





DURAFlex[®]

DURABLE FIBER CEMENT BOARD

EXTRA DURABLE FIBER CEMENT BOARD FOR CEILING - WALL - FLOOR AND ROOF

APPLICATION: moisture resistant exposed ceiling, surrounding-wall, floor-underlay, replacement tiles of industrial laminated wood or concrete roof system with water-proofing membrane.

ADVANTAGES:

-  Fire and moisture resistant
-  Anti-termite
-  Easy to install
-  50 - year durability





CATEGORY

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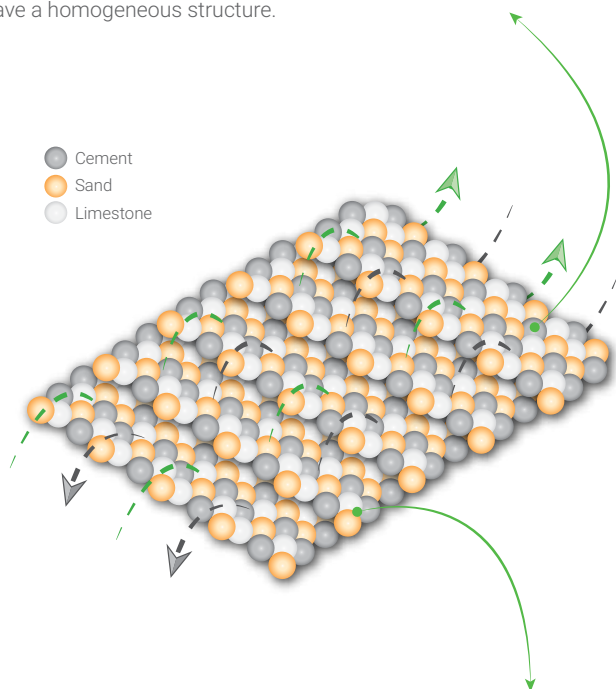
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WHAT ARE THE **DURAf^{flex}**® fiber cement board? OUTSTANDING FEATURES OF

Extra durable fiber cement board - **DURAf^{flex}**® is a new material for interior and exterior application of ceiling, wall, floor and roof. The product meets the need of rapid completion for all construction works.

1 EXCELLENT MOISTURE RESISTANT

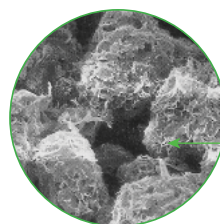
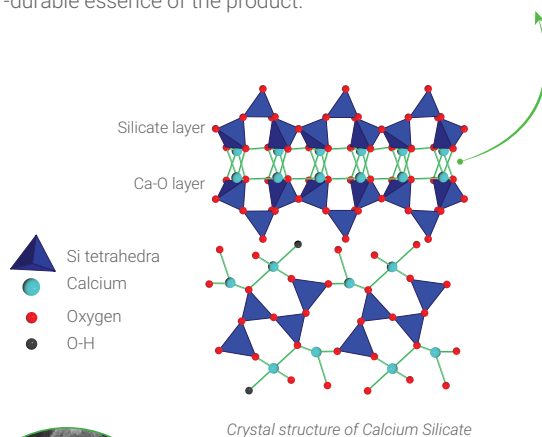
Sand, cement, limestone non-flammable materials are crushed ultra-fine tenfold compared to the original size to make the board have a homogeneous structure.



Good firm bond creates the diaphragm which allows the board to have high moisture and water-resistant capability, but the structure still contains a hollow slot with a two-way breathing mechanism so that it can be easily painted, super-fine with a bright white, smooth surface.

3 SUPER FIRM

With Autoclave technology with high temperature and pressure, chemical compositions and crystalline structure are stabilized to create a solid structure composed of Calcium Silicate minerals, mainly of Tobermorite. This crystalline structure allows the board to have a higher intensity resistance, especially fire retardancy, to create a super-durable essence of the product.

