

GEOLAM COMMERCIAL DECKING

PROJECT:

COMPANY:

GENERAL CONTRACTOR:

ARCHITECT:

LOCATION:

Geolam[®]
Architectural Eco-Technology



TOKYO INTERNATIONAL AIRPORT, JAPAN

GEOLAM COMMERCIAL DECKING

TABLE OF CONTENTS

1. Installation Guide
2. Technical Data
3. Geolam Warranty



INSTALLATION AND MAINTENANCE GUIDE

Geolam Qualita 020C/020E Decking Board

Commercial, public spaces,
marinas, residential

Geolam[®]

Architectural Eco-Technology

www.geolaminc.com



PEDESTRIAN BRIDGE, LA



PRIVATE RESIDENCE, FRANCE

Installation and maintenance guide *Geolam® is a composite material made from recycled wood and resins, and is easy to install. However, handling and fitting techniques are different to those deployed when using natural wood, so please be sure to follow the instructions below carefully...*

Basic guidelines for using Geolam® :

- Allow for boards to expand and contract due to temperature and humidity, mostly along the length. See Expansion table and photo 7. Boards will expand and contract in direct proportion to their length i.e. a 6 ft board will move half as much as a 12 ft board.
- Minimum distance between the bottom of the board and the ground is 5" to ensure adequate ventilation. Ensure that water does not stagnate beneath the deck (See Fig. B). At least 2 sides must be completely open with an air passage of no less than 1". The boards will perform well through natural cycles of wet and dry. However, failure to provide proper drainage and good ventilation may cause chronic wetness on the underside of the boards and compromise their strength.
- All boards must be fastened to joists (See Fig. A) or sleepers and not fixed to a concrete surface.
- The distance between two adjacent boards will be determined by the fasteners – 1/4". This will allow for ventilation and water run-off (See Fig. F).
- Always check local building regulations before installing Geolam®.
- Cover boards with a waterproof tarp prior to installation to avoid greater-than-normal accumulation of dust. If you fail to do this, you may need to wash the boards just prior to installation.

Storing Geolam® boards:

Store boards flat on supports spaced no more than 2 feet apart. Keep indoors or cover with a waterproof tarp. If allowed to get wet during storage the dust laden water will leave spots when it dries. This does not occur when the boards are installed because of the natural cleaning process provided by wind & rain. Avoid any heavy blows to the boards while handling.

Sub-zero temperatures:

While Geolam® boards are rugged across a wide temperature range, the edges are more susceptible to chipping at colder temperatures. It is fine to install boards at sub-zero temperature but please take this into account when doing so, as well as allowing for expansion as previously mentioned.

Tooling:

Geolam® can easily be worked with standard tools. Using carbon fiber wood saw blades, or even better, fine-toothed blades designed for cutting light metals will maximize the life of the cutting tools used, and improve the appearance of the cut edges.

Cliplam Clips:

There are several methods for installing first and last boards on decks and stairs where clips can not be used. Select the method best suited for your particular project from the following:

- Clips and screws

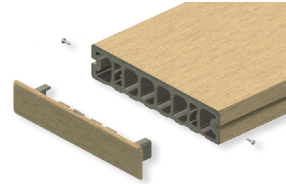
Clip Universal



Finishing clip



- End Caps



Stainless steel screws:

- These self-drilling screws are in A2 stainless steel, and are coated with a black outer surface layer. This anti-oxidation layer offers additional protection against corrosion, and also lubricates the screw to enable installations without pre-drilling for most wood or aluminium joists. See photos below left.

Ground types below the terrace:

Check that the ground beneath the deck is stable and well drained. Remove any substrate to a depth of 10" below the finished level of the deck. Spread a layer of at least 4" of draining material (gravel, for example) and cover with a geo-textile to prevent weeds from growing up between the boards. Joists can be laid on plastic supports (these are often height adjustable) or longitudinal concrete supports, or small concrete slabs. The minimum distance between the lower surface of boards and the ground should be 5".

