTION

If you have been accepted into the JI program, we believe that you have what it takes.

Journeyman International (JI) was conceived by emerging professionals who wanted to design a better world. Their goal was to fill the expertise void between community-serving, nonprofit organizations and the facilities they want to construct. Often, these organizations lack access to quality design and construction support. The responsibility now falls on you to connect and collaborate with local resources and fill any gaps that may exist in a humanitarian building project. Our belief is that it doesn't take a lot of money or time to ignite change in the world.

Are you ready to apply your skills to real-life community needs in a humanitarian context? Are you ready for the one of the most meaningful challenges of your career? Are you ready to recognize your talents and put them to work?

Use this book as a resource to guide your humanitarian design project.

This book walks you through every step of your project, from research to visiting your site to developing construction documents. Realize that you are working for a real client with real needs that are often very different than you perceive them to be, especially when your client is located half a world away! Don't simply stop at surface level research; immerse yourself fully in the culture. The design, permitting and construction process may be entirely different in this context. Approach your project humbly and with an eagerness to learn, and the work can become an experience you will never forget.

A comfort zone is a beautiful place,
but nothing ever grows there.

OUR MISSION

WHY WE DO WHAT WE DO

Every person on earth should have access to a safe, resilient, and dignified built environment, no matter where they come from or how much money they have. There are more than enough resources and expertise in the building industry to provide affordable shelter for learning, living, and healing in the midst of crisis. We just need to bridge the gaps to make it happen.

We at Journeyman International have a three-fold mission:

EMPOWER

the next generation of humanitarian architects and engineers.

CONNECT

university students and professional volunteers with critical needs around the world.

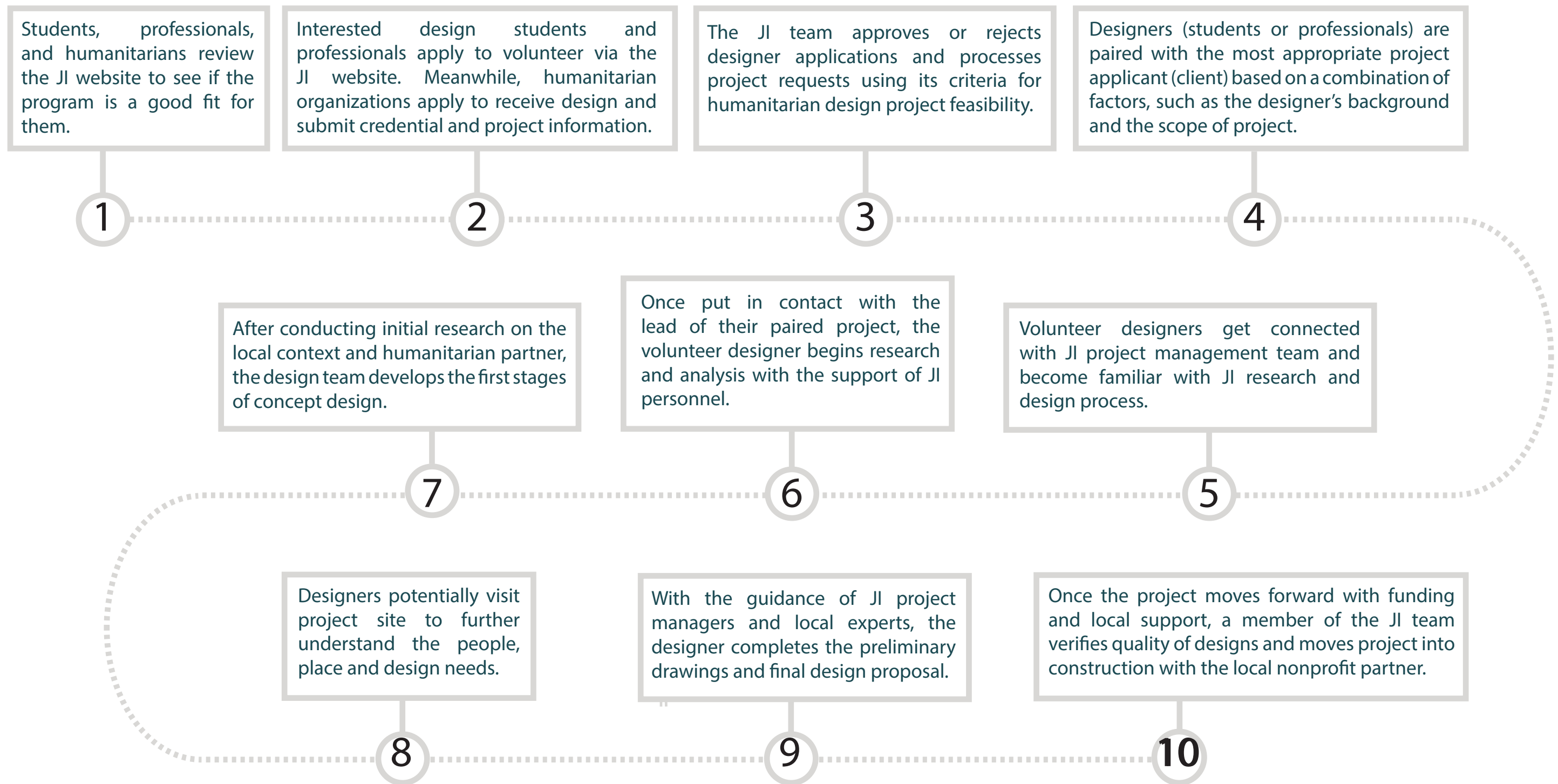
DESIGN

safe, sustainable, and appropriate facilities that create resilience in fragile contexts.



HOW THE JOURNEYMAN PROGRAM WORKS

A chronological graphic of a JI project



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JI DELIVERABLES



Look out for the JI logo throughout this handbook wherever a critical deliverable is mentioned!

- ☐ Acquire a Project
- ☐ Set up Project Logistics
- ☐ Connect with In-Country Support
- ☐ Send Predesign Questionnaire
- ☐ Set up Design/Communication Schedule
- ☐ Format Design Proposal
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- ☐ Hazard Mitigation Plan
- ☐ Construction Safety Plan
- ☐ Stormwater Pollution Prevention Plan



LAUNCH

WHAT'S MY FIRST STEP?

Tasks to accomplish prior to starting your project

It is critical to set a proper foundation prior to beginning your work. Once you have officially been approved by JI to start your project, attaining these objectives should be your first goal. Specific information about these tasks are outlined in the LAUNCH sections. This stage of the project involves connecting and establishing a collaborative relationship with your client, stakeholders, local experts, and the Journeyman team who will guide you through the next stages.

- ☐ Review the entire JI Design Handbook
- ☐ Read the LAUNCH section of this Handbook to gain a fundamental understanding of humanitarian design
- ☐ Introduce and connect with all individuals involved on the project
- ☐ Review any background information on the project, provided by the JI team
- ☐ Attain in-country professional support and mentorship, if possible
- ☐ Receive an invite from JI team for a Project Google Drive Folder. Share folder with all involved parties. Keep your project folder up to date with all working and final documents!
- ☐ Set up project calendar. Outline goals, travel dates, and anticipated deliverables.
- ☐ Set up your 'Design and Construction Proposal' book layout.
- ☐ Send the Predesign Questionnaire to your humanitarian partner to gain more detailed insight into your project before starting the research phase.



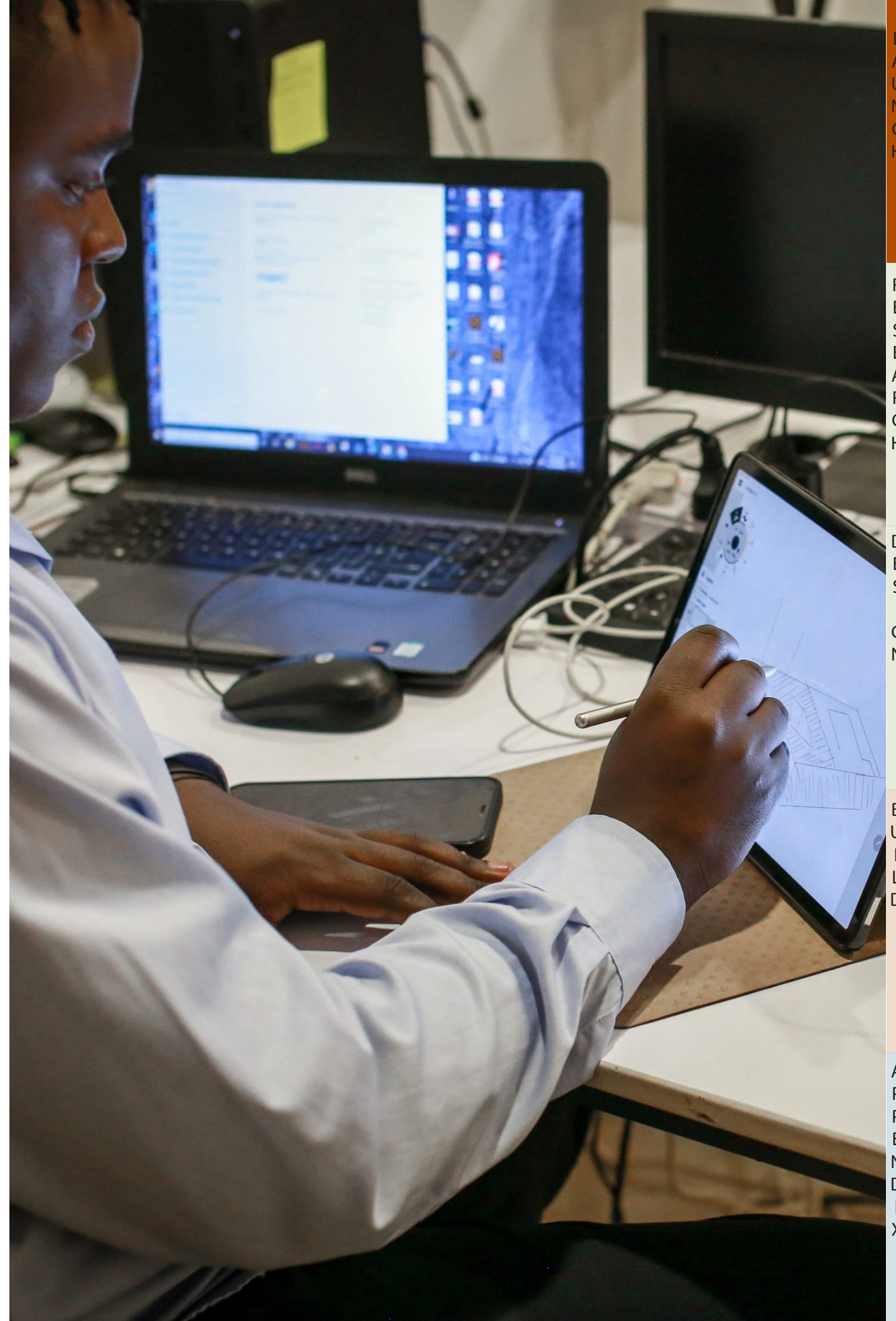
JI DELIVERABLE # 1

Acquire a project



JI DELIVERABLE # 2

Set up project logistics



JI HUMANITARIAN DESIGN VALUES

SOME GUIDING PRINCIPLES ON SUSTAINABLE DEVELOPMENT AND
RESILIENT ARCHITECTURE

Respect for local traditions and vernacular

designing with sensitivity to the local culture, existing infrastructure, and way of life

Empowerment of local people to develop resilience

participatory approach of designing and building in partnership with community members

Beauty and dignity of space

designing aesthetically appealing and calming spaces for people who experience trauma

Sourcing materials and labor as locally as possible

by purchasing from material vendors and regenerative sources in a small geographic radius

Building and engineering with disaster risks in mind

considering earthquakes, typhoons, flooding, fires, and other hazards

Natural and affordable building materials

such as earth bricks, bamboo, local stone and wood

Connecting people to nature and the environment

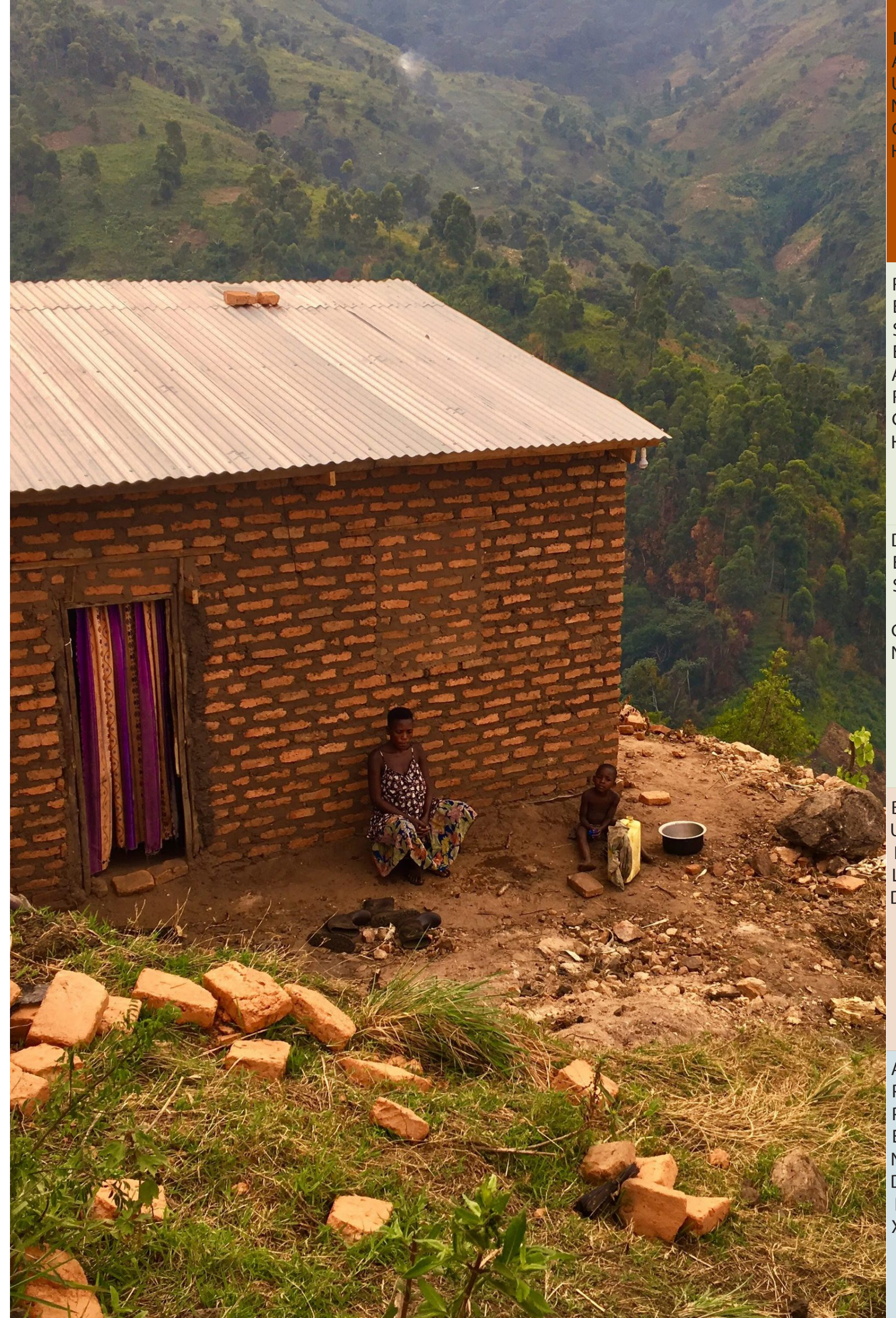
through biophilic (nature-mimicking) design strategies and indoor-outdoor fluidity

Net positive energy

the design gives back to its environment by generating its own energy through renewable technologies, producing more energy than it consumes

Regenerative building systems that minimize waste

such as water recycling, composting biowaste, directing runoff back to nature



WORKING WITH LOCAL EXPERTS

INFORMATION SPECIFICALLY FOR IN-COUNTRY
PROFESSIONAL SUPPORTERS

Attempting to design in a unfamiliar geography and culture without in-country insight and support would be unwise and disrespectful. The Journeyman program is created in a manner that surrounds volunteer designers with guidance from professionals with experience working in the region of your project. Having a resource in the country you are designing for (especially if you have not yet been there) is critical to the success of your design partnership with the local community.

Volunteers and JI staff must collaborate in acquiring these in-country professional supporters. The specific intent is to find local people who can provide an influence and feedback that ensures a respectful and appropriate design. Supporters do not need to have a specific skill set as long as they are able to support the intent. Here are some examples of in-country professional supporters:

- **Local Design or construction NGO:** In many cases, a local or global NGO has an office in the region and has been working in the specific culture for a while. Habitat For Humanity is an example of a design/construction organization that has provided valuable support to volunteers in the past.
- **University:** University professors and students are excellent in-country supporters. In addition to providing valuable and passionate support, universities can provide logistical support with site visits. Local university students are also great additions to the interdisciplinary team. For example, JI has paired visiting architecture students with local engineering students to work on a project in South Africa.
- **Professionals in construction industry:** Construction industry professionals are perhaps the most valuable in-country professional supporters. In addition to being familiar with the local culture, climate, and building materials they also thoroughly understand the permitting and inspection process. These supporters often become the hired local professional design and/or construction team.
- **Local government official:** Government officials are ingrained in both the culture and political situation. Having local government support is extremely valuable considering the volatility of some political situations .
- **A local contact who is familiar with the culture and construction industry:** An in-country supporter does not have to be a politician, professor, or construction professional. Anyone who is familiar with the local context and is capable of supporting the design team to ensure a respectful and appropriate design is welcome!