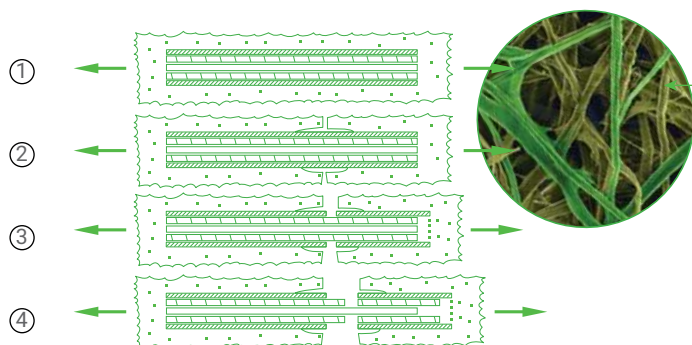


Mineral structure of Tobermorite



2 EXTRA DURABLE

The matrix of interlocking cellulose fibers allows the board to have a durable structure even when subjected to strong forces. The board does not break suddenly but must pass many layers of protection to the core.



4 FREE OF ASBESTOS

DURAf^{flex}® fiber cement board does not contain asbestos which can lead to cancer. It obtains Green Label certificate - safe for health.



TECHNICAL INFORMATION

CHARACTERISTICS	VALUE	TEST METHOD
Average Flexural Strength (1)	13 - 17 Mpa	ASTM C1185
Density (2)	1.30 - 1.40 g/cm ³	ASTM C1185
Moisture content (3)	8 - 10%	ASTM C1185
Moisture movement (4)	0.01 - ≤ 0.07%	ASTM C1185
Water absorption (5)	<35%	ASTM C1185
Water tightness (6)	There aren't drops of water on the underside of the sheet	ASTM C1185
Reaction to fire (7)	Non - combustion material	ISO 1182
Surface Burning Characteristics (8)	Spreading index of smoke = 0	ASTM E84
Thermal conductivity (9)	0.166W/mk	ASTM C518
Delamination	Non - Delamination	-
Screwing Resistance (level)	Being unbreakable when screwing shooting	-
Direct Screw withdrawal	Being unbreakable when screwing withdrawing	ASTM D1037
Flexural ultimate strength In equilibrium condition (10)	≥ 10 MPa	ASTM C947
Flexural ultimate strength In wet condition (11)	≥ 7 MPa	ASTM C947
Modulus of Elasticity In equilibrium condition (12)	7.7	ASTM C947
Modulus of Elasticity In wet condition (13)	5.53	ASTM C947

*The criterias in the table reach the requirements in **ASTM C1186** and **ASTM C1325** standards

The characteristics are tested and certificated:

- (1) (2) (3) (4) (5) (6): By Quatest 3
- (7): By VIBM
- (8): By TUV Rheinland
- (9): By TUV SUD

- g/cm³, Mpa (N/mm²), J, W/mk: being units in the international System of Units (SI) in line with each of the characteristics above
- ASTM: American Society for Testing and Materials
- ISO: Internatinal Standards Organization



THE PRODUCT HAS MANY OTHER HIGHLIGHTS



Fire proof



Anti-termite



High impact resistance



Easy to cut and fasten, flexible for any space



Meet ASTM C1186 quality standard, United States

TEST RESULTS, PRODUCT QUALITY CERTIFICATE OF **DURAflex**[®]



Certificate ASTM C1186 - Type A

Standard Test Methods for Sampling and Testing Non-Asbestos Fiber-Cement Flat Sheet (America) - type A. It meets the standard for exterior applications under severe weather conditions.



Green Label

One of the most rigorous standards granted by the Singapore Environment Council. This certifies that the product is made from safe materials that do not harm to environment during both manufacturing and daily use.



Water resistant capacity

There aren't drops of water on the underside of the sheet after 24 hours according to the ASTM C1185-11 test method and meets ASTM C1186 standards.



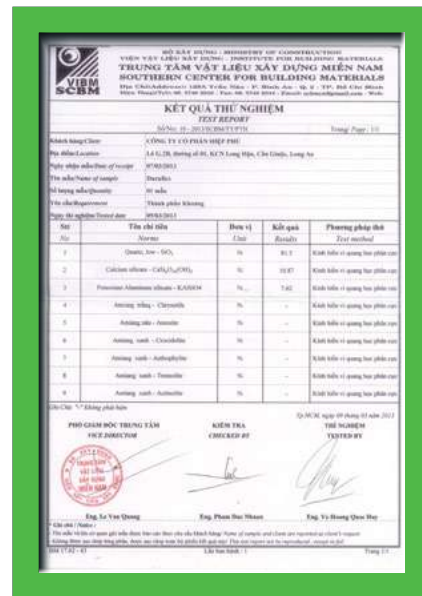
Heat Tolerance

Heat Tolerance Test (Deformed Or structural change) of each type of thickness in The temperature of 600 degrees Celsius . In the temperature of 600 degrees Celsius **DURAflex**[®] board 600x600 is certified undeformed, color unchange or non-warping.



