Ver1.0

Aster
For
No disaster

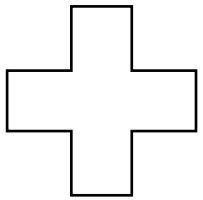
Aster Co., Ltd.




MASONRY

Masonry structure is made of small units like bricks, stones, and concrete blocks, piled up and connected with mortar.

- **Bricks**
- **Stones**
- **Concrete Blocks**



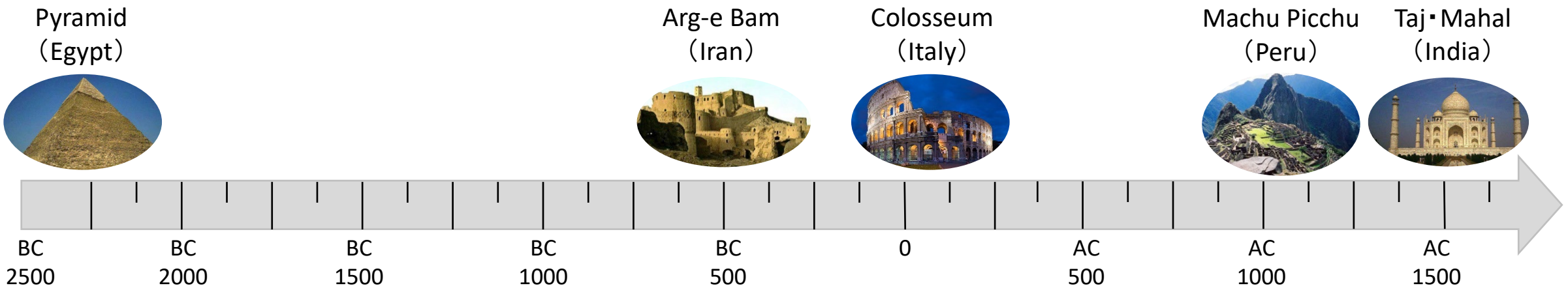
Mortar

- **Cement**
- **Lime**
- **Gypsum**
- **Mud**

Oldest manufactured product

MASONRY

Masonry structure is the oldest manufactured product for the building, and the history starts before BC 2500 like a pyramid in Egypt.



MASONRY

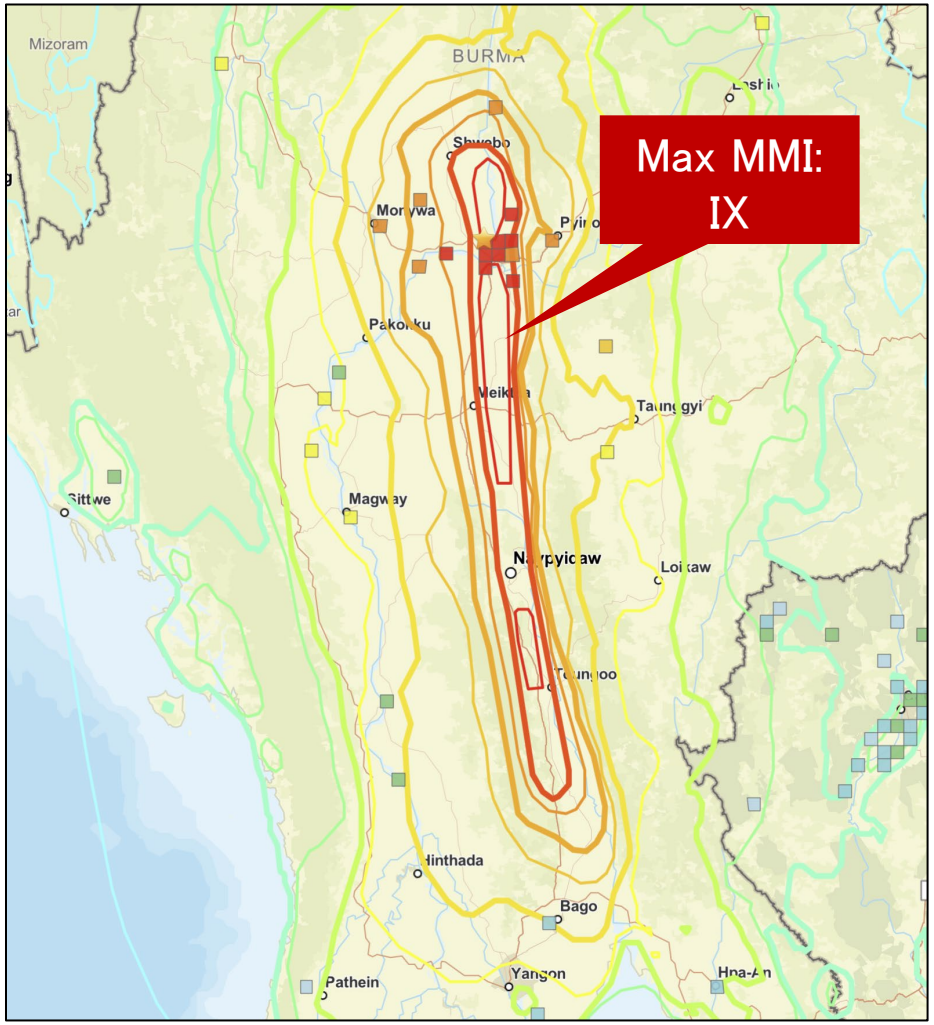
Widely used construction material

Masonry structure is still the most popular building in the world and 60% of the population uses this structure because the material is available all over the world and is durable, and the living environment is quite good regarding its thermal insulation and soundproofing.

MASONRY

Movies on YouTube
https://youtu.be/TDmPX24Y-so?si=HfG4Gl9q77RcgFZ_&t=17

However, most of these masonry structures are highly vulnerable to earthquakes. Its collapse is very fast and the material is heavy and torn into small pieces, which human can easily lose his life.



M 7.7 – 2025 Mandalay, Burma (Myanmar) Earthquake

Time	2025-03-28 06:20:52 (UTC)
Epicenter	22.011° N 95.936° E 10.0 km depth
Magnitude	Mw7.7
Max MMI	IX

Estimated Population Exposed to Earthquake Shaking

ESTIMATED POPULATION EXPOSURE (k=x1000)		–*	32,989k*	163,709k*	24,656k	20,277k	8,788k	3,637k	5,801k	415k
ESTIMATED MODIFIED MERCALLI INTENSITY		I	II-III	IV	V	VI	VII	VIII	IX	X+
PERCEIVED SHAKING		Not felt	Weak	Light	Moderate	Strong	Very Strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	Resistant Structures	None	None	None	V. Light	Light	Moderate	Mod./Heavy	Heavy	V. Heavy
	Vulnerable Structures	None	None	None	Light	Moderate	Mod./Heavy	Heavy	V. Heavy	V. Heavy

*Estimated exposure only includes population within the map area.