Responsibilities of in-country professional supporter

As an in-country supporter your role is relatively straightforward. As volunteers progress with their project they will send you updates on their work. We encourage you to provide to the design teams specifically regarding cultural sensitivity, local materials, building codes and permitting, and geography. We encourage you to present the volunteer work to locals within the community to attain their feedback. Without requiring much of your time, your support is often the most valuable component to successful project!

Supporting the project as it moves into construction

Once the JI design team has finished their work, all project designs need to be adopted by in-country professional architects and engineers for modifications and approval prior to moving into construction. One valuable area you can support this project is to help procure the proper local architects, engineers, contractors and other critical professionals to ensure a quality final product.



JI DELIVERABLE # 3

Connect to in-country support



THE ROLE OF THE VOLUNTEER

SPECIFIC INFORMATION FOR VOLUNTEERS

You are about to enter one of the most exciting experiences of your life. By partnering with JI, you will provide sustainable design and construction methods to a humanitarian group that addresses ecological, economic and social issues around the world. Imagine that you are designing a clinic that your grandma will be treated in. Wouldn't you want it to be the best? Or what if the school you are designing is one your younger brother will be attending. Wouldn't you want to make sure you've thought of everything? You are not just a JI designer, you are an responsible design partner. You are no longer someone who talks about making a difference in the world — you are making a difference. In order for you and your community partners to get the most out of this partnership, it will be critical that you:

- 1. Become a master** Choose a design software that you like and learn all the ins-and-outs. We strongly encourage Revit, Rhino, Archicad or Autocad.
- 2. Treat your partner 'client' with respect** Much of your career is spent interacting with clients. It is important to establish your rapport with the client from day one. NGOs often have a very specific mission, so make sure that every aspect of your design helps them achieve those goals.
- 3. Communicate** Communication between you and the NGO will guide your design in every phase. Please make sure that you are communicating with the NGO throughout the whole process. If there is a communication problem, contact JI staff members.
- 4. Ask for help** Meet with your JI project coordinator (in person, electronically or over the phone) a minimum of twice a month to ensure that all aspects of your design are being inspected.
- 5. Design like an activist** We want to encourage architects to bring thoughtful design to the ends of the earth—to communities whose design resources are limited. You are not just designing infrastructure, you are creating a solution to some of the world's greatest problems.
- 6. Be patient** Working with clients is a skill that comes with time. Your project may have additional hurdles because the NGO you are working with is located in a resource-constrained country or English may not be your NGO coordinator's first language. Be patient. If communication becomes less of a hurdle and more of a permanent roadblock, let us know. We can help.
- 7. Take your commitment seriously** Taking on a project of this type elevates you to ambassador. You are an ambassador of your field, and more importantly, your country. Respect your community partners by being timely, professional and respectful.
- 8. Speak up** Make sure you tell your friends and family about your project! Helping others is infectious. You never know what your actions may inspire those around you to do.

Setting the right foundation

Properly establishing your predesign foundation is the most critical logistic task of this project. In order to deliver a quality and accurate product to a happy client you must establish the groundwork. Think for a moment: in a perfect world, what information would you have about your client and project prior to commencing design? You will acquire some of this information on your own through research. Some you will obtain from your client (partnering NGO). Keep in mind that your client may not have consistent internet access. Your client may not speak English. Your client may be from a culture with different standards of business protocol and correspondence. If you procrastinate on this section of your project, you will fall critically behind! For example, we have seen volunteers from outside the country attempt to design a structure without the important details, only to find out their site is on a 20-degree slope. You do not have time for unnecessary mistakes, so listen to us when we say, set a proper predesign foundation!

Your design must take into account cultural protocols, geography, climate, socioeconomic and political issues, as well as any other concerns specific to the region. It is important that as you obtain information from your client, you document the knowledge you have gained and its influence on your design. Your final design proposal will likely be used as a fundraising and promotional tool by the NGO. It needs to clearly show how your design was influenced by your research of the local people and the site.

Every project is unique

Assuming your client is in a resource-constrained context, this project is most likely different from anything you have ever worked on. Your client may be thousands of miles away, speak a different language, and not have regular access to internet. The local jurisdiction may have a completely unique set of protocols for new development. Your country of choice may have natural disaster concerns, and a building code that may or may not address these issues. In short, the game has changed. Throw all your assumptions about development protocol out the window and learn how design and construction works in your new region.

The design paradigm has changed. Your goal is to intimately learn the needs of the local people, their culture and the problems they face. Put aside preconceived notions and open yourself to a totally different perspective. Seek to understand the unique needs of the region and the local people by getting to know them through collaboration. Learn from the people you are serving. Look, not only at the problems they face, but how they solve those problems. Immerse yourself in their way of life. Use an approach to design that will fit into their culture and meet their unique needs.

WHAT TYPES OF QUESTIONS TO ASK YOUR LOCAL PARTNERS

Typically when you take on a construction project the first thing you do is sit down with them to learn about their vision for the project. The same is true here, except your 'client' is really a 'humanitarian partner' that is potentially thousands of miles away, speaking a different language in a different culture, using different building materials, practicing a different religion, and everything else that may be different! You must learn everything you can. Here is an example letter and list of questions to send to your humanitarian partner. Your questionnaire should include at least twice as many questions as we have listed on the following pages.

Learn everything you can about your Humanitarian Partner

Your first task is to acquire as much information about your humanitarian partner and project as you can. As a consequence, your humanitarian partner will also begin to understand the critical responsibilities that fall upon them. Study the following list of questions to submit to your humanitarian partner, and add at least 10 more critical questions. Remember that communication is sometimes difficult. Acquire as much information as possible the first time you contact your humanitarian partner.



PREDESIGN QUESTIONNAIRE SAMPLE

Select relevant questions below, in addition to questions of your own, and send them to your humanitarian partner

- List all staff members who speak English competently.
- What is the best method of communication (phone, email, Skype, etc.)?
- Is this method of communication dependable? Explain your answer.
- Will you be able to communicate with your designer on a biweekly basis (at minimum)?
- Would you be able to host a designer on a site visit?
- Provide your Mission Statement.
- Project Description (Please explain the need your project will fill as well as specifics of the project)

Site Demographics

If you have a parcel of land or a proposed site please provide the following:

- Provide land coordinates to the thousandths' degree. Provide address if available.
- Do you have a deed to the land? If so, please send a copy. If not, who does and what steps are you taking to secure land?
- Do you have topographic documents, Google Earth images, or site photos? If so, please submit.
- Do you have any drawings or technical documents of the property?
- Can you obtain a survey of the land with spot elevations? If not, please describe the topography.
- Do you have a soil survey of the site in the form of a pdf or digital file? If not, please describe the soil composition.
- Are there any rivers, creeks, or lakes that go through the site?
- Is the site on a mountain or in a valley?
- What are the dimensions of the site?
-

Environment:

- What is the site's orientation?
- What are the views looking out from the site?
- Describe the access to local utilities (water, power, sewer, internet, gas, etc.). Will water be stored above ground or below ground?
- Are there any existing building or site features (tree/plants/monuments) you wish to preserve? Is there anything to be demolished or replaced?
- If you have current facilities, analyze critically what you see as the positive qualities and major challenges of the facility.
- What is the population density around the site? Is it urban, suburban, or rural? Who are the neighbors?
- Describe the condition of the roads in and around the site. Are there any existing roads running through the site?
- How far is the nearest source for most of the building materials? What is a typical price per square meter for construction in this region?
- List any special concerns you have observed with this site (drainage, slope, etc.).
- Are there any dangerous natural conditions that affect the site (flooding, high wind, earthquakes, volcanoes, storms, etc.)?
- What time of year does it rain?
- Is it humid or dry when it is hot?
- List the types of plants that are native to the site. If possible please send pictures of the plants.
- List any wildlife found on or near the site.
- Is site security an issue? (the building's ability to lock, the potential for break-in, and vandalism) Is a security perimeter fence required?

Regulatory Requirements

- Have you researched local building regulations and permits regarding the scope of this project? If yes, explain the land development/building regulations specific to your country.
- Provide any government agencies or contacts you have that will be helpful in this process.
- Have you worked with a local architect or engineer? If not, do you know of any local architects and engineers that you trust and would like to work with? Please provide their contact information.
-

Cultural Influences

- List cultural norms or sensitivities that would affect the design.
- List cultural norms or sensitivities that would affect the way the services held within the building are provided.
- Will religion affect the functionality of the building?
- Are there any political/societal issues that may affect the project (corruption, rejection of its mission, etc.)? Are current leaders supportive of the project?
- What are the local governments' responsibilities? What services do they provide their constituents?
- How local are the program participants? Do they come from nearby rural areas?
- What are the traditional architecture and building materials of this region? Provide pictures of traditional structures including close-up photos of the materials.
- Are there any specific building materials that you would like to see used in this project?
- What type of food do people in this region grow?
- Student reports can be created with a particular audience in mind. What is your intended use of these reports? How can these reports be shaped to fit this audience?

Project Logistics

- Our designers are given 9 months to produce a full project proposal (this does not include construction plans and engineering required for permitting and construction. These documents can be created upon final design). Does that time frame work for you?
- Our designers have the ability to accurately design, estimate and schedule the project into phases. Would this be helpful for your project? If so, please provide specifics on how the project should be phased.
- What is your time frame for this project, from design to construction to grand opening?
- Updates on the project will be sent on a regular basis. Are there any specific representations of the project (drawings, models, etc.) that you will need? What and when?
- Provide an explanation as to how you will pay for the programming and maintenance that the building will require once completed. This could include a three- to five-year budget.
- If you are able to host a Journeyman team for one week you will need to provide transportation, lodging, and coordinate meetings with local officials and architects. If you are planning to do so, please provide the following:
 - a. Who will meet the JI team? Where will they stay?
 - b. Provide contact information (addresses, phone numbers, e-mails) for anyone with whom the JI team will be traveling or staying.
 - c. Is it possible for the JI team to meet future occupants of the buildings?
 - d. Is it possible for the JI team to meet local architects, engineers and builders?
 - e. Can the JI team visit local material sources?

Project Program

- What functions will the buildings provide? (sleeping, playing, restrooms, showers, meals, medical, education, etc.)
- How many people does the building need to hold? Estimate how much area they will require (be specific for each area in the building).
- Is outside space needed such as courtyards?
- If the building includes a kitchen, what type of equipment will the kitchen need?



UNDERSTANDING HUMANITARIAN DESIGN

As humanitarians, we want to be of service to a community and design for improvement in their lives while learning something about ourselves on the way. It is a fine line between helping and hurting, which is why this has been a learning process in the humanitarian world. Bringing in our knowledge of what works does not always meet their needs and could lead to worse outcomes later as you have seen in your research. It is key to take the time to see a project in its entirety. Since there has been discovery of how helping can hurt communities, many organizations and design firms have implemented a marriage of participation and empowerment with service and help.

Suggested Additional Resources

UNDRR Global Assessment Report
<https://www.undrr.org/media/88718/download?startDownload=true>

UNHCR Shelter and Sustainability Overview
file:///G:/./shortcut-targets-by-id/0BwfXnK7vhOjffkJjcmJVNGJpSE1wVDBPb3FoUIhtREtZdIFzVkJZDRXVLWHEzU2ZUZXE3YkU/JOURNEYMAN%20INTERNATIONAL%20INC/Projects/zShared%20JI%20Group%20Documents/Research/shelter_and_sustainability_overview-unhcr.pdf

UNEP Practical Guide to Resilient Design
<file:///G:/./shortcut-targets-by-id/0BwfXnK7vhOjffkJjcmJVNGJpSE1wVDBPb3FoUIhtREtZdIFzVkJZDRXVLWHEzU2ZUZXE3YkU/JOURNEYMAN%20INTERNATIONAL%20INC/Projects/zShared%20JI%20Group%20Documents/Research/Resilient%20Design%20Report%20UNEP.pdf>



SETTING A TIMEFRAME AND SCHEDULE

In order to properly engage your client, satisfy the requirements of your professor and accomplish all the required tasks, it will be critical to create a design and communication structure — primarily in the form of a schedule. Below is a list of required and suggested schedule items. Create a schedule that outlines design and communication milestones for the project from start to finish.

Required Milestones:

- Submit progress reports to Journeyman International monthly
- Schedule a video or telephone call with your client every two weeks
- Meet with your design mentor or JI management team on a monthly basis
- Select a completion date to submit a completed project proposal to Journeyman International and your client

Suggested Milestones:

- Select deliverable dates for each section of your project proposal
- Select site visit dates
- Outline critiques, competitions, reviews and design shows



JI DELIVERABLE # 5

Design/Communication Schedule



FORMATTING YOUR PROPOSAL

Design Proposal Outline

COVER

LETTER TO AUDIENCE (CLIENT/GRANT, etc.)

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Brief list and bios of team members

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Design Rationale

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Renderings

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Structural Systems

Physical Models

Construction Estimate

Construction Schedule

WORKS CITED



JI DELIVERABLE #6

Formatting Design Proposal

RESEARCH

EVERYONE deserves the same opportunity to have basic needs met, no matter what corner of the earth you were born on. By working with JI, you are joining a growing number of professionals who not only speak these words, but act on them.



HOW DO I BEGIN?

When starting your background research of your project, it is important to ask strategic questions about the local context. Think about the needs and opportunities that exist around your site. Environment, culture, politics, religion, and more will all come into play as you look for inspiration and direction for your design concept. Consider the checklist of considerations below when conducting your research...

- ☐ Geography and Climate
- ☐ Site Hazards and Risks
- ☐ Socioeconomic Conditions
- ☐ Culture and Traditions
- ☐ History and Politics
- ☐ Local and Regional Demographics
- ☐ Community Assets and Opportunities

ENVIRONMENTAL CONTEXT

Geography, Climate, Flora and Fauna

A designer should become an expert on the geographic context prior to any design work. Research and summarize the geography, climate and flora and fauna of your region, and use the following list to link this information with your design project.

- Evaluate the site from a geographic perspective.
- Describe all geographic features including elevation variations, types of rock, general soil description, water, vegetation and any other important geographic factors. Include maps, photos, diagrams and satellite images.
- What geographic hurdles will need to be overcome?
- Explore ways the geography affects how the people of the area provide for their basic needs.
- What effect will the local flora and fauna have on the site and the surrounding area?
- How will climate affect the project?
- What landscape and climate variations occur throughout the year?
- Use diagrams to show the major seasons and any other climate factors specific to the area.
- Does the climate produce any unique challenges? Include charts showing yearly temperature, winds, humidity, precipitation and storms.
- How will climate affect the timetable of the construction?
- How will climate affect the design?
- Describe the vegetation on the site. How does the vegetation affect the drainage on the site and the surrounding area?
- Draw a site map showing the types of vegetation and their locations.

Site Hazards and Risks

Give a detailed description of the hazards that could affect the construction site. How could these hazards be mitigated? Are there hazards that could affect the use of the site upon project completion? Utilize the following list:

- Geographic hazards (i.e., landslides, earthquakes, floods, etc.)
- Climate hazards (i.e., precipitation, winds, typhoons, temperature, etc.)
- Political hazards
- Cultural hazards
- Disease
- Animal and Plant hazards (for example, termites)
- Construction hazards (for example, excavation safety, material transportation, scaffolds, electricity, etc.)



JI DELIVERABLE #7
Environmental Context

SOCIAL CONTEXT

In order to complete a respectful appropriate design you need to first become a student of the culture you are designing for. Reading a Wikipedia article and watching a documentary is not good enough - you need to go to extensive lengths to become an expert! In depth discussions with your in-country support team and site visits (even virtual) are the two most valuable opportunities to attain this deep level of cultural understanding. Both extensive research as well as relationship-building with your local stakeholders are critical steps to becoming an expert on your project's context.

Socioeconomic Conditions

- How does the country support itself economically?
- Describe the major industries
- Is tourism an important economic factor? Explain the role of the government in the tourist industry.
- What role does agriculture play?
- Identify what the country imports and exports and its impact on the economy.
- How are water supplies, power, transportation and wastes managed?
- How does seasonality affect productivity?
- Where are the industries located? Use infographic.
- What industries are there in the community surrounding the building site?
- How do the local people support their families?
- How far do people travel for employment and what is their mode of transportation?
- Is this community dependent on breeding crops or animals?
- Describe how the wealth is distributed within this nation.
- What are the major causes of poverty?
- How does the government deal with poverty?
- Are there plans to improve living conditions? Is it working?
- Describe and compare the employment distribution within the different industries and services.
- Is education a key determinant in the lifestyle and status achieved?
- Determine the literacy rate and its effect on employment.

Culture and Traditions

What are important aspects of the culture? Identify cultural practices and traditions. Describe the inner workings of the family in the local culture. How will it affect the design? What cultural practices could have an influence on the design, the building construction or the programmatic uses established by the client?

History and Politics

- How is the nation governed?
- Record the political history and structure.
- Describe the effect of the political structure of the region and the community near the building site.
- Predict any effect local politics will have on the construction of the project and the people using the completed building.



JI DELIVERABLE #8

Social Context

Local and Regional Demographics

Where are the populations concentrated? Show any migrations of people within the region. What is the age distribution within the population? Identify life expectancy and gender breakdown. What is the ethnicity of the region? Identify shared borders. Identify any issues based on the socioeconomic or political situations in surrounding countries. Provide infographics.

List the predominant religions and their importance to the culture. Describe how religion affects the family unit. How could religious practices affect the design of the facility, its construction or the programmatic uses established by the client?