Non VOC, Formadehyd and other toxic chemicals Certification.

Test the content of VOC, Formaldehyde, 4-Phenylcyclohexene, Total Phthalates, Total Particles in the sheet according to ASTM D5116-10 standard, and pass GLS-41 standard. It certifies that **DURAFlex®** is a safe, non-toxic chemical material for health and the environment.



Non- Asbestos certificate

Test the asbestos content of the sheet according to the chemical composition analytical technique (XRF), the mineral composition analytical technique (XRD) and optical microscope. It certifies that **DURAFlex®** is a safe, non-toxic chemical material for health and the environment.



Non-combustibility certificate Fire resistant

The board is exposed to fire or heat in high temperature for testing, material is not burned and almost not deformed. Test method ISO 1182: 2010 is used and complies with QCVN 06: 2010 / BXD on fire safety for houses and buildings and is classified in A1 according to EN 13501-1: 2007



TÜV ISO certificate

The company obtains certificates of management system for quality, environment, occupational safety and health such as ISO 9001: 2015, ISO 14001: 2015, BS OHSAS 18001: 2007.



QUATEST3® ASTM C1325 test report

Duraflex 2X fiber cement board reach the criterias in ASTM C1325 standard with the application of walls, floors, **roofs and decks** in wet and dry areas.

APPLICATION ILLUSTRATIONS

Civil steel frame houses

Coffee shop

Factory

Showroom



Factory

Showroom

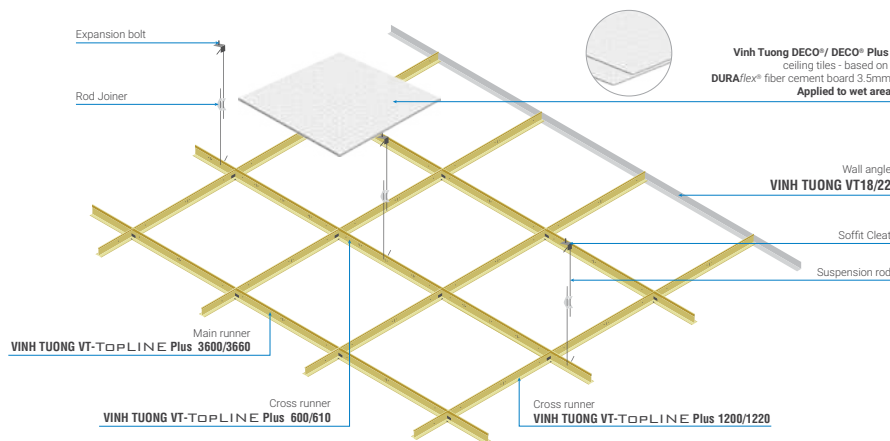
Roof structure

Factory

Container house

EXPOSED CEILING TILES

DURADECOR ceiling tiles are decorated on **DURAFlex®** based board 3.5mm thickness. With diversified patterns, moisture resistant, fire proof, **DURADECOR** is especially used for moisture & heat-resistant buildings such as factories, offices, commercial buildings, civil houses level 4.