Deck structure:

The decking structure may be in pressure treated wood, cedar, hardwood, or metal. As is the case for all composite woods, Geolam® should never be used to provide structural support.

Joists made from composite material should likewise never be used. When using joists and beams in treated wood, we recommend fitting a plastic or bituminous strip over the joists in order to protect the structure, and to prevent creaking.

Distance between joists should not exceed 24".

This assumes that deck boards are laid perpendicular to the joists. For diagonal installations i.e. laying boards at 45°, joist spacing needs to be decreased to 18".

Allow approximately 1.2 fasteners per square foot on joists spaced 24"oc.

Installing first and last boards:

Use finishing clips (Fig. J). Edging boards can also be fitted and secured with hidden fasteners (Photo 3).

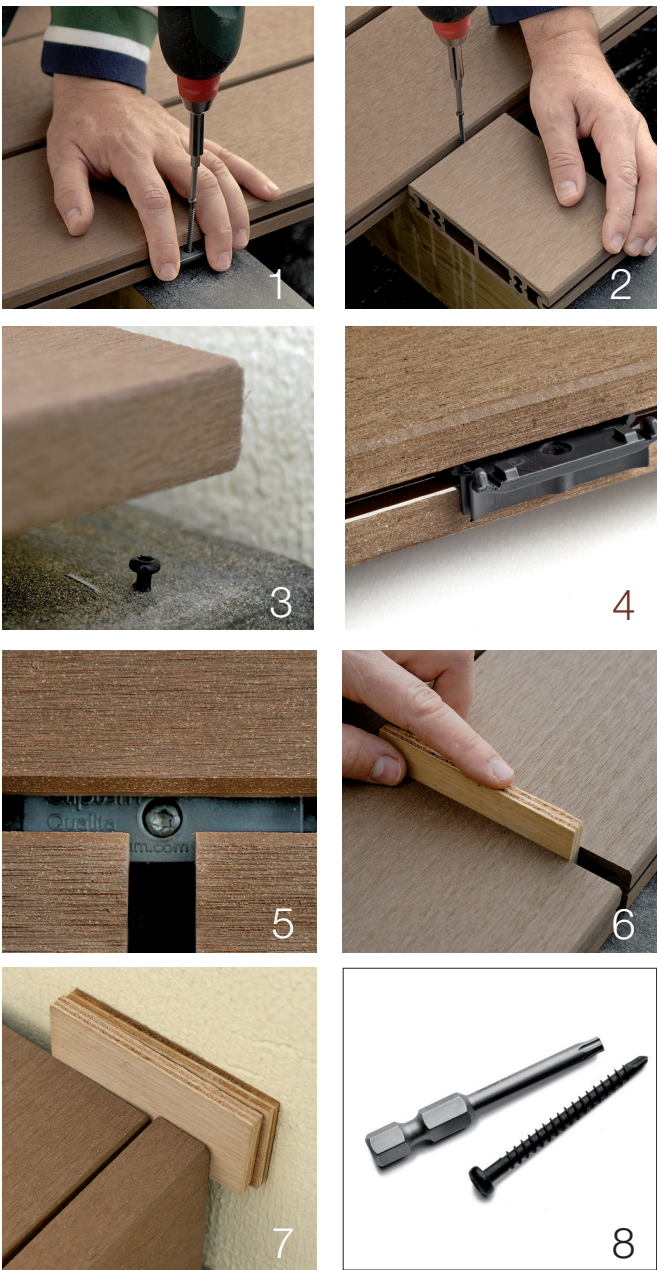
Installing the decking boards:

Center the clip on the joist (Fig. D) and use screws supplied with the clips to ensure the boards are not damaged during installation, but also in the event that the decking needs dismantling at a later date. Pre-screw the clips being sure to keep the drilling axis vertical. A discarded off cut can help support the drill in its vertical position (photo 2), or simply hold the clip between your index finger and second finger as shown in photo 1 so the clip doesn't move while screwing it in. Do not over tighten.