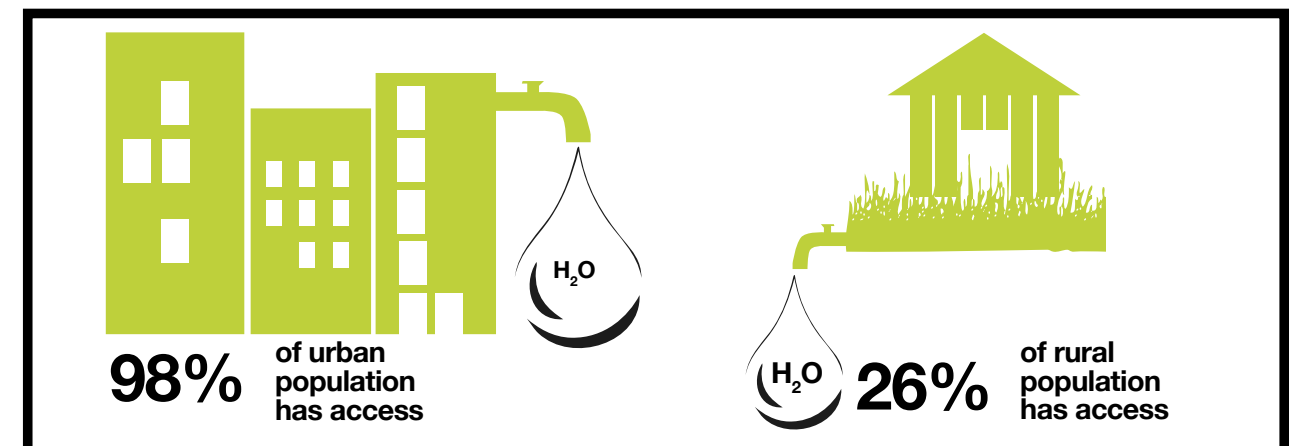
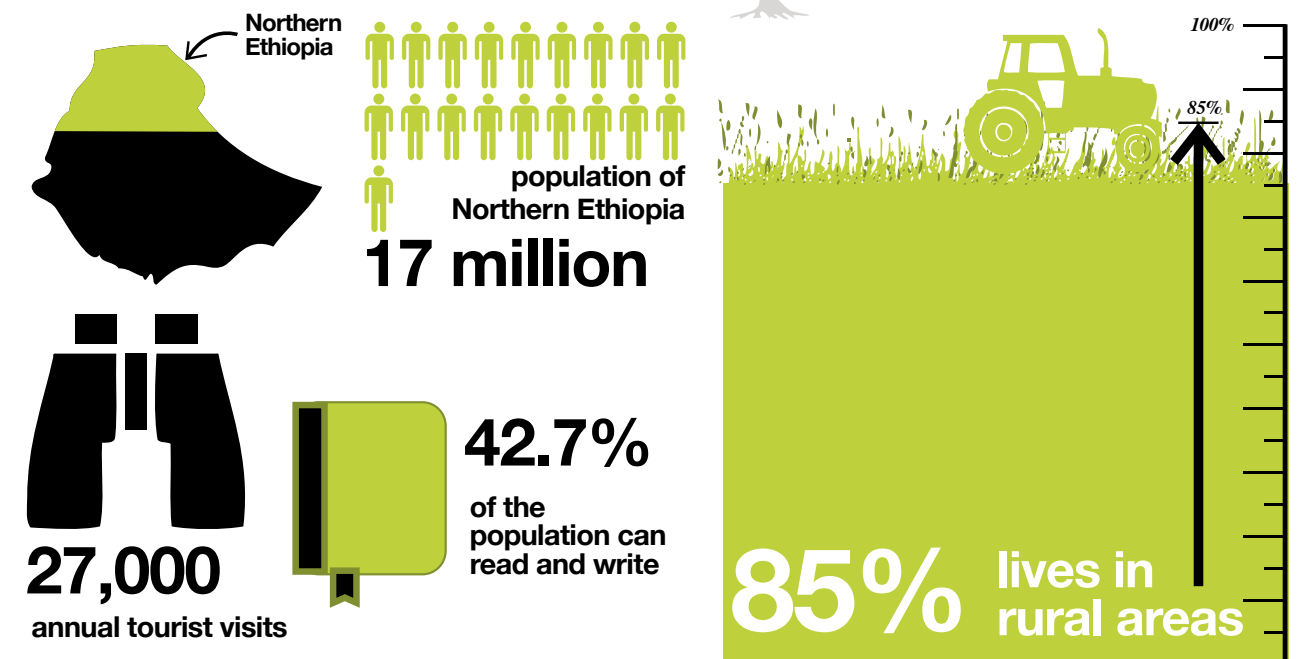
Community Assets and Opportunities

Remember that we are not only dealing with community needs and vulnerabilities, but there are also plenty of strengths and assets that the community can contribute to the project. Ask about the assets that exist in the context you are working with, and you might be surprised by the opportunities that present themselves. Examples might be "what kinds of local industries might provide revenue streams that can contribute to the sustainability of the project?" or "are there any community associations which bring together stakeholders and decision-makers who can mobilize local people?" or "are there any unique natural resources or human skills that can be incorporated into the construction process?"



JI DELIVERABLE #9

Infographics



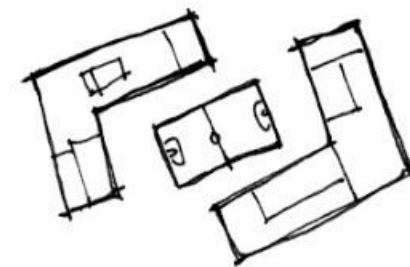
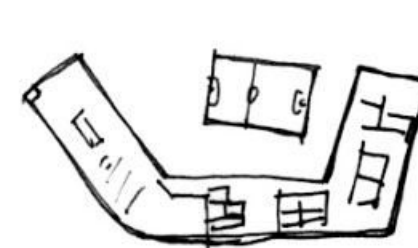


CASE STUDIES

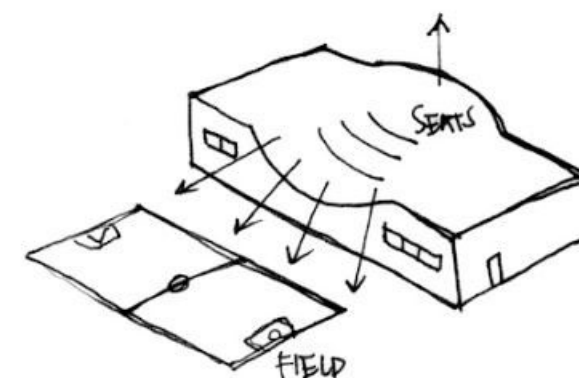
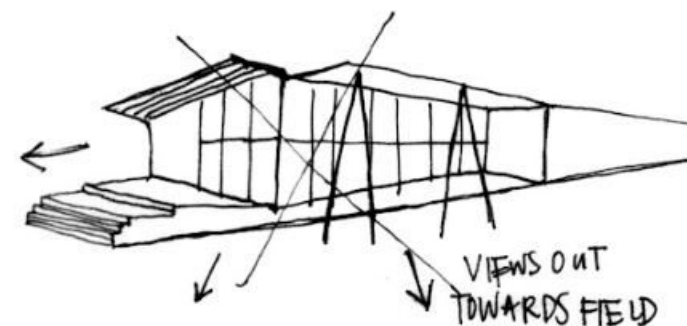
We encourage you to learn vicariously! Take advantage of the similar projects that have come before you. Before you start on specific case studies, read everything you can find on related projects. This includes researching the country, the culture, the climate, past humanitarian projects, etc. Choose three different case studies that are similar to that of your project, either due to location or project type (medical, social, educational, etc). When evaluating these cases, identify the following measures:

- What are key lessons learned? If possible, contact the project representatives.
- What innovations were developed for this project?
- What were the greatest obstacles?
- In your opinion, does the design properly address the need?
- What building materials were used and why?
- What was the project cost and construction duration?
- What is the most significant identifying feature of the case?
- Who are the significant individuals, teams, and institutions?
- What is the significant lesson derived from the case?
- What are the appropriate teaching/learning applications?
- Does this case represent alternatives or innovations in the accepted mainstream of practice?
- What are the generative ideas (concepts) of the case?
- Does the case have a special identifiable personality?
- What are the anecdotal lessons learned from the case?

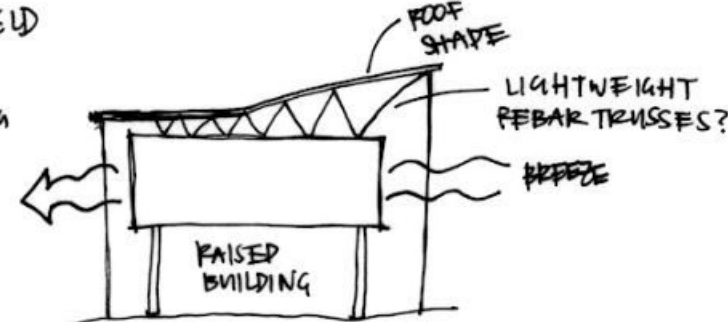
UNO



AUCKLAND



OVERHANGING
ROOFS



SITE VISIT

Sometimes design volunteers are given the opportunity to travel to their project site, but sometimes circumstances do not allow for this to happen. Whether or not you are able to physically visit your site, you must still consider the following.

Immerse Yourself

Although everyday activities might not seem important to your design, understanding the customs and established ways of the community you are working with is the foundation of every good design. Make time to visit the existing site/facility where the client is currently operating. Observe the ways in which all stakeholders interact with the natural and programmatic environments. Notice if there are bottlenecks or places where better programming could increase livelihoods.

Seek Inspiration

Other industries might just be the missing link in your design. Look around and explore how efficiencies and advancements in specialized fields can better your design. In Rwanda, a team of designers looked to NASA when choosing the technology for an orphanage's kitchen, for example.

Objectives

- Spend enough time at the site to properly document it with photos and measurements. Bring ziplock bags to take soil samples (ideally at surface, 2' down, and 4' down). Take note of vegetation location and types. Are there existing structures on site? Take lots of notes!
- Get to know your clients. Try and build a close relationship with them. You never know what long term friendships might come from this experience! Develop an opinion on the trustworthiness of the organization.
- Figure out how the local building industry works. What is required to get a building permit? Once a permit is obtained, are inspections required? What are ALL the taxes and fees?
- Meet with local architects, engineers, contractors, and city officials. This is the most valuable thing you can do on your trip. Meeting with the right people and asking the right questions will put your project on their radar, and you will obtain valuable, hard-to-obtain information regarding land procurement, corruption, price estimating, etc.
- Study local buildings! What materials do they use? What is their architectural style? Does your particular neighborhood have a style? Visit construction supply stores and take photos. Document pricing on big ticket items (for example, bag of concrete, bricks, labor, etc).
- Soak in the culture! Researching a culture and experiencing one are very different.
- Always be cautious. Never go anywhere alone.
- Have fun! This should be the first of many adventures with your project!

Figure out the process/players in your area — map it out. For example, in some countries they have an owner, architect, banker, lawyer, appraiser, real estate agent, structural engineer, mechanical engineer, soils engineer, hydro engineer, electrical engineer, general contractor, many subcontractors, insurance companies, title companies, air pollution control, city, county, special inspectors, third party managers, banking inspectors, electric company, gas company, sewer company trash company, etc. The list goes on and on. Knowing who is involved at your location is critical.

If something you learn about the local practices, governance, processes does not align with what you are used to in your home context, it is best to defer to local knowledge whenever it is safe and appropriate. This is an opportunity to learn new ways of thinking. If this project is not in your home country, be humble and respect the context you are stepping into as an outsider.



EXAMPLE QUESTIONS TO ASK ON A SITE VISIT

1. What service does the local builder provide?
What is REQUIRED by a local construction expert?
 - What software do they use?
 - Requesting and controlling building permits?
 - Creation of detailed construction documents? Using what software?
2. What are the fees of the necessary subconsultants (contractors, engineers, everyone)?
3. Is there a typical design/owner or owner/contractor contract? Ask for a copy.
4. How is correspondence recorded and tracked? (i.e., email, prolog, RFI's, submittals, etc.)
5. What is the architect's preliminary estimate?
6. What type of construction is suggested?
 - structural systems
 - materials
 - design or orientation of buildings for religious or climate-related purposes
7. What reports/permits are required?
 - Soils report?
 - Environmental report?
 - Endangered species report?
 - Health and safety report?
8. Are inspections required throughout construction?
9. What is the history of the property? Could there be debts tied to the land? Could there be multiple deeds?
10. Why is the property being sold?
11. Has the land been appraised?
12. What kind of property taxes will apply?
13. Is there a statute of limitations on the zoning?
14. IMPORTANT: Where are the utility connections?
 - Sewer. If city sewer is not available, what are alternatives? (i.e., pump sewer to city sewer, septic tank, etc.)
 - Electricity
 - Natural gas
 - Water (is it potable?)
 - Telephone/Internet
15. Quantity of currently constructible land?
16. Is an insurance company willing to ensure the property? Health insurance issues with potentially contaminated soil? Health issues with 'cliffs', etc.
17. Has a survey or topographic map been made?
18. IMPORTANT: What is a typical price per square meter for a similar building?



J1 DELIVERABLE #11

Site Visit



DESIGN

PROGRAMMING

FUNCTIONAL AND OPERATIONAL REQUIREMENTS OF THE PROJECT SCOPE

Determining the function of the building(s) will take time. Don't be surprised if the function and needs of the project evolve a bit as both you and the client learn what is and isn't possible. In your first program conversation, ask the client what their vision is for the facility. Starting broad and getting the big picture will give you plenty of material to launch into details and specifics later. Make sure that the client addresses the following program study.

SampleProgramStudy

1. How many people will the facility serve?
2. Are there multiple buildings? What will be the function of each building?
3. What is the demographic of the end user?
4. What is the projected budget allowance?
5. Will the project be completed in phases? If so, what are the priorities?
6. What are the requirements and considerations for future phases?
7. What does the permitting/zoning/code requirements look like in this area? (We ask this now, so that if the client doesn't know they can start researching and get back to you in your next conversations about specific requirements.)

Once you have gone over the basics, dive into the specifics:

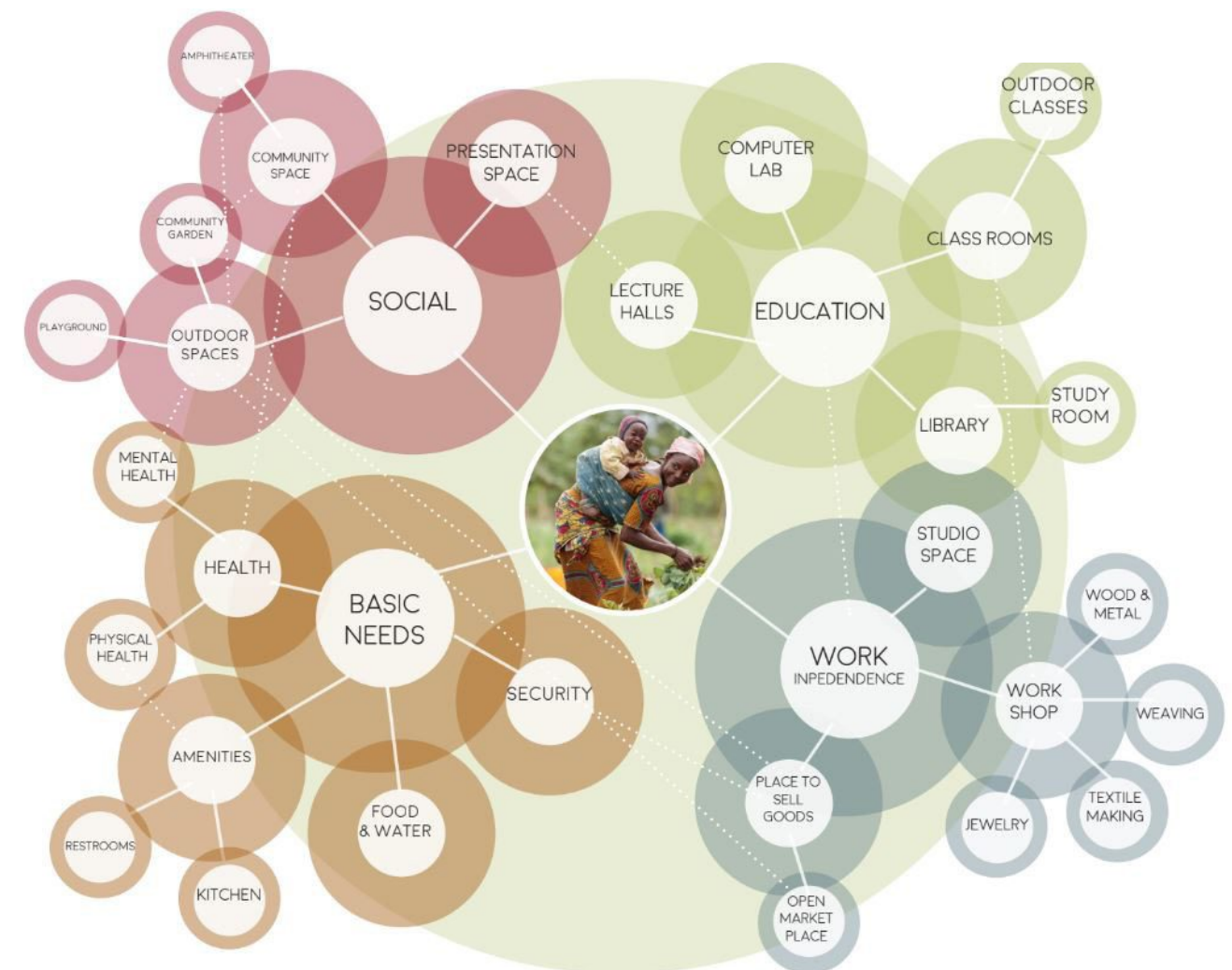
1. What is the estimated square meter of each building?
2. Get the client to give you a description of each building, including the design parameters for each building.
3. What is the existing situation regarding transportation to the site? What improvements on transportation need to be made?
4. What are the client's goals regarding spatial relationships between structures? Make sure they address outdoor space, such as amphitheatres and sports complexes.