Selected City Exposure

from GeoNames.org

MMI	City	Population
IX	Sagaing	79k
IX	Pyu	40k
IX	Yamethin	60k
IX	Pyinmana	97k
IX	Kyaukse	50k
IX	**Nay Pyi Taw**	**925k**
V	**Yangon**	**4,478k**
V	Bangkok	5,104k
IV	**Chittagong**	**3,920k**
IV	Kunming	3,855k
III	**Dhaka**	**10,356k**

bold cities appear on map. (k = x1000)

Reference:
■ U.S. Geological Survey. (n.d.). 2025 January 10 M 6.1 earthquake near XYZ: USGS event page. U.S. Geological Survey. Retrieved January 12, 2026, from https://earthquake.usgs.gov/earthquakes/eventpage/us7000pn9s/executive

Region	Deaths	Injuries
Mandalay Region	3,325	2,642+
Sagaing Region	1,000+	900+
Nay Pyi Taw Region	665	100+
Shan State	167	not reported
Bago Region	119	50+
Karen Region	2	not reported
Total Reported	**5,352**	**11,366**

Mandalay earthquake casualties (aggregated figures from local media)

Extensive damage occurred in Mandalay, Sagaing Region, and around Naypyidaw, near the earthquake's source fault.

Damage to buildings and structures from the Mandalay earthquake (aggregated figures from local media)

According to a World Bank report, damage to buildings and structures from the Mandalay earthquake is estimated to be approximately US$11 billion, equivalent to approximately 14% of Myanmar's GDP.

Region	Total Damaged	Half-damaged	Losses (billion USD)
Mandalay Region	17,637	Half of the buildings	US$5.47 B
Sagaing Region	90% of structures	10%	US$2.26 B
Nay Pyi Taw Region	Not Reported details	Not Reported details	US$1.04 B
Shan State	2,790	35%	US$0.24 B
Bago Region	50++	Not Reported details	US$1.27 B
Karen Region	Not Reported details	Not Reported details	US$0.03 B
Total Reported	**120,000+**		**~US$11 B**

Reference
■InterRisk Asia (Thailand) Co.,Ltd. /Hayaki Ezaki(江﨑隼輝),"ミャンマーの地震リスク概要と地震リスク対策", KBZMS 地震対策セミナー2025, Yangon, Myanmar, Dec 1st, 2025

Myanmar, Mandalay EQ(2025)

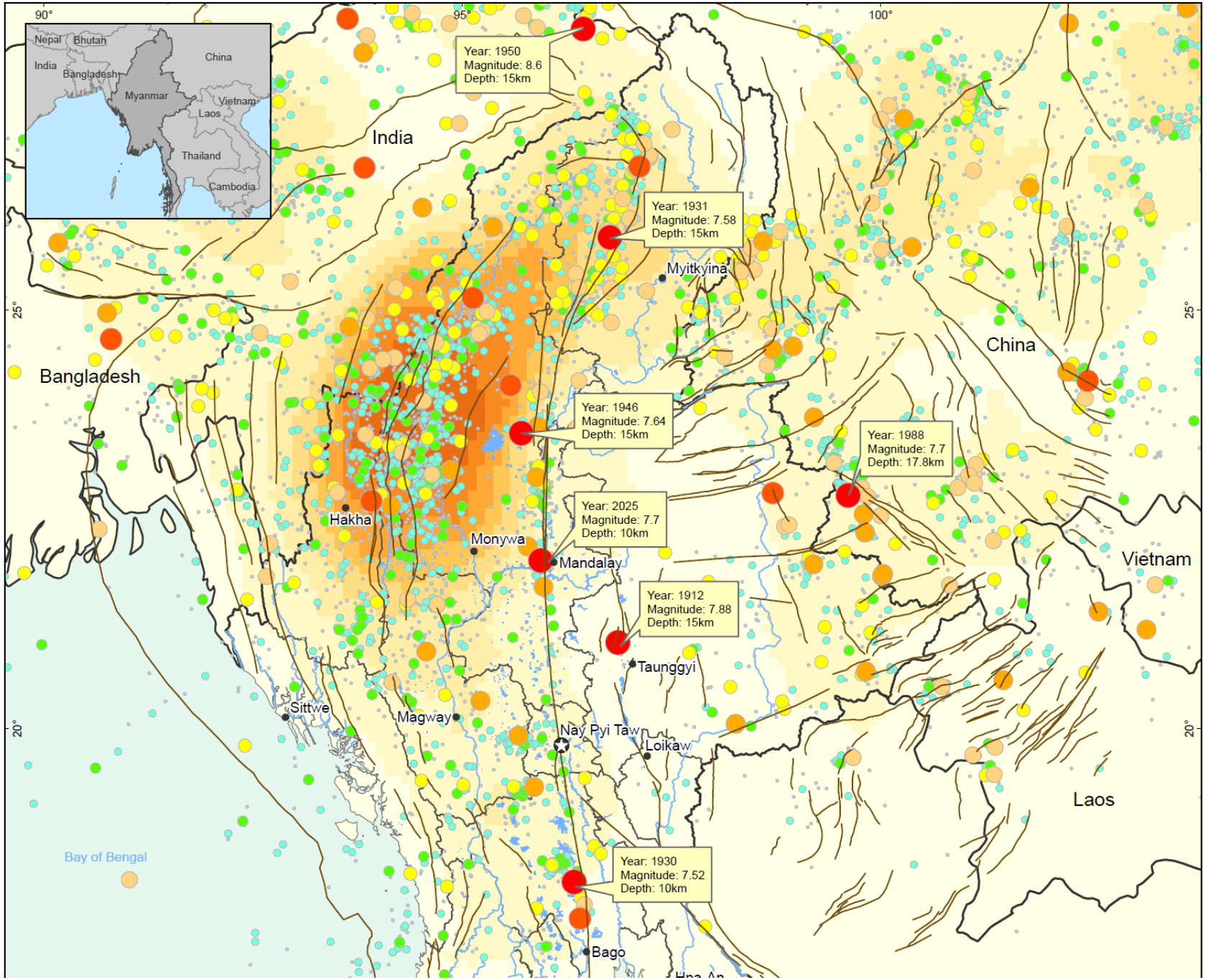
The weakness of the masonry walls was the main cause of out-of-plane collapse and in-plane cracks.