PRODUCT INFORMATION

THICKNESS

- 3.5 mm
- 4.5 mm

PRODUCTS	DIMENSIONS (mm) (Width x Length x Thickness)	WEIGHT (kg/sheet)
DURADECOR Super White paint - laminated ceiling tiles	605 x 1210 x 3.5	4.1
DURADECOR Board with patterns	605 x 1210 x 3.5	4.1
DURADECOR Board with Phuc Loc An Khang standard serigraphy	605 x 1210 x 3.5	4.1
DURADECOR Board with Phuc Loc An Khang advanced serigraphy	605 x 1210 x 3.5	4.1
DURADECOR PVC - laminated ceiling tiles	605 x 1210 x 3.5	4.1





EXPOSED CEILING PATTERNS ON DURAFLEX® BOARDS (*)

Vinh Tuong desires to bring a fresh and sweet living space into your beloved home with a new collection of decorative ceiling tiles - which is inspired by natural creatures named NATURE with patterns of SPRING LEAVES, PLUMERIA FLOWER, SLENDER BAMBOO. Besides that, the sweet flow of memories of family and childhood is the main inspiration of the stylized lines to create models with patterns of KITE, PINWHEEL, KALEIDOSCOPE in the CHILDHOOD collection.

(*) Patterns were designed and copyrighted by Vinh Tuong

CHILDHOOD COLLECTION



KITE

Stylized patterns from the image of the KITE flying in the blue sky does not just recall innocent childhood but a symbol of thirst for a peaceful, free and easy life.



PINWHEEL

The colorful and lively memories of childhood can not be lack of the image of the colorful PINWHEEL turning round freely in the wind, bringing a peaceful, relaxing and comfortable feeling in modern living space.



KALEIDOSCOPE

Created by the mixing of variant objects with extremely interesting symmetrical motifs, creative lighting games through KALEIDOSCOPE bring the enjoyable curiosity of life in many forms.

NATURE COLLECTION



PLUMERIA FLOWER (gray)

Alternate patterns of PLUMERIA FLOWER's petals bring the inherent beauty of the pure and cool nature into your living space.



SPRING LEAVES (gray)

SPRING LEAVES's patterns with the image of fresh green leaves create the feeling of freshness, restore the vitality from busy work in modern life.



SLENDER BAMBOO (gray)

The soft slender branches of green bamboo contain the persistent vitality of SLENDER BAMBOO's patterns, bringing the youthfulness and cohesive spirit in every family.

TOP SELLER



FIREWORK



BAMBOO



CARA



HOW TO INSTALL EXPOSED CEILING USING **DURAflex**® BOARDS

Step 1: Prepare materials and determine the height at which the suspended ceiling will be installed.

- Measure the size of the ceiling and prepare proper amount of steel frame including wall angle, main runner VT TopLINE Plus, cross runner VT TopLINE Plus and necessary accessories .
- **DURAflex**® boards with pre-finished texture surfaces in either paint, PVC laminated, or silk printing with patterns.



Step 2: Determine the height at which the suspended ceiling will be installed.

- Fix wall angle by using nails on the wall with appropriate fixing.
- Install the suspension rod to the main runner.
- Determine the location of the cross runner by the configuration you selected, install the cross runner by inserting the ends of the cross runner into the slots in the main runner.

Step 3: Install **DURAflex**® boards on the frame.

Cut the board: place the board on the cutting table, determine the space based on the grid in step 2, use specialized cutting knife to create the deep cut on the board, then move the cutting line to the edge of the cutting table, one hand holding the board while the other hand pressing down the edge of the board.



Drop the ceiling tiles onto position by tilting them slightly following the printed arrows at the back of the boards so the ceiling will have a homogeneous look, lifting them above the framework and letting them fall into place.



Step 4: Clean the surface of the boards after placing them on the frame.



Step 5: Completion and decoration.

Hang lights or other decorative objects, subject to manufacturer's recommendation.

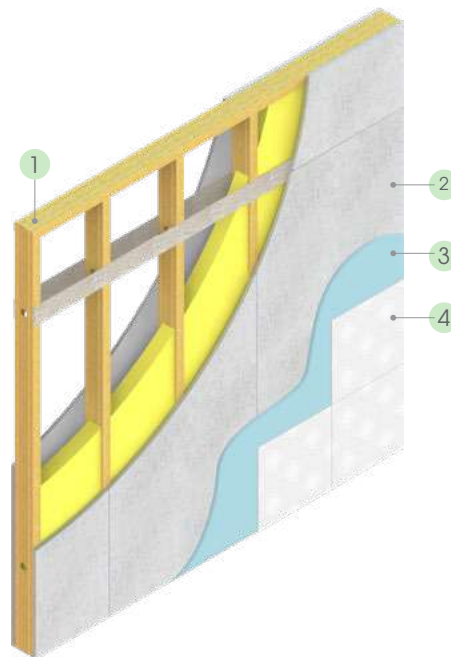


INTERIOR WALL/ PARTITION

DURAFlex® fiber cement board with superior features such as durability, sound-insulation, moisture fire resistance designed for interior application of wall/partition and can replace brick/cement wall system which requires longer construction time. Additionally, it has lighter structure to save cost and reduce the construction time of high-rise building projects.

