

The Revival of the Badouzi Fishing Town

Keelung City, Taiwan

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Architecture + Social Responsibility

Key Words

- Rural-Urban Disparity
- Abandoned Fishing Town
- Reutilization
- Locality & Environment



The Site of the NMMST



Badouzi Fishermen, 1930



The Northern Power Plant, East Elevation, 1950

Construction Costs USD 79.5 M
Site Area 55,188 m²
Building Area 17,052 m²
GFA 58,363 m²
Completion 12/2012
Original Power Plant Existence Since 1930
Conversion and Expansion 2004-2012



NMMST, South Facade, 2012

The National Museum of the Marine Science & Technology

The National Museum of the Marine Science & Technology (NMMST) was built at a small fishing town, Badouzi, in Keelung City, Taiwan. In 1825, the place was discovered with rich mineral deposit; thus, taking the advantage of the natural resource, in 1937, the Japanese built a fire power plant to provide electricity for the development in Northern Taiwan. In 1975, Badouzi harbor started its fishery manufacture and storage business and became one of the most productive ports with frequent and dynamic commercial activities.

Due to the increasing awareness of the air pollution, Badouzi closed down its coal mining business and the fire power plant in 1990. And with the fact of the declining fishing profits, the once prosperous fishing town was facing a huge decrease in population, aging problem, and the transformation in traditional industries.

The declining of the Badouzi fishing village is not an individual case; many places in Taiwan share a similar phenomenon and have been suffering from economic downturn. Increasing numbers of people moved from the countryside to metropolitan areas, leading to an imbalance in development and abandonment of precious rural land.

The design and construction of the NMMST were based on the goal to bring back the prosperity to the fishing town. Transformed from an isolated fire power plant's site, we linked the Badouzi Harbor (the west) to the Changtan Village Harbor (the east) with a 650 meters long eco-museum complex. This opened up the space and have brought people and activities equally spreaded from the seashore to the land. Instead of building a new architecture, we deiced to reutilize the abandoned fire power plants and expanded them into a 200-meter long Marine Science Museum. On the 49-hectare land, there are a main exhibition hall, many satellite exhibition centers, a 300-seat IMAX Theater, an Aquarium Museum, outdoor plazas, shops and restaurants, biking trails and highland parks.

The population at Badouzi was frozen for many years, but now people come back to work at the museum, doing research, or just simply enjoy a relaxing weekend. On a normal day, you can find families coming to learn the knowledge of marine science and watch 3D movies, couples taking wedding photos, and children laughing around at the playgrounds. The transformation is successful and tremendous. The museum has linked the neglected areas together into one promising community.



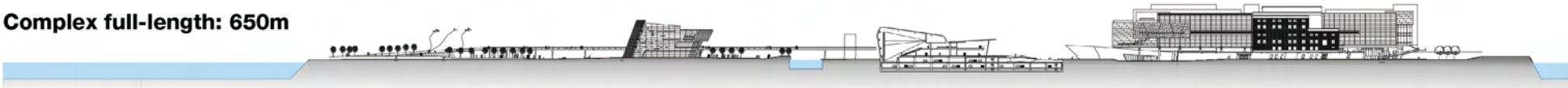
The National Aquarium
(2012-2016)

Regional Exploration Building
(2008-2012)

IMAX

NMMST
(2004-2012)

Complex full-length: 650m



Architecture + Commitment to Context

Key Words

- Old & New
- Evident & Balanced
- Cultural Heritage
- Reinforcement & Innovation



NMMST, South Elevation in 2004



NMMST, South Elevation in 2012

A chronological comparison of the Northern Power Plant (2004) and the new Marine Science Museum (2012)

The National Museum of Marine Science and Technology is an architecture transformed and expanded from two abandoned fire power plants, which one of them was built by the Japanese in the 1930s (Building B) and the other was built by the Taiwanese in the 1950s (Building A).