Mandalay, Reconstruction

Considering the current state of restoration and reconstruction, repairing with mortar or strengthening the structure is simply wrapping the masonry again and covering it with mortar. Adding our paint to this will result in a very strong reconstruction.

History of major earthquakes in Myanmar since 1900

※North and south area does not have major eq in about 100 yrs, so there are potential risk for the major eq in near future. And therefore, it is necessary to strengthen vulnerable structures quickly , and widely. But it's not easy



Reference

■ "Mapping 100 years of earthquakes (as of 2025)", Weekly updates from MIMU, Myanmar Information Management Unit, Jan 16th, 2026

Our Solution – Aster Power Coating®

movies on YouTube https://youtu.be/vlzDPu8bMgI

Aster Power Coating®

WHAT **Glass fibre** reinforced, water-based, **water resistive** coating

WHY Masonry – **Strengthen** walls against **earthquakes**
Concrete / Masonry – Maintenance / **Prevent cracking**

WHERE Masonry Walls of **New** and **Existing buildings**

HOW Ordinary **Paint Roller** / Trowel

WHOM **Normal Masons** – No special craftmanship required

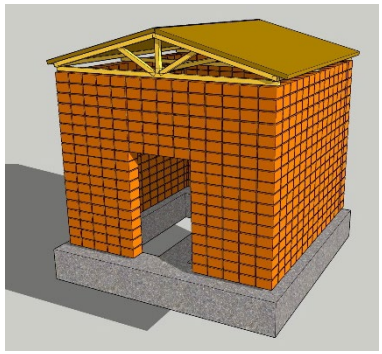
Impact of Aster Power Coating®

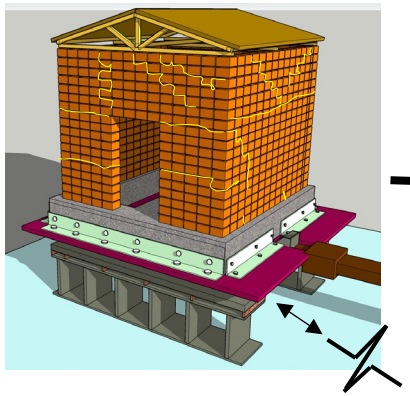
movies on YouTube
https://youtu.be/beSe1JWfSf4

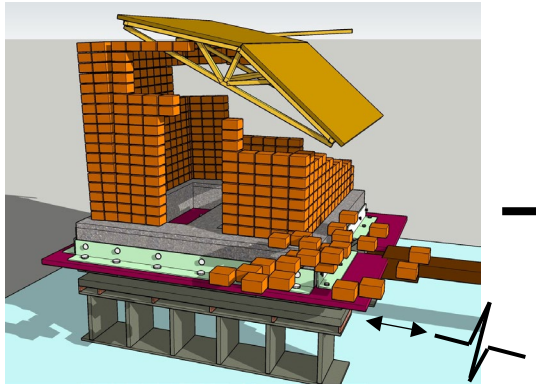
Aster × JICA Japan International Cooperation Agency × NIED National Research Institute for Earth Science and Disaster Prevention × DPWH

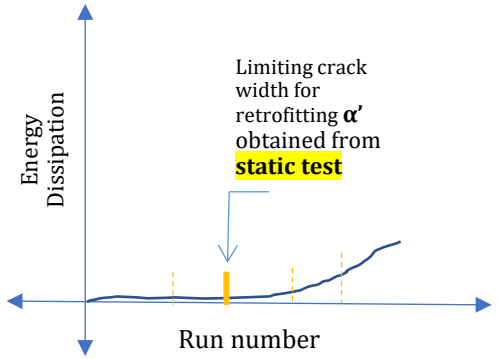
Experimental validation of a full-scale CHB wall at the 2nd largest in the world Shake table on Jan 2022 using CHB blocks from the Philippines funded by JICA with the support of NIED as a part of the accreditation scheme of DPWH Philippines. Minimal damage was observed in the wall coated with Aster Power Coating® even when the wall was subjected multiple JMA intensity 6+ intense shaking (1995 Kobe earthquake).