Combining with Vinh Tuong V-WALL and V-SOUND system to make partitions for offices, trade centers, residentials, hotel buildings.

With the good moisture resistant feature suitable for harsh climate conditions, **DURAFlex**® board is designed for partitions in the wet areas such as kitchen, bathroom and cold storage warehouses...



1. Vinh Tuong VT V-WALL
2. **DURAFlex**® board
3. Weber.tai Flex tile adhesive
4. Tile

PRODUCT INFORMATION

THICKNESS

- 6 mm square edge
- 9 mm square edge
- 8 mm square edge
- 10 mm square edge

PRODUCTS	DIMENSIONS (mm) (Width x Length x Thickness)	WEIGHT (kg/sheet)
DURAFlex ® fiber cement board 6mm squared edge	1220 x 2440 x 6	28
DURAFlex ® fiber cement board 8mm squared edge	1220 x 2440 x 8	37
DURAFlex ® fiber cement board 9mm squared edge	1220 x 2440 x 9	42
DURAFlex ® fiber cement board 10mm squared edge	1220 x 2440 x 10	46



Moisture resistant wall



HOW TO INSTALL **DURAflex**® BOARD FOR PARTITIONS

Step 1: Measure, prepare tools and materials and install metal frame.

Prepare **DURAflex**® boards 1220x2440x8mm and Vinh Tuong V-Wall or others steel tracks and studs according to the approved drawing.



Step 2: Install **DURAflex**® boards onto the metal frame.

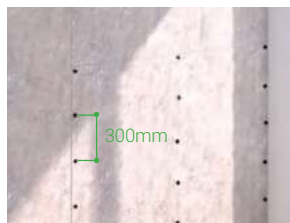
- Determine the position to install metal frame.
 - Fix U track to the floor and soffit at 600mm centres with suitable fixing.
 - Locate C stud within the U track at 610mm^(*), then fix C stud to U track on both side with wafer head crew.
 - Incorporate M&E services after one side is boarded.
- (*) 406mm if it is an application in wet area with marble/tiling.*

Step 3: Use screws to fix boards on metal frame.

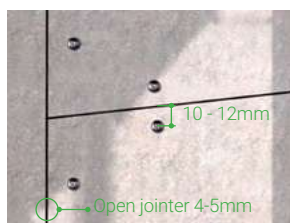
Leave a gap of 2-3mm between boards and staggered.



Use screws to fix boards to the frame, the distance between screws at max is 300mm centres, at every stud positions.



Fixing positions is no closer than 10-12mm from ends and edges of board.



Each 3,6m wall length/height have 1 open joint 4-5mm width.

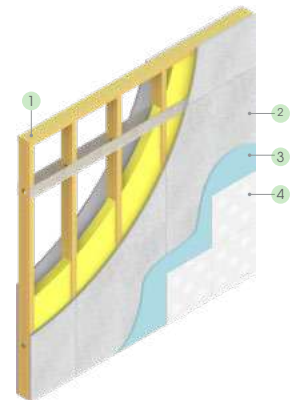
Step 4: Jointing treatment and cover head crews.

Jointing treatment and covering head screws by using specialized joint compound for normal joints. For open joints, use modified silicone sealant.



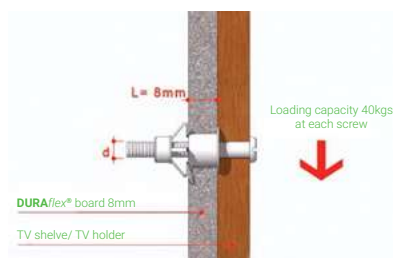
Step 5: Finishing and decoration.

Cover the boards's surface with water-based paint or wall papers or tiles.