Building B

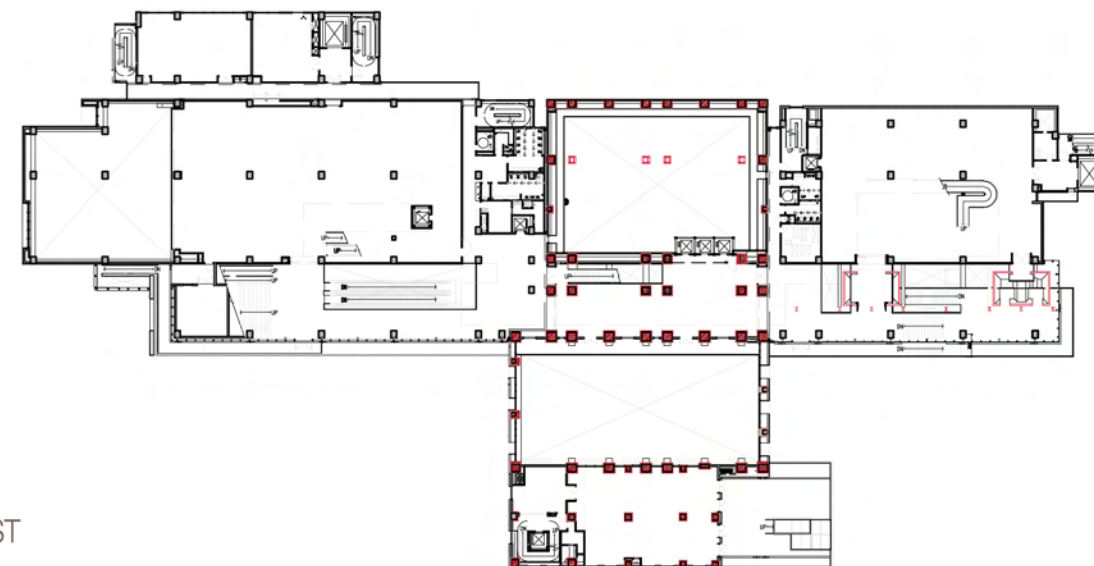
Old 35%
New 65%

Building A

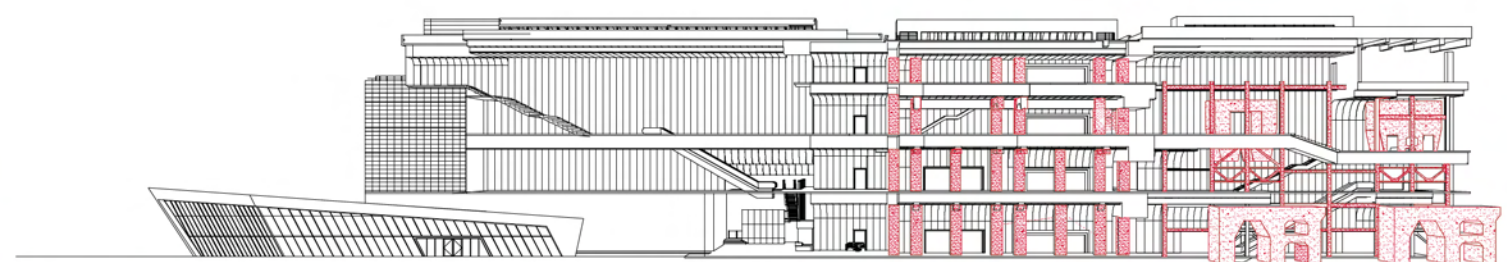
Old 10%
New 90%

Building C

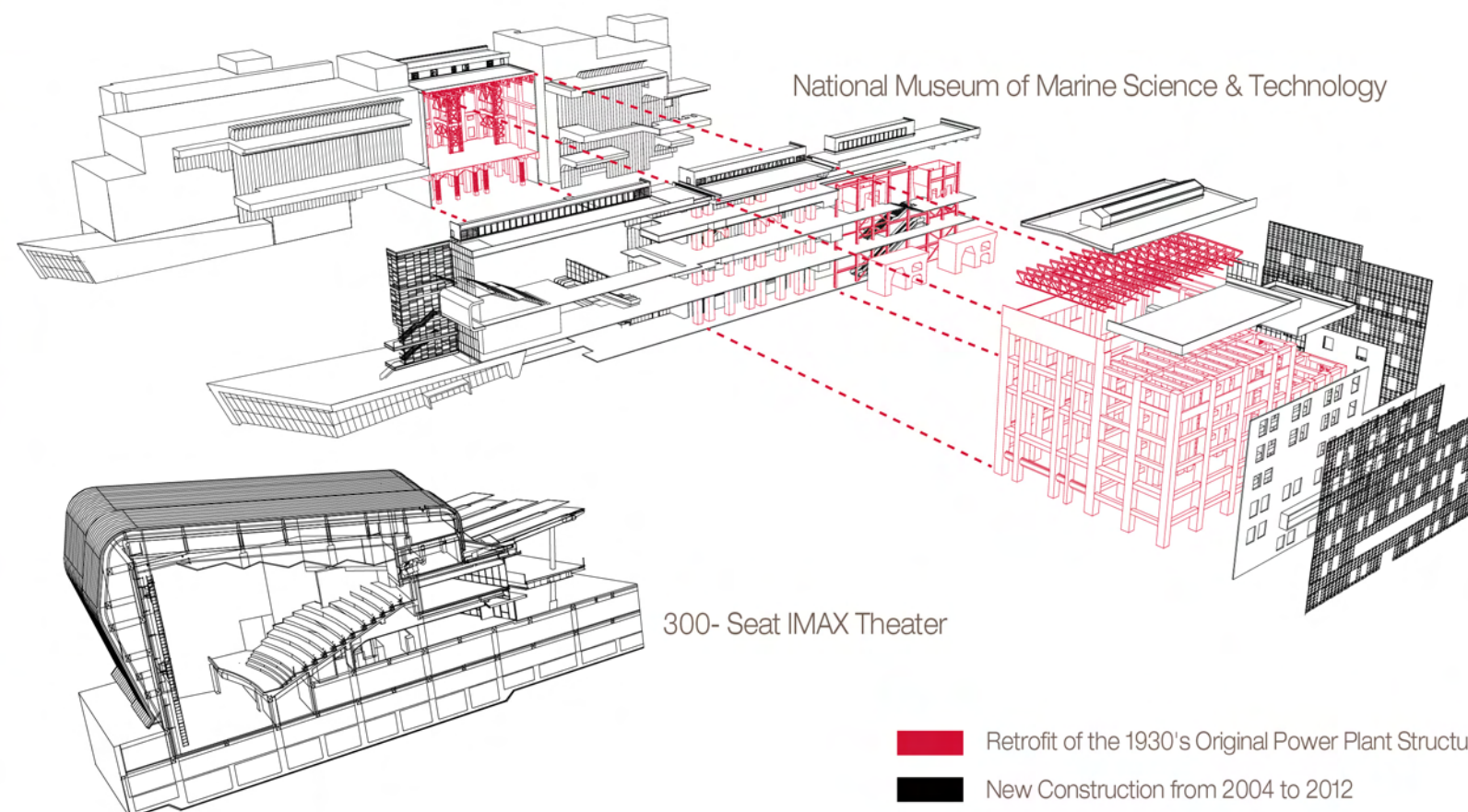
New 100%



5F Plan of the NMMST



Longitudinal Section of the NMMST



National Museum of Marine Science & Technology

300- Seat IMAX Theater

- Retrofit of the 1930's Original Power Plant Structure
- New Construction from 2004 to 2012



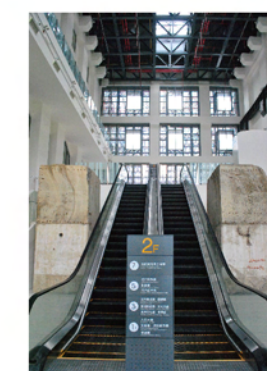
Coal Scuttle, 2004



Coal Scuttle, 2012



Mass Concrete, 2004



Mass Concrete, 2012



Facade of Building B, 2004

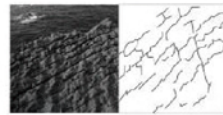


Facade of Building B, 2012

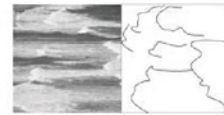
Design Concept



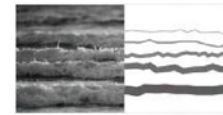
Gap



Layer



Wave



Flow

The NMMST is the first in Keelung to achieve a silver rating under the Architecture and Building Research Institute, Ministry of the Interior, adopting the EEWB Renovation Performance system as rating criteria. The museum is considered distinctive in environmental terms. The sustainable design features include: a more than 7,000

square meters eco-stratify, low-E glass to minimize solar heat gain, liberating the floor area with much needed shade and shelter to maximize natural ventilation, less carbon emission, bio-retention swales, green roofs, pneumatic waste collection, and the use of water and energy efficient devices.



