



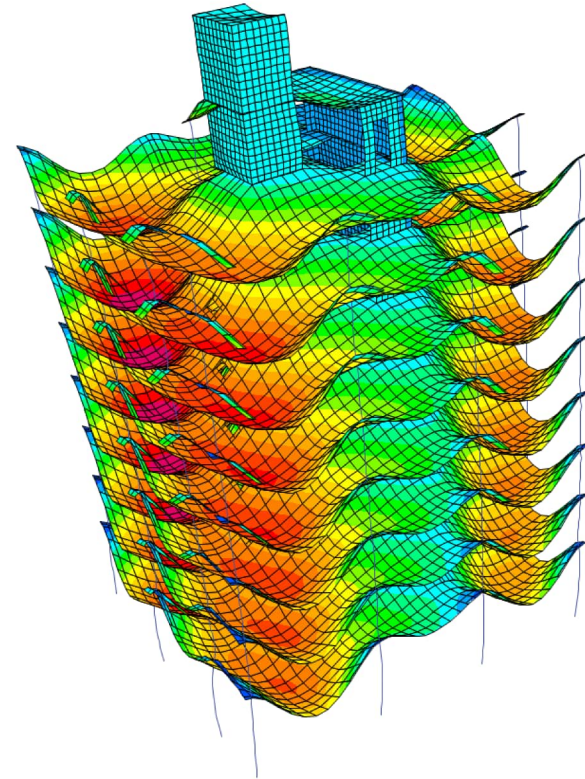
**SH** ENGINEERING  
structural design & consulting

Structural engineering  
Support of excavation  
Site safety design  
Demolition design  
Vibration monitoring

## Concrete structure design



2187 Ryer Ave, Bronx. 26,662 SF



We design cast-in-place concrete structures with the [latest](#) tools. We check every possible aspect of the concrete including long-term stability and cracking.

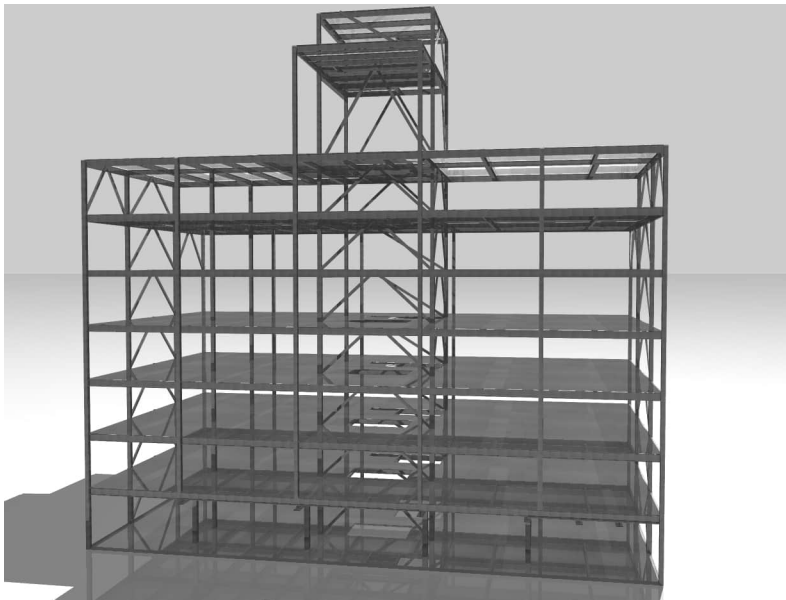
We pay special attention to the use of the space. Nobody wants columns in a recreational area.

# Steel structure design

Structural design  
Shop drawings  
Connection design



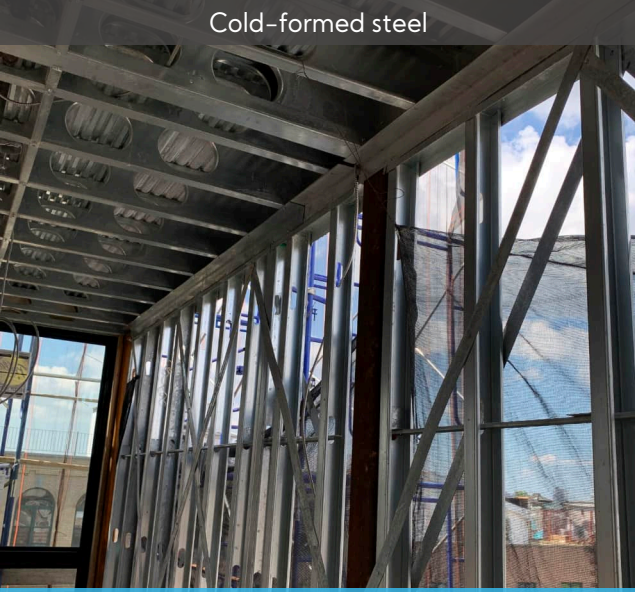
2321 Belmont Ave, Bronx. 30,000 SF, 7 stories with 8' cantilever.



