Design Construction Networks

Who Builds Your Architecture? (WBYA?)

Abstract
This visual essay diagrams a global design construction network that connects architects to migrant construction workers in a direct line. A hypothetical stadium construction site lies in the center; one side maps the movement of a steel truss from design to fabrication to a building site; the other side charts the path of migrant workers as they travel from villages to this construction site. Detailed scenarios outline the work of different actors on both sides, and additionally highlight challenges faced by migrant construction workers and where solutions might intervene. By connecting architects and workers the essay points to visible as well as sometimes hidden economies of architecture, and asks: What are the architects' ethical responsibilities towards those who erect their buildings around the world? The essay further opens up a theoretical trajectory that seeks to understand the underlying and often unequal systems that structure today's architecture and construction.

Affiliation
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DOI
10.17454/ARDETH03.11

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1 - WBYA? is
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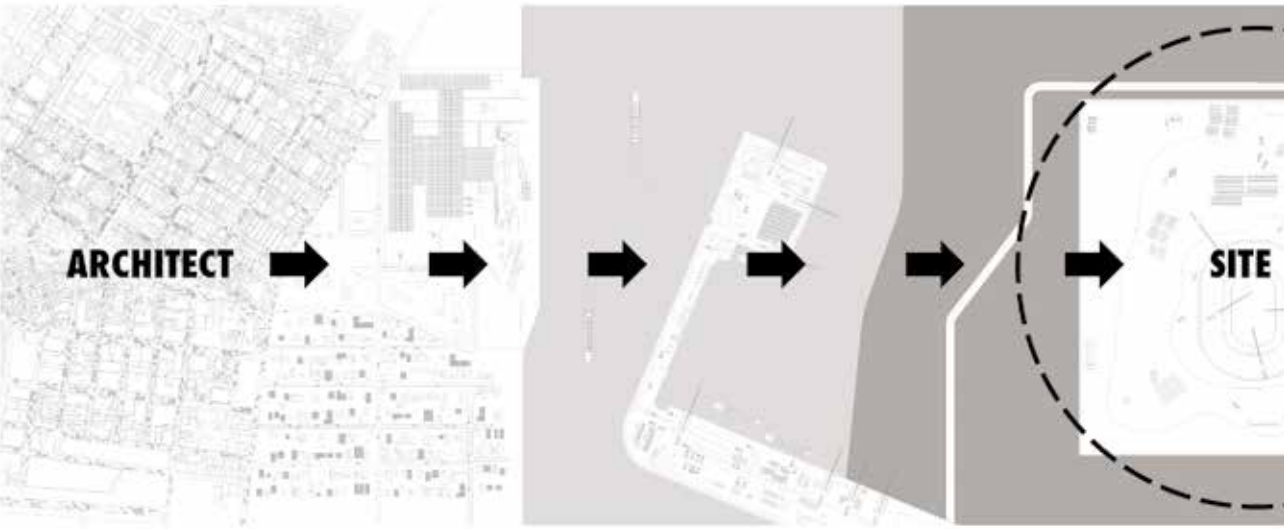
Global capitalism has expanded the scope and scale of the building industry to form an expansive supply chain – a vast network of manufacturers, suppliers, and builders whose operations are aided by digital technologies and facilitated by transportation systems connecting most regions of the world. It employs an array of actors linked via legal and professional relationships – architects, construction managers, engineers, contractors, consultants, clients, financiers, and construction workers. This has led to the atomization and dispersion of fields related to the design and construction of buildings, and the proliferation of contracts and agreements that bind them together, or separate them, with additional underlying exploitative practices that exist outside or within these expansive these networks.

Since the 1970s, the liberalization of economies has propelled the movement of capital and labor to new markets around the world. These globalized connections of production have spawned economic lifelines, as families and home nations depend upon the remittances sent back by legions of migrant workers. As the number of workers seeking employment in other parts of the world has increased exponentially, so has their exploitation and abuse through predatory recruitment networks and unsavory employers seeking to maximize profit by reducing wages and expanding work hours. The construction industry has taken advantage of these labor trends by contracting seasonal and short-term workforces from abroad – a labor procurement practice ideal for the one-time-only, site-specific nature of building projects. Migrant construction workers often face unscrupulous conduct by recruitment firms, subcontractors, and local authorities – each jockeying to extract a bigger cut of the workers' salaries. Within the vast global supply chains and complex building processes, architects and migrant construction workers end up at the opposite ends.

In this visual essay, we diagram a design construction network that connects architects to migrant construction workers in a direct line through a construction site. A hypothetical stadium construction site somewhere in the Middle East is in the center; the left side maps the movement of a steel truss from design to fabrication to a building site; and the right side charts the paths of migrant construction workers as they travel from their villages to job sites. In the following pages, descriptive captions include challenges faced by migrant construction workers as well as speculations on where solutions might intervene. By connecting architects and workers the essay raises critical questions, such as: What are the architects' ethical responsibilities towards those who erect their buildings around the world? Where do these construction workers come from, where do they live and what does architecture demand from them? How do new technologies transform construction methods as well as communication? Or workers' rights? Or site oversight? How can architects promote fair labor practices?