JI DELIVERABLE #12

Program Study

EXAMPLE



FOCUS ON VERNACULAR

“vernacular”: Architecture based on local needs and construction materials, and reflecting local traditions

Inspiration for your design can come from surprising sources. Researching local vernacular and existing facilities within the community, as well as beyond, can be most helpful. It might prove more beneficial to start on the materiality study before finding precedents.



Inspiration and Materiality Study

1. What are the local traditions that make up the current construction trends in the area?
2. What materials are there locally? Within the country? Need to be imported?
3. Are there any cultural stigmas or norms that would prohibit the use of a certain material? For example, bamboo is plentiful in many sub-Saharan countries. It is a strong material that has been proven to be sustainable, but due to bamboo's stigma of being a poor man's building material, it is not advisable to use.
4. When seeking out precedent studies, explore projects that vary in size, material and function. This will ensure that you are creating a diverse pool of design to draw from outdoor space, such as amphitheaters and sports complexes.



JI DELIVERABLE #13

Inspiration and Material Study

CIRCULATION STUDIES

Three primary outside forces circulate throughout facilities on a daily basis — wind, sun, and people. How should the changing interaction between these forces affect your design? Study and illustrate how the following forces can impact the site and design.

Wind

1. We typically try to neutralize wind. Could there be an advantage to utilizing wind? Not only for energy purposes, but perhaps for the experience of the occupant?
2. Is there a way to convert the wind flow through the site into energy? Is this a viable source of renewable energy in the area?
3. Where do the predominant winds come from? How does this change throughout the year?

Sun

1. How will the sun interact with the occupants throughout the day? How will this change throughout the year?
2. When will the sun be a nuisance, and when will it be a joy for the occupant? Your building's relationship with the sun's heat and light will directly affect the mood of your occupants.
3. What kind of light study should you undertake?

People

1. Create a study illustrating how different groups of people (staff, guests, residents, etc.) will tend to circulate throughout the facility. For example, the children in the Haiti orphanage will start the day in their bedroom, move to the dining room for breakfast, to the bathroom to brush teeth, then back to the bedroom to get ready for school. Circulation trends should play a major role in your final design. The following pages will show several examples of circulation studies created for an orphanage in Guadalajara, Mexico.
2. Determine which spaces are private, which spaces are communal, and which spaces are transitional.



JI DELIVERABLE #14

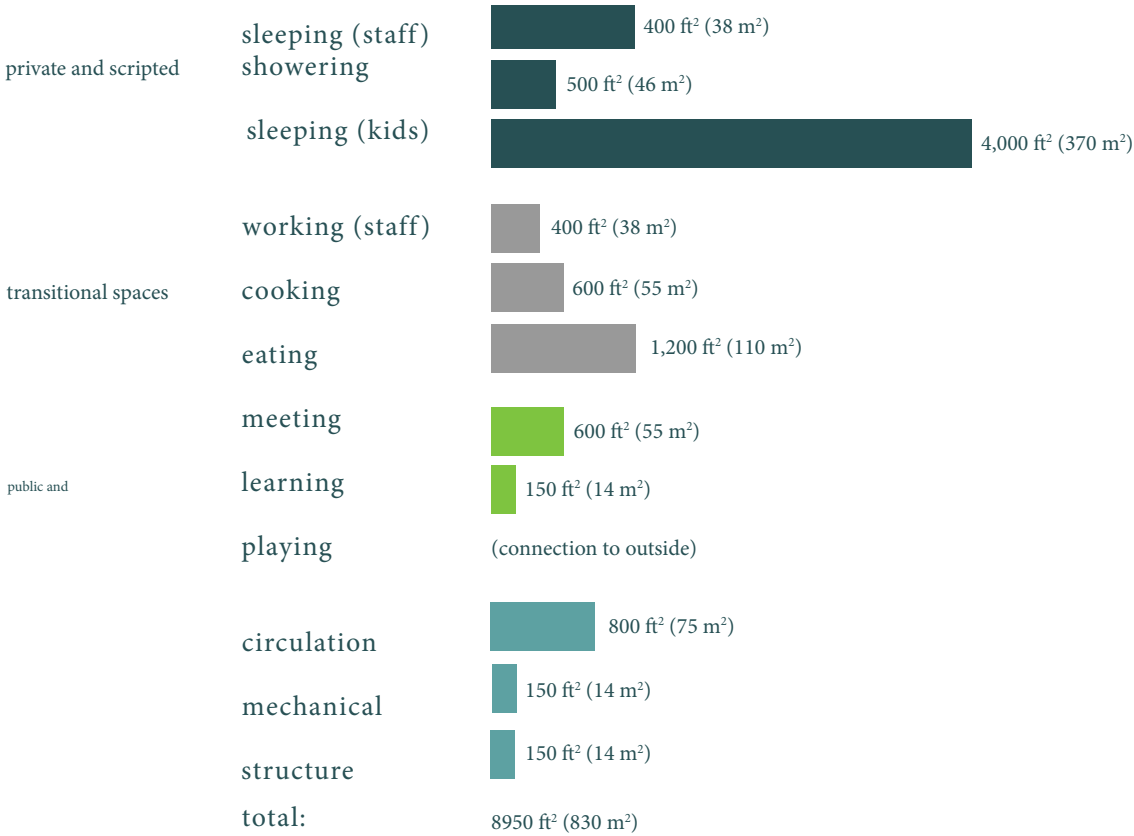
Interaction and
Circulation Study

EXAMPLES OF CIRCULATION STUDIES

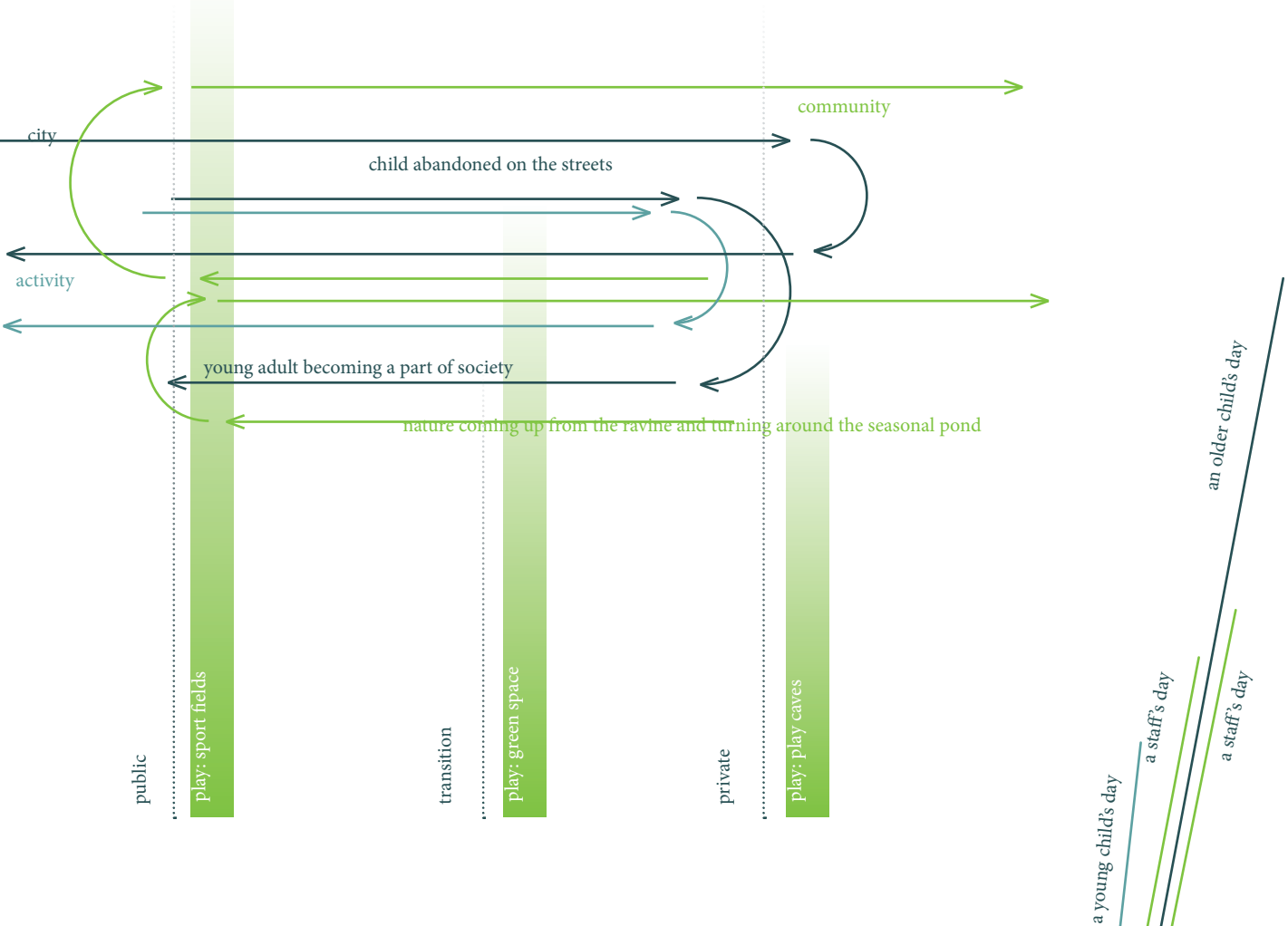
Example 1

sleeping (staff)	private	individual	scripted	defined
showering	private	individual	scripted	defined
dressing	private	individual	scripted	defined
sleeping (kids)	private	communal	scripted	defined
working (staff)	private	individual	free	manipulated
cooking	public	communal	scripted	manipulated
eating	public	communal	scripted	manipulated
thinking	public	individual	free	manipulated
meeting	public	communal	free	manipulated
learning	public	communal	free	manipulated
playing	public	communal	free	manipulated
	private and public		activities that are scripted in nature with an ordered rhythm in contrast to activities that are are unlimited in scope or content	defined spaces that require certain elements versus flexible spaces to be manipulated and adapted to the users needs
	space: transparency, accessibility and size			

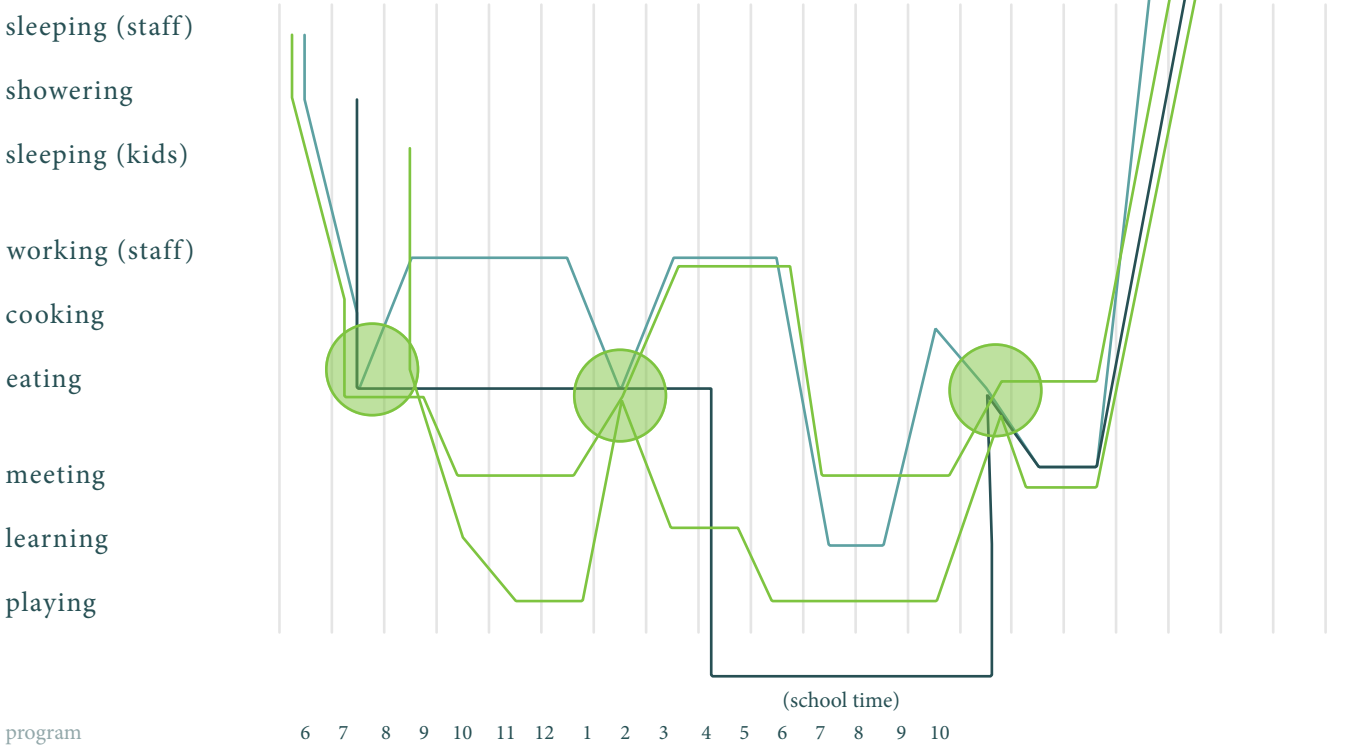
Example 2



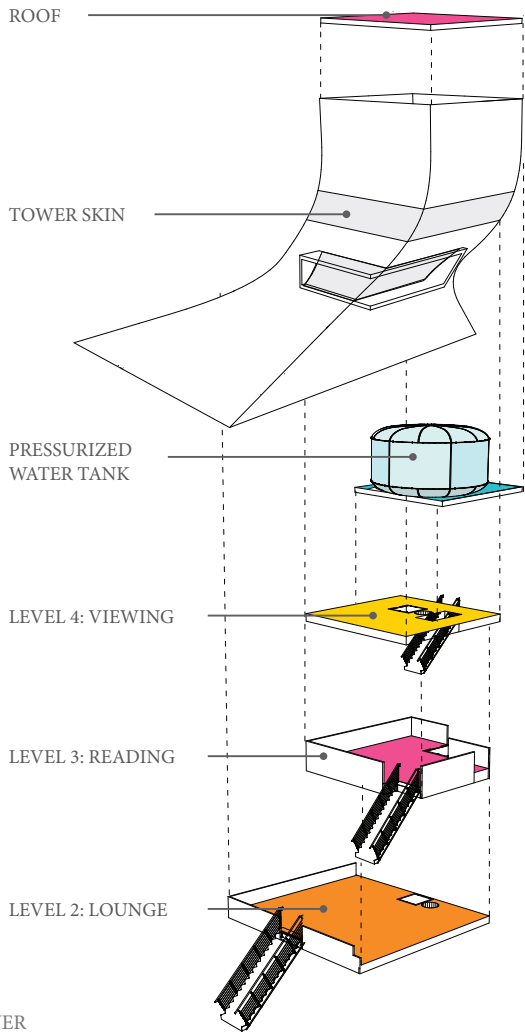
Example 3



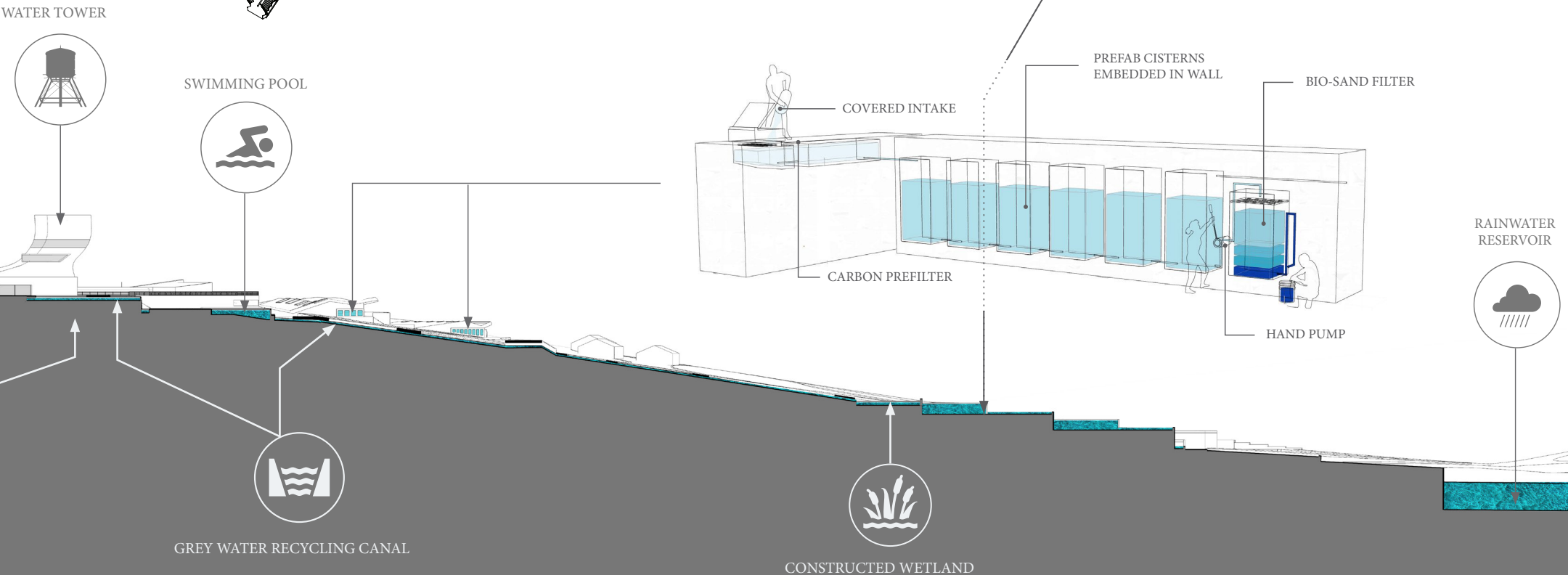
Example 4



Example Water Treatment System From a Research Academy in Cameroon



- SITE GOALS**
- 1 CONSTRUCT A RAINWATER RESERVOIR
 - 2 PROVIDE EFFICIENT PUMPING AND PIPING TO COMPLEX
 - 3 CREATE WATER FILTRATION AND TREATMENT PLANT ON SITE
 - 4 HARVEST RAINWATER AND STORE IN CISTERNS FOR LATER USE AND RECYCLE WASTE WATER IN CANALS
 - 5 EDUCATE THE VISITORS



SUSTAINABLE SITE PLANNING

Humanitarian Site and Landscape Design

Landscape design for a humanitarian project is far more than beautifying the area surrounding the buildings of a project. The landscape designer has the opportunity to improve the usefulness of the facilities and the lives of the recipients. Your goal should be to create a culturally sensitive, sustainable landscape design. Through a detailed site analysis and research of the area, you will be able to mitigate site issues such as drainage, pollution and mosquito breeding areas. You can provide peaceful gathering places, privacy walls or medicinal gardens. Don't design just for beauty; be creative, design to solve problems, design to improve lives.