Once the board is in place, place the next board at an angle in order to slide it in under the clips (see Fig. E and F). If necessary, use a rubber mallet to knock the board into place. Once all boards are fitted, check the expansion spaces (see Fig. C and G) and screw all the clips

home taking care, meanwhile, not to pierce the clip itself (put the drill into lowest gear, and proceed at minimum speed). The screwhead must not be screwed right down into the clip, but should remain flush with its sides (see photo 4).

- When positioning boards end-to-end, be sure to position them so the expansion gap between them is at the center of the joist. Clips may be used at joints between boards, but they must be accurately centered. The screwhead must be apparent in the middle of the end gap (see Fig. G and photos 4 and 5). It is vital that clips are doubled up at the joints, and that joists are doubled up every third end-to-end joint.
- When installing, make sure the board presses up against the side-wings, but without compressing them (photo 5).
- A slope of 1% is recommended to enable water to run off the boards freely. Ensuring this slope is maintained, and good ventilation, will prevent water stains from forming.
- Each board end must be supported by a joist, and must be secured with 2 clips. If an overhang cannot be avoided, it should not exceed 2" (Fig. A).
- **A minimum of 3 contact points and 6 clips are required per board, whatever the length of the latter.** Any board less than 2 ft long should be supported by an additional joist, centered between the two other joists, and held by clips.
- Diagonal installations (boards placed at 45°): avoid damaging the flange running along the lower edge of the groove so the board cannot lift of its own accord. It is vital to provide maximum support at the end of the board by doubling up on both joists and clips.
- Mitre cuts, or layouts where boards are placed at right angles to one another. Remember to allow adequate play between boards to allow for expansion (refer to the expansion table).
- **Under certain circumstances, the boards may experience "walking". This may occur if a fastener is very tightly installed. In order to avoid this situation ensure that all fasteners are gently screwed in. You may also wish to fasten a screw at a 45° angle on the inside of the lower flange of the Geolam board at its midpoint. (Fig. H)**