1. Vinh Tuong VT V-WALL
2. **DURAflex**® boards
3. Weber.tai Flex
4. Tiles

Using Hilti screws to hang heavy objects on the wall, partition using **DURAflex**® 8mm which can withstand weight of 30-40kg at the hanging point.





FLOOR UNDERLAY AND ROOFING

DURAFlex® boards 12mm - 20mm in thickness are plain cement board using for floor as the replacement of concrete or laminated wood. With superior features such as super- firm, effective moisture & fire resistant, the product with the appropriate sizes that it can be easily install for floor, mezzanine, factories, offices, commercial buildings, civil houses or installation buildings. Besides that, **DURAFlex**® 9mm - 12mm can be used as ceiling tiles to replace concrete roof.



PRODUCT INFORMATION

THICKNESS

- 9 mm square edge
- 10 mm square edge
- 12 mm square edge
- 16 mm square edge
- 18 mm square edge
- 20 mm square edge

PRODUCTS	DIMENSIONS (mm) (Width x Length x Thickness)	WEIGHT (kg/sheet)
DURAFlex ® fiber cement board 9mm squared edge	1220 x 2440 x 9	42
DURAFlex ® fiber cement board 10mm squared edge	1220 x 2440 x 10	46
DURAFlex ® fiber cement board 12mm squared edge	1220 x 2440 x 12	55
DURAFlex ® fiber cement board 16mm squared edge	1220 x 2440 x 16	74
DURAFlex ® fiber cement board 18mm squared edge	1220 x 2440 x 18	83
DURAFlex ® fiber cement board 20mm squared edge	1220 x 2440 x 20	93



IDENTIFIED PRODUCT

DURAflex® BOARD

DURAflex® 3.5 - 10mm

DURAflex® 12 - 20mm



Content: Size, quantity, lot number, date of manufacture, type of edge

1. Label on DURAflex® pallet
2. Inkjet printing on the board

DURADECO Tiles

Package of VINH TUONG DECO® / DECO® Plus pallet with the base is DURAflex® board

The product meets standards of ASTM C1186, TCVN 8258



THINGS YOU MAY NOT KNOW



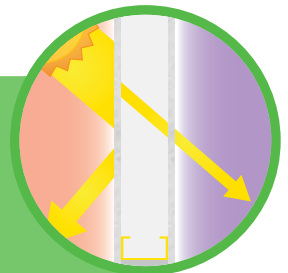
SUPER FAST CONSTRUCTION MATERIAL

DURAflex® is perfectly made to speed up the construction progress. Construction model of board assembling for entire interior and exterior applications of ceiling, wall, and floor that help the building progress 2-3 times faster than traditional building method. The ability to bend of the board as well as the ability to create unlimited shapes of the metal frame actualize unique architectures.

THERMAL ISOLATION MATERIAL **DURAflex®**

Heat Conductivity rate of **DURAflex®** board = 0.166W/m.K, 5 times lower than clay brick and 39% than gypsum board.

* According to QCVN 09: 2013 / BXD and test result from TUV PSB Singapore (Gypsum: $\lambda = 0.23$, clay brick $\lambda = 0.93$)



ANTI-TERMITE FOREVER

Thanks to the main components of the board made of Sand, Limestone, Cement and modern manufacturing technology that make **DURAflex®** board's structure not be disintegrated, decomposed up to 50 years.

SOUND ISOLATION

Sand, cement, limestone are crushed ultra-fine tenfold compared to the original size to make the board have a homogeneous, solid structure, There is no such small air balloons as concrete structure that make the board have good isolation (depending on the system).



MOISTURE RESISTANT

The board is made of sand, cement, limestone that creates good firm bond like the diaphragm which allows the board to have high moisture and water-resistant capability.

SAFETY WITH HEALTH AND ENVIRONMENT

DURAflex® is the first cement board brand in Vietnam to receive the SINGAPORE Green Label. The product is strictly controlled by the world leading construction material Saint-Gobain.



TRANSPORTATION & STORAGE GUIDE

STORAGE

Must comply with **DURAFlex**® manufacturer's storage guidelines to minimize damage. Make sure boards are kept in the best condition.



Pallet should be covered at 4 corners with aluminum bars (carton), wrapped around with plastic film and fixed with plastic strings.