Coordinate all your research and planning with your local team. They can advise you on what grows where, and whether there are any important rules and cultural norms to follow.

Geography including Topography, Climate, and Weather

Identify aspects of the geography and topography that could affect your landscape design. Describe all geographic features including elevation variations, types of rocks, general soil description, water, vegetation types and any other important geographic factors. Include maps, photos, diagrams and satellite images. Your landscape design should take into account the climate and weather of the region as well as at your project site. Include charts showing yearly temperature, winds, humidity, precipitation and storms. Study the sun and wind patterns. Design to utilize helpful attributes and to minimize those that are detrimental.

Site Analysis and Site Map

The most accurate method of creating a site analysis is to visit your site. If that is not possible, you will need to rely on your research, information provided by your local partner and photos. When you are drawing your site map, include topographic features, existing structures, roads, and any natural features that will affect your design as well as existing vegetation that will be incorporated into your design.

Vegetation

Identify the natural vegetation of the area and their growth conditions. Create a list of plants that can grow in the region. Along with native plants, include species that are used in that region such as ornamental plants, herbs, medicinal plants, fruits and vegetables. Also provide the growth conditions for each of these plants including soil type, water, amount of sun, and temperature. Make a second list of any invasive plants that could affect the project. During your design process identify how you will mitigate the intrusion of invasive plants into your landscape.

Describe the vegetation that already exists on the site. Draw a simple site map showing the types of vegetation and their location. Determine if any of the existing vegetation can be incorporated into your design. Evaluate how the existing vegetation affects the drainage on the site and the surrounding area. Determine how this will affect your design. Document the rationale for all your decisions.

Soil Analysis

Your structural and civil design members will be working on a soils analysis, but with a completely different intent. Research the type of soil in the area of your project. If you are able to visit the site, evaluate the soil while you are there and determine nutrient and contamination content, composition, and other characteristics such as the acidity or pH level. Research agricultural practices in the area

to determine what methods are used to improve soil texture and nutrient content. Describe the methods you will use when planting to augment the soil to improve structure, drainage and moisture retention. Using sustainable practices determine how you will add nutrients to the soil. Determine if composting, vermiculture, or mushroom composting is feasible.

Site Mitigation

Identify problem areas in the site that will need to be mitigated. Determine the best methods to alleviate these problems. Do this through excavation, grading, bioswales, trenches, gravel, planting of trees or vegetation and any other appropriate methods. Design a system for stormwater drainage. Whenever possible, capture, store and utilize stormwater. If your site is in a malaria zone, design to eliminate standing water that could provide breeding grounds for mosquitoes. Provide the rationale for each of your decisions.



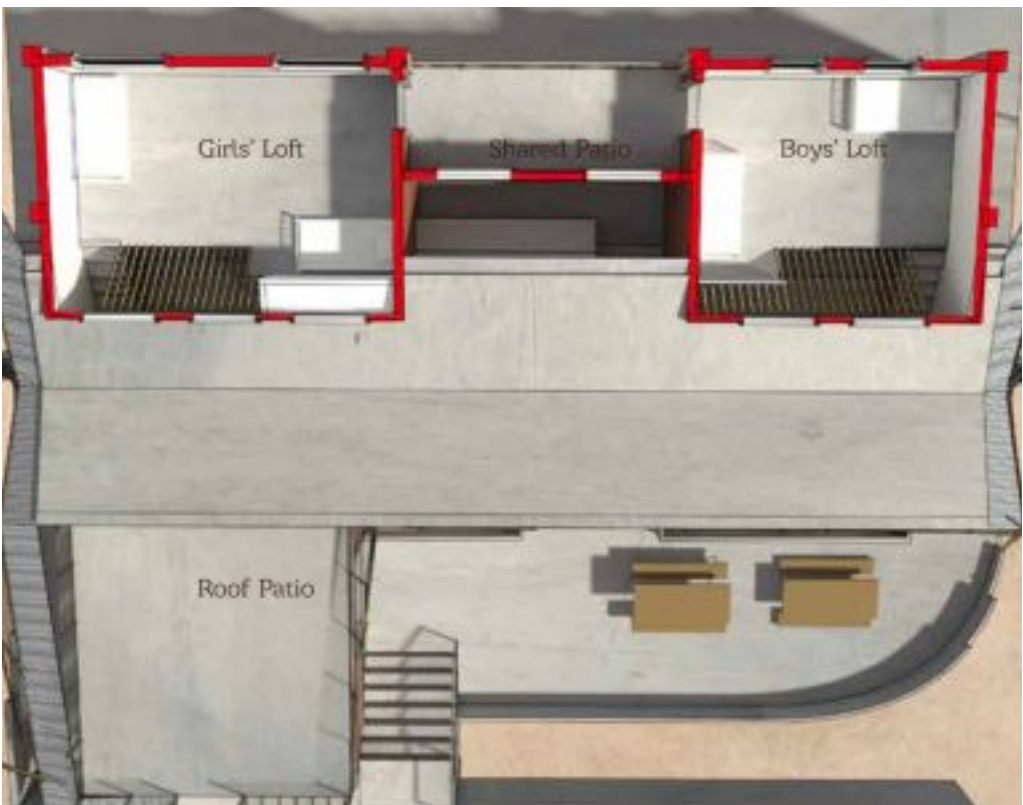
JI DELIVERABLE #15

Site and Landscape Design

FLOOR PLANS

Go to the JI Google Drive folder and download the autocad template for construction documents. Create detailed floor plans that include dimensions, areas per room, scaled furnishings, and important keynotes.

(Below are examples of a more stylized approach of plans for an orphanage in Haiti. A more colorful, graphic style can help convey your concept to stakeholders who might have a hard time reading technical plans.)

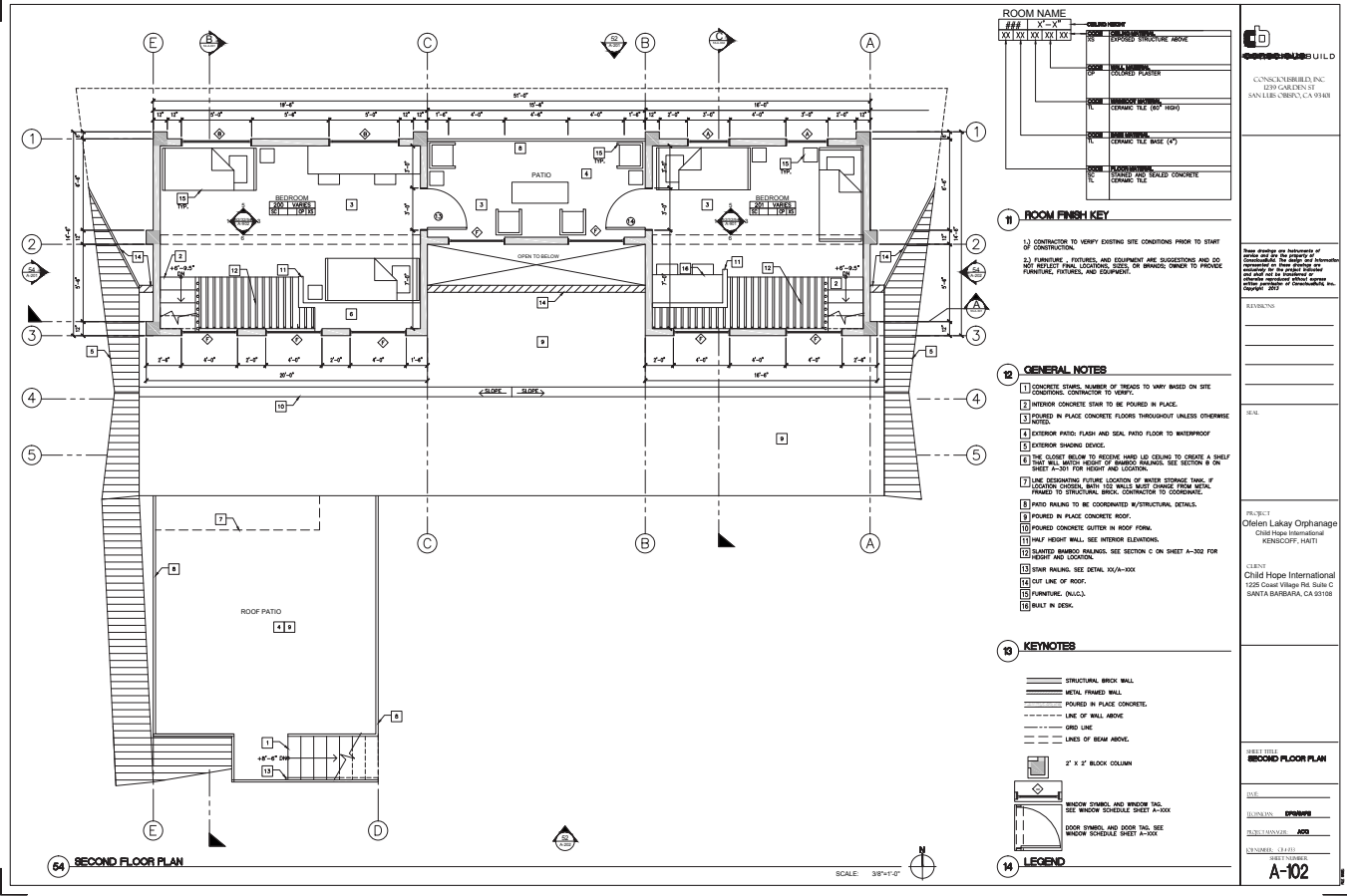
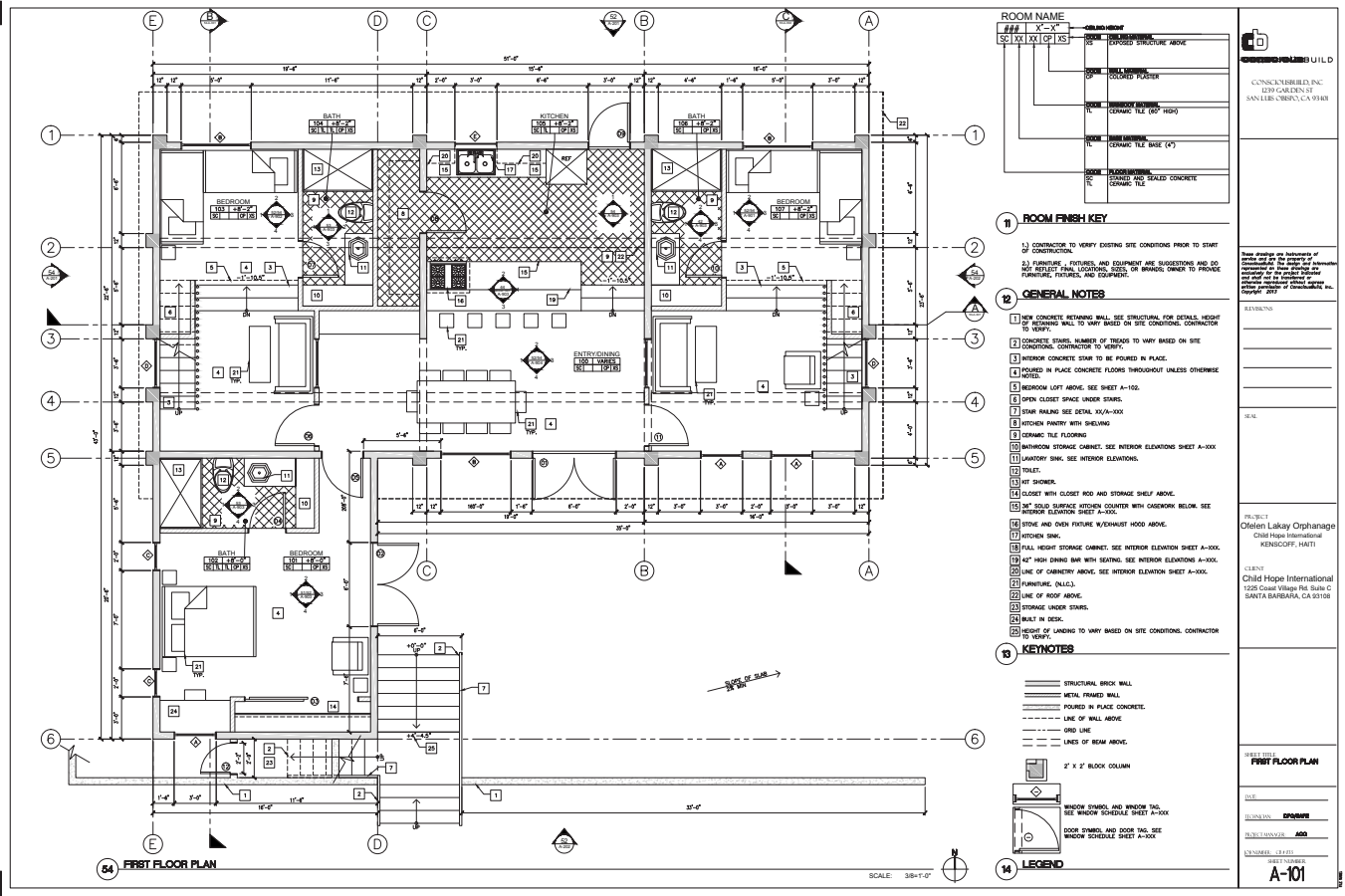


MORE EXAMPLES...



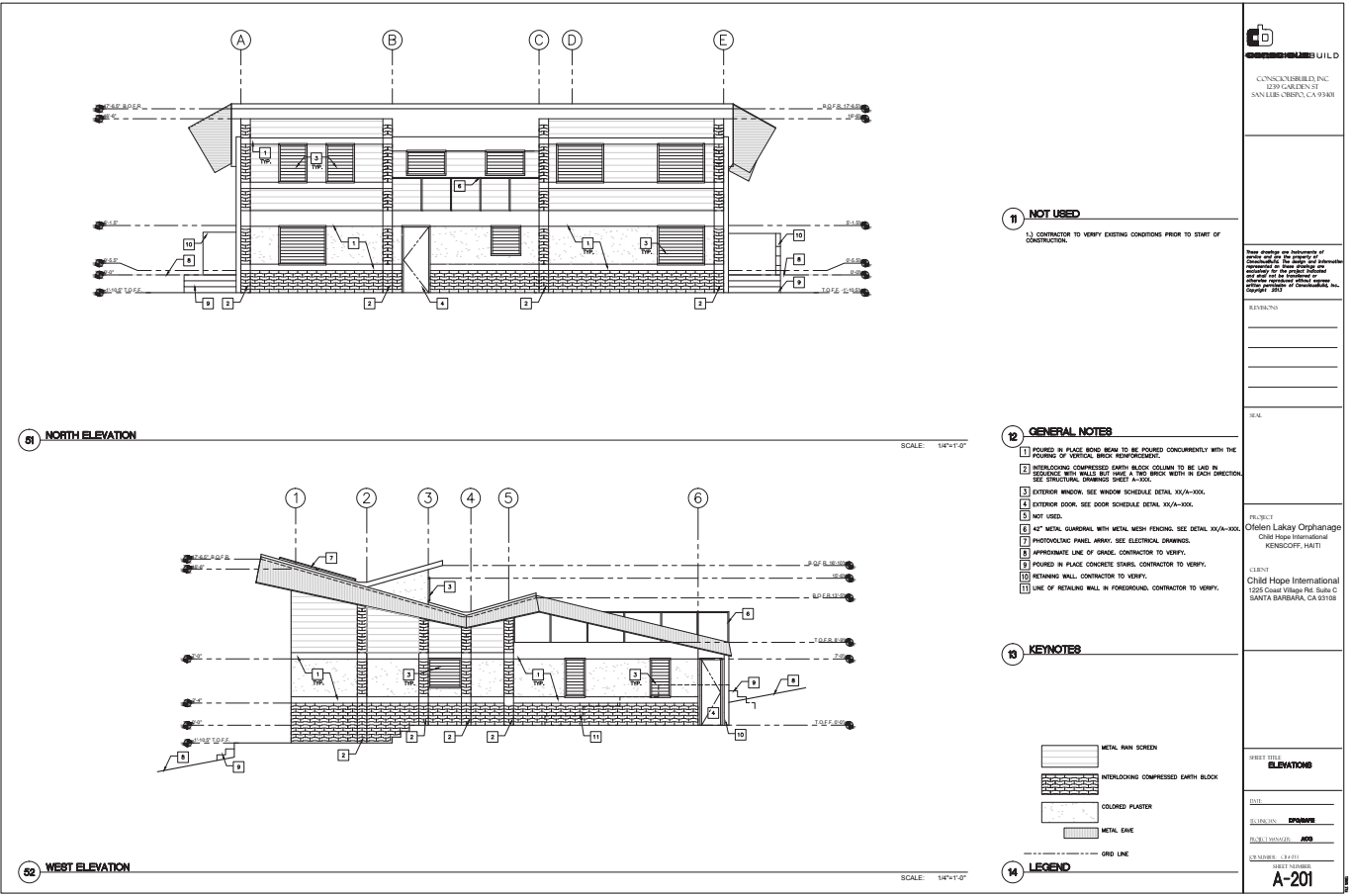
JI DELIVERABLE #16

Floor Plans



ELEVATIONS

Within your CAD file, create detailed elevations that include dimensions, cladding materials, and important keynotes.