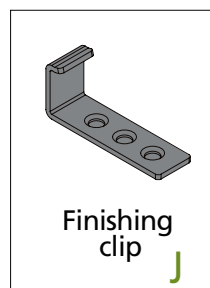
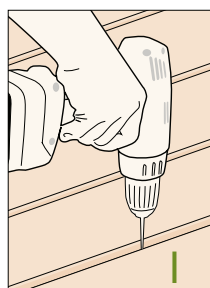
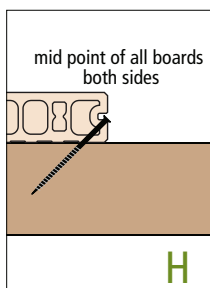
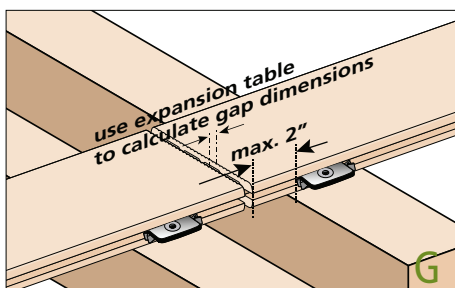
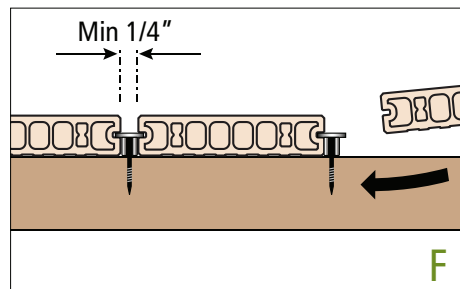
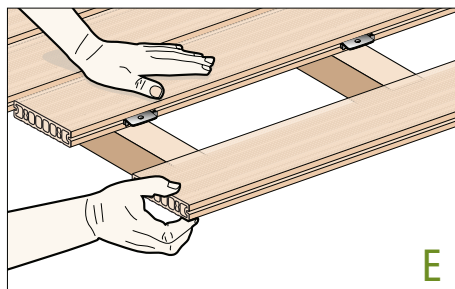
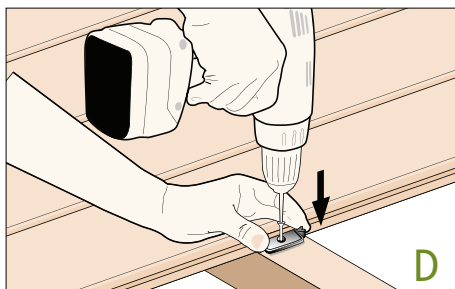
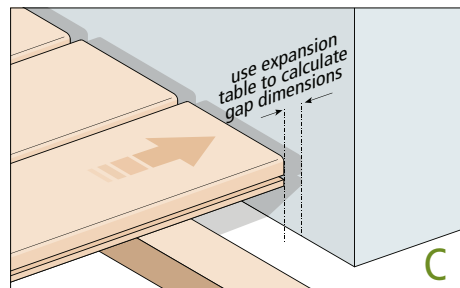
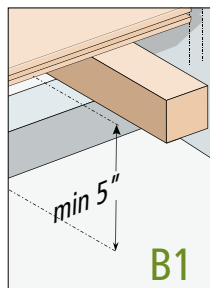
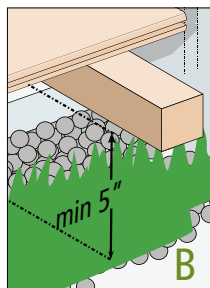
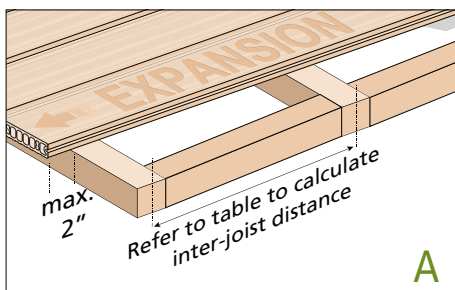


Expansion table

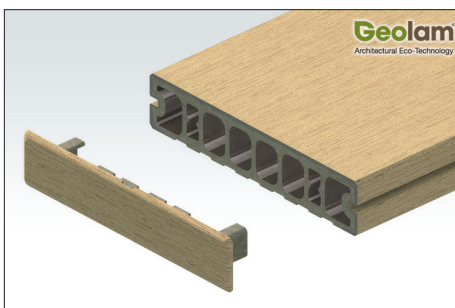
Temperature difference		Full board 12 ft
°C	°F	
10	18	1/4"
20	36	1/4"
30	54	3/8"
40	72	3/8"
50	90	1/2"

Eg. Install a board at 60°F. If maximum temperature is 100°, this will mean a temperature increase of about 40°F, so 3/8" must be left as an end gap between two 12 ft boards. Please note that each single board will expand 3/16" on each end.

Geolam® – installation diagrams A-K



Installing the end caps:



Advice when using Geolam®:

Geolam® boards are color-fast, even in strong sunlight. A slight variation in color may occur in the first few months following installation, but will stabilize after six months. This slight variation in color is normal, and only occurs on the surface of the boards.

Just as is the case for hardwood decking, the surface of boards can get very hot when exposed to long periods of strong sunshine. Dark colored surfaces will absorb the sun's rays to the greatest extent, and will therefore be hotter than light colored surfaces. Take care, therefore, in hot weather, to protect your feet, but above all those of children playing on a deck or terrace. Composite wood is vulnerable to fire, so any heat source should be used with care near the installation, and fires should never be lit directly on the surface. Although Geolam® is anti-slip, we still recommend taking care when walking on a wet Geolam® surface.