Coating after the damage

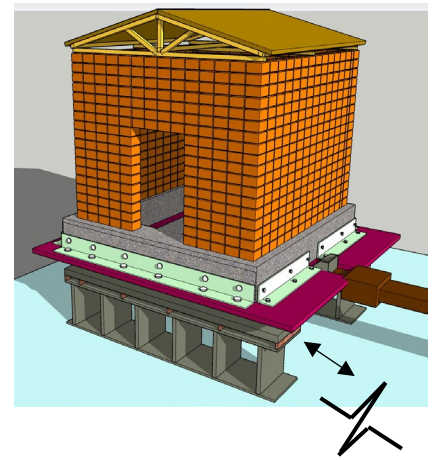


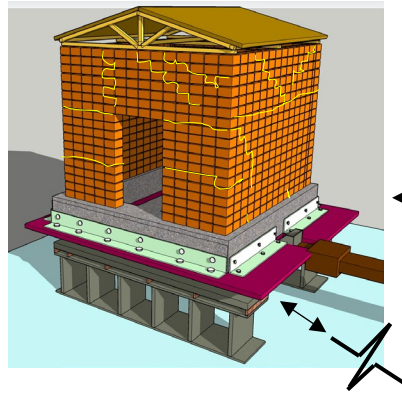


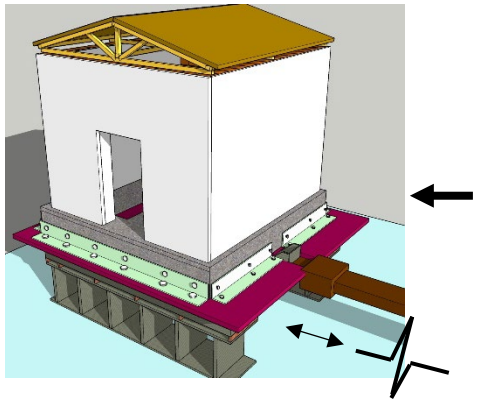


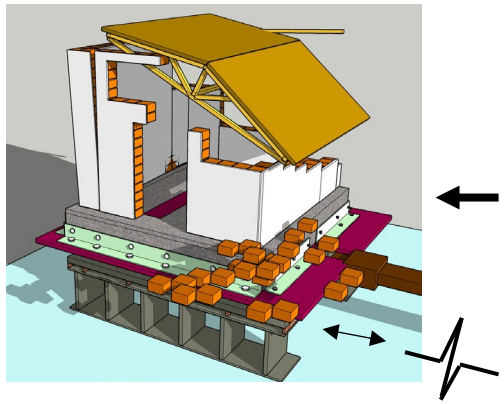


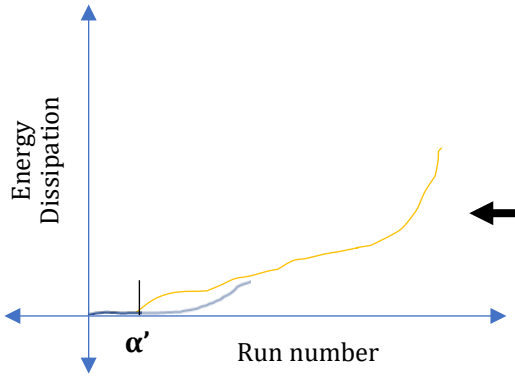
Construct sample building 1 → Damage on the structure → Full collapse samples → Energy-dissipation curve → Construct sample building 2 → Partially damaged building → Retrofit the building with paint → Testing retrofitted building → Energy-dissipation curve of retrofitted sample