Along with these questions, the essay also opens up a theoretical trajectory, as these diagrams of the construction site and its supporting spaces

can be filled in with research about the work conditions on specific job sites and the practices of particular architects, engineers, construction management companies, and sub-contracting companies. Alternatively, it can be understood through more abstract models that do not include the specific names of various entities, but rather use defined labor roles to understand the system that structures today's construction process. In architectural theory and history we have not yet fully researched and understood the far-reaching impact of globalization on construction. How, then, might we bridge this perceived split between the discipline of architecture and the global systems that shape the day-to-day conditions of the construction site? Over the past few years, Who Builds Your Architecture? (WBYA?) has organized workshops and public forums, taken part in panels and lectures, developed visualizations and maps, and written essays to probe and understand a complex set of relationships of architects and architecture in the global construction industry. WBYA? has examined links between the labor of architects, contractors, subcontractors and construction workers in the context of the processes of building within the global supply chains of the construction industry. Forums such as biennials and publications have provided a platform for our research. These spaces have helped to advance the work but have also made us aware of the need to initiate wider dialogue about the role of labor in architecture in schools, in architectural offices, and on construction sites. In what type of space might we imagine a conversation taking place between an architect, construction manager, construction worker, and historian? Would the conversation take place in an office, or a school, or an installation, or on a construction site? What sort of questions would be raised? And how could such a conversation become the grounds for a collaborative process that recognizes and protects the dignity of all forms of labor?



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Architects in offices in global cities design steel trusses for a stadium project abroad.

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Structural engineers work with the architects to further develop steel truss details for installation on sites abroad.

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A factory manufactures the steel truss per specifications by architects and engineers.

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Manufacturers ship steel trusses to job sites. Port workers load and unload the containers in different countries.

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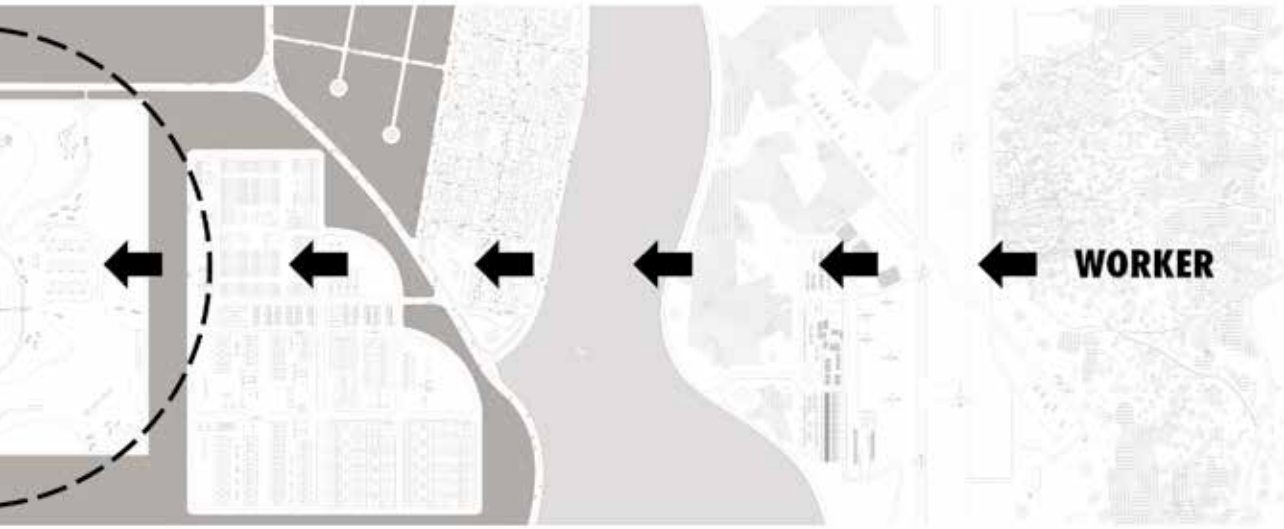
Steel trusses arrive via shipping container to the port. All goods clear customs and requisite national tariffs.

Migrant workers from the camps. trusses from Architects from



construction
arrive
housing
Steel
arrive
ports.
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Migrant workers live in communal substandard housing provided by employers and with restricted movement.

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Migrant workers arrive as non citizen guest workers to work on construction projects.

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Migrant workers leave from local airports with guest-worker permits & misleading contracts.

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Before leaving for abroad, workers train in basic construction skills at local centers. The skills are often inadequate.