Take care not to overload decks or terraces, and distribute the weight of heavy objects evenly, taking due care at the outset to build an adequate structure to support heavy weights.

Take care not to pierce the boards with pointed objects such as the spike of a parasol. This can deform the surface or leave marks.

Wipe up spills of oils, organic solvents or fuel immediately. Do not leave rusting objects for long periods of time on a Geolam® surface, as they may leave stains that are difficult to remove.

You should not bite or lick Geolam®, even though its components are not harmful to health. Once a year, or after the passage of destructive natural phenomena such as heavy storms, tornadoes, or earthquakes, we recommend you inspect your decking to detect any resulting problems (detached screws, cracks or splitting) which could be a danger to users.

Taking care of your Geolam® decking:

Geolam® is a high quality product, and is relatively dense and water repellent. Substances that stain, if removed in time, cannot penetrate the board, and so stains remain on the surface and will fade with the passage of time.

Regular and periodic maintenance of your terrace or swimming pool deck will help preserve it and ensure its long life. A clean deck is one on which no-one will slip or fall. We recommend avoiding concentrated chemical substances when cleaning Geolam®. Always use soap, soft detergent, or a neutral washing-up liquid in preference to other substances. Don't wait for dirt to get entrenched on the boards, but wash it off with a hose or high pressure cleaner and soapy water.

- Always work in a longitudinal direction on boards.
- When embarking on any maintenance task, try the procedure out on a less visible area of deck, or a discarded board before applying to the main area.
- Lightly sanding the boards with very fine sandpaper can be the best solution for many of the problems described in the following paragraphs.

Black stains caused by dampness, fallen leaves, or decomposing material

Use a conventional cleaning product containing bleach (sodium hyperchlorite, to be used with full precautions as stipulated by the manufacturer) or detergent. Always try to remove stains before they become engrained. Use a floor cloth to rub the stain in a backward and forward movement, and along the grain of the board (i.e. longitudinally). For stubborn stains, use a stiff brush. Rinse thoroughly afterwards with plenty of water.

Rust and dirt

Any stain remover containing phosphoric acid can be used to remove traces of rust or dirt. For stubborn stains, try a rust remover. Use this kind of product with care, however. If necessary, use rough grain sand wrapped around a wooden block and sand delicately, without applying pressure, and in a longitudinal direction (photos 9 and 10). Rinse abundantly with water afterwards.

- After sanding, a slight discoloration can appear, but it will fade in time

Oil, coffee or food stains: cleaners containing lemon are effective for oil, coffee and food stains. Apply the cleaner (including acetone or alcohol type cleaners) as quickly as possible before the stain becomes engrained. If the stain persists, use a rough grain sandpaper wrapped around a block of wood to remove it, sanding delicately and without applying pressure, in a longitudinal direction along the boards (see photos 9 and 10). Rinse abundantly with water straight afterwards.

- After sanding, a slight discoloration can appear, but it will fade in time

Bloodstains, or other stains of organic origin: use iced water and wash the stains several times. If necessary, use a lemon based cleaner to clean away any residue.

Red wine stains: use soda water and allow to act for a few minutes. Do not allow the stain to dry out. Rinse thoroughly with water. Repeat this operation several times if necessary.

Water marks: in dry weather, pinkish stains may appear on your deck, especially if the installation instructions have not been adhered to, so that water does not run off, or if the deck is badly ventilated. To remove these stains, use a pressure hose with soapy water and dry the boards immediately afterwards using a rubber-edged 'squeegee' type of implement, or a dry rag.

Scratches or burns: use a rough grain sandpaper wrapped around a small block of wood and sand delicately, without applying pressure, and in a longitudinal direction along the boards (photos 9 and 10). Rinse thoroughly with water and a floor cloth.