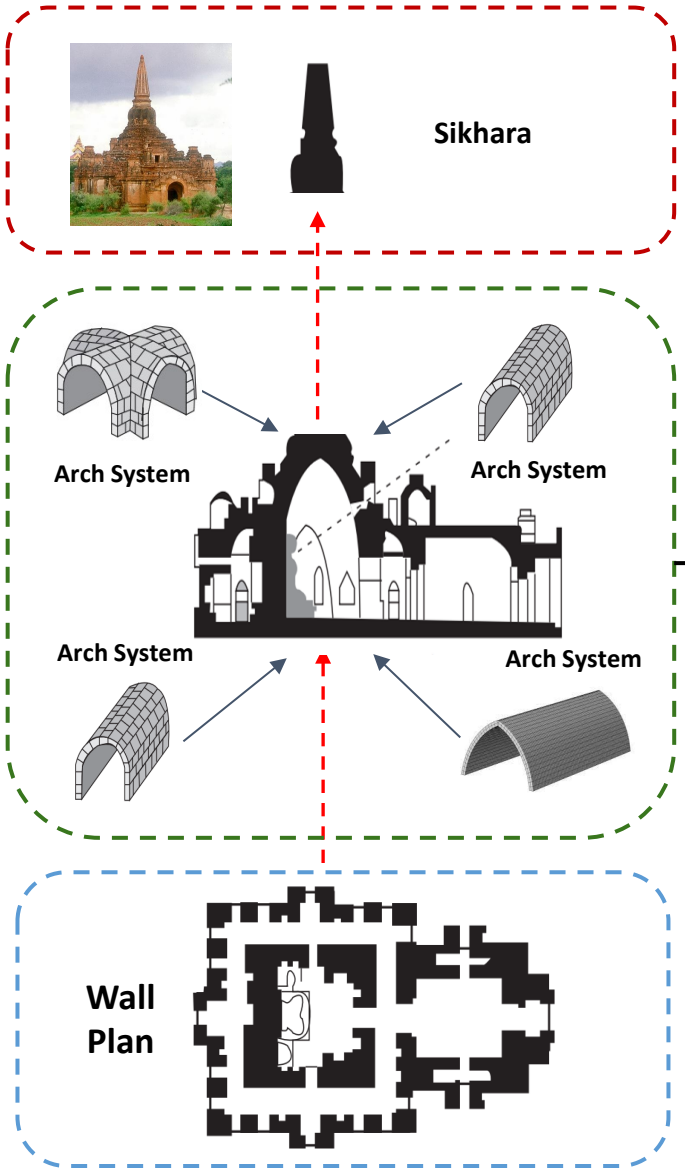


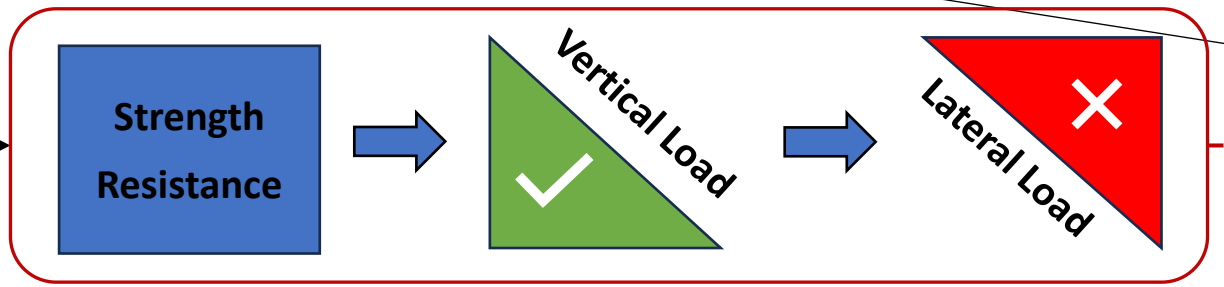


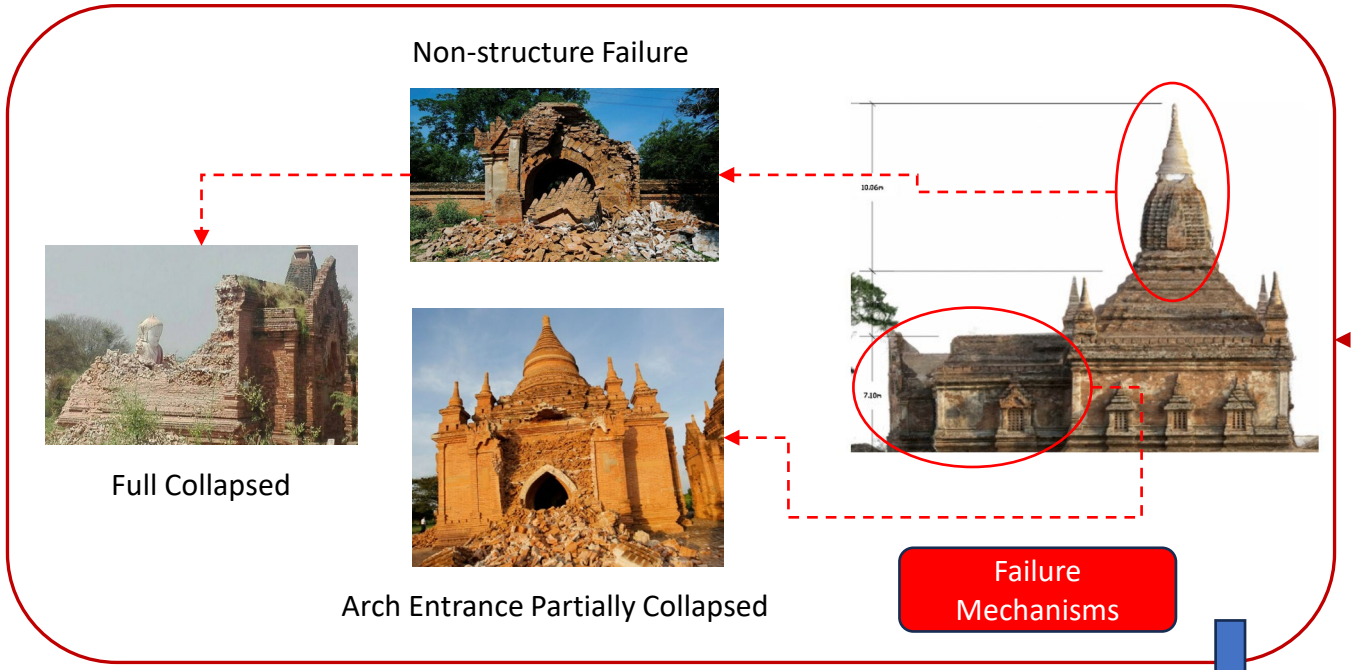


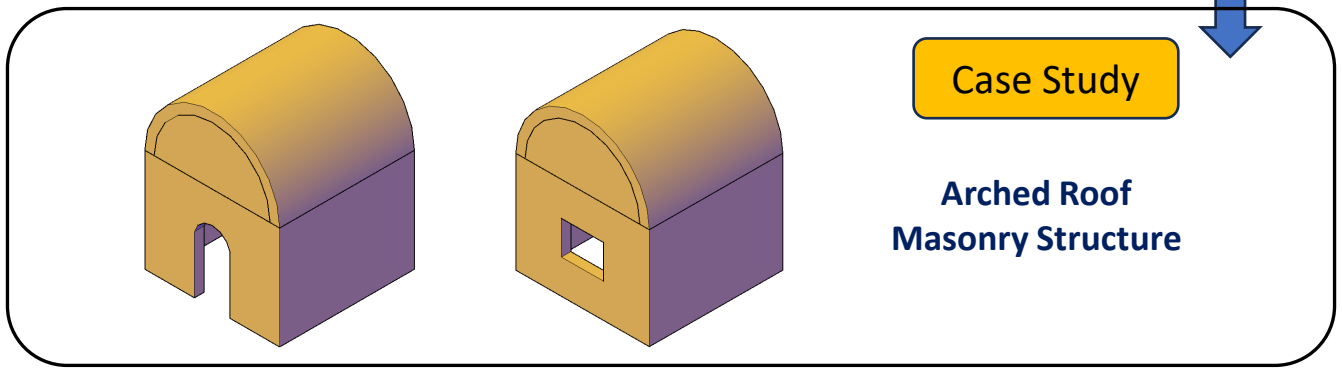


Hisitorical Masonry









Aster Power Coating® Line-up

Grade	HARD	SOFT
Purpose	**Seismic Reinforcement of masonry walls** in addition to anti-crack, water resistive and long-lasting walls.	**Maintenance of Concrete surfaces** anti crack/spalling & improved water resistance
Glass fibre content	Great	Normal
Texture	Like Putty	Like Elastomeric Paint
Application Tool	Trowel	Paint Roller / Brush
Application Area /can	8～12㎡	10～20㎡
Characteristic	Water-based coating. Very low VOC Emission (F☆☆☆☆ rating)	
Net Weight /can	16kg ± 3% packed in reusable plastic cans	
Waterproof (conforming to)	JIS-A-6909 (Japan domestic standard)	
Colour	Default White. Any colour possible for large orders	
Recommended use	As intermediate coating (usage of top-coat recommended)	
Suitable application	Interior and exterior walls. Preferably both sides.	

11 SUSTAINABLE CITIES AND COMMUNITIES

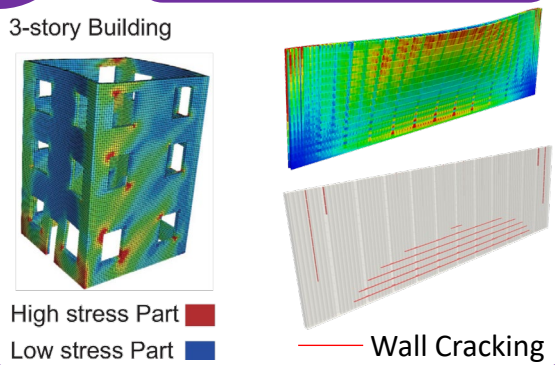
11 住み続けられるまちづくりを

Aster's Strength

Innovative Coating

Research @ University of Tokyo

Analysis & Design



★ Bespoke Coating Solution

Change our product formulation to suit client's need (eg. waterproofing, strengthening etc.)

★ Earthquake Engineering Expertise

Calculate the coating requirement (location and thickness) based on target EQ risk and budget

★ Team

CEO
Suzuki Masaomi

Material R&D
Mech Engg.

COO
Dr. Yamamoto

Masonry R&D
Earthquake Engg.