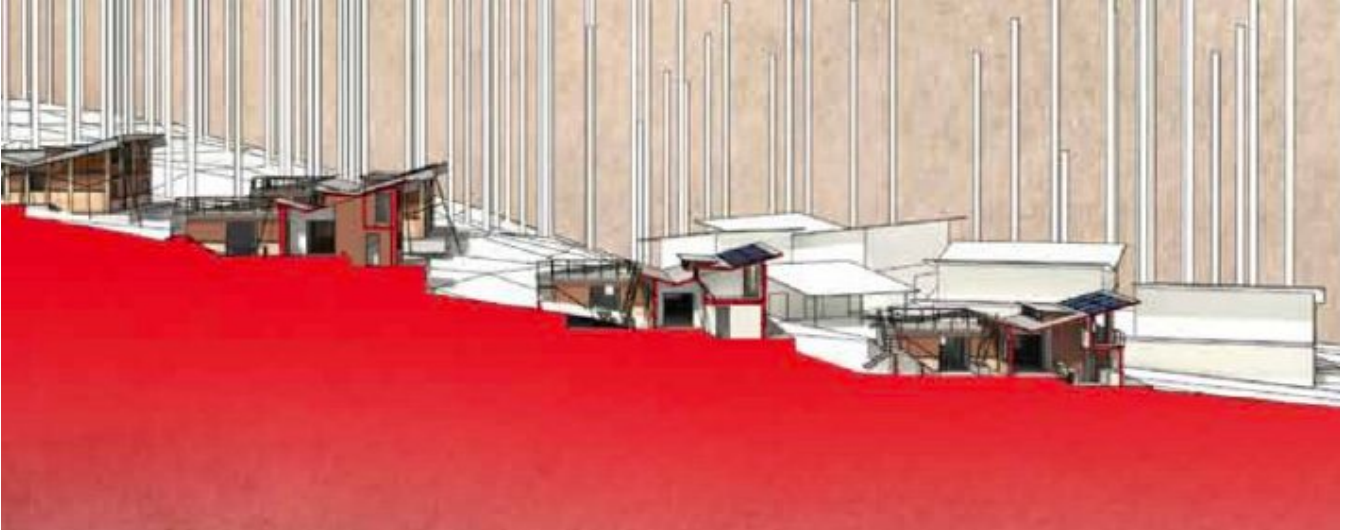
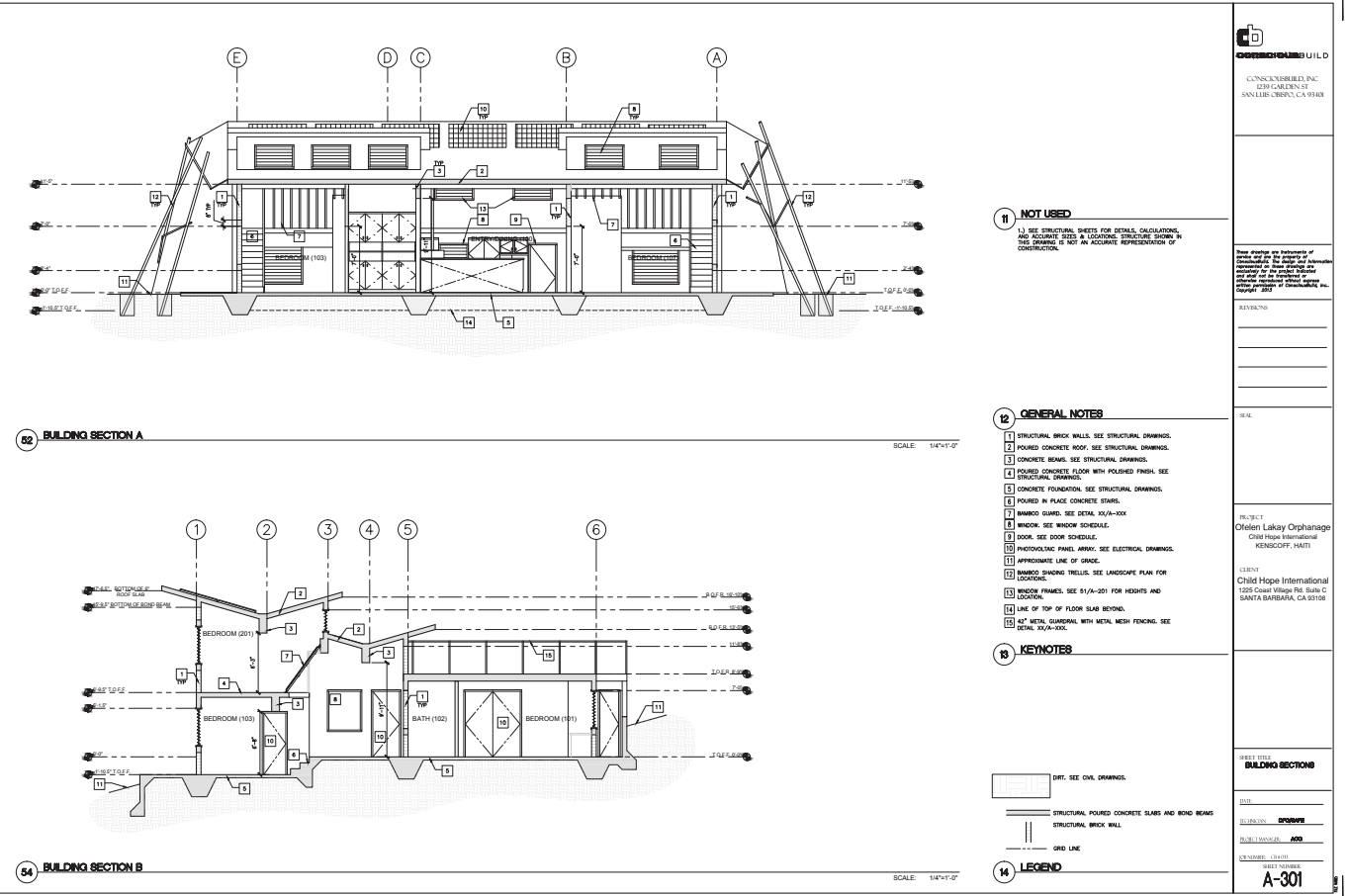


In addition to the more technical drawing, feel free to add more stylized elevations like the examples below:



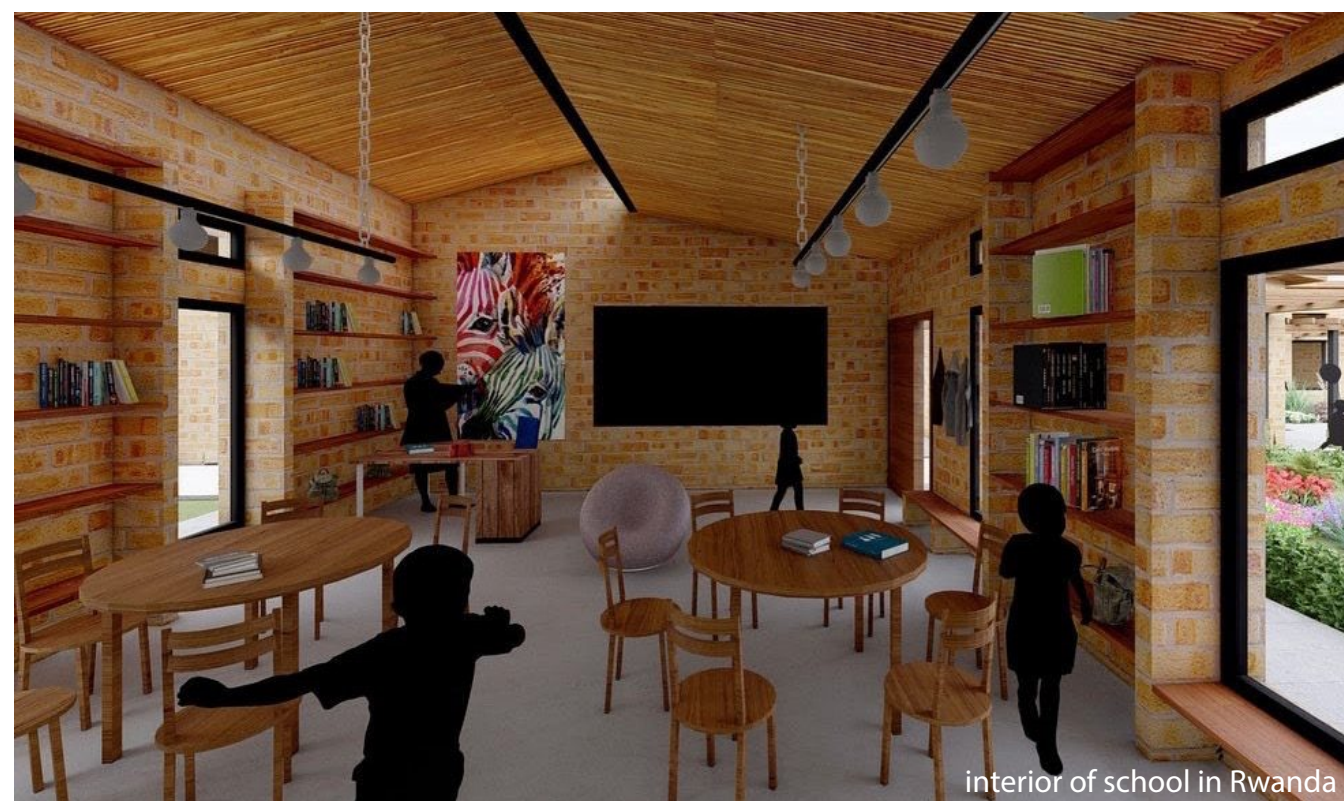
SECTIONS

Within your CAD file, create detailed sections that include dimensions, structural connections, and important keynotes.



RENDERINGS

Realistic renderings are an incredibly powerful asset for both fundraising and providing your client with a realistic representation of the end product. Renderings can be used with site plans, elevations, sections, or together in combination. Be creative and design renderings that will impress your client and potential donors.



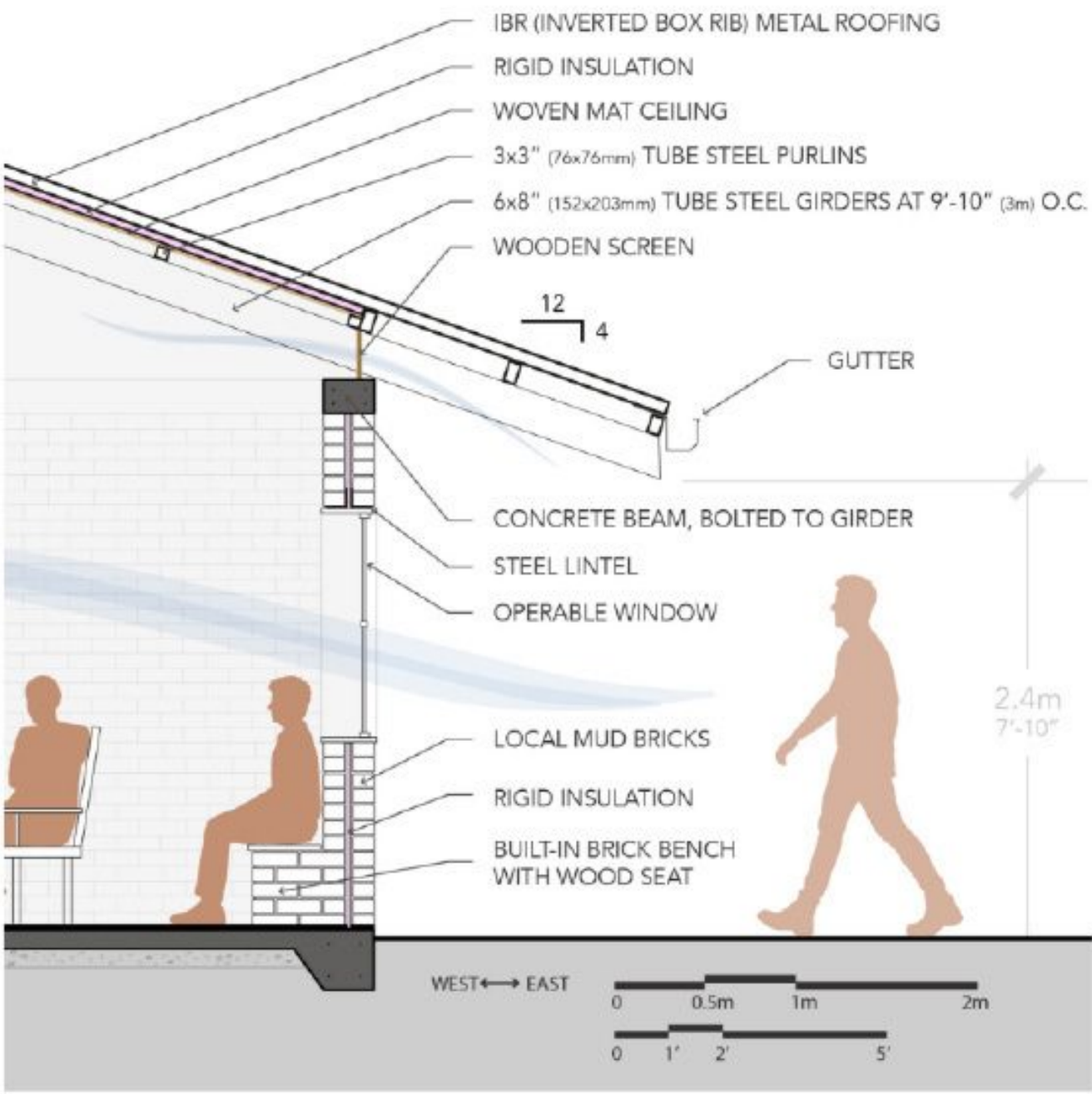
exterior renderings of community center in Rwanda