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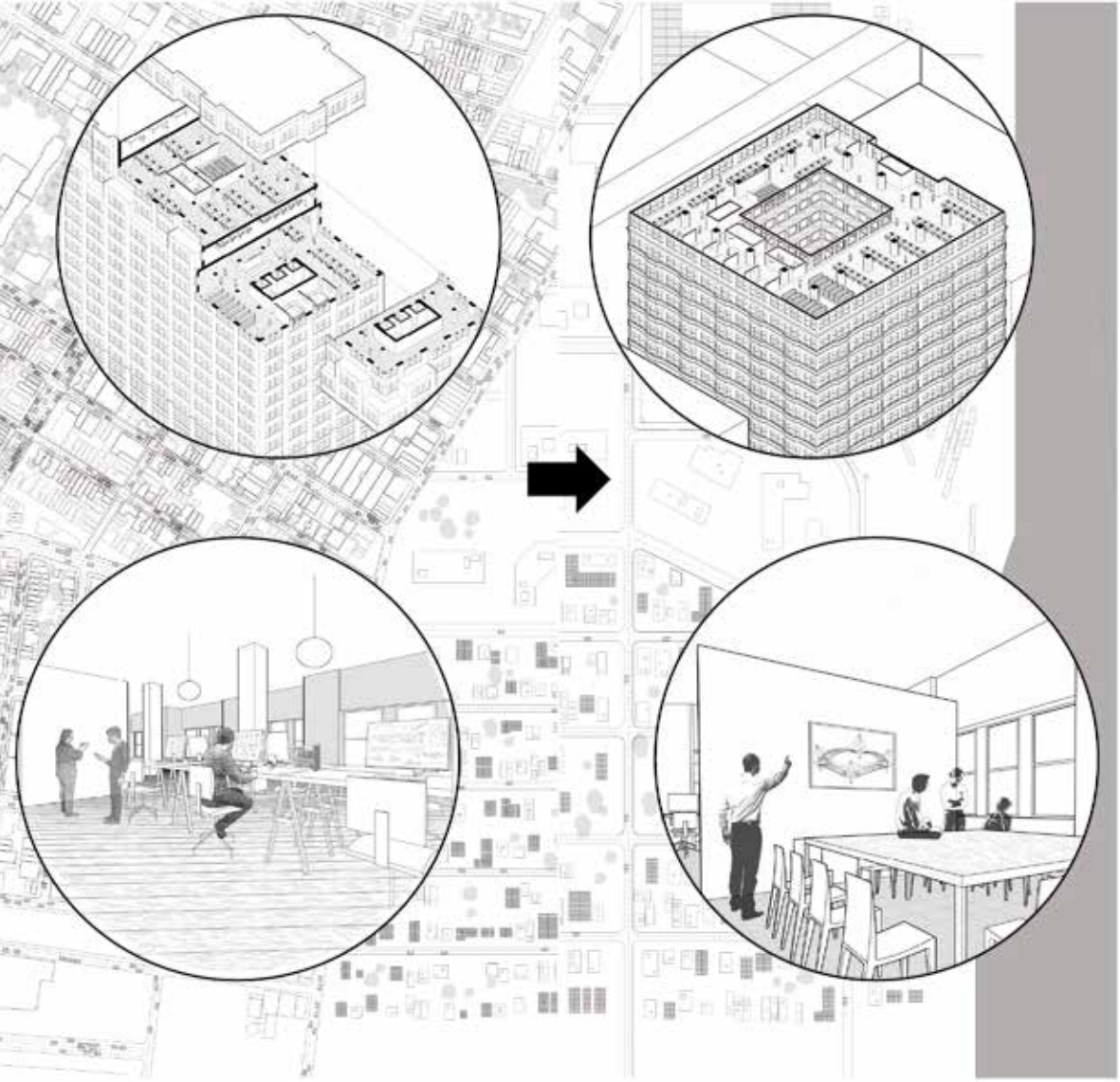
Workers leave villages for construction jobs abroad. Some are recruited by recruitment agencies and pay high fees.



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TEAMS OF ARCHITECTS DESIGN A STEEL TRUSS FOR A STADIUM PROJECT IN A MAJOR INTERNATIONAL CITY.

Architects design building components, prepare specifications describing each detail, material, and skill required for construction. Architects belong to professional associations, like the American Institute of Architects, but not unions. Working conditions and wages are not standardized across architectural offices. Some firms outsource the production of construction documents to countries where labor costs are cheaper.

National and international professional institutes should renew code of ethics that promote fair labor for all workers.