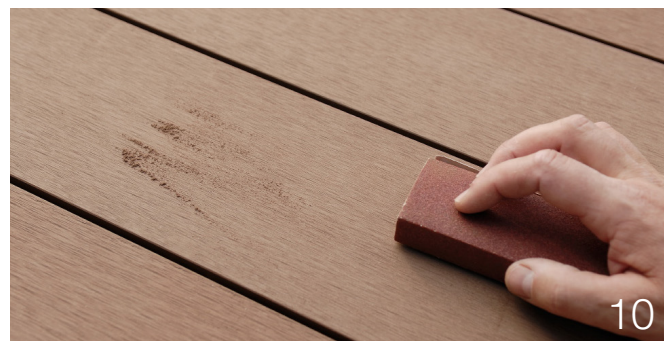
- Sanding can result in a slight discoloration, but this will fade in time.

Frost and snow: Calcium chloride or salt can be used to melt snow or ice on your decking.

Serious scratches or other damage: After a few years, in the same way as for an internal parquet floor, your Geolam® deck can be given a general overhaul. Thoroughly clean the deck with lots of water. The surface should be free of dirt or any extraneous objects before sanding it with a suitable band sander and a rough grain sandpaper (24) sanding just once and in the longitudinal direction, and without applying pressure (photo 11).

- Avoid using circular movements, as the area sanded in this way will have a slightly different appearance from the surrounding boards, depending on the type of sanding applied.

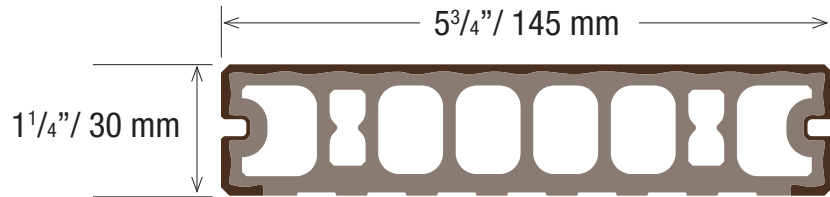
You can download these installation and maintenance instructions at www.geolaminc.com.



Qualita 020C DECKING COMMERCIAL AND PUBLIC INSTALLATIONS ON 24" CENTERS



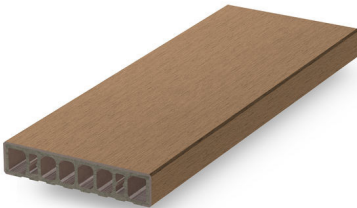
**STOCKED IN TEXAS
WAREHOUSE IN ALL
COLORS**



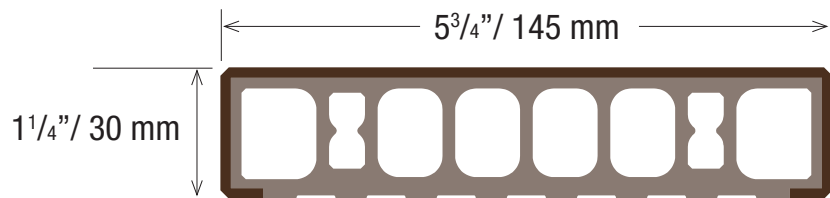
Qualita 020C

Thickness	1 1/4"
Width	5 3/4"
Length	12 ft
Weight/board	24 lbs
Surface	1 side smooth
Colors	Teak, Moleskin, Rosewood, Ebony
Maximum distance between supports	24"

Qualita 020E DECKING COMMERCIAL AND PUBLIC INSTALLATIONS ON 24" CENTERS



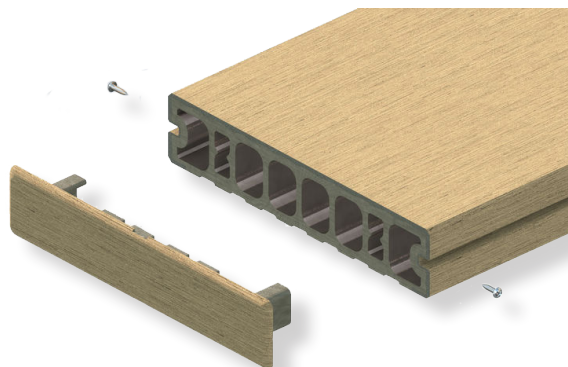
**STOCKED IN TEXAS
WAREHOUSE IN ALL
COLORS**