South Facade of NMMST, 2012



Southeast Facade of NMMST, 2012



Local Material, Coal-Wall Exhibition Hall

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Architecture + Locality & Sustainability

Key Words

- Local Identity
- Green Architecture
- Socio-Economic Values
- Modernity



NMMST, West Facade, 2012



NMMST and the Community, 2012



NMMST East Facade, View from Changtan Village Harbor, 2012



NMMST, Interior Corridor, 2013



Mother & Daughter, NMMST Plaza



New Life, NMMST Plaza



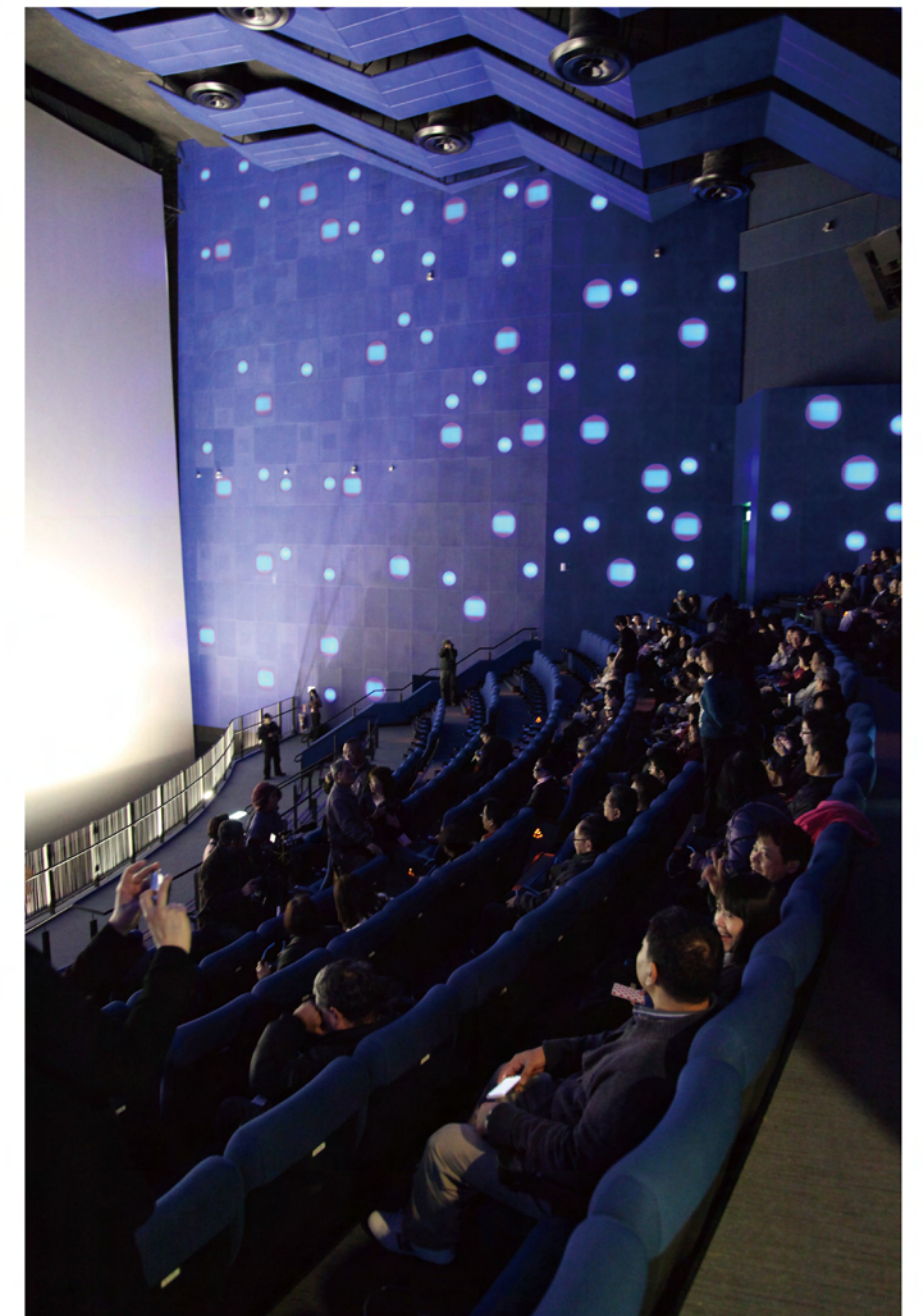
Volunteer Workers' Training



Activities at the Regional Exploration Building



300-Seat 3D IMAX Theater. East Facade, 2013



IMAX Theater, Interior, 2013



NMMST Outdoor Plaza, West Facade, 2013

Architecture + Activities

Key Words

- Community Transform
- Education & Research
- Participation
- People's Museum

The aging and declining city is urgently required for a refurbishment of the existing facilities, parking space, cable design, and the exterior of the old buildings.

In the past eight years, every step of the design progress underwent countless discussions and public hearings with the local residents. Based on mutual efforts between the design team and the community, Badouzi is becoming a more charming and delight harbor city.