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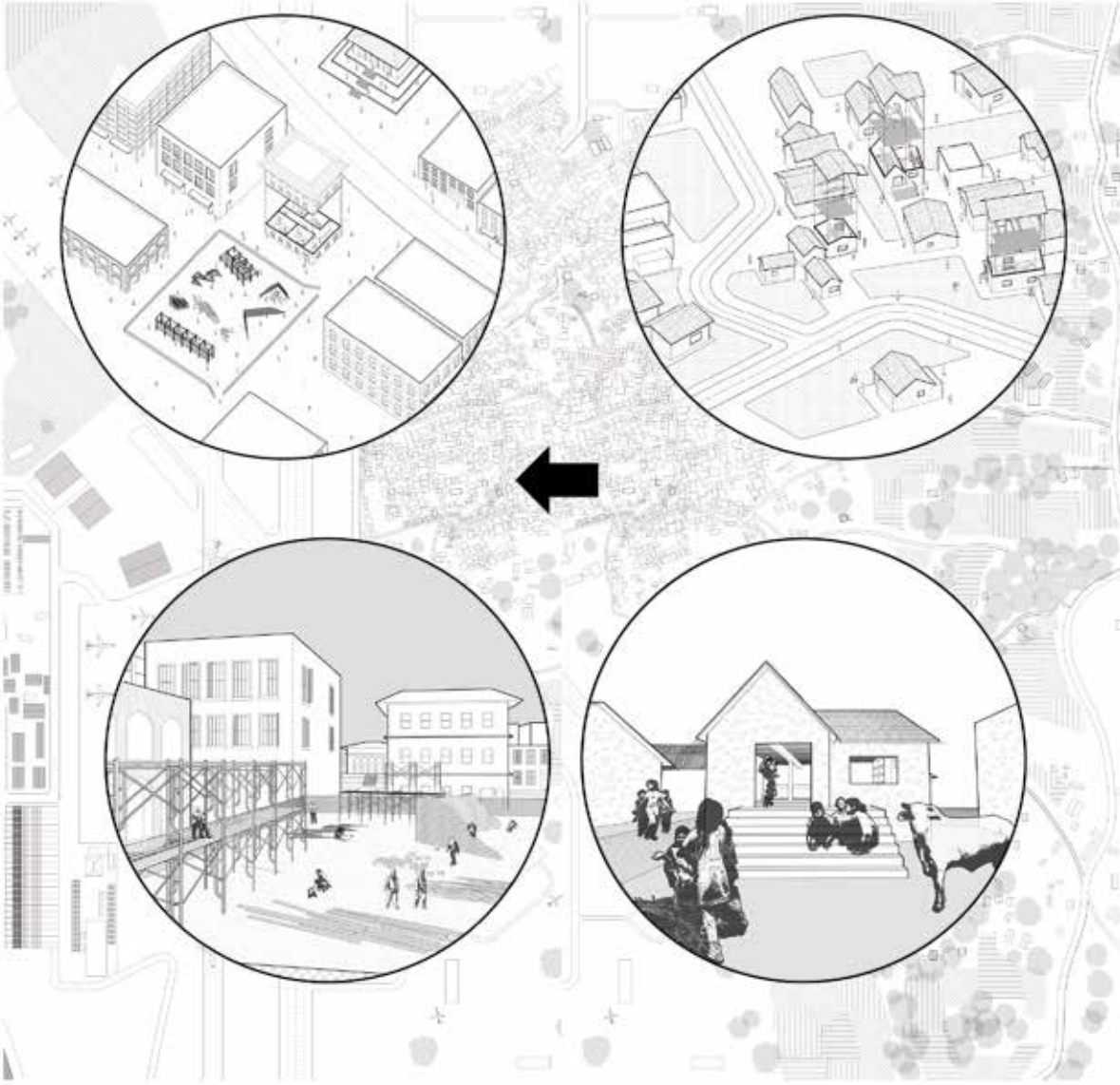
THE ARCHITECTS WORK WITH STRUCTURAL ENGINEERS DEVELOP DETAILS FOR THE STADIUM'S STRUCTURAL SYSTEM AND BUILDING COMPONENTS.

Large international building projects require specialized labor on all levels. The knowledge required for constructing a large building project is divided across a wide spectrum of experts during a design's development and construction phases. Architects collaborate with structural, mechanical engineers or other consultants, who are often based in other countries, but rarely with human-rights experts or social scientists.

Project teams for global architectural projects should include regional experts that can advise on local human-rights and labor issues.



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BEFORE LEAVING FOR THEIR JOB IN ANOTHER COUNTRY, WORKERS TRAIN IN BASIC CONSTRUCTION SKILLS AT LOCAL VOCATIONAL INSTITUTIONS.

Workers travel from their homes in rural villages to cities where they receive skill-based instruction at training centers. This basic training may prove inadequate for the type of labor the worker will eventually be required to do on foreign construction sites. At training centers, workers are often provided with minimal information about what to expect of the working and living conditions abroad.

Architectural drawings and documents can become vehicles to train workers and to raise labor standards in construction practices.