CTO
Dr. Shanthanu

Structural Engg.
Design and Analysis

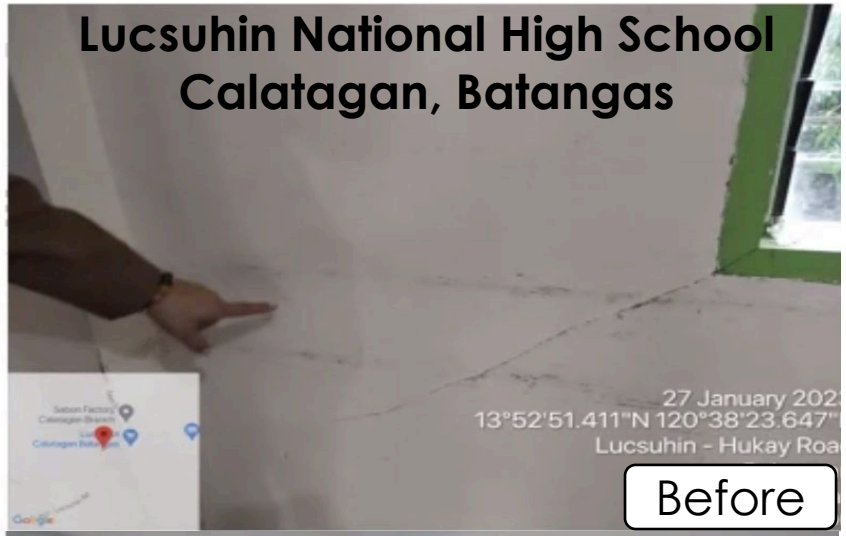
Application Example: Wall strengthening in Japan - Kochi

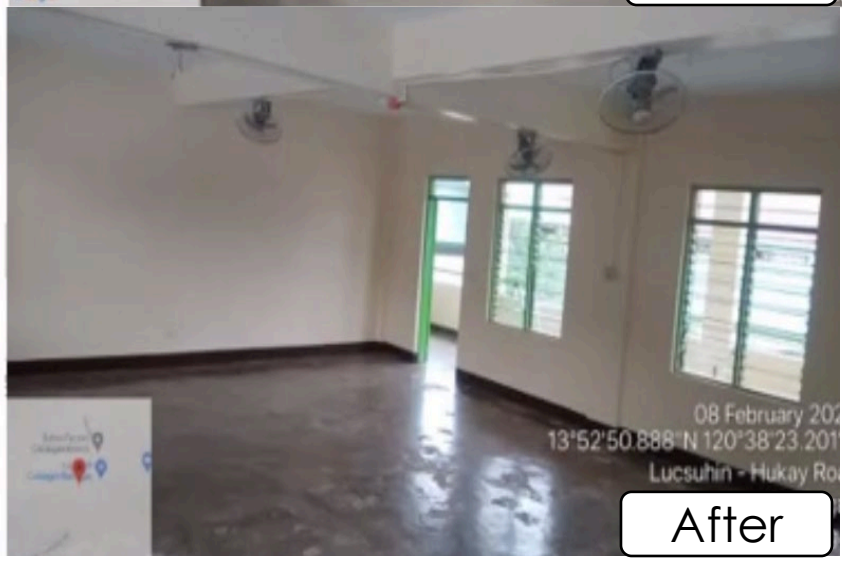


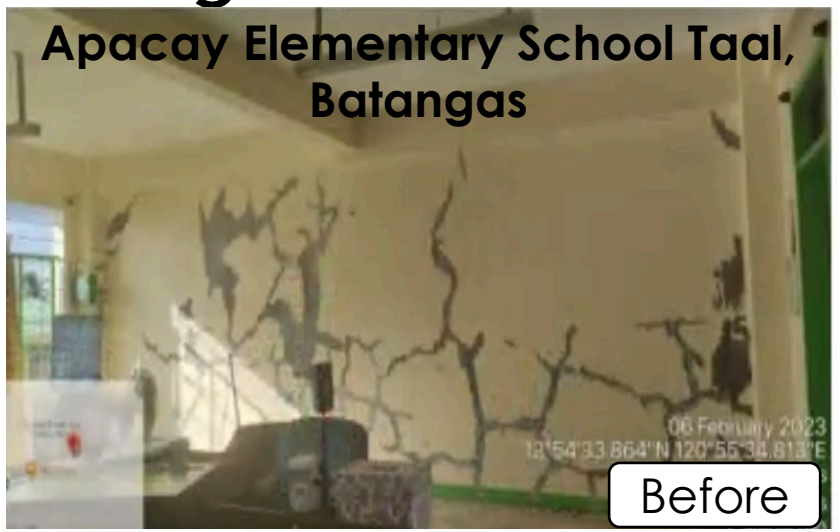




Application Example:
Seismic Retrofitting of School in the Philippines







Magnitude 6.3 (MMI Intensity 5) Earthquake occurred 2 months after coating the school (15th June 2023). No damage/cracks in wall