We bring the [architectural vision](#) to life by hiding columns and beams in architectural elements.

We use advanced calculations to reduce the cost. One method we use based on a research paper is the outrigger concept, which uses staggered bracing.

# Structure design with alternative materials



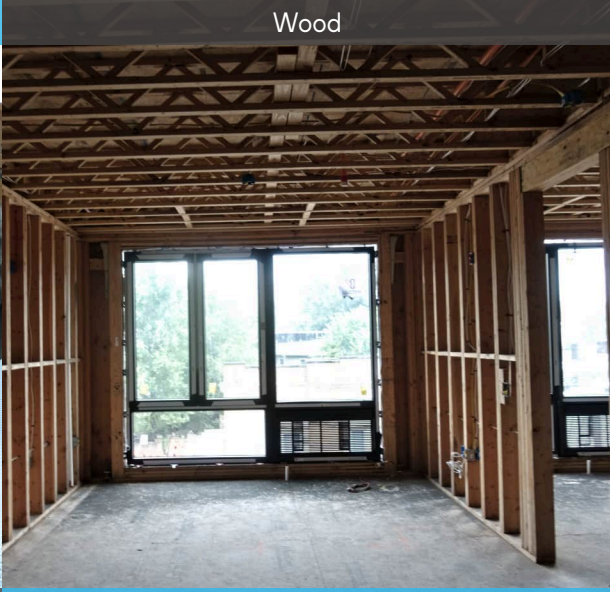
Cold-formed steel

463 Pulaski Street, Brooklyn. 4,960 SF



140-20 Cherry Ave, Queens. 8,900 SF

Long span deck



Wood

503 Communipaw Ave, Jersey City. 32,500 SF



## Site safety design



- Scaffolding
- Sidewalk shed
- Controlled access zones
- Cantilevered scaffolding
- Roof protection

## Vibration monitoring

We provide vibration monitoring systems with solar panels. They are remotely connected and will send an email when vibration thresholds are reached. This ensures **protection** of adjacent properties, especially when drilling or driving piles.



## Demolition design

We design demolition for all types of buildings, whether they're stable or unstable.

For difficult jobs, we design shoring for worker's safety, fences and sidewalk sheds for protecting pedestrians, and sequences to take down these dangerous structures.



259 Monitor Street, Brooklyn. Fire damage.



103 King St, Brooklyn. Deteriorated.



1846 New York Avenue, Brooklyn. Explosion in cellar.

# Foundation and support of excavation design



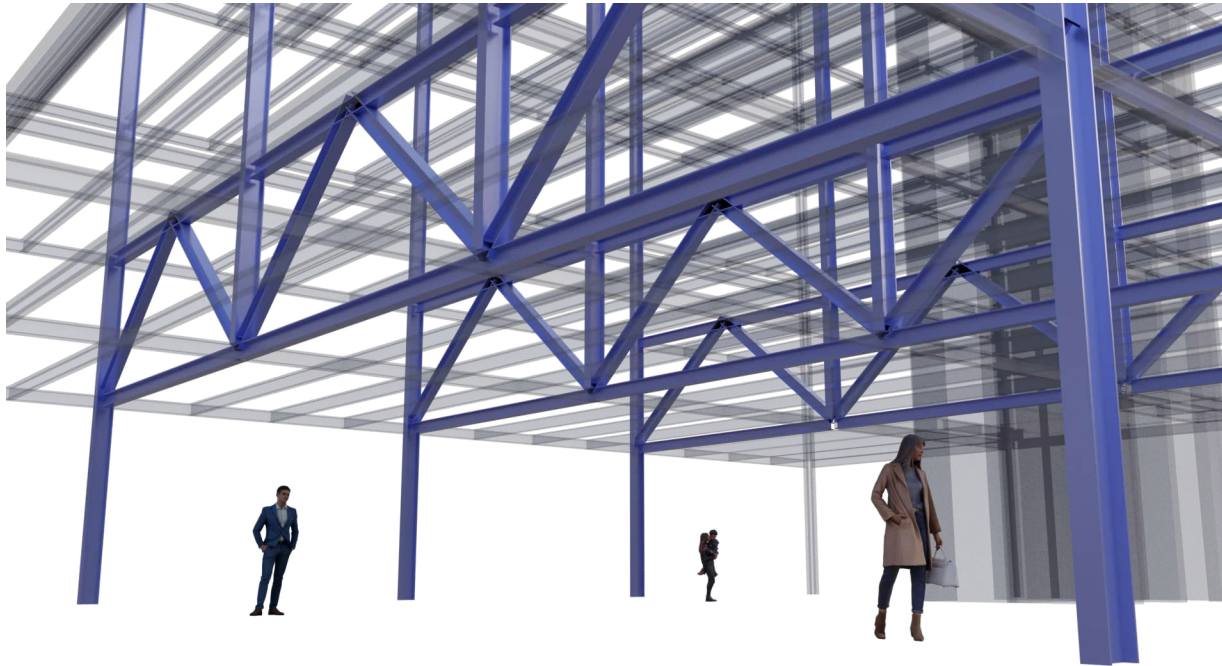
1047 Ogden Avenue, Bronx. 7 stories, 41,300 SF.