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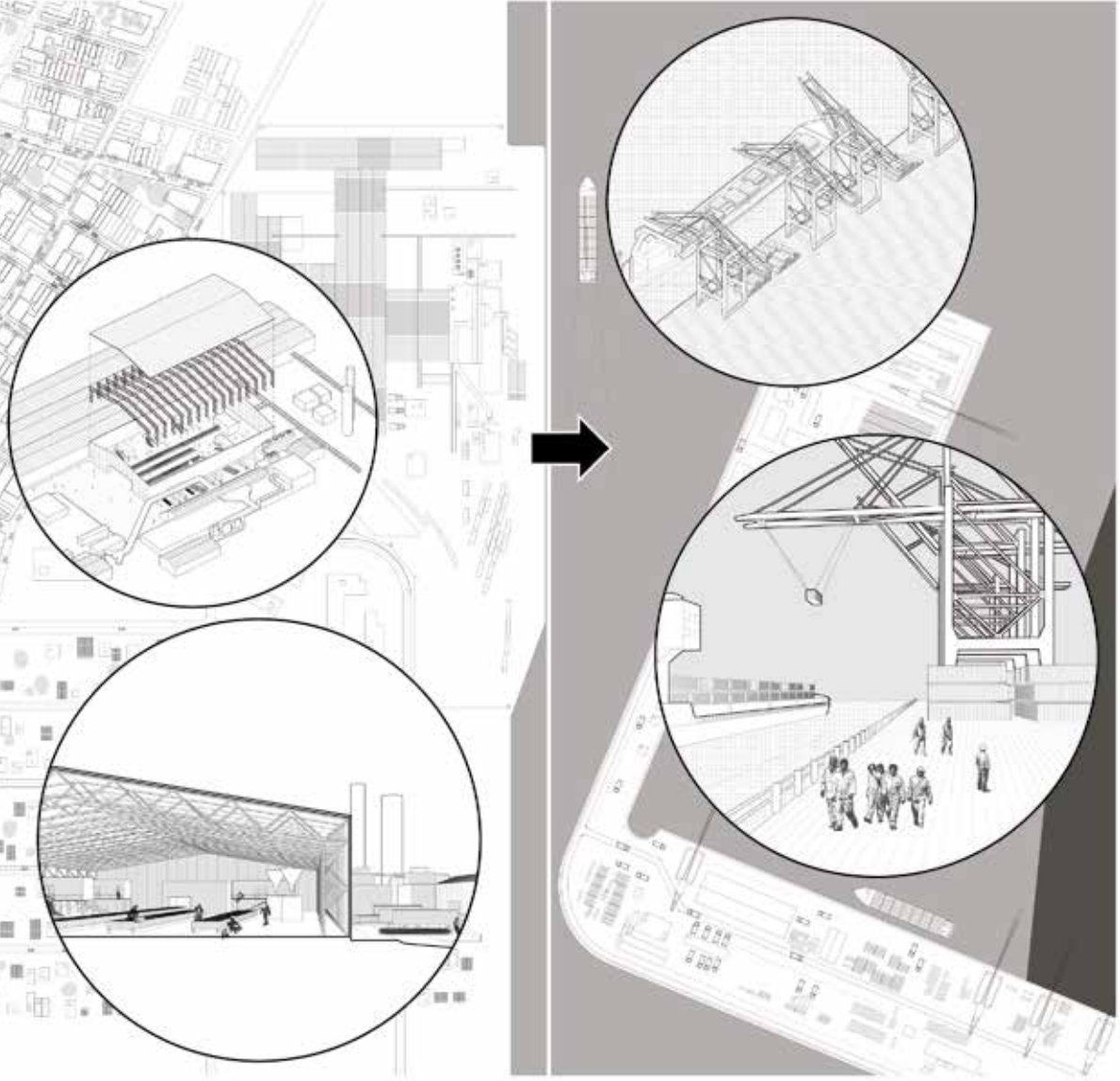
WORKERS LEAVE LOCAL VILLAGES FOR CONSTRUCTION JOBS ABROAD.

Before they migrate, workers often live in rural villages. Sending money from abroad in the form of remittances will help support their families. Workers secure employment through recruitment agencies that charge fees, often loaned against future wages at high interest rates. Fees must be repaid even if a worker is not paid by the employer, is injured on the job site, or dies while abroad.

Recruiting practices should be reformed. Project financing should include economic sustainability for all workers.



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A FACTORY MANUFACTURES THE STEEL TRUSSES AND TRANSPORTS THEM TO THE SENDING PORT FOR SHIPPING TO THE CONSTRUCTION SITE.

Engineers and architects might work with specialists employed by the manufacturer to determine how the steel truss may be produced or assembled. Most often, these discussions are are limited to technical details and not procurement, labor or ethics. Workers at the factory manufacture the trusses. Line workers at these factories may or may not have their wages and working conditions protected by unions, as fair labor practices vary from country to country.

Architects should use new technologies to link design, construction, and labor supply chains.