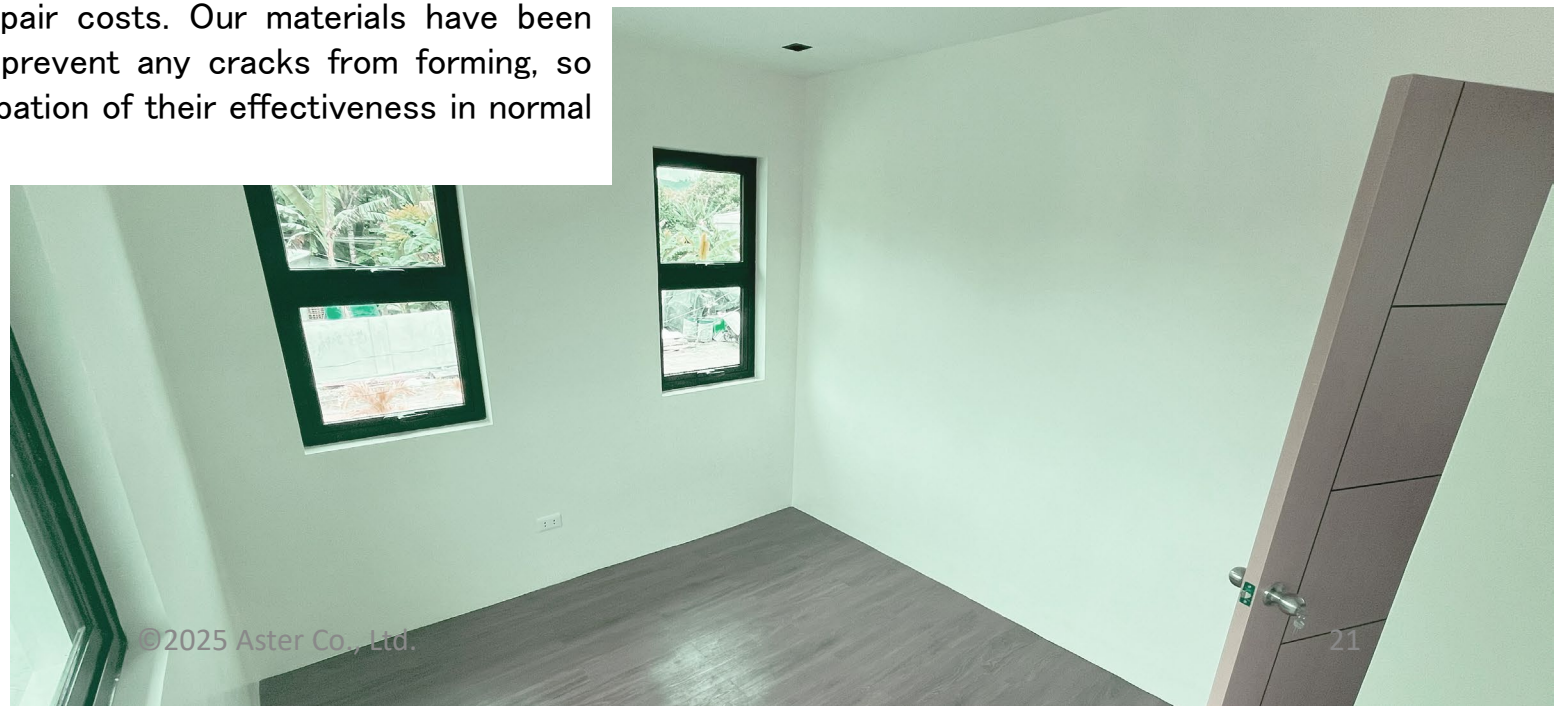
News paper coverage by Manila Shinbun


15年）1月30日（月曜日）
日刊
まにら新聞
The Daily MANILA
SHIMBUN
Since 1992
Yakult
毎日一本健腸長寿
フィリピンヤクルト(株)
記事紹介
【エコノトレンド】DMCIとユニバンクが復活へ PSE総合株価指数銘柄◇売電価格引き上げ請求を却下 サンミゲルの申立てを控訴裁（2面）「塗るだけ」で校舎耐震化 JICAパイロット事業開始（2面＝写真）
【JETRO比経済展望（29）】製造業を巡るフィリピンの比較優位性について（3面）ウクライナへ戦闘機供与か 戦車に続き、紛争激化懸念 欧米諸国（4面）スタンダード移行も選択肢 プライム企業、上場維持へ奔走 東証再編（5面）インフル、全国拡大顕著 流行1カ月、「注意報」目前 専門家「ワクチン接種を」（6面）岩渕が切優勝 Xゲームズ（7面）

[Making school buildings earthquake-resistant just by painting Start-up and pilot project from the University of Tokyo JICA | "Daily Manila Shimbun" Web The Daily Manila Shimbun Web (www-manila--shimbun-com.translate.goog)]

Application Example: Seismic Retrofitting/ Crack Prevention of New Housing in the Philippines

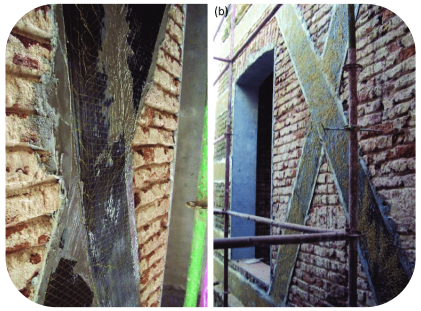
Adopted in all 100 houses in Palo City project. Planned to continue adoption in future projects.
Aster Power Coating will be used to turn one master bedroom into a safe room (panic room), minimizing cost increases while protecting lives.
On the other hand, many concerns of new construction developers in Asia are that cracks and leaks occur within about a month of construction, resulting in repair costs. Our materials have been applied and have shown to prevent any cracks from forming, so they are being used in anticipation of their effectiveness in normal use as well.




Aster
ASTER CO., LTD.
この建物は
塗る耐震 AsterPowerCoating®
で守られています
SERIAL NO. AST-2025-00123
DATE: 2025年7月7日
www.dis-aster.com

Application Example: Retrofitting Buildings in Taiwan

Old Method Carbon Fiber Sheet (CFRP)

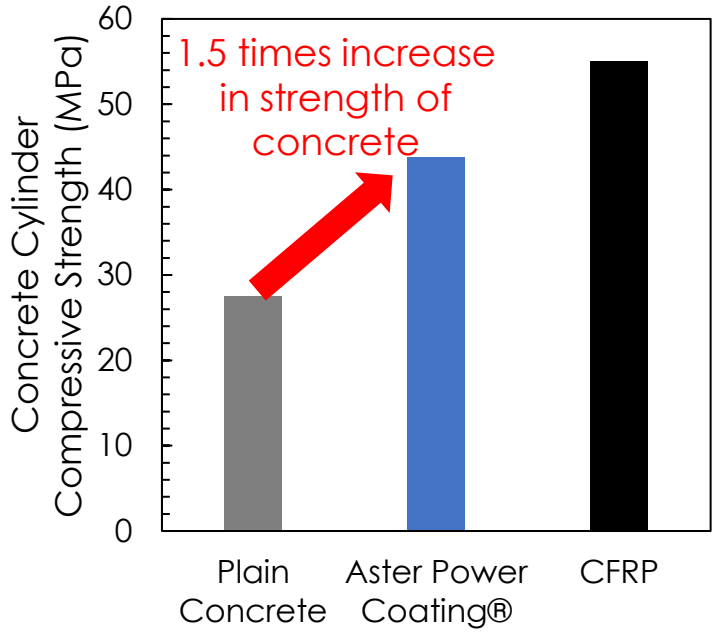


- Expensive
- Special skills required to apply
- Adhesion problems
- Makes wall too strong that structural redesign is required

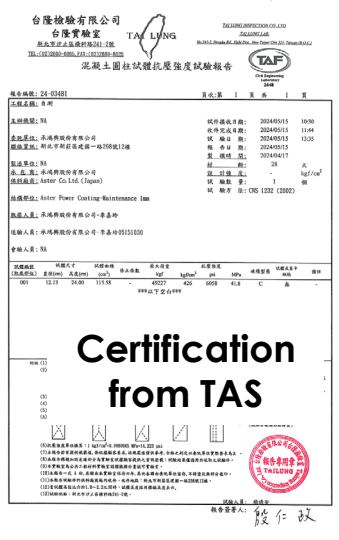
New Method Aster Power Coating®

- Cheaper (1/5th CFRP price)
- Easy to apply
- Good adhesion
- Structural redesign after application is not required

Concrete Cylinder Compression Test Results at the Taiwan Accreditation Foundation (TAF) (May 2024)



- 28 days drying period for materials
- 1 coat of CFRP(200g/m2)
- 1mm thickness of Aster Power Coating®
- CFRP strength increase is 2 times that of plain concrete
- The failure mode for CFRP is usually brittle (sudden) whereas it is ductile (flexible) for Aster Power Coating®. This flexibility and residual strength capacity is crucial during earthquakes.