Qualita 020E

Thickness	1 1/4"
Width	5 3/4"
Length	12 ft
Weight/board	24 lbs
Surface	1 side smooth
Colors	Teak, Moleskin, Rosewood, Ebony
Maximum distance between supports	24"

End Caps



10-YEAR LIMITED WARRANTY

Extent of coverage:

This warranty is given to the original Purchaser of GEOLAM® wood plastic composite decking and/or cladding boards and/or hybrid aluminum/wpc boards. This warranty does not extend to fasteners that are not supplied by the boards' manufacturer.

Geolam, Inc. guarantees the Purchaser that, for a period of ten (10) years (the term) from the date of the original purchase, under normal use and service conditions, the GEOLAM® decking and/or cladding boards and/or hybrid aluminum/wpc boards be free from material defects in workmanship and materials, and will not split, splinter, rot or suffer structural damage from termites or fungal decay.

If such a defect appears during the term, Geolam, Inc. will, at its option, supply replacement product (but not the labour cost, freight, taxes or other expenses associated with de-installation and reinstallation) or refund the purchase in an amount not to exceed Manufacturer's cost of material.

How To File A Warranty Claim:

Purchaser must notify Geolam, Inc. in writing within thirty (30) days after the appearance of the defect, but no later than the end of the Term.

Purchaser shall send a brief written explanation of the defect, along with dated proof of purchase to Geolam, Inc., 9 Shorncliffe Avenue, Toronto, ON, M4V 1S9. Manufacturer reserves the right to request additional information, including, but not limited to, photos, and to conduct a field inspection.

Exclusion of limited warranty:

This limited Warranty does not cover product failure, product malfunction or any damages resulting from:

- (a) improper installation of GEOLAM® products and/or failure to comply with Geolam, Inc.'s installation instructions
- (b) beyond normal use, or in an application not recommended by Geolam, Inc.'s installation instructions and local building codes;
- (c) movement, distortion, collapse or settling of the ground or the supporting structure on which GEOLAM® products are installed;
- (d) any act of God (such as flooding, hurricane, earthquake, lightning, etc.), environmental condition (such as air pollution), or staining from foreign substances (such as dirt, grease, oil, etc.);
- (e) variations or changes in color of GEOLAM® products;
- (f) normal weathering due to exposure to sunlight, moisture, and atmosphere, and accumulation of dirt or stains;
- (g) damages of any kind caused by animals, domestic or otherwise;
- (h) improper handling, storage, abuse or neglect of GEOLAM® products by Purchaser, or third parties;
- (i) any fasteners not supplied by Geolam, Inc.; and

Failure to strictly adhere to Manufacturer's written instruction manual for the installation, use or maintenance of GEOLAM® will render this Limited Warranty null and void.

Limitations of remedies and exclusion of consequential and incidental damages

To the extent permitted by law, Geolam, Inc.'s liabilities are limited solely and exclusively to the obligations specifically specified herein and under no circumstances will Geolam, Inc. be liable or obligated for any incidental, consequential, indirect, special, punitive or any other damages of any kind whatsoever.

This writing is understood and intended to be the final expression of the parties' agreement and is **a complete and exclusive statement** of the terms and conditions with respect thereto, superseding all prior agreements or representations, oral or written, and all other communication between the parties relating to the subject matter of this agreement. No agent, employee or any other party is authorized to make any warranty on behalf of Geolam, Inc. in addition to that made in this agreement.

This warranty is effective for purchases made on or after May 1, 2011.