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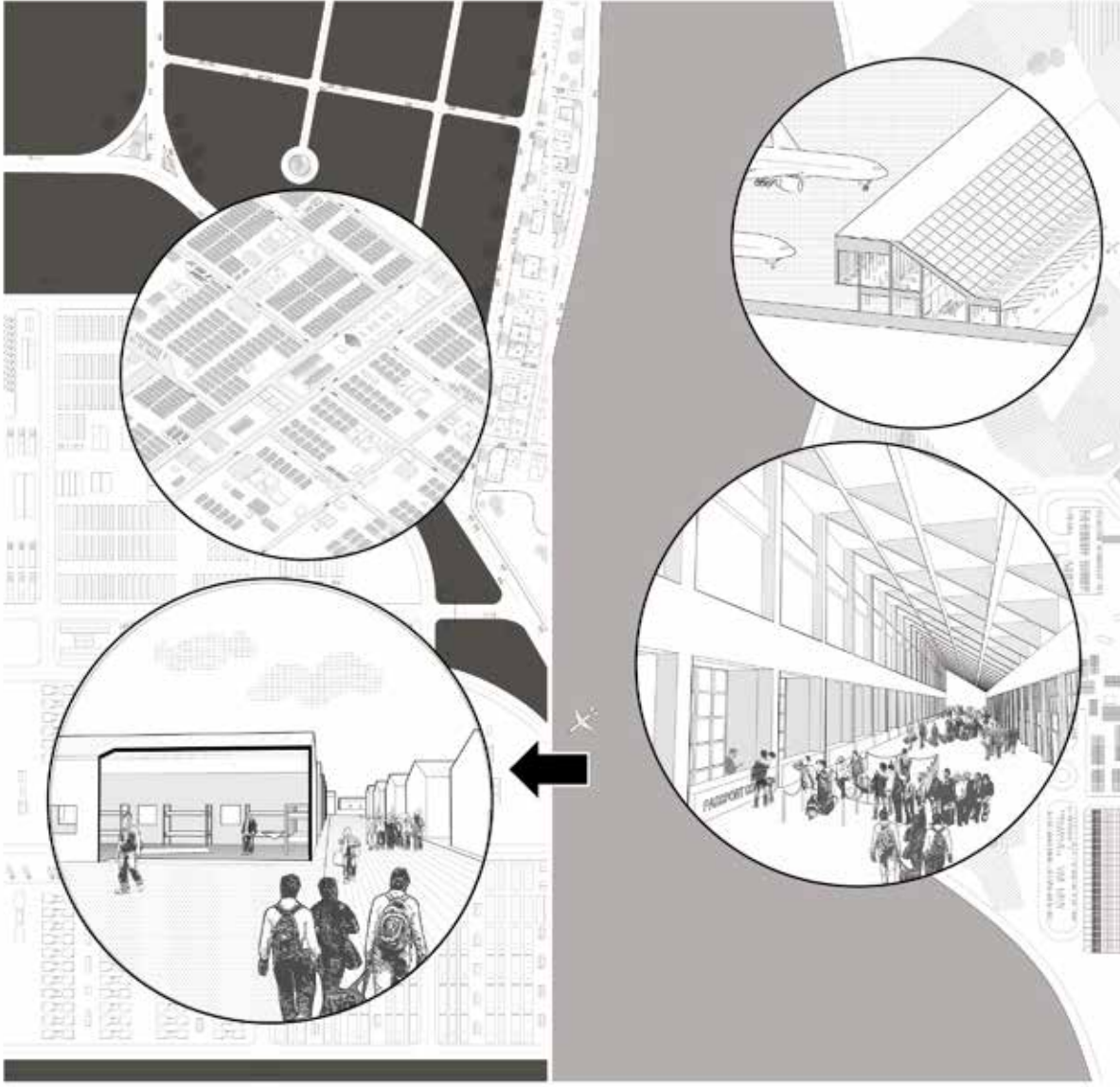
STEEL TRUSSES ARRIVE VIA GLOBAL SHIPPING CONTAINERS TO THE PORT NEAR THE CONSTRUCTION SITE.

Manufactured building components must be shipped internationally because factories are usually not located in the same country as the building sites. Port workers unload containers carrying the trusses and other materials onto the docks. Over the past 50 years, mechanization and containerization have greatly reduced the number of port workers. All containers must clear customs review and pay any requisite national tariffs.

Create knowledge-base for global trade systems in relations to the design and construction industries.



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MIGRANT WORKERS ARRIVE TO THE COUNTRIES WHERE CONSTRUCTION PROJECTS ARE LOCATED.

Workers' passports are often confiscated upon arrival, and only some receive local identification cards. Newly arrived workers are shuttled to workers' camps where they sleep in single-sex rooms that are often overcrowded and may lack access to proper kitchen, sanitation, and toilet facilities. Some camps are located far outside of city centers, or workers may be housed in the unfinished buildings on the construction site. Workers may not receive regular payments, and in some countries, they are not be able to unionize or protest lack of rights or poor treatment.

Architects should work to improve living and working conditions of all construction workers.