RESULT:

- There is increase in strength (1.5 times) due to Aster Power Coating®
- Although, CFRP is stronger, is it expensive (5times)
- Based on this TAF approved data, Aster Power Coating® is planned to be deployed on a large scale to prevent spalling of concrete and mortar walls and as a post-earthquake earthquake repair measure.

Case Studies 1

① Market Ceiling (Taiwan)

Repairing cracks and spalling on market ceiling

Dec 2024, Soft

② Building wall (Taiwan)

Repairing cracks and spalling on building wall

Dec 2024, Soft, Thickness: 1-1.25mm (wet)

③ Apartment Repair (Taiwan)

Repairing cracks and spalling in apartment rooms

Dec 2024, Soft, Thickness: 0.75mm (wet)

Case Studies 2

④ New public housing (Philippines)

Incorporating a panic room in new public housing

Feb 2025, Soft, Thickness: 0.89mm (wet)

⑤ Pedestrian Bridge (Taiwan)

Repairing cracks and spalling on RC bridge

Feb 2025, Soft, Thickness: 1mm (wet)

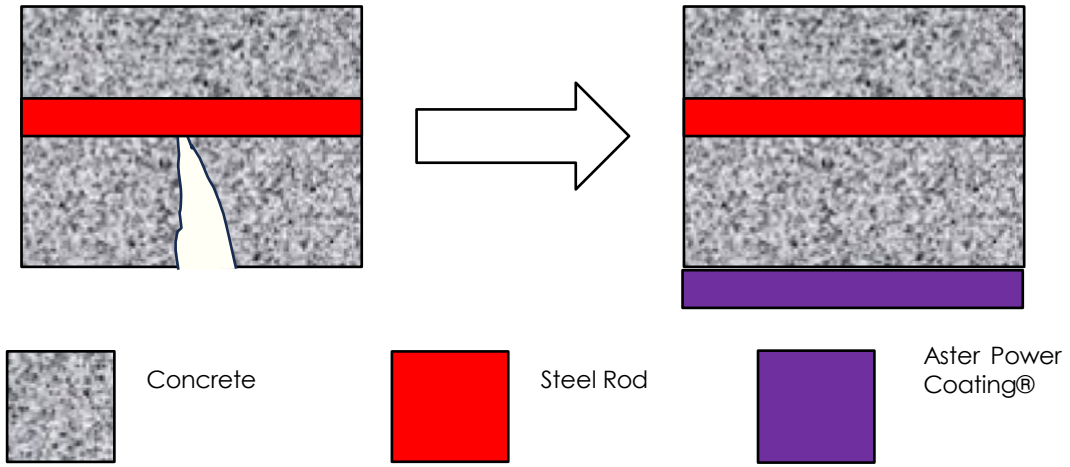
⑥ Exhibition (Taiwan)

Apr 2025, Exhibit at the Taipei Building Materials Expo

Aster Power Coating®

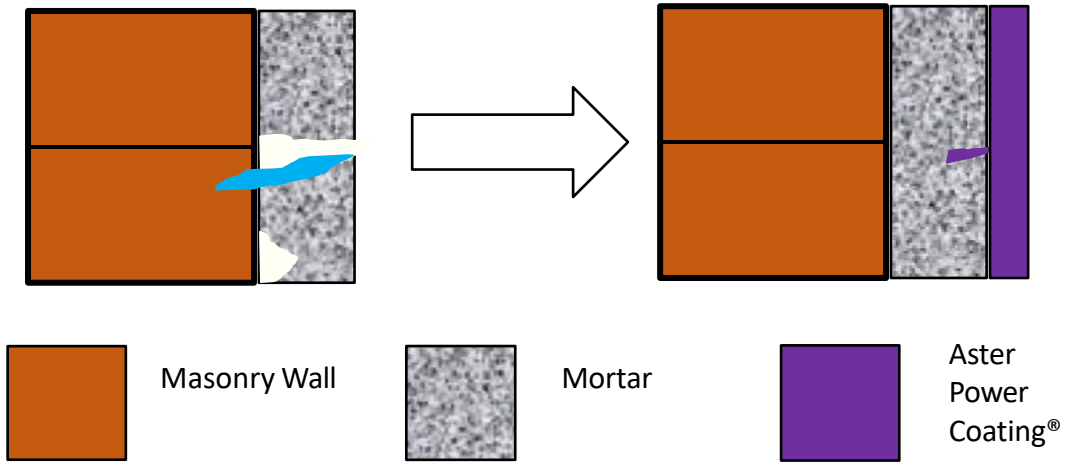
SOFT - for Maintenance

Concrete



1. Increase concrete surface strength and prevent cracks
2. Prevent cover concrete spalling and steel exposure

Masonry



1. Increase masonry/mortar surface strength and prevent cracks
2. Prevent water penetration during heavy rain

Application Example: Maintenance of Railway Bridge in Japan

Strengthening of degraded reinforced concrete railway viaduct

No spalling even after 25 years !!!!

Application Example:
Maintenance of university building in Numazu, Japan

Before

After

Application Example:
Maintenance of Residential Building in Okinawa, Japan

*Not the comparison of same place

Chiba Grane Center Silo in Chiba, Japan

Thank you

Simple workmanship

Flexibility in changing room layout

Good **thermal** and **acoustic** performance

Reduction in construction **resource**

Good earthquake performance

Easier to waterproof floors

CO_2 Reduction

Contact us at
contact@dis-aster.com

11 SUSTAINABLE CITIES AND COMMUNITIES

13 CLIMATE ACTION

17 PARTNERSHIPS FOR THE GOALS