J1 DELIVERABLE #18
3D Renderings

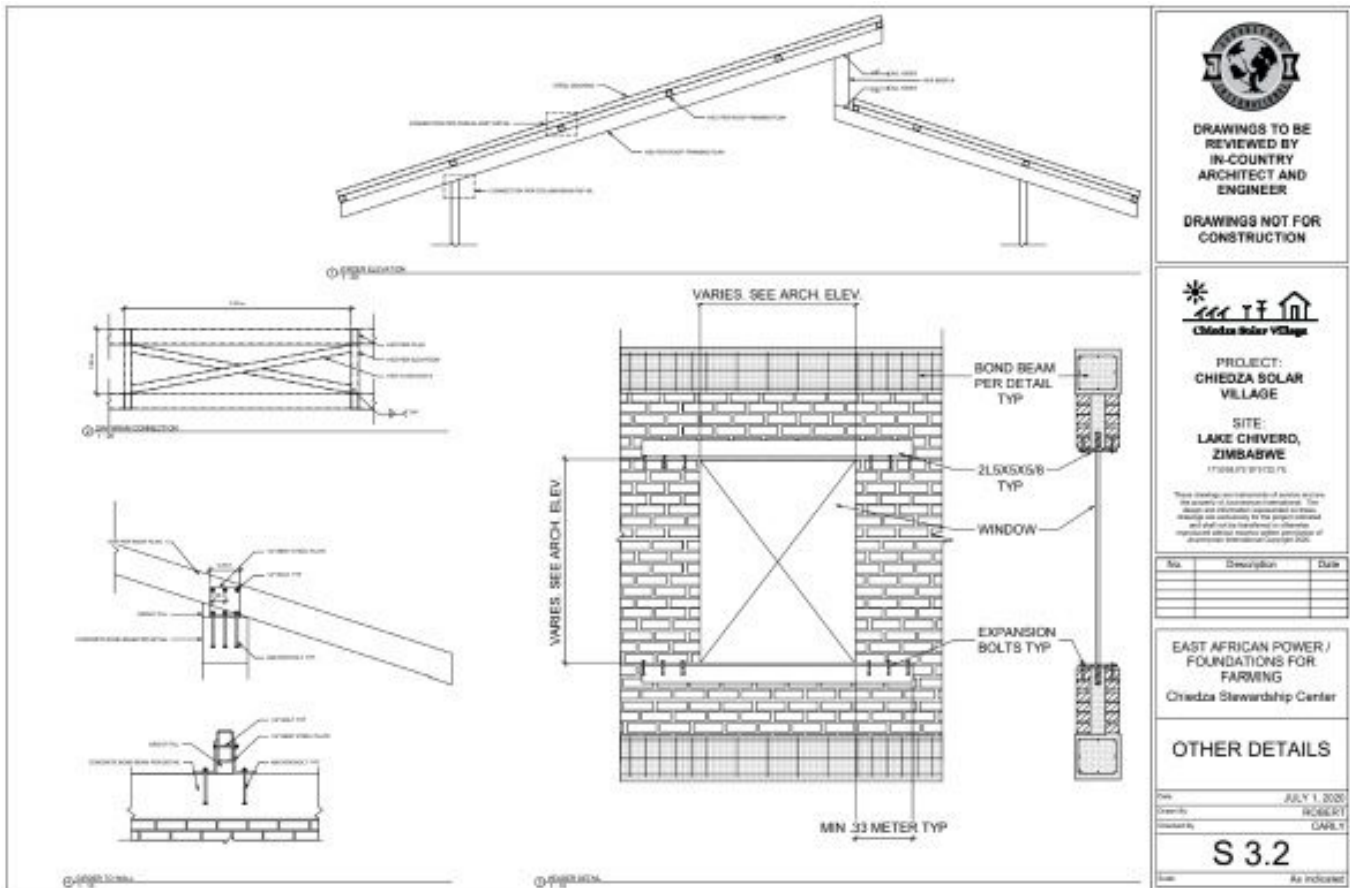
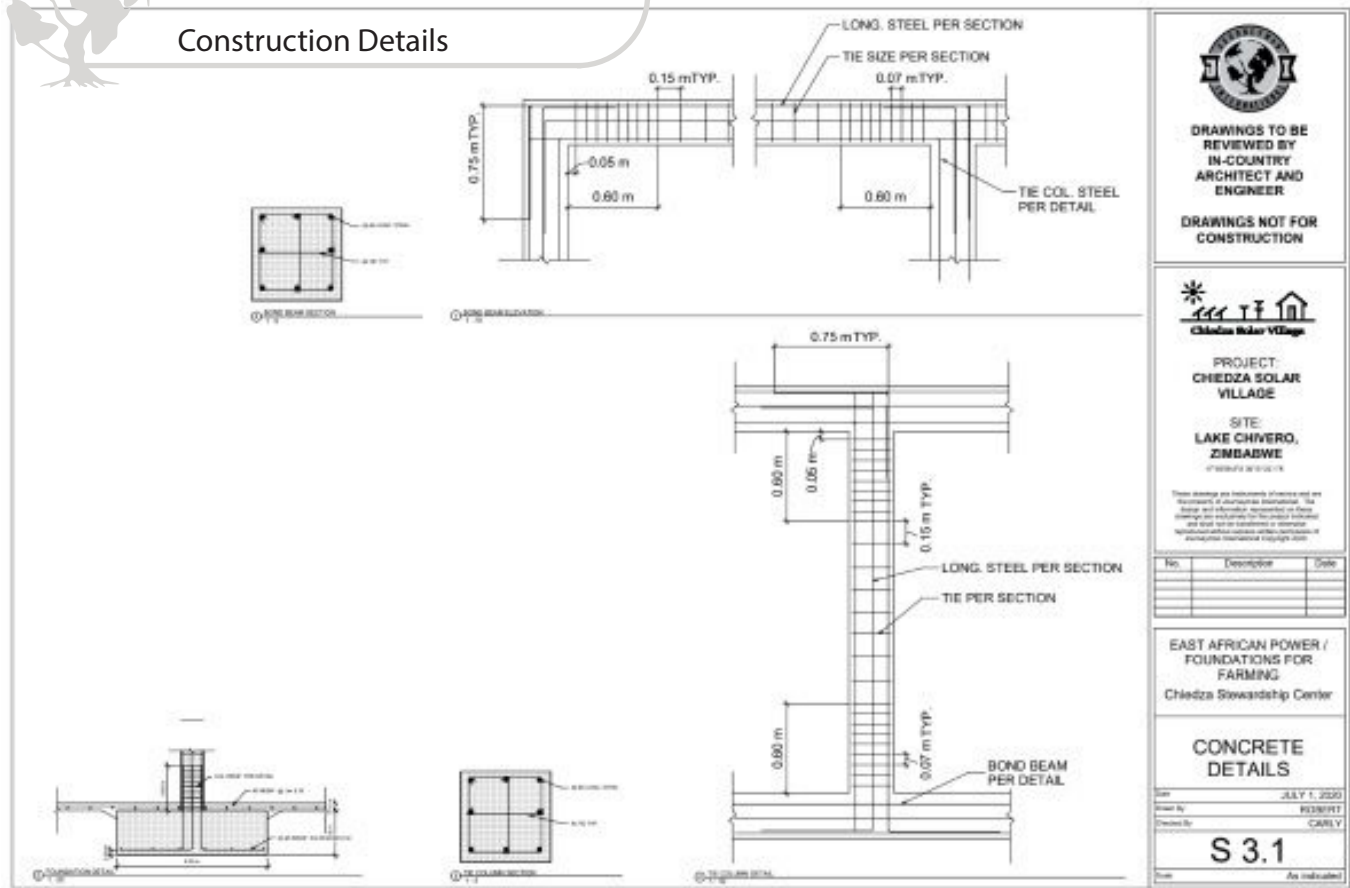
DETAILS

Construction detail drawings are possibly the most important tool of communicating construction methods and specifying certain materials to be used. You must take local building strategies into account and draw your details in a way that can be clearly interpreted by someone from the project's country. Ideally, you will be generating these details in partnership with a local engineer or construction expert.



JI DELIVERABLE #19

Construction Details





JI DELIVERABLE #20
Physical Models

PHYSICAL MODELS

Physical models are not always required for Journeyman projects, but they are an excellent tool in understanding how a building physically comes together and can be used to experiment with structural assemblies at a small scale. If you have the materials and resources, we encourage you to build a realistic physical model of your site, including all structures, supporting facilities, parking, pathways, outside lighting and any other important features in your design. Provide quality photos of your model.



It's finally time to compile your final design! The following section will guide you through the required process for professionally representing your final product. At this stage, you should feel confident in your knowledge of the site, region, people, local utilities and your architectural design. The final design section is the most critical — this is where you will be collaborating the most with the local construction team!

BUILD

BUILDING IN A VULNERABLE CONTEXT

By working on a project with JI, you have the opportunity to participate in building a more resilient infrastructure in this community. Depending on the project's location, there may be many risks, hazards, and sensitivities that you need to be aware of. For example, the site could be in a conflict zone or a typhoon-prone area. It could be in a setting with extreme seasons and very limited natural resources. You must be sure to take these things into account when you are communicating your design to local construction experts.

Below are helpful tips to remember when building in developing or humanitarian situations...

- Think about what risks are related to the DESIGN of the facility. How can architecture help to mitigate the hazards?
- You cannot prevent disaster, but you can create a space that is RESILIENT to it. What might help people recover more quickly and independently from crisis?
- There might be very limited resources and expertise locally, so you may need to be CREATIVE with what you have available to you in your design process. Take cues from traditional building techniques, as these are usually the most climate-responsive and culturally appropriate.
- Take note of the cost and availability of local construction labor. Training workers and building capacity is important, but it comes at a COST. Be mindful of how much time and resources this will take.
- It may not be pleasant, but try to think through every possible worst-case SCENARIO so that you might be prepared for whatever might disrupt the construction process. Seasonal storms, land disputes, political upheaval and more could potentially prevent your design work from being carried out.
- Be prepared for DELAYS. Sometimes things happen, funding dries up for a time, or priorities need to shift, and the project might not be fully completed until years later. Don't be discouraged, and stay committed.
- Always lean towards TRUSTING the local experts to build how they know best. Try to work in collaboration with local professionals during the design process, and when it comes to implementing it will be easier to trust in their knowledge. Only intervene if you notice a serious safety hazard.





SITE ENGINEERING AND GRADING ANALYSIS

Gathering accurate site information is critical not only for your design, but also for project budgeting. There is a high likelihood that excavation and compaction equipment is not available in your project region. Site due diligence will outline the boundary and feasibility parameters for you to design within. Analyze the following considerations, then provide a detailed write-up on your site and required earthwork. Create a site plan and denote critical site information:

- Ascertain and review the site survey, geotechnical and hydrological reports. If these documents do not exist, coordinate with your NGO to select a theoretical or potential future site with expected conditions.
- How much constructible square footage is currently available on the site?
- What types of earthwork equipment are available in the region?
- What are the stormwater runoff concerns?
- What is your soil type at surface level and 1 foot intervals going down 5 feet.
- Is a perimeter fence installed or desired? Will slope or bedrock impact the perimeter fence?
- If your site has expansive soil, how does your design account for this?
- Assess environmental, social, and economic conditions related to project site.



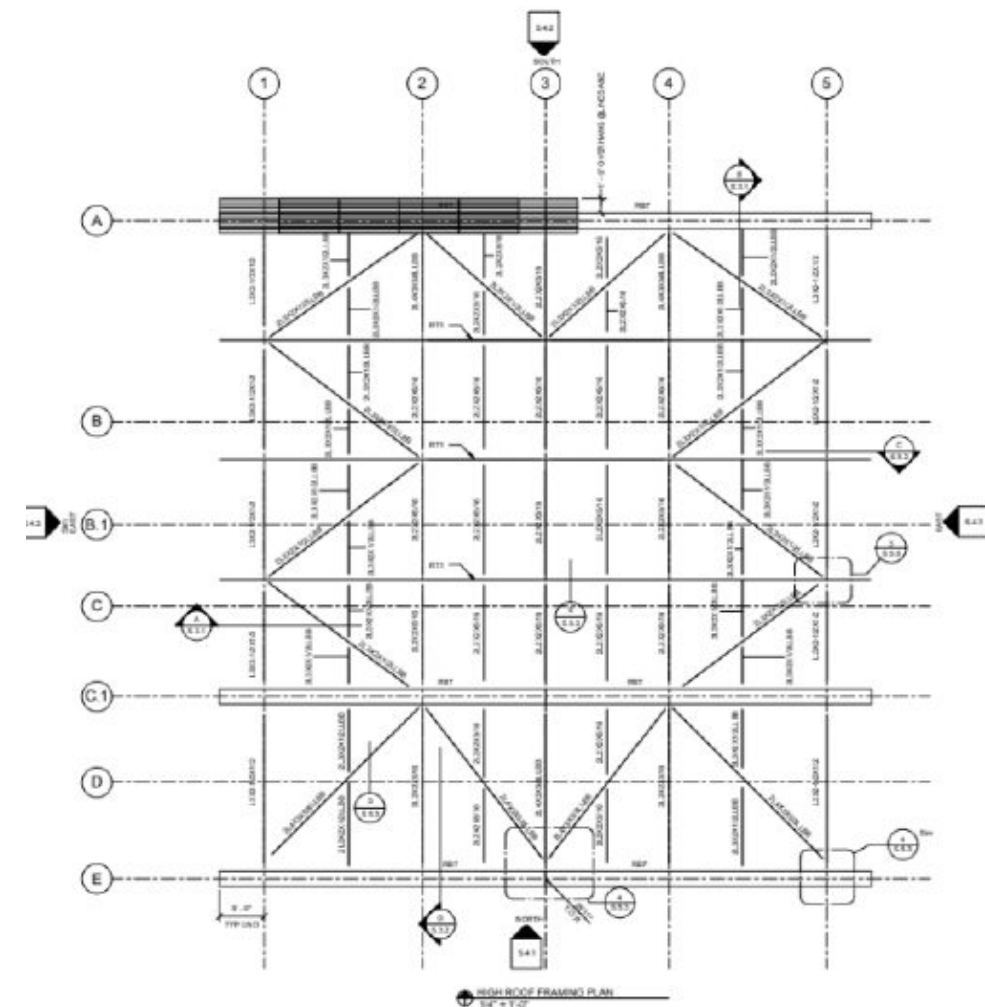
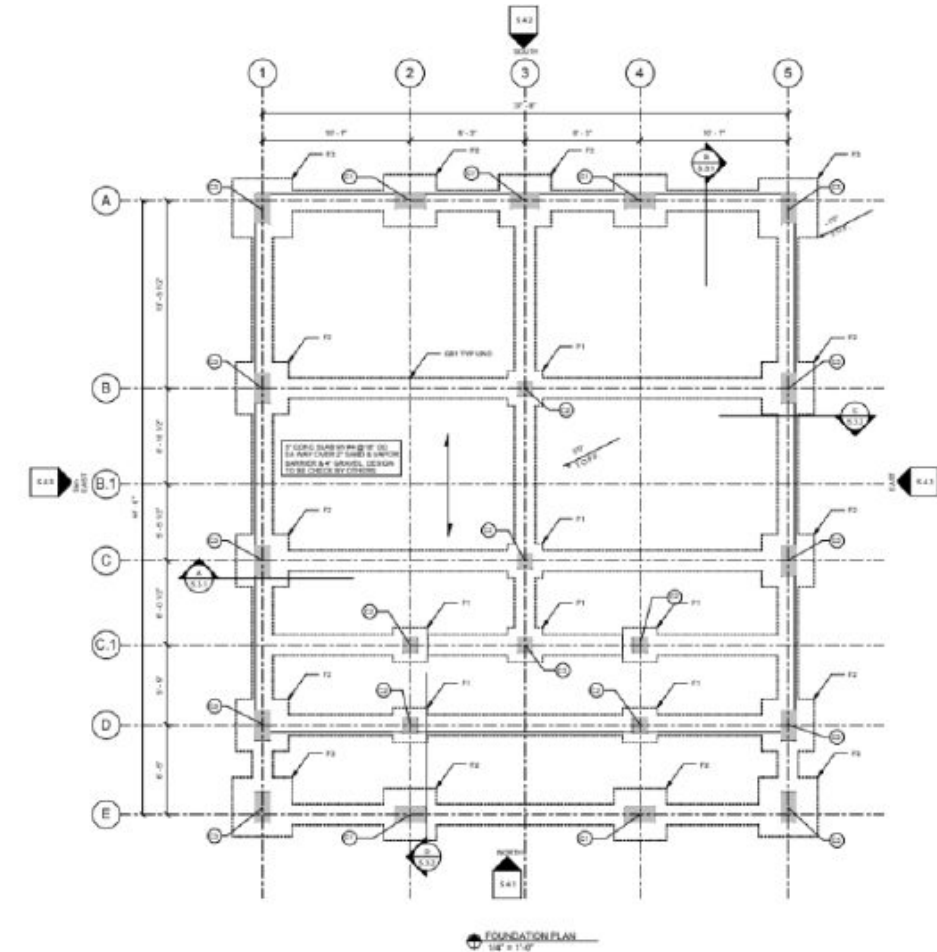
JI DELIVERABLE #22
Site and Grading
Research Analysis

STRUCTURAL SYSTEM

After the conceptual stage of design, we will generate basic drawings that clearly communicate the structural system we propose to the client. These drawings should be generated in close collaboration with the local builder or engineer to ensure that they are understood by the construction team. Sometimes the way we communicate technical information varies vastly from one culture to the next, so we must take care to ensure proper hand-off. For example, builders in one country might use small physical models to demonstrate a structural system while others use full scale mock-ups. When you are studying your context, be sure to inquire about how engineers illustrate technical ideas.



STRUCTURAL DRAWING EXAMPLE



REGIONAL, LOCAL AND SITE UTILITIES

The type of local utilities and access to them will shape both the construction process and the ultimate design. Recognizing available utilities, both temporary and permanent, is critical before you commence final design. Consider the lists below and provide a detailed analysis on local and site utilities.

Compile all information into a write-up on electrical, water, sewer, telecom, gas utility availability, and proposed systems. Your write-up should include the categories as shown on the following page:

WATER

1. Is connecting to city water possible and legal?
2. Is drilling a well possible and legal? What depth is the water table at each season of the year?
3. If neither city water nor a well is possible, can potable water be brought in? If so, the design needs to incorporate a cistern, preferably gravity-fed (often placed on the roof).
4. What water source will be available during the construction process?

WASTE

5. Is city sewer connection possible and legal?
6. Are septic tanks and pumping services available?
7. Are leach fields legal and feasible?
8. Will temporary toilet facilities need to be provided during construction?
9. How do people currently deal with waste water around the site?

ELECTRICAL:

1. Is an electrical connection possible and legal?
2. What voltage and amperage is available?
3. Will permanent power be available during construction? If not, will generators be available?
4. Will the electrical service be underground or overhead?

TELECOM:

1. Are telephone and internet services available?
2. If new electrical services are being brought in, can telecom be brought in at the same time?

GAS:

1. Are natural gas or propane services available? If not, can you omit this need from your project?



CONSTRUCTION ESTIMATE

With a bit of research and these rules of thumb, we are confident you can create an accurate estimate. First off, you need to recognize if you are creating a ‘conceptual estimate’ or a ‘final construction estimate’, as they require very different strategies.

Conceptual Estimate

A conceptual estimate is just that—conceptual. It is based upon a design that has not been finalized. This design may still have many unknowns, such as land conditions, materiality and final shape. If we obtain certain valuable pieces of information, it is possible to create an accurate estimate even with a conceptual design. To obtain this information, we encourage you to research construction costs in your country. Ask your client about construction costs and find a local architect or engineer to discuss this with. Below is a list of critical information needed:

- Square footage of facility
- Typical price per square foot (sf) in your particular country for this type of construction (i.e.: \$40/sf for single story residence, \$50/sf for two story medical office, etc.)
- Approximate percentage breakdown of construction scope (i.e.: 8% for concrete, 5% for finishes, 7% for plumbing, etc.)
- Currency conversion from U.S. dollars

Once you have obtained this information, insert the data into the Journeyman Conceptual Estimate Spreadsheet. After your information is inserted, the spreadsheet will create a full cost breakdown for your project! Below is an example of the Conceptual Estimate Summary.