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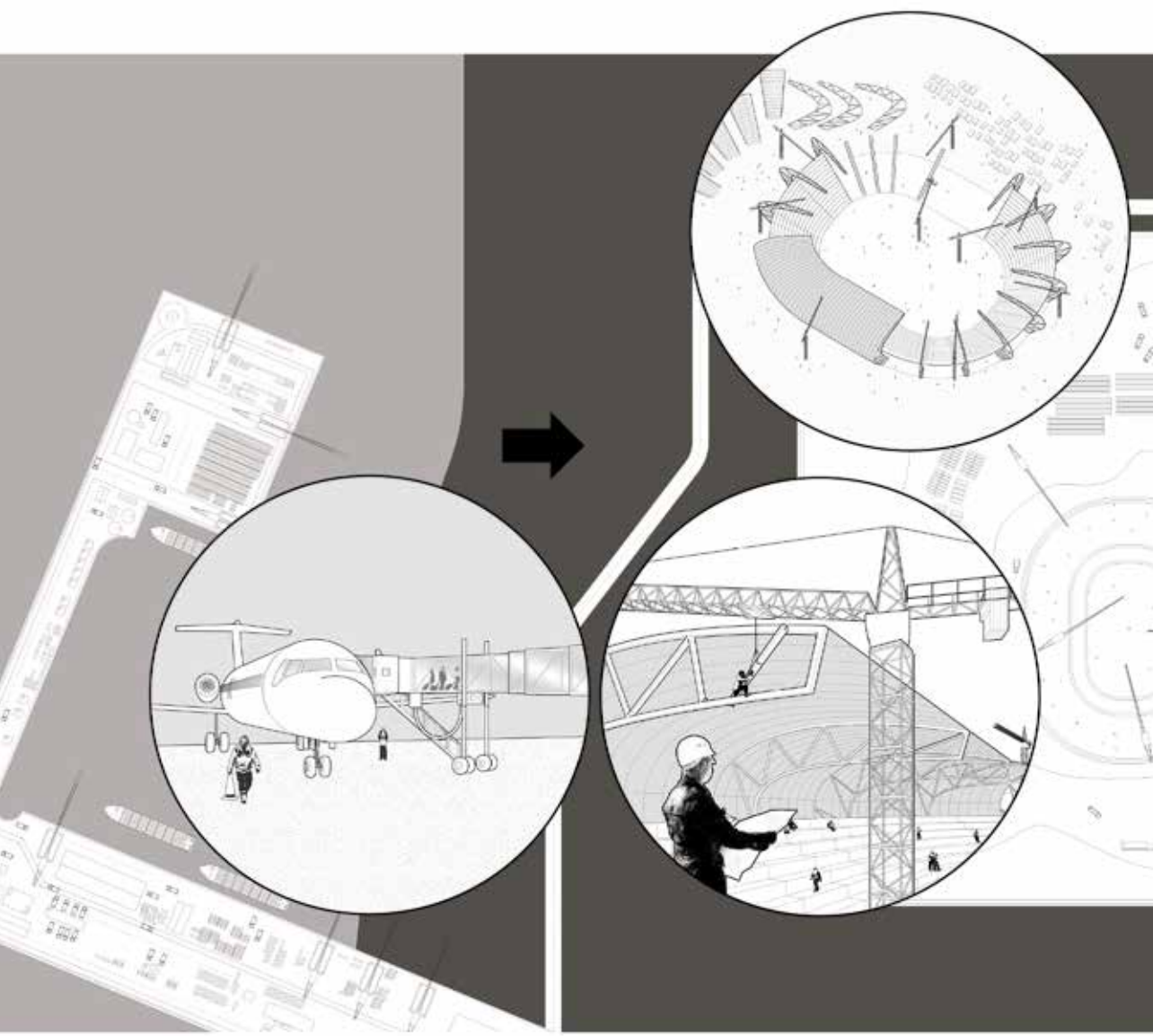
FOR MIGRANT CONSTRUCTION WORKERS, THE LOCAL AIRPORT SERVES AS THE DEPARTURE OR CONTROL POINT FOR THEIR NEXT ROUTE OF PASSAGE.

Brokers use part of the recruitment fees to buy airline tickets and visas for workers. With an increase in the number of people seeking employment in other countries, airports have opened separate passport control lines for migrating workers. National agencies have often used airports as sites of control, and to regulate employment and economic opportunities for low-wage workers.

Understand how decisions are made from design to construction, understand who benefits and at what costs.



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ARCHITECTS ARRIVE FROM AIRPORT TO THE CONSTRUCTION SITE TO OBSERVE AND INSPECT THE BUILDING PROGRESS AND DESIGN EXECUTION.

Architects and engineers schedule regular site visits. They meet with on-site construction managers and contractors about the execution of the different phases of construction. Often, they have no direct contact with workers doing the labor of building on the construction site. Forepersons work with construction documents and specifications created by the architects and engineers to supervise workers and to communicate or coordinate work at the job site.

Determine where abusive labor practices occur and refuse to work with contractors or subcontractors who mistreat workers.