Pallets can be stacked together but the height should be lower than 3.2m.



Stack on the pallet neatly.



A part of the pallet is not covered by plastic film.

LOADING/UNLOADING

To ensure that **DURAFlex**® boards are loaded/unloaded by right methods, Vinh Tuong's loading/unloading guidelines must be strictly followed.



Lift **DURAFlex**® board from the middle of the board sides.



Carry the board vertically.



The board is sagged when being carried horizontally.

TRANSPORTATION

It is encouraged to use forklift to lift boards up and down or move pallets from place to place.

Please notice if transportation by trucks or containers:

- Reinforce pallets on trucks/containers to avoid sliding and colliding together during transportation progress.
- When using truck, tray truck should be covered to protect boards from exposing to rain and sunlight.



END-USER SUPPORTING TOOLS:

- 1 Software for calculating ceiling and dry wall material
Download at: www.vinhtuong.com/tinhvattu



- 2 Clips for **DURAFlex**® Installation Guide
 - Wall: www.bit.ly/thicongDURA_vachngan
 - Ceiling: www.bit.ly/thicongDURA_tranha



INTRODUCTION OF SAINT-GOBAIN VIETNAM FGM

Industrial presence in **67 countries**

179.000
employees

2017 **Net sales**

€40.810M

- Belonging to Saint-Gobain Group, Saint-Gobain Vietnam is the market leader in Viet Nam offering a wide range of products and services for construction material business.
- Our key brands include: **Gyproc® - Vinh Tuong®** providing innovative drywall and ceiling solutions.
- **DURAFlex®** fiber cement board offering good solution for wet areas.
- We also have Weber brand to provide solution for tile adhesives, sealants and waterproofing products.
- Our mission is to develop innovative products and services that help customers build better spaces to live, work and play by our commitments:
 - Sustainable quality products that qualify material standard of Saint-Gobain (Europe).
 - A range of products and solutions.
 - Large supply capacity with 2 metal plants, 2 gypsum plants, 1 cement board plant, capacity is over 30 million m²/ year/ 1 factory.
 - An extensive sales system with more than 1.500 distributors and shops nationwide.
 - Warranty & technical support.

INTRODUCTION OF VINH TUONG INDUSTRIAL CORPORATION

Established in 1991, Vinh Tuong has now become one of the largest brand in Vietnam, supplying comprehensive ceiling and partition solutions, with the growth rate of 500% within the last 5 years. All company management and production systems meet international standards of ISO 9001:2008 which is certified by SGS (Switzerland), with metal frame products meet ASTM (America), BS (United Kingdom), which is guaranteed 10 years without rust in the normal environment of climatic conditions, temperature, and humidity.

Vinh Tuong is among the top 500 largest private enterprises in Vietnam (VNR500) and honored to receive the National Gold Quality award by the Prime Minister in 2012. In 2015 Vinh Tuong becomes a member of Saint-Gobain Group. Vinh Tuong is manufacturing and distributing products such as ceiling and wall/partition frame, Gyproc® plasterboard, decorative board - **VINH TUONG DECO®/ DECO® Plus**, and related accessories.

INTRODUCTION OF HIEP PHU CORPORATION

Hiep Phu Corporation (HPC) is the first Plant in Vietnam, which produces fiber cement boards 100% free asbestos called **DURAFlex®**. With modern, automatic and specialized technology in production process with International Standard ISO 9001: 2008, HPC commits the quality of products to meet the International Standard ASTM (America Society for Testing and Materials) that certified by TUV Rheinland - Germany.

With continuous expansion of the plant in 2016, 2017 and steady growth over 60% in recent years. **DURAFlex®** has become a leading brand in the market of Fiber Cement - super fast material in modern construction industry.



SAINT-GOBAIN

**Saint-Gobain Vietnam Limited
Vinh Tuong Industrial Corporation**

Floor 8, Sofic Tower, 10 Mai Chi Tho Street,
Ward Thu Thiem, Thu Duc city, Ho Chi Minh City

**Viet Nam North Vinh Tuong
Industrial Limited Company**

Floor 17 , Capital Place Tower, 29 Lieu Giai Street,
Ngoc Khanh Ward, Ba Dinh District, Ha Noi City