JI DELIVERABLE #24

Conceptual Estimate

SOHIP Community Center Conceptual Estimate Summary Prepared by: Journeyman International											
DIVISIONS	SCOPE	(1) Bungalow	The Office	Bike Shop	Kitchen	Classrooms	Water Lab	Metal and Wood Shop, Auto Shop, Bio and Factory	Student Dormitory	Mission Dormitory	Site Finishes (eg. unit, amphitheatre, etc.)
DIVISION 1	GENERAL CONDITIONS	\$4,666	\$11,444	\$8,250	\$11,550	\$12,038	\$9,148	\$29,700	\$28,298	\$16,832	\$30,800
DIVISION 2	SITE WORK	\$2,651	\$6,503	\$4,688	\$6,563	\$6,840	\$5,198	\$16,875	\$16,078	\$9,564	\$92,400
DIVISION 3	CONCRETE	\$1,273	\$3,121	\$2,250	\$3,150	\$3,283	\$2,495	\$8,100	\$7,718	\$4,591	\$0
DIVISION 4	MASONRY	\$1,485	\$3,641	\$2,625	\$3,675	\$3,830	\$2,911	\$9,450	\$9,004	\$5,356	\$7,000
DIVISION 5	METALS	\$848	\$2,081	\$1,500	\$2,100	\$2,189	\$1,663	\$5,400	\$5,145	\$3,060	\$0
DIVISION 6	CARPENTRY	\$954	\$2,341	\$1,688	\$2,363	\$2,462	\$1,871	\$6,075	\$5,788	\$3,443	\$0
DIVISION 7	THERM.&MOIST.PROTECT	\$530	\$1,301	\$938	\$1,313	\$1,368	\$1,040	\$3,375	\$3,216	\$1,913	\$1,400
DIVISION 8	DOORS & WINDOWS	\$848	\$2,081	\$1,500	\$2,100	\$2,189	\$1,663	\$5,400	\$5,145	\$3,060	\$0
DIVISION 9	FINISHES	\$2,015	\$4,942	\$3,563	\$4,988	\$5,198	\$3,950	\$12,825	\$12,219	\$7,268	\$0
DIVISION 10	SPECIALTIES	\$1,061	\$3,641	\$1,875	\$2,625	\$2,736	\$2,079	\$6,750	\$6,431	\$3,826	\$0
DIVISION 11	EQUIPMENT	\$530	\$260	\$938	\$1,313	\$1,368	\$1,040	\$3,375	\$3,216	\$1,913	\$0
DIVISION 12	FURNISHINGS	\$106	\$260	\$188	\$263	\$274	\$208	\$675	\$643	\$383	\$0
DIVISION 13	SPECIAL CONSTRUCTION	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
DIVISION 14	CONVEYING SYSTEMS	\$212	\$520	\$375	\$525	\$547	\$416	\$1,350	\$1,286	\$765	\$0
DIVISION 15	MECHANICAL WORK	\$1,909	\$4,682	\$3,375	\$4,725	\$4,925	\$3,742	\$12,150	\$11,576	\$6,886	\$4,200
DIVISION 16	ELECTRICAL	\$2,121	\$5,202	\$3,750	\$5,250	\$5,472	\$4,158	\$13,500	\$12,863	\$7,651	\$4,200
Check		TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
Building Multiplier (multiplies of certain facilities)		5				3					
Total US Dollars		\$106,050	\$52,020	\$37,500	\$52,500	\$164,160	\$41,580	\$135,000	\$128,625	\$76,510	\$140,000
Total Kwacha		\$130,229	\$319,403	\$230,250	\$322,350	\$335,981	\$296,881	\$828,900	\$789,758	\$469,771	\$859,600
US \$/ SF		\$30	\$30	\$25	\$35	\$30	\$30	\$30	\$35	\$33	\$7
Kwacha/SM		\$1,658	\$1,658	\$1,382	\$1,934	\$1,658	\$1,928	\$1,658	\$1,934	\$1,934	\$387
GRAND TOTAL US		\$933,945									
GRAND TOTAL KWACHA \$:		\$4,583,123									

CONSTRUCTION SCHEDULE

Understanding and being able to create construction schedules and estimates are an invaluable skills for any designer. Your schedule will be a result of educated guesses, personal experience, and industry support (hopefully from within the country). We strongly recommend that you use software geared for construction scheduling. Below is a list of important terms to understand and data to collect. The following pages also include an example schedule.

Important Terms

- Activity: An activity is the specific construction activity being scheduled. We suggest at least 50 activities for a schedule.
- Duration: The duration is the allotted time for the activity.
- Predecessors: Predecessors are activities that must be completed prior to another activity commencing. i.e. drywall is a predecessor to painting.
- Successors: Successors are activities that cannot start until another activity finishes (i.e.: painting is a successor to drywall).
- Milestones: Milestones are not activities, but particular targets to achieve (i.e. obtaining a building permit).

Data to Collect

- What is your client’s desired timeline for this project?
- What labor and equipment is available for this project?
- What natural forces can affect your schedule?
- What do local professionals suggest as a viable timeline for this project?

Example of construction schedule on the following page...



JI DELIVERABLE #25

Construction Schedule

CONSTRUCTION SCHEDULE EXAMPLE

Here is an example of a construction schedule that a JI volunteer created for our partner nonprofit in Haiti. As you can see, the designer has organized the project around phases of the project, highlighting milestones and identifying critical paths. If you have minimal experience in this process, you can find user-friendly scheduling software and tutorials online with a quick Google search.

As you create your schedule, remember to check in with your client/local construction expert to verify that the schedule can be translated and understood effectively in your project context.



HAZARD & RISK MITIGATION

Every project site has a number of hazards and risks. As a consultant to a owner (as you are with JI), it is important to recognize and address all potential hazards and risks. Using the list below as a guide, analyze at least 4 of the greatest risks and hazards for your project, and provide strategies for mitigating these risks:

- Legality of Land Situation (concerns regarding leases, title ownership, etc.)
- Natural Disasters
- Crime (both during construction and after completion)
- Site Specific Risks
- Contract Concerns
- Corruption
- Liability (both during construction and after completion)
- Reliability of Local Construction Managers and Materials



JI DELIVERABLE #26

Hazard Mitigation Plan

EXAMPLE OF A RISK ANALYSIS

Threats to the orphanage: earthquake

Earthquakes are always a possibility in Guadalajara, even though no major earthquake has occurred here in decades. The fact of the matter is, all of Mexico is a seismic zone. Guadalajara sits on a bed of xal, a type of rock that diminishes seismic waves, much as ball bearings in a car reduce friction. In the 1985 Mexico City earthquake, houses in Guadalajara shifted a bit and there were cracks in some walls, but the city escaped the major damage seen in the capital and in Jalisco cities, such as Ciudad Guzman. The quake of October 1995 off the Pacific coast rocked both Jalisco and Colima, but only coastal towns such as Manzanillo and Cihuatlan were damaged. *Some geologists, however, don't buy into the general optimism about local seismic risks. Guadalajara sits near two major tectonic plates (the Placa de Garcia and Placa de Cocos) which is a recipe for disaster.



CONSTRUCTION SAFETY PLAN

Create a site-specific construction safety plan. Assume this document will be the primary safety plan used for all construction workers. In addition to generic construction safety protocol (PPE, etc.) provide site-specific safety concerns and directions. For example, if your site has a section of contaminated soil, provide specific directions on how to safely work with and around this area.

EXERPT OF A CONSTRUCTION SAFETY PLAN

General safety requirements

All safety rules must be obeyed. Failure to do so will result in immediate dismissal from the jobsite.



JI DELIVERABLE #29

Construction Safety Plan

1. Head protection will be worn on job sites at all times by all trades.



MANAGING STORMWATER RUNOFF AND POLLUTION

Create a site-specific stormwater pollution prevention plan (SWPPP). Assume this document will be the primary SWPPP used for the project. In addition to generic SWPPP protocol (filter fabric around drain inlets, etc.) provide site-specific stormwater runoff concerns and mitigation strategies. Keep in mind that it is possible your construction has never practiced stormwater pollution prevention. Provide basic instructions of implementation and the reasons why.

1.0 SWPPP Goals

tained

in stormwater discharges and to properly contain construction related contaminants. Due to the steep location of the site, stormwater protection and control will be crucial not only for the affected river below, but also for the safety of the orphanage facility and it's occupants.

This Stormwater Pollution Prevention Plan (SWPPP) will provide the E.C.Tonala Orphanage with the tools to reduce pollutants con-



JI DELIVERABLE #30
Stormwater Pollution
Prevention Plan

APPENDIX

FOLLOW UP QUESTIONS

At this point you have probably already gone to your site, or gotten more in-depth with your designs. I think it might be worth taking a step back and asking deeper questions about your design rationale. Remember when you talked with your Humanitarian Partner and consider what they have shared with you. You got this, let's just take a breather. Below is an example of some questions we feel can be adapted as you reflect yourself. Consider these as you move forward.

- How does the design promote safe, inclusive spaces for learning and dialogue?
- How does the design promote sustainability learning in its form and construct?
- How is the design/buildings leading sustainability (in Guatemala? in the world)??
- How does the design include the community while maintaining safety for participants/users?
- How can the design be accessible, inviting and inclusive across all traditional divides (class, race, language etc)

There are some design considerations that I don't feel are as relevant

Example:

- How is the design considering the large stock of kids from teenage mothers? How do we keep the project accessible, interesting and desirable for the youth bulge/low-income rural youth?
- What type of activities do young adults enjoy?
- How can the building positively impact the unemployment rate of Guatemala? How can the design demonstrate skills and techniques that are practical and useful for building more resilient, sustainable communities?
- What is the project's goal for tourism? How can the project use existing industries and/or create new industries that align with its purpose, such as eco-tourism?
- How is the design positively impacting malnutrition rates? How is the design demonstrating and teaching ways to sustainably and nutritiously feed the world?
- Are there any sugar cane or coffee byproducts that can be used? How is the design making innovative use of surrounding industry by-products such as sugar cane and coffee?

Conclusions

How do your first observations relate to your preliminary research and findings?

Do you have a better sense of what the site might need?

What additional questions do you have about your site?

How do you think your site connects with other systems?

Which are the next steps to follow?

What are the natural systems and how do they relate to people? How is everything interlinked?

GLOSSARY OF TERMS

Conceptual Estimate: The practice of calculating an approximate cost estimate for a particular project before all details are known. Conceptual estimating takes in the big-picture view.

Final Construction Estimate: An accurate estimate of project expenses based upon detailed architectural drawings, historical cost data, and quotes from subcontractors and subconsultants.

Feasibility Analysis: An evaluation and analysis of the potential of a proposed project which is based on extensive investigation and research to support the process of decision making.

Intern Development Program (IDP): NCARB’s Intern Development Program (IDP) is the standard accepted means of completing the experience requirement in almost all U.S. jurisdictions prior to becoming a licensed architect.

Infographic: Graphic visual representations of information, data or knowledge intended to present complex information quickly and clearly. They can improve cognition by utilizing graphics to enhance the human visual system’s ability to see patterns and trends.

LEED: A set of rating systems for the design, construction, operation, and maintenance of green buildings, homes and neighbourhoods.

National Council for Architectural Registration Board (NCARB): A nonprofit corporation comprising the legally constituted architectural registration boards of all 50 states.

NGO: A non-governmental organization that is neither a part of a government nor a conventional for-profit business. Usually set up by ordinary citizens, NGOs may be funded by governments, foundations, businesses, or private individuals.

Potable Water: Water that is clean enough for human consumption.

Program: The thorough and systematic evaluation of the interrelated values, goals, facts, and needs of a client’s organization, facility users, and the surrounding community. A well-conceived program leads to high-quality design.

Renderings: The art of creating two-dimensional images or animations showing the attributes of a proposed architectural design.

Schematic Design: An initial design scheme that seeks to define the general scope and conceptual design of the project including scale and relationships between building components. At the end of the schematic design phase the architect will present some very rough sketches to the owner for approval.

Vernacular: A category of architecture based on local needs and construction materials, and reflecting local traditions. It tends to evolve over time to reflect the environmental, cultural, technological, and historical context in which it exists

Humanitarian Design: Humanitarian design focuses on working with individuals lacking basic human needs such as food, water, shelter, and safety, particularly in response to natural disasters, extreme/absolute poverty, and war-torn areas.

Adaptive Reuse: The process of reusing a site or building for a purpose other than the original purpose for which it was built or designed.

Adjacent properties: Properties or developments that share a property line with the project.

Black-water: Discharged water containing solid and liquid human wastes from toilets and urinals.

Brownfield: With certain legal exclusions and additions, the term “brownfield site” means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Brownfields are designated as such by the EPA, or equivalent State, County or other jurisdictional body.

Chemical Abstracts Service (CAS) Number: A unique numerical identifier for nearly every known chemical, compound or organic substance.

Closed Loop Water Systems: Systems in which all water used on a project is captured, treated, used/reused and/or released within the boundaries of the project area.

Combustion: Any burning or combustion of fossil fuels or wood products.

Consumables: Non-durable goods that are likely to be used up or depleted quickly. Examples include office supplies, packaging and containers, paper and paper products, batteries and cleaning products.

Deconstruction: The systematic removal of materials from a building or project for the purposes of salvage, reuse and/or recycling.

Diverted Waste: All items removed from the project, including materials that are recycled, reused, salvaged or composted.

Dune: A sand hill or sand ridge formed by the wind, usually in desert regions or near lakes and oceans.

Durables: Goods that have utility over time rather than being depleted quickly through use. Examples include appliances, electronic equipment, mobile phones and furniture.

Energy Needs: All electricity, heating and cooling requirements of either grid-tied or off the grid systems, excluding back-up generators.

Floor Area Ratio (FAR): FAR = Gross Building Area / Total Project Area

Forest Stewardship Council (FSC): An independent, non-profit, membership-led organization that protects forests for future generations and sets standards under which forests and companies are certified. Membership consists of three equally weighted chambers— environmental, economic, and social—to ensure the balance and the highest level of integrity.

Greyfield: A previously developed property that is not contaminated to the level of a brownfield.

Greenfield: Land that was not previously developed or polluted.

Grey-water: Water discharged from sinks, showers, laundry, drinking fountains, etc., but not including water discharged from toilets and urinals.

Halogenated Flame Retardants (HFRs): HFRs include PBDE, TBBPA, HBCD, Deca-BDE, TCPP, TCEP, Dechlorane Plus and other retardants with bromine or chlorine.

Land Trust: A nonprofit organization that, as all or part of its mission, actively works to conserve land by undertaking or assisting in land or conservation easement acquisition, or by its stewardship of such land or easements.

Landscape Succession: The gradual evolution of vegetation towards a more complex and ecologically appropriate state.

Manufacturer Location: The final point of fabrication or manufacture of an assembly or building material.

FAQ

DOES THE JI PROGRAM ONLY WORK IN Resource-constrained contexts?

- No. Although most projects have been designed for resource-constrained contexts, JI will adopt projects anywhere that has humanitarian needs.

IS THERE A FEE FOR THIS SERVICE?

- The JI team feels strongly that all parties involved on projects need to have some 'skin in the game'. Therefore, there is typically a small suggested donation we ask from humanitarian organizations, and an agreement to cover some site visit expenses. Specifics are arranged with an MOU agreement upon project acceptance.

WHAT IS THE TIMELINE FOR DESIGN WORK?

- The design timeline depends on the timeframe of the designer and the scope of the project. For example, a more conceptual design may take a few months, whereas more in-depth construction specifications will add up to 6 months to the conceptual stage.

WHAT HAPPENS WHEN THE DESIGN TEAM FINISHES? WHO CARRIES ON WITH THE PROJECT?

- Volunteers are given a thorough design guideline that if followed completely, produces a detailed project proposal (design books as seen on our website) and 'preliminary construction drawings'. This, however, is only the first step in completing a successful construction project. Once the volunteers have completed their work, the Humanitarian Partner is responsible for obtaining professionals (in the project's country) to prepare the project for implementation. The JI program does not completely prepare projects for construction.

IS EVERY PROJECT, DESIGNER AND MENTOR ACCEPTED INTO THE PROGRAM?

- No. All projects and volunteers are screened to ensure projects are worthy, and volunteers meet our criteria (experience, talent, passion for humanitarian work, time availability, etc.)

WOULD THE JI PROGRAM BE A GOOD FIT AT MY UNIVERSITY?

- The JI Curriculum was developed with the intent of fitting into a university curriculum, as well as being applicable to professional volunteers. Professors have the ability to adopt the JI Program, and modify or adjust deliverables as they see fit. If the program fits within a professor's existing systems, it can be a fit for the university. Contact us with further questions.

WHAT ARE JI'S METHODS OF QUALITY CONTROL?

- The JI team does not personally manage quality control from start to finish on a project, but our platform was developed with multiple levels of quality control prior to a project being constructed.
- We screen and select only high-quality, committed designers.
- We provide designers with a detailed curriculum that guides them through the design process for resource-constrained contexts and is filled with examples of our standards of quality
- JI coordinates industry professional mentors to critique volunteer designs and work with them throughout the design process.
- All project designs are reviewed and approved by in-country design, engineering, and construction professionals. JI provides clients with guidelines on what to look for and how to select these professionals.

DISCLAIMERS

- Not a licensed professional service: While JI connects some of the world's top design volunteers and coordinates layers of quality control, it is important to remember that JI is not a locally-licensed firm in the project's country. Designers are not always certified professionals, and they are not being paid for this work. While the JI program provides a curricular structure with levels of oversight, the resulting outcome cannot be guaranteed. We encourage you to review the 'projects' section of our website to see previous projects. By selecting quality designers and overseers, past partners have been thrilled with the product result. However, a satisfied result cannot be guaranteed.
- Design liability: Journeyman International, including volunteers, universities, and mentors hold no liability regarding project designs. All design and engineering work is to be reviewed, modified and approved by legal professionals in the country where the project is located.
- Not 'construction-ready' documents: The JI program results in two final deliverables: a) a design book (as seen on the projects page), and b) preliminary construction drawings. It is important to note that these construction drawings are preliminary, and are NOT construction-ready. These documents are created as a concept to support the in-country professional that will be creating the construction-ready drawings.