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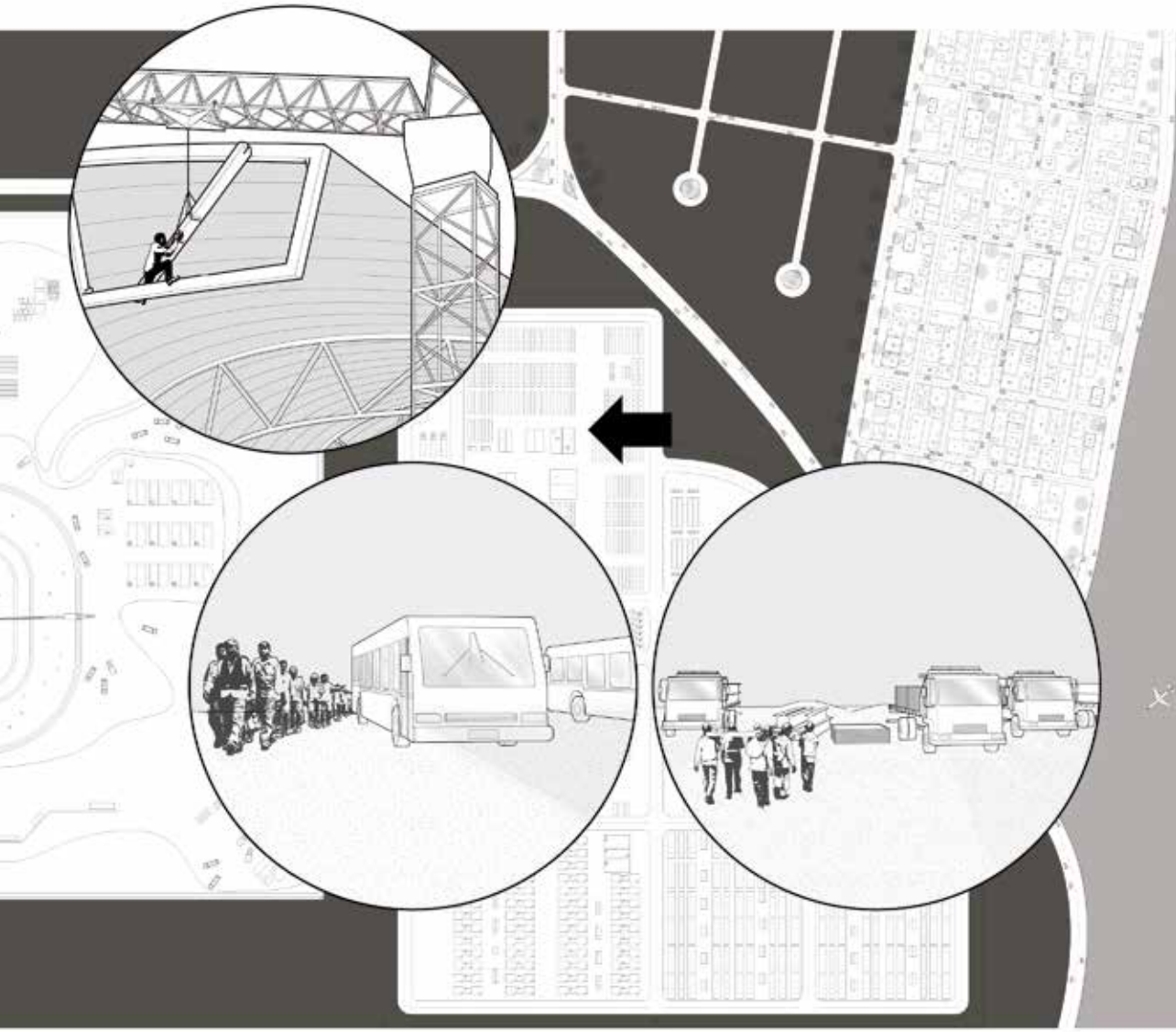
STEEL TRUSSES COMPONENTS ARRIVE FROM PORT TO THE CONSTRUCTION SITE TO BE INSTALLED IN THE BUILDING STURCTURE.

Truck drivers deliver building materials, particularly those imported from abroad, to job sites according to the different phases of construction. The installation of some components requires workers with specific skill sets. Compared with unskilled workers, skilled workers are typically better trained, receive higher pay, and are much more likely to belong to unions.

Use architectural drawings and documents as a vehicle to raise labor standards and improve construction practices.



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MIGRANT CONSTRUCTION WORKERS BUILD PROJECTS DESIGNED BY ARCHITECTS.

Migrant workers follow directions from forepersons to construct buidings as designed by architects. Because of the diversity of immigrant workers, forepersons might speak as many as 6 languages. Workers do not typically interact with construction managers, architects, or engineers. They are often required to provide for their own safety equipment, including hard hats, eye protection, gloves, work boots, and safety vests. They are often trained on site for complex construction techniques or to perform work with new materials.

Design construction sites to include safe conditions, rest and public spaces for construction workers.

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MIGRANT CONSTRUCTION WORKERS ARRIVE FROM WORKERS' CAMPS TO THE CONSTRUCTION SITE.

Migrant workers travel from their camps on dedicated buses for shifts on a rotating work schedule that can operate 24 hours a day. Due to the lack of sufficient training, workers may face difficult tasks or unsafe conditions. On some sites, they can be made to work extended shifts without regularly scheduled breaks. Some jobsites are far from city centers and do not include any public spaces. With their status as non-citizen guest workers, they may not be allowed to unionize or protest unfair labor practices.

Broaden scope of site observation to include the recognition of abusive labor practices at construction sites and at workers' housing.