The most difficult thing about digging is doing it safely. We design soldier piles, tiebacks, and earthwork to safely pour foundations.

When we design foundations, we review all the geotechnical information and produce a design with minimal settlement. We strive to design foundations that will last for generations.



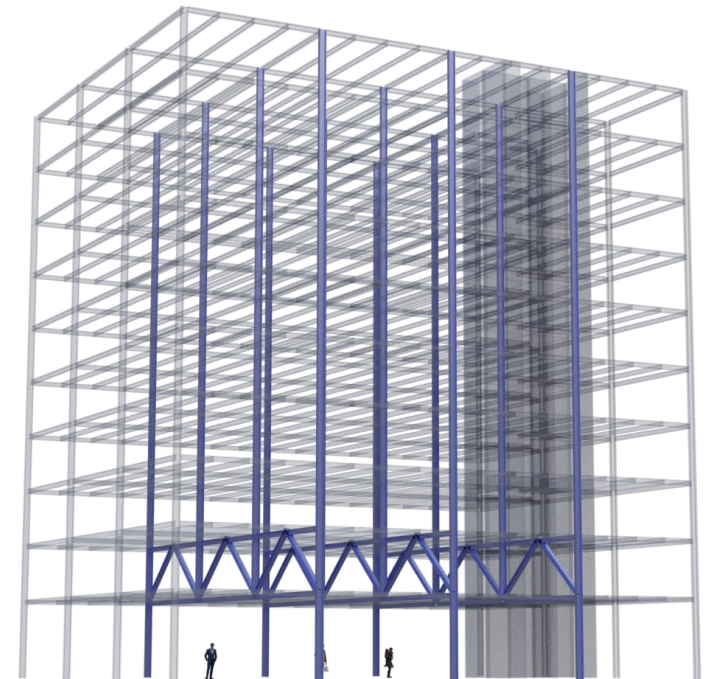
## Concept



We developed a concept for a **columnless** ground level space with occupied floors above. There is a truss between the 2<sup>nd</sup> and 3<sup>rd</sup> floor, over which columns are placed. Door openings will be run through the bracing, keeping the 2<sup>nd</sup> floor fully rentable. We developed the connections and configurations.

This concept would work fantastically in New York City, where ground floors contain valuable retail spaces and lobbies. It would offer tenants a high value, **fully open space** spanning more than 25'. It would be economical for 4 story and taller buildings, made of steel or concrete.

We're waiting for the right developer to come along, grab the idea, and shoot their rental values to the moon.





# About us

We are a growing structural engineering firm of 5 diverse engineers and designers. We started in 2017 with an 8 story building as our first project. What sets us apart from other engineers is that we pick up the phone and respond to emails as soon as possible. We built our business on responsiveness.

## Key personnel



**Shahriar Rafi, PE** - Principal Engineer

He received his Bachelors Degree in Civil Engineering from The Cooper Union in 2010 and Masters Degree from NYU in 2016. He started in a large firm, designing structures for chemical plants, power facilities, and military structures before moving into residential and commercial buildings. He founded SH Engineering in 2017.

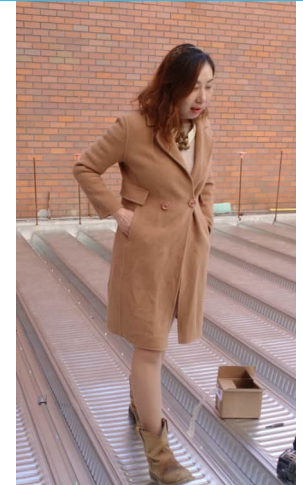
He is an expert in concrete, wood, masonry, and finite element analysis. He spends days in front of computer programs and complex spreadsheets.



**JieYi Huang, P.Eng** - Principal Engineer

She received her Bachelors Degree in Civil Engineering in 2004 in China and Masters Degree from Concordia University in 2014. She designed steel for large scale petroleum plants. She moved to designing residential and commercial structures before joining SH Engineering in 2018.

Her expertise is in steel, cold-formed steel, foundations, and support of excavation. She also leads the non-technical and contractual aspects